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Monnereau, I.

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The **Red Gold Rush**

The Impact of Governance Styles on Value Chains and the Well-Being of Lobster Fishers in the Wider Caribbean

Iris Monnereau
The Red Gold Rush: 
The Impact of Governance Styles on 
Value Chains and the Well-Being of 
Lobster Fishers in the Wider Caribbean

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in het openbaar te verdedigen in de Aula der Universiteit
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geboren te Amsterdam
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               Prof. dr. J. van Tatenhove

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# Abbreviations

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<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
<th>Description</th>
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<tbody>
<tr>
<td>BAS</td>
<td>Belize Audubon Society</td>
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<tr>
<td>CRFM</td>
<td>Caribbean Regional Fisheries Mechanism</td>
<td></td>
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<tr>
<td>CSO</td>
<td>Civil Society Organization</td>
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<tr>
<td>CACC</td>
<td>Costa Atlantica Communities and Conservation</td>
<td></td>
</tr>
<tr>
<td>DCS</td>
<td>Decompression sickness</td>
<td></td>
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<tr>
<td>EEZ</td>
<td>Exclusive Economic Zone</td>
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</tr>
<tr>
<td>FAB</td>
<td>Fishery Advisory Boards</td>
<td></td>
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<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
<td></td>
</tr>
<tr>
<td>FD</td>
<td>Fisheries Division of the Ministry of Agriculture of Jamaica</td>
<td></td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
<td></td>
</tr>
<tr>
<td>GNI</td>
<td>Gross National Income</td>
<td></td>
</tr>
<tr>
<td>GOJ</td>
<td>Government of Jamaica</td>
<td></td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System</td>
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<tr>
<td>HACCP</td>
<td>Hazard Analysis Critical Control Points</td>
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<tr>
<td>HVF</td>
<td>High Value Foods</td>
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<tr>
<td>ILO</td>
<td>International Labour Organization</td>
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<tr>
<td>IUU</td>
<td>Illegal, Unreported and Unregulated</td>
<td></td>
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<tr>
<td>JFCU</td>
<td>Jamaica Fishermen Cooperative Union</td>
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<tr>
<td>MPA</td>
<td>Marine Protected Area</td>
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<tr>
<td>t</td>
<td>Ton (metric ton) = 1000 kg or 2204.6 lbs</td>
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<tr>
<td>NRCA</td>
<td>Natural Resources Conservation Authority (Jamaica)</td>
<td></td>
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<tr>
<td>NGO</td>
<td>Non-Profit Organization</td>
<td></td>
</tr>
<tr>
<td>RFO</td>
<td>Regional Fisheries Organization</td>
<td></td>
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<tr>
<td>RAAN</td>
<td>Region Autónomo del Atlantico Norte</td>
<td></td>
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<tr>
<td>RAAS</td>
<td>Region Autónomo del Atlantico Sur</td>
<td></td>
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<tr>
<td>SCUBA</td>
<td>Self-Contained Underwater Breathing Apparatus</td>
<td></td>
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<tr>
<td>TNC</td>
<td>Transnational Cooperation</td>
<td></td>
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<tr>
<td>VSD</td>
<td>Veterinary Services Division of the Ministry of Agriculture in Jamaica</td>
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<tr>
<td>WECAFC</td>
<td>Western Central Atlantic Fisheries Commission</td>
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Prologue

Bildo dives into the crystal clear water off the coast of Belize with only his diving mask, swim trunks, and a pair of torn-up fins. Searching across the seabed, reefs and other promising patches, he looks for lobster, conch, and large finfish. He’s trained himself to hold his breath for minutes on end at depths of up to 25 meters, as no diving equipment is allowed in the Belizean lobster fishery. While barracuda, sharks, and giant manta rays glide by, he never ceases searching for the lobsters’ antennae sticking out from under a rock or coral.

Bildo has been a fisher for seventeen years and is accustomed to spending most of his time at sea rather than at home. He’s the captain of the sailing boat “La Princessa” and shares it with eleven divers and a cook. They sleep, work, and eat together for up to nine days at a time, and Bildo only returns home for two or three days to see his wife and five daughters before returning back to sea. The sailboat serves as the motherboat, while the fishers use small wooden dugout canoes to move from patch to patch. All divers on board work independently and pay four lbs. of lobster a day for their use of the boat. In addition, they share the costs of food, fuel, and the cook’s wages.

I had been dropped off at “La Princessa” by the coast guard, hours from shore, while they were conducting a conch survey, and ended up staying for the five remaining days of the fishing trip. I spend all day with Bildo in his wooden dugout canoe in the middle of the ocean. As we move from patch to patch, for hours on end, climbing in and out of this canoe in the choppy waters is one of the greatest challenges of the journey.

Upon my first arrival on the boat it appeared impossible that so many fishers could sleep on board for up to ten days at a time. However, after I had slept on board for a night and saw the manner in which fishers were scattered all over the boat, the sleeping arrangements became clear. Two in the very small hold at the rear of the boat, better known as “the kitchen,” two fishers up front, two in a hammock, one on a wooden plank, nearly falling out of the boat, and two on top of the icebox. When it rains more fishers will try and sleep in either the stern or the bow. If the weather is good, however, they prefer to sleep outside because of the space and the breeze. Privacy is a relative concept on board, as they all sleep so close together, as well as having to relieve themselves while perched on the stern (as they continue talking and cracking jokes while someone else is eating their breakfast).

I sleep in the bow, between Bildo on a thin mat and Video on a folded-out cardboard box. Video works his backpack under his head as a pillow and is out like a light. I can see the stars and feel protected rather than fearful. The fishers go out of their way to make me feel at home, and every day a few fishers bring back “precious” gifts for me, such as a beautiful shell, a nice undersized lobster to eat, or a pretty and tasty fish. They prefer fish to lobster they tell me. Nevertheless, we eat lobster for breakfast nearly every day on board: as fajitas, wrapped in tortillas, and fried together with rice. The lobsters consumed on board are all undersized ones, as all other lobster fetches good prices at the fishing cooperative at the end of the trip. They sell to a cooperative in Belize City which has an exclusive contract with the Red Lobster restaurant chain in the United States. The lobster we catch will be tailed by the fishers, and further processed and frozen at the cooperative. Most likely it will be eaten within a month or two by a consumer in the US indulging in a luxurious lobster dinner.
When one thinks of lobster in North America or Europe it is often pictured in a romantic setting, as part of an exquisite, candlelit dinner. The ancient crustacean\(^1\) has the image of a mouthwatering delicacy, just a step or two down from caviar.\(^2\) A lobster dinner is often considered a dish for special occasions, to be eaten at Christmas, when vacationing on the coast, or as the perfect occasion to propose marriage. Consumers in the United States (US) have been consuming increasing amounts of this high-end seafood product since the beginning of the twentieth century, in particular since the 1950s and 1960s. The increase in demand initially stimulated increased output by the national lobster industry, but as demand grew during the latter half of the century, this also stimulated lobster fishery worldwide. The increasing demand and high unit price for lobster on the international market, combined with new technological possibilities, resulted in lobster fishery development throughout the world, including in places where previously no commercial lobster fishery had existed.

Lobster fishery development in the Wider Caribbean region since the 1950s and 1960s should be seen in the light of these global developments. The commercial harvest of lobster was very limited until the international demand from the US stimulated commercial lobster fisheries throughout the region. Fishers increasingly built wooden lobster traps or used scuba gear to benefit from these new economic opportunities. Large freezer ships, known as reefers, went down to collect lobster tails, connecting the Caribbean fishers with American consumers. The increase in volume and value of the lobster from the Wider Caribbean region being traded since the 1950s at the international level reflects the fisheries growing openness to, and integration into, international trade.

This development fits with general global trends in rising fish consumption, production, and trade. Fish consumption increased from an average of 9.9 kg per person in the world in the 1960s to an average of 17 kg per person in 2007 (FAO 2008). North America, Europe, and Asia showed the largest increase in fish consumption in this period. Surging fish consumption was accompanied by a vast surge in fish production worldwide. The industrialization of the world’s oceans (Bavinck 2011), also known as the \textit{blue revolution},\(^3\) took place in a little over a century, but with the most rapid fishery development taking place since the 1950s. This was the result of the combined effects of increasing populations and wealth, new technological possibilities, freezer facilities, urbanization, dietary changes, and the expansion of seafood markets, and consumer demand for fish and crustaceans (Bavinck 2011; Hersoug 2004). As a consequence, the total world fish production from marine capture fisheries increased from 17 million metric tons (Mt) in 1950 to 92 million Mt in 2005 (FAO 2008).\(^1\)

Fish is a very perishable commodity and, therefore, even at low levels of productivity, there is an inherent tendency for fish to be traded sooner than livestock or agricultural products (Kurien 2005: 2). Evidence suggests that fish has been traded since at least the Bronze Age (Kurien 2005: 2;

\(^{1}\) Lobsters are “biologically so much older than mammalia that they might as well be from another planet” (Wallace 2005). In 1995 the fossil crustacean record was broken by the discovery of a 110 million-year-old fossil near El Espinal in Chiapas, Mexico. The fossil was encountered among the remains of several ancient fish and crustaceans found in the tiny town, and it is claimed that this region could be where the evolution of modern lobsters began. National Geographic, 2007-05-03.

\(^{2}\) Lobster dinner costs up to USD 35-50, while caviar can cost over USD 3,000 per pound for the final consumers (see \url{http://www.affordablecaviar.com/imperialgoldenosetracaviar/}). At the import level, caviar is traded (2010) for on average USD 513 per pound.

\(^{3}\) Bailey (1985) first used the term “blue revolution” to refer to technological developments in tropical fisheries (cf., McGoodwin 1990).
Zohar et al. 2001; Thorpe et al. 2005). Though the fish trade itself is thus not a new phenomenon, the size of the current fish trade is unprecedented. Seen in the context of the global internationalization of the food trade, the case of fish is particularly striking, as, since the 1950s, the fish trade has seen a remarkable increase (Kurien 2005, 2010; Oosterveer 2005). Fish, in fact, has now become earth’s most traded primary food product (FAO 2005: 3). International seafood trade increased from 25 percent in 1976 to 39 percent in 2008 (in volume). In value; however, the international fish trade between 1980 and 2008 rose from USD 6.1 billion in 1980 to a record value of USD 102 billion in 2008, almost double the USD 51.5 billion corresponding value in 1998 (FAO 2010: 10).

This rise in fish trade has been aided by structural changes in the fishery sector, including the growing globalization of the fisheries and aquaculture value chain, and by the outsourcing of processing to countries where comparatively low wages and production costs provide a competitive advantage (FAO, 2010: 47) The overall increase in international fish trade was furthered by the increasing consumption of fish products, trade liberalization policies and globalization of food systems (ibid.) The movement of fish from local consumption to international markets was further facilitated by improvements in processing, packaging, transportation and changes in distribution and marketing significantly changed the way fishery products were prepared, marketed and delivered to consumers (Ibid.).

The total net export revenues from fish exports earned by developing countries reached USD 24.9 billion in 2006. These net revenues for developing countries from the fish trade were greater than the net exports of other agricultural commodities—such as rice, cocoa, tobacco, and tea—combined (Kurien 2005). Fisheries’ exports thus provides substantial foreign exchange for national governments in developing nations (Kurien 2005), but also additional revenues from taxation, license fees, and from fees paid by foreign ships for access to resources (Allison 2011: 6).

As a reflection of the increased fish production and fish trade, the number of fishers worldwide rose from 12.5 million to 44.9 million in the period 1970-2008 (FAO 2010: 6). Taking dependents into account—on average three per person—the primary and secondary sectors provide livelihood and employment to approximately 540 million, or nearly eight percent of the world population (FAO 2010: 7). Of the global number of fishers, 97 percent live in developing countries (Pomeroy and Andrew 2011: ix).

Japan, USA, and the EU are currently the world’s main importers of fish and other seafood products, and these three markets alone represent 72 percent of total world imports by value and 52 percent by volume (FAO 2008). Developing countries account for nearly half of the world’s fish

---

4 During this age Nile fish was already traded all over the Mediterranean and reached as far as Lebanon, Cyprus, and Jordan (Arndt et al. 2003: 1102-1103). In Roman times fish was so prestigious that many Roman noblemen would keep ponds stocked with rare fish, and the best fish were worth their weight in silver; their desire for seafood supported a large commercial sea fishing fleet in the Mediterranean (Robert, 2007: 19). After having wiped out the fresh water fish between 1000-1100 A.D. (Roberts 1997), Europeans took to the sea to fish, both for consumption and for trade (Kurlansky 1997). Dried cod enabled the Vikings to fish the northern hemisphere for centuries, marketing it to other parts of Europe (Kurlansky 1997). When John Cabot visited Newfoundland in 1497 and supposedly “discovered” this part of the world, he noticed 1000 Spanish cod fishing vessels lying in port. The development of salting techniques had made it possible for the Basque fishers to explore these rich banks off of Newfoundland to satisfy the European market. Although they had been frequenting the region for centuries, in order to safeguard their productive fishing grounds off Greenland, they had kept the location and the newly discovered lands a secret (Kurlansky 1997).

5 For each person employed in the primary sector, it has been estimated that there are three people employed in the secondary sector (including fish processing, marketing, and service industries of seafood).
production; four out of the world’s five largest producers in the world are currently China, Peru, Chile, and Indonesia.

The same division applies to lobster fisheries in an even more extreme way, as the majority of consumers are in the developed world, while a large portion of lobster producers are in the developing world. Within the growing global fish trade, there has been a tendency towards increased consumption of High Value Foods (HVF s). In the seafood industry, HVFs relate to products such as tuna, shrimp, lobster, and white fish (Platteau 1989; Delgado et al. 2003). Crustaceans from capture (as opposed to from aquaculture)—mainly comprising shrimp, prawns, crabs, and lobster—make up the smallest capture fisheries commodity group in terms of weight, but have the highest unit value, and are second only to high-value finfish (such as tuna, cod, salmon, and trout) in overall export value (Delgado et al. 2003).

The growing demand for lobster from the Wider Caribbean therefore fits in with these global developments. There are lobster consumers in 60 countries worldwide, mainly found in high-income areas such as North America (US and Canada), Western Europe (UK, France, Belgium, Spain, Italy, and the Netherlands) and Asia (mainly Japan, Hong Kong, and South Korea) (Pinfold et al. 2010). The world’s largest lobster producers are: the US, Canada, the United Kingdom, Australia, the Bahamas, Brazil, Ireland, Cuba, and France (Chetrick 2006). From a regional perspective, the Caribbean spiny lobster (Panulirus argus) is the species most imported into the US (Chetrick 2006). Despite the drop in demand for, and resulting prices of, lobster due to the global economic crisis (Chetwick 2006), lobster demand is expected to rise again in the near future.

Spiny lobster is highly abundant throughout the Wider Caribbean region, and in combination with its high unit price on the international market, lobster has developed into the region’s single most important fishery species. The annual value of the lobster fishery in the region is approximately USD 500 million. As lobster in the Wider Caribbean is mainly fished for the export market, it provides substantial foreign exchange and additional revenues from taxation and licensing. In addition, the fishery provides livelihood and employment opportunities on a large scale. There are some 50,000 lobster fishers active in the region, with an additional 200,000 people working in positions related to the lobster fishery (FAO 2003b). If for every person involved in the lobster industry in the Wider Caribbean, another three dependents are estimated, the number reaches approximately 750,000 people with ties to the industry.

Considering the benefits both at the national and local level for livelihood and employment and foreign exchange, lobster fishery can be expected to provide opportunities for countries in the region to alleviate poverty and achieve well-being for fishers. Yet, the extent to which the lobster fishery in the region has in fact enabled fishers to achieve well-being, and to reap the benefits of this international trade, remains unclear. Although the lobster fisheries in the region harvest an identical species, have evolved over a similar period of time, and all export lobster to a similar end market, the well-being of lobster fishers throughout the region appears to be highly diverse.

At the far end of the chain in the US, the consumer eating a lobster tail in, for instance, a Red Lobster restaurant, will most likely be unaware of the extreme variety of conditions under which the

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6 There are four main species or species groups of lobster worldwide: American, Spiny, Rock, and European lobster.
8 Ibid.
9 Ibid.
lobster is harvested. The “grilled in butter-garlic sauce” lobster tail on the plate doesn’t reveal whether it has been caught by a lobster fisher in Belize who works independently, with relatively high benefits and safe working conditions, and with great influence on fishery management decision making, or by his Nicaraguan colleague a few hundred kilometers away, whose remuneration is lower, who faces a large chance of physical disability and has very little power over decision making.

It’s exactly this discrepancy in fishers’ well-being and in the underlying causes for this state of affairs that is the focus of this research. This study focuses on the question, to what extent lobster fishers in the Caribbean region are actually able to benefit from the international lobster trade and what factors are important in enabling fishers to achieve well-being, or are constraining them from doing so. This question relates to a larger debate about the actual opportunities for reducing poverty and stimulating local development that international trade provides for developing countries, and whether the gains in fact benefit local communities and national economies (Smakman 2003, Wade 2004; Kalb et al. 2004; Basu 2006).

Although the majority of fishers live in the developing world, and more than half of the fish traded globally is produced by developing countries, the extent to which the fish trade can actually provide potential for developing countries to reduce poverty, stimulate local development, and whether the gains in fact benefit local communities and national economies, remains debated (Béné et al. 2010, Wade 2004; Kalb et al. 2004; Basu 2006; Thorpe and Bennett, 2001). Furthermore, overall fish consumption is expected to rise in all major markets, in developing countries and developed countries alike (Schmidt 2003), thus providing the opportunity to increase the economic potential for fish-exporting countries in the developing world.¹⁰

The proponents of the positive view of the globalization of trade advocate that the proportion of the world’s population living in extreme poverty has fallen over the past two decades, precisely as a result of economic globalization (Goklany 2002; Wade 2003). In the classical economists’ view, free trade and the progressive extension of the market will increase profits in a country and lead to a more efficient international division of labor, as countries may specialize in certain activities (Visser and Van Dijk 2006: 464).¹¹ This will result in economic growth and in turn lead to a reduction in poverty. Although the proponents acknowledge that globalization has resulted in “winners” and “losers,” they argue that the gains outweigh the losses and that the last are only “temporary,” as these losses are necessary in the short run to make advances in the future (Smakman 2003).

The FAO argues that “trade can generate the direct and indirect means to achieve food security and raise living standards for all those involved and linked up to it” (Kurien 2005: 1). This positive view of globalization is by far predominant and has been adopted by developing and developed countries’ governments, transnational corporations, international agencies, and academics

¹⁰ The increase of developing countries’ share in fish production has in part been due to the common extension of the exclusive economic zone (EEZ) to 200 nautical miles (NM) as from 1977 (Schmidt 2003). The extension of the EEZ led to the development of fisheries in developing countries that hitherto had not shown interest in the “industrialization” of the fishing industry. Up till then, the small-scale fleets present in developing countries were often unable to technically exploit the fishing grounds in distant waters that became national with the introduction of the extended EEZ (Schmidt 2003).

¹¹ These thoughts originate from publications by classical economists, such as Adam Smith’s The Wealth of Nations (1776) and Ricardo’s Principles of Political Economy and Taxation (1817), that argued that free trade and the progressive extension of the market increase the rate of profits in a country, and lead to a more efficient international division of labor.
(mainly economists) working in the neoclassical, liberal tradition (Smakman 2003). In fisheries this view has been commonplace in institutions such as the World Bank. “Rather than being a net drain on the global economy, sustainable fisheries can create an economic surplus and be a driver of economic growth” (World Bank 2009).12 It is argued that the output of fisheries will provide livelihood and employment opportunities for fishers and provide direct foreign exchange needed by national governments to import food and other resources (Kurien 2005: 39).

At the other end of the spectrum, there are those who see no indication of declining inequality as a result of the globalization of trade and who believe the world economy and international trade are associated with both wealth as well as widespread poverty (FAO 2005: 456). In this view, globalization and local development in developing countries are associated with growing inequality, both between and within countries, and with the exclusion of many (Kaplinsky 2000; Wade 2003; Ponte 2002; Kaplinsky and Morris 2001: 17). While it generates enormous rewards for some, the conditions for a wider and fairer sharing of these benefits are yet to be realized. International trade in this view can consequently be both free and unfair (Kurien 2005). Some academics, activists, and non-governmental organizations (NGOs) thus express strong reservations regarding the real benefits of open economies and trade for developing countries, in particular in relation to agricultural commodities which usually represent a major part of their exports (Ponte 2002; Béné et al. 2010).

Scholars argue that the global fish trade involving developing countries has not necessarily translated into increased human development (Arbo and Hersoug 1997; Kurien 2004; 2005; Hersoug et al. 2005). Fishers might not actually reap the benefits of the global fish trade and it is argued that trade can negatively affect food security, local economies, and livelihood options for the poor (Ruddle 2008; Kent 1997). This could perhaps be a result of overexploitation, as developing countries have sold fishing licenses to foreign fishing fleets to fish in their waters, while their population reaps very few benefits (Ruddle 2008; Alder and Sumaila 2004). Alternatively, benefits derived from the fish trade might also be lost if only a small number of firms or foreign investors dominate the high-value market chain, and those down the chain do not benefit equally (Wilson and Boncoeur 2008, in Béné et al. 2010). Globalization processes in fisheries following World War Two have also led to global overcapacity and resulted in overexploitation (Thorpe and Bennett 2001). Marine fisheries in general, and particularly export-based fisheries in developing countries, are principally vulnerable to overexploitation (Thorpe and Bennett 2001: 144). FAO estimates that 60 percent of all fish stocks are either fully exploited or overexploited (FAO 2010). The fact that capture fisheries are in severe crisis (FAO 2010; World Bank 2009; Myers and Worm 2003) could also negatively affect the food security of fishers and potentially increase poverty rather than reduce it.

Béné et al. (2010: 948) concluded, from a large study conducted in Sub-Saharan Africa on the national effects of international fish trade, that although the fish trade generates millions of dollars annually and the profits at a macroeconomic level are undeniable, it does not lead to significant increases in either economic or human development at the country level (Béné et al. 2010: 948). There is little indication that the fish trade in this region has affected the population, and in particular the small-scale fishers and traders who make up the majority of the sector. Béné et al.

Kurien (2004, 2005), and Hersoug (2004) therefore argue that the effects of the increased international fish trade cannot be assessed on a global level, and that a national and subnational analysis is essential to understand how trade is affecting the various groups involved (Abgrall 2003; Hersoug 2004; Béné et al. 2010; Kurien 2004).

It is exactly this question of the potential of the lobster trade for developing countries that forms the heart of this thesis. I argue that the lobster fishery in the Wider Caribbean provides an excellent starting point to investigate the opportunities provided by global trade for local producers to achieve well-being and to investigate the factors that either stimulate or constrain this end. The lobster fishery in the region has, from its onset, focused nearly exclusively on the export market. The lobster species harvested is identical throughout the region and the end market relatively similar. Lobster chains, running from the harvest by fishers in the Wider Caribbean to consumers in the US, thus might share many commonalities. Yet, as attainment of well-being across the region is highly diverse, one might expect lobster chains to show differences in chain structure and governance, resulting in differences in the insertion of fishers in the lobster chain. The international lobster trade thus cannot solely explain the existing differences, and I will turn to the societal embedding of lobster fisheries at the national level to analyze and explain this discrepancy. Analyzing the different fisheries governance regimes at the national level is crucial and leads us to recent debates on fisheries governance.

The governance of fisheries, particularly within the developing agendas of countries, is a critical issue and hot topic of research (see Kooiman et al. 2005; Cash et al. 2006; Jentoft 2007; Mahon et al. 2008). The assumption is that certain governance styles favor—both directly and indirectly by means of fishers’ insertion in the lobster chain—the achievement of well-being of fishers, whereas others hamper fishers’ ability to achieve high levels of well-being. Different lobster fisheries governance styles can be hypothesized to impact lobster chain governance differently, as well as the structure and the ability this furnishes fishers to achieve well-being. Some governance styles, such as co-governance, are considered to provide better opportunities to fishers inserted in international fish chains than others (Jacinto and Pomeroy 2011).

The central research question of this thesis is:
What is the social impact of varying governance arrangements and lobster chains on the well-being of lobster fishers in the Wider Caribbean?

Subquestions:
A) What are the differences and similarities between the current governance arrangements in the three research locations?
B) What are the differences and similarities in the structure and dynamics of the lobster chain from the local to the international level in the three research locations?
C) What are the differences and similarities in well-being of fishers in the three research locations?

To answer these questions I will draw on three theoretical approaches: the governance approach, the Global Value Chain (GVC) approach, and the well-being approach. These concepts, their operationalization, and the scientific debates from which they stem will be discussed in more detail in Chapter 1.
The setting of this research

Lobster fisheries have developed throughout the Wider Caribbean region since the 1950s and 1960s directly as a result of technological innovations and an increasing demand from the US. Although lobster fisheries in the region developed during a similar period, the historical socio-political and economic traditions are distinct. The Wider Caribbean region is geopolitically highly complex, with perhaps the greatest concentration of countries and associated states anywhere in the world. These range in size from extremely small to very large, and from the poorest to the richest. Nevertheless, many similarities are found in the region (Gwynne and Kay 2004: 67). From the outset of European colonialism the region has been completely outwardly oriented and economically dependent on a few primary product exports, such as coffee, bananas, sugar, meat, cotton, and citrus products. The model of development has been one of peripheral capitalism and external dependence (Grugel 1995). The most important characteristics of the Caribbean development model can be summarized as: (1) the smallness of the economies; (2) their acute economic vulnerability; (3) their location on the periphery of the international system; (4) the excessive influence of external agents; and (5) a tendency towards extreme concentration of power internally (Grugel 1995: 3). In addition, the Wider Caribbean can also be seen as environmentally vulnerable as many are Small Island Developing States (Boruff and Cutter 2007), also referred to as SIDS.

The Wider Caribbean region is, in comparison to Latin America, economically vulnerable, as it is significantly more trade-dependent, less industrialized, and depends to a larger degree on the United States (Gwynne and Kay 2004). The trade dependency is mostly in relation to the US, as this country has emerged as the region’s “political and economic hegemon” since the beginning of 1900 (Gwynne and Kay 2004: 73). Imports and exports are mainly from and to the US, and few countries have been able to pursue a non-capitalist path (Gwynne and Kay 2004; Grugel 1995). This strong dependency on the US has resulted in less autonomy for countries in the region in comparison to larger countries in South America (Gwynne and Kay 2004: 73).

Both the Caribbean region and Central America have inherited a highly unequal distribution of agricultural land, and rural peasants and small farmers have had few possibilities to expand production and income because of state policies (Gwynne and Kay 2004: 73). Since the 1970s the limited numbers of primary export products have suffered from the deteriorating terms of trade. This trade has often added little to support the basic needs of the large majority as they are not land owners. Current development policies in the region focus on attracting foreign investors to generate new exports, and date back to the debt crisis of the 1980s, whereby Import Substitution Industrialization (ISI) economies were exchanged for a more neoliberal approach (Gwynne and Kay 2004). In view of increasing globalization, it has been claimed that regions such as the Wider Caribbean can find new export markets, yet market niches are argued to be narrow, highly competitive, and loaded with obstacles (Gwynne and Kay 2004: 78). Although most countries in the region are democratic, this “is expressed differently from country to country in accordance with factors such as inherited political traditions, the influence of interest groups in the political system,

13 The region’s high levels of trade dependency differentiate the way neoliberalism has been applied in the region, in comparison to the rest of South America, as it has put increasing pressure on the already highly trade-dependent region to export even more. The region’s low levels of production and industrialization have also contributed to the region’s status in the world as being “peripheral” (Gwynne and Kay 2004: 72-73). The countries also rely heavily on imported industrial and commercial goods and on foreign capital and expertise to feed their populations, service industry, and finance internal capital expansion (Grugel 1995)
the social structure and the nature and depth of social and political conflicts” (Grugel 1995: 111). It’s exactly these differences which are of interest to this study.

This research compares three different lobster fishing countries in the region: Belize, Jamaica, and Nicaragua. These three countries are in the same region and share the fact that in all three countries lobster makes up the most valuable seafood export product. At the same time, the inherited sociopolitical and economic traditions are distinct. The three countries selected in this multiple-case study have therefore been chosen based on their diverse set of governance styles. Departing from these differences in governance style, I am able to compare the impacts of these different governance styles on the structure and governance of the lobster chain and the well-being of fishers in the three countries involved.

Map 1: Location of Belize, Nicaragua, and Jamaica, and their capitals.
Source: UvA Kaartenmakers

Outline of thesis
The figure below serves as a roadmap for the thesis, which consists of eight chapters. In the Prologue I give an introduction to the research subject, the central question, and the setting of the study. Chapter 1 discusses the main concepts of this thesis, their operationalization, and the scientific debates from which they stem. In addition, this chapter will discuss the research questions, the different research methods used for data collection, and the limitations of this research. Chapter 2 is a contextual chapter providing a background to lobster appreciation, consumption, and lobster fisheries development worldwide. It also gives a description of the historical trajectory and market development of the lobster fisheries in Belize, Jamaica, and Nicaragua. Chapter 3 analyzes the governance arrangements found in Belize, Jamaica, and Nicaragua, focusing on both the overlaps as well as dissimilarities between the three countries. Although the role of the market is discussed in this chapter, it is discussed in more detail in Chapter 7. Chapters 4, 5 and 6 provide in-depth analysis of the well-being of fishers in, respectively, Belize, Jamaica, and Nicaragua. Each chapter will focus on three dimensions: material, relational, and
subjective well-being. It examines how different fishing groups achieve well-being differently and shows how this achievement is connected to the societal embedding in which the different fishers operate.

Chapter 7 maps the structure and governance of the lobster chain from the local to the international level in the three countries. It analyzes the input-output structure, geographical range, and the chain governance of the various lobster chains, and thus explores the differences and similarities across the three chains.

Finally, the concluding chapter provides an integrated analysis of the main research findings by answering the key research questions. It will interpret these findings to analyze how this knowledge contributes to our understanding of fisheries governance, fish chains, and the well-being of fishers.

Fig. 1: Thesis structure.
Chapter 1: Governance, global value chains and well-being: an introduction

Introduction

Overexploitation and unsustainable practices in fisheries during the last decades have been well documented (World Bank 2009; Myers and Worm 2003; Pauly 2008). Due to the decline in marine resources, the focus of policy makers in the 1980s has shifted from development to management of fisheries (Symes 2006). This shift, however, did not prevent an even further decline, and the global fisheries crisis and conflicts within fisheries suggest that there are serious problems with current management practices, requiring new fisheries governance (Kooiman et al. 2005).

The hegemony of biological and economic approaches to fisheries management until the 1990s, and their continued dominance (Béné et al. 2010), has generally downplayed social relational insights (Coulthard et al. 2011). Yet the social sciences are criticized for using simplistic, reductionist models to base their analysis of decision making on (Symes 2006). While maritime anthropology and sociology are argued to be as old as conventional science-based management, what is new is the attempt to incorporate this knowledge into conventional fisheries management (Symes 2006).

Kooiman et al. (2005) and Bavinck et al. (2005) argue that new governance systems need to be sought to counter the degradation of marine resources, while simultaneously improving the lives of those who most depend on the resource. Development of fisheries governance as a tool to eradicate hunger and poverty, while simultaneously enhancing or at least not aggravating fisheries resources, is highly complex. This is not in the least because fisheries and coastal systems are considered to be intrinsically diverse, complex, and dynamic systems (Kooiman et al. 2005; Jentoft and Chuenpagdee 2009; Bavinck et al. 2005).

While the fact that fisheries are becoming increasingly overexploited is generally agreed upon, the reasons for this state of affairs and how to solve it is often cause for fierce debate. To solve the problem of overexploitation, while also improving the lives of those who depend on the resource, is even more difficult, as those involved in fisheries governance often have considerably different views, as problem perceptions and definitions are social constructs (Jentoft and Chuenpagdee 2009: 554). Scientists from different disciplines, policy and decision makers, NGOs, fish processors and traders, small-scale and industrial fishers, and others involved in the fisheries often possess different views of the causes of increasing marine overexploitation, the culprits, the victims, and the types of solutions.14

The differences often relate to the role of the state, market, and civil society in fisheries governance, and the interaction between these different sectors. These interactions can be expected to differ substantially across sectors, regions, and countries. The center of gravity between the state, market, and civil society will thus differ. I therefore expect the outcome of fisheries governance to differ across countries, and the aim of this thesis is to contribute to this debate by comparing different lobster fisheries governance styles in three

14 See Dryzek, 1997 “Politics of the Earth” for an excellent classification system of environmental discourses.
different countries, and examine the impact thereof on the lobster chain and the well-being of lobster fishers.

In this chapter I will discuss the three main theoretical concepts that underlie this thesis: fisheries governance, global value chain analysis, and well-being. This chapter explores the development and the application of these three main concepts. All three concepts stem from different theoretical discourses and backgrounds and are used in a variety of social sciences. In addition, this chapter will discuss the conceptual framework, the different research methods, choices of research, and the limitations of this research.

1.1 Fisheries governance

Governance has become a key concept in the academic debate over the past decades, and a catchword in the social sciences, as well as in the policy world (Peters and Pierre 2001; Marinetto 2003; Nuijten 2004; Kooiman and Bavinck 2005). The term stresses the importance of other actors besides the state in governing social and economic processes at the local, national, and international level (Peters and Pierre; Kooiman and Bavinck 2005: 14; Kooiman 2003). Governance therefore does not refer to either public or private actors, but to their shared efforts, and takes place at multiple levels (from local to supra-national). Governing activities are becoming diffused over various societal actors, whose relationships with each other are constantly changing (Kooiman 2003: 3). It refers to the interaction between market parties, public parties, and civil society. These new forms of governance can be: network-like arrangements of the public and private actors; coalitions between business organizations and NGOs; and public-private and civic-private partnerships (Van Leeuwen and Tatenhove 2010).

The concept of governance differs from management as it “is a more inclusive concept, which invites a more reflexive, deliberative, and value-rational methodology than the instrumental, means-end-oriented management concept” (Jentoft 2006: 672). According to Jentoft and Chuenpagdee (2009: 555) management is a technical issue, whereby a set of tools can be used to solve a concrete task, and where the goal is clear and the outcome measurable (Jentoft and Chuenpagdee, 2009: 555). Governance thus differs from management as it “is a more inclusive concept which invites a more reflexive, deliberative, and value-rational methodology than the instrumental, means-end-oriented management concept” (Jentoft 2006: 672). Fisheries management is thus a political issue “and must, accordingly, relate to conflicting interests, values, and world views” (Jentoft and McCoy 1995: 227).

Governance is both an analytical as well as a normative concept that refers to how things are and should be (Kooiman 2005; Kraan 2009). In this research I follow the definition of Kooiman et al. (2005: 17) who define governance as “the whole of public as well as private interactions taken to solve societal problems and create societal opportunities, including the formulation and application of principles guiding those interactions and care for institutions that enable them.” In addition to this, I follow Peters and Pierre, and add that governance takes place at multiple levels: the international, national, and subnational (2004: 77). In the realm of fisheries governance the term refers to international-level governance (e.g., FAO, or regional bodies such as the WECAFC), national level governance (e.g., state, NGOs, and market parties), and local level governance (e.g., sea tenure systems by fishers).

Between the different schools of thought concerning the term governance, the differences usually revolve around the role of the state (Kooiman et al. 2005). The change
from government to governance stems from a shift in perspective of the policy-making process in the 1970s and 1980s, as during this period the perceived ability of the state to effectively manage policy came under question (Nuijten 2004). The shift involved a partial transfer of responsibility and authority for policy decisions from the central agencies of government to networks of public and private bodies at national, regional, and local levels, a process referred to sometimes as “hollowing out the state” (Symes 2006).

While power was partially transferred to lower levels, governments’ control over international and transnational affairs has also been curtailed by global interdependence (Krahmann 2003: 330). Global actors such as Regional Fisheries Bodies have gained importance in fisheries governance at the national level. Nevertheless, the extent to which the role of the state is decreasing remains disputed (e.g., Peters and Pierre 2001). Kooiman (2003: 3) states that the role of the government has become more that of a facilitator and cooperating partner, and it is therefore appropriate to speak of shifting rather than shrinking roles of the state. This doesn’t imply that the traditional role of the state is outdated, but rather implies a growing awareness of the limitations of traditional governance by the state on its own (Kooiman 2003: 3).

When we look at the role of the state, however, we need to acknowledge that states are very complex entities, and do not consist of a simple set of government agencies and functions that are clearly marked off from the rest of society (Sharma and Gupta 2006). The state itself is by no means harmonious, and states are internally complex and composed of many agents at different levels. The many politicians and bureaucrats in modern states are often at odds with one another. “The state apparatus is not a streamlined organization with clearly defined internal and external boundaries, mandates and standardized working procedures” (Jentoft et al. 2005: 175). Compared to the states of Europe and North America, the states of the South are sometimes unstable, and either have a deficiency or an overload of authority. In line with Jentoft et al. (2005: 175), I agree that states in developing countries are frequently perceived to be less “‘democratic,’ insufficiently transparent, and prone to an overdose of corruption” (ibid.). Hersoug (2004: 47) rightly states that the state apparatus in developing countries is often “weak, with little control over what is happening on the extreme periphery.”

Yet, the role of the state in a country will not just “happen,” it will typically vary in accordance with the prevailing situation in a particular country and a specific industry. For example, in countries that lack a strong class of traders, the state might take on important functions related to catching, processing, and marketing of fish, whereas in countries where the trader class is strong, this will be carried out without much state involvement (Hersoug 2004; Thorpe et al. 2005). Thorpe et al. (2005b: 214-215) rightly argue that “the extent to which the fisheries sector (or any sector) is nested in national development strategies, will depend upon the economic, socio-political, structural and cultural contexts relating to specific national environments.” What importance a state gives to the fishing sector in general, and what goal(s) of fisheries it supports, and the type of benefits it attempts to derive from the sector can thus differ substantially across nations. These different goals according to Bailey and Jentoft (1999), mainly are: food security, livelihood and employment, and generating foreign exchange and other tax income. These goals are, however, often difficult to match and may in fact conflict with each other (ibid).
Thorpe et al. (2005b) argue that the sector has a greater probability of inclusion in the national development strategies if the fisheries’ contribution to the overall economy is greater. One can state that “if fisheries are economically important, they get special treatment” (Jentoft et al. 2005: 175). Thorpe et al. (2005b) point out several factors that determine whether fisheries are mainstreamed into the national agendas. These items are also important in this research when looking at lobster fisheries governance in the Caribbean. They list: 1) distribution of fishing activity between industrial and small-scale—and the extent to which the control of fishing activity is concentrated in companies (or cooperatives) or diffused among individual fishers; 2) the extent to which said fishers and fishing companies are effectively organized into producer organizations or trade associations; 3) the interdependence between the fisheries sector and other industries (such as food processing and tourism), thereby permitting concentrated actions around common concerns; and 4) the degree and nature of external influence, manifested through international agreements, foreign ownership or co-ownership of fishing companies, etc., upon national development discourses.

Yet, the state cannot function without support from both the market and civil society. “In most coastal developing countries, the state has limited capacity to fulfill a comprehensive role in fisheries governance. Sharing the burden of management with markets and civil society may therefore be a way out” (Jentoft et al. 2005: 179). Besides the “sharing the burden” with other actors from civil society and market parties, states are also frequently subject to pressure from powerful private interests and lobby groups, making governance a highly political affair (Jentoft 2005: 150).

As Jentoft rightly argues, “in reality governments institutions are often ridden with internal conflicts, vested interests, and in some instances corruption. Frequently they are also under pressure from lobbyists, multi-nationals and other powerful economic interests that may distort the state’s ability to exert reasonable decisions from a collective perspective” (Jentoft 2004: 145). Van Hoof and Tatenhove (2009: 727) argue that power inequalities affect the mobilization and deployment of the available resources of different groups involved in governance, and also influence who determines policy outcomes and how. Power in this sense can therefore be contradictory; it can be used as a positive, constructive, and hence legitimate force, but can also be a negative and disruptive element, for instance, if captured by special interest groups. These power inequalities are difficult to investigate yet can profoundly influence the governance outcome.

The relations between state and market can be viewed from a Business Systems Approach (BSA). This was developed at the end of the 1990s by Whitley (1999), and was originally used at the national level to explain differences in economic achievements across Asian economies. The approach departed from the notion that each economic actor is anchored horizontally in a specific society or geographical setting (Andriesse et al. 2011). In order to analyze differences in economic performance, Whitley (1999) analyzed the nature of national economic institutions and economic coordination, notably (i) the nature of the state, (ii) the nature of state-business relationships, and (iii) the nature of the firm itself or way of doing business in a particular territory. Therefore, BSA combines a “relational view of firms (analyzing the networks linking them with other actors) with a political economy analysis of the societal context” (Andriesse et al. 2011). A main critique of BSA refers to its implicit assumption that coordination is fundamentally determined by national institutions (Andriesse
et al. 2011). Although originally Whitley was rather critical of the effects of globalization on national business systems, he later recognized the importance of examining interactions between global changes and national business systems (e.g., Whitley 2003). The next section on global value chains will further develop the role of the market in governance.

Civil society is also a complex term that means different things to different people. Definitions of civil society vary considerably based on differing conceptual paradigms, historical origins, and country context.\(^\text{15}\) In this research I follow the definition of Brown et al. (2000: 275) who define civil society as “an area of association and action independent of the state and the market in which citizens can organize to pursue purposes that are important to them, individually and collectively.” Civil society actors pursue political ends outside the traditional confines of the state apparatus (Teegen et al. 2004: 465).

There has been a dramatic expansion in the size, scope, and capacity of civil society around the globe since the 1990s, aided by the process of globalization (Gemmill and Bamidele-Izu 2002). The civil society sector has emerged as a clear societal actor in many parts of the world. It is varied, however, in its nature and composition. Civil Society Organizations (CSOs) can be, for instance, community organizations, NGOs, social movements, women’s movements, trade unions, and fisheries cooperatives. NGOs are organizational manifestations of civil society interests (Teegen et al. 2004: 466). NGOs involved in environmental governance are “highly diverse, including local, national, regional and international groups with various missions dedicated to environmental protection, sustainable development, poverty alleviation, animal welfare, and other issues” (Gemmill and Bamidele-Izu 2002).

The trend towards a greater role for NGOs in decision making reflects a shift from more centralized institutions in favor of broader-based, more representative social organizations (Teegen et al. 2004: 467). NGOs can be involved in a variety of ways in environmental governance: expert advice and analysis; intellectual sparring partner for governments, as NGOs often have better analytical and technical skills than government officials; mobilization of public opinion; representation of the voiceless; service provision; and monitoring and assessment and legitimization of global-scale decision-making mechanisms (Gemmill and Bamidele-Izu 2002: 7).

NGOs can serve as alternatives to weak or inadequate democratic institutions, as a route towards more inclusive dialogues, and as a way to disseminate knowledge on activities and issues within the international system (Gemmill and Bamidele-Izu 2002: 9). It can thus also complement states in carrying out management tasks. The concept of civil society, however, has its limitations in what it can attain in fisheries governance (Jentoft et al. 2005: 192). In the seafood industry, NGOs like the Marine Stewardship Council (MSC) aim to influence policy by informing consumers about sustainability issues, often through awareness campaigns, boycotts, certification schemes, and product guides. These are market-based tools that actually bypass the conventional political process in favor of directly influencing consumer behavior and the market (De Vos and Bush 2011).\(^\text{16}\) Neither markets nor civil society can fully compensate for the state’s governing capacity, because the state commands

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\(^{15}\) Ibid.

\(^{16}\) De Vos, BI & S Bush (2011). Far more then market-based: Rethinking the impact of the Dutch Viswijzer (Good fish guide) on fisheries’ governance. Sociologia Ruralis. 51(3) DOI: 10.1111/j.1467-9523.2011.00539.
resources such as information, expertise, legitimacy, financial resources, symbolic authority, and a considerable power apparatus that represent essential elements of good governance (Jentoft et al. 2005: 194). In this research the focus is on the interaction between NGOs and the state in relation to managing, monitoring, and enforcement of Marine Protected Areas (MPAs).

**Governance styles**

The overall result of the interaction between market parties, state, and civil society per country can be seen as a distinct governance style. Governance theory distinguishes modes of governance that differ according to their focus of research. In *Fish for Life*, Kooiman et al. (2005) distinguish three ideal types of governance styles of interaction: self-governing, co-governing, and hierarchical interaction. The authors argue that all societies demonstrate—and require—mixes of these three modes or styles.

*Self-governing* governance relates to a mode of governance where individuals, families, groups, and organizations—and even societal sectors—govern, outside the control of governmental intention or policy (Kooiman et al. 2005: 334). According to Pascual-Fernandez et al. (2005: 221) it is mainly civil society or the non-profit sector where such initiatives can be observed. Self-governing capacities can be incorporated into the governance frameworks of governments (Kooiman et al. 2005: 21).

The school of collective action has made the most systematic analysis of self-governance with regard to the exploitation of common pool natural resources, such as capture fisheries. Collective-action studies have investigated under which conditions actors join to construct rules and organizations for long-term resource use, and have identified conditions that facilitate or hinder collective action (see Ostrom, 1990; Dietz et al. 2003; Acheson 2003; Agrawal 2001; Gutiérrez et al. 2011). These self-governing institutions are argued to be a way to counter the “tragedy of the commons” (TOC) (Hardin, 1968). In Hardin’s view only state power or privatization would be able to counter the resource destruction that follows from the TOC. The numerous community-based collective action studies proved, however, that resource users have been able to cooperate and form enduring and robust institutions to manage their natural resources. Nobel Prize winner Ostrom (1990) has made a systematic analysis of the underlying reasons for resources users to join in collective action. There have been numerous research cases on community-based collective action institutions in fishing communities that document a variety of ways in which fishers act collectively in order to solve problems (see Pinkerton 1989; Durrenberger and King 2000; Acheson 1988, 2003, 2011). Self-governance can overlap with co-management as pure self-governing systems are rare at a larger scale and local institutions often work jointly with public parties.

*Co-governance* is a style where the different parties join hands with a common purpose in mind, and stake their identity and autonomy in the process. This style implies the use of organized forms of interaction whereby multiple actors govern at a horizontal level. It is about the restructuring of relationships and moving towards more equal power sharing among interested stakeholders (Jentoft 2007). Co-management is also a term than has been used frequently in the fisheries governance literature referring to a collaborative arrangement between governments and users (Wilson et al. 2006). Co-management can take many different forms, with different roles and interactions between the different user groups.
The role of user groups in the decision-making process will depend on their relative negotiating capabilities, knowledge and strengths vis-à-vis each other and with the governments. [...] The type of representation is often determined by the political culture of the country and whether participatory or representative democracy is encouraged or discouraged (Raakjaer Nielsen 1996: 407).

Sen and Raakjaer Nielsen (1996), for example, classify co-management according to the role of the government and users in five types with different types of relationships between state and other actors. Pomeroy et al. (2011) provide a list of conditions for successful co-management of fisheries in Asia, the Pacific, and the Wider Caribbean.

In this thesis I follow the line of Kooiman et al. (2005) and regard co-governance in principle as a neutral relationship between government and other users whereby no one actor overpowers the other. Kooiman et al. (2005) regard networks, public-private partnerships, and communicative governance schemes as prime examples of the co-governance style (Kooiman et al. 2005: 336).

Over the last decade, the use of co-management arrangements in fisheries and coastal resource management in the Caribbean region has increased (Pomeroy et al. 2004). At the same time, Pomeroy et al. (2004) note that in the Caribbean the organizational capacity to engage in co-management is weak. Involvement of fishers is commonly agreed to be a key factor for successful implementation of fisheries management regulations. The benefits commonly claimed include: a more open policy system; a broader basis for information and knowledge as user’s knowledge is included; a greater legitimization of the policy process and its outcomes; greater level of commitment and compliance; and lower transaction costs (Symes 2006: 114; Jentoft et al. 1998: 423). It has therefore been increasingly argued that fishers can and should participate in fisheries research and management (see Silver and Campbell 2005; Jentoft 2000). A co-management system therefore will, in all probability, lead to higher levels of well-being for fishers than more hierarchical systems would.

Hierarchical governance is the most classical form of governance. The style is top-down, with steering and control by the state, or market, as key concepts, and applying instruments such as laws and policies. In addition to laws and policies, in hierarchical governing financial means, such as taxes and subsidies, are important ways of interacting. According to Kooiman et al. (2005: 335), “hierarchical modes of governance are the most formalized forms of governing interactions [...]” The hierarchical governance type is widespread in fisheries, particularly in the North (Kooiman 2005: 335). Although this type of governance is mostly associated with the state, it is also a common governing mode in the market sector. Where the state is retreating, following liberal-economic ideology, the markets often take over in the form of multinational companies. In that case hierarchical governance is not state-led, but rather market-led; these are two distinct types of hierarchical governance.

This thesis therefore aims to investigate and compare three lobster fisheries with distinct fisheries governance styles. I have started this research with these different styles in mind, based on secondary literature and my own Master’s research on the Nicaraguan lobster fishery. Which governance styles are present in each country and to what extent different

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17 Sen and Raakjaer Nielsen (1996) give a classification on different co-management arrangements according to the role of government and users. See also Pomeroy and Berkes for a classification framework (1997).
Based on the previous elaboration on the concept of governance and governance styles for this thesis, I investigate:

1. The development orientation of the state, by looking into:
   a. the orientation of the state at a more general level;
   b. dominant domestic groups present in the lobster fishery; and
   c. the orientation of the state towards the fishing sector; and
2. state institutions, laws and policies; and
3. stakeholder representation, by looking into Fishery Advisory Boards and fishing cooperatives; and
4. Non-Governmental Organization (NGO) involvement in the institution and enforcement of Marine Protected Areas (MPA).

Although the governance styles under investigation are not expected to fit exactly into one category or the other, as various governance styles often overlap, each country’s fisheries governance style is expected to be different and express characteristics that lean more towards one style than the other. The investigation framework of lobster fisheries governance styles in this research therefore results in the following list:

- Development orientation of the state
  - Development orientation of the state
  - Orientation towards the fishing sector
- Stakeholder representation
- State institutions, laws, and policies
- State-market relations
- NGO-state market relations in MPA management

1.2 Global Value Chain Approach

The previous section focused on governance from a state and civil society perspective. This section aims to further examine the role of market parties in lobster fisheries governance by means of the Global Value Chain approach (GVC). The lobster fishery in the Caribbean is a prime example of a value chain that starts with harvesters in the South and extends to consumers in the North. The Global Value Chain\(^\text{18}\) approach helps to address questions on the lack of correspondence between the geographical spread of economic activity and the spreading of gains from participating in global production markets (Kaplinsky 2000: 118).

\(^{18}\) Global Value Chain (GVC) analysis has been described in the last decades using other terms as well, such as Global Commodity Chains (GCC), and in French research *traditions filières*. Research on agricultural chains started in the 1960s in France using the term “*filières.*” The Global Commodity Chain concept was introduced by Gereffi in the 1990s. The GCC analysis has been developed mainly for industrial commodity chains and, in recent years, the GCC literature has abandoned the term “commodity chain” and has taken up that of “value chain,” as the latter is thought to better capture a wider variety of products, some of which lack “commodity” features (Kaplinsky and Morris, 2001: 25, and Gibbon and Ponte 2005). In this PhD I will refer to the global value chain, as it is considered to be a more neutral concept.
The GVC approach attempts to enhance our understanding of the dynamics of economic globalization, international trade, and the distribution of benefits throughout the chain across various regions. It describes the range of activities that are required to bring a product from its conception to its end use and beyond (Kaplinsky and Morris 2001: 80). The GVC approach stems from a world systems approach and it belongs to a school of thought which argues that developing countries located in the “periphery” are underdeveloped as a consequence of the development of core countries (Peet and Hartwick 2009).iv The GVC approach hypothesizes that the global economy can be usefully understood as a combination of discrete, product-specific “value chains” rather than as generic “markets” (Ponte 2007). The approach can play an important role both as a methodological as well as an analytical tool in order to determine the factors that drive the distribution of the gains from global production and exchange, explaining both why some parties have gained and others have lost, due to globalization (Kaplinsky 2004: 80). Moreover, it can be used to identify policy forces—relevant at the level of individuals, households, firms, regions, and countries—that may lead to a different and more favorable distributional outcome. The GVC approach analyzes the extent to which it is possible to identify a causal link between globalization and inequality, and what can be done to counter inequality-promoting tendencies of globalization, that is, its “unequalization” effect (Kaplinsky 2004); therefore the GVC approach is increasingly being used by NGOs (Vellema and Helmsing 2011).

The GVC approach has been used to investigate the value chains of different products by addressing questions on: the distribution of benefits from participating in global production markets; the extent to which it is possible to identify a causal link between globalization and inequality; and what can be done to improve the tendencies of globalization to widen the gap between the poor and richer members of society (Kaplinsky 2000: 118).

Many GVC analyses have been carried out on agricultural primary food products, such as cocoa, coffee, tea, and fruits (see e.g., for cocoa, Laven 2010; for coffee, Fitter and Kaplinksy 2001; for fruits, Gibbon 2003; and, for vegetables, Dolan and Humphrey 2010). Some studies, albeit in fewer numbers, have been undertaken in the field of fisheries (see e.g., Gibbon 1997; Nyeko 2004; Ponte 2007; Abott et al. 2007; Khiem et al. 2010; Bush and Oosterveer 2007; Thorpe and Bennett 2004; Henson and Mitullah 2004; Wilkinson 2006). These studies have mainly focused on one particular chain (e.g., the Nile perch from Lake Victoria Henson and Mitullah 2004; Thorpe and Bennett 2004), or focused on multiple fish chains stemming from one country (e.g., South Africa).

Gereffi identifies four dimensions with respect to which every value chain can be analyzed: (1) an input-output structure (the process of transforming raw materials into final products whereby value is added); (2) a territorial (or geographical) scope; (3) a governance structure (what actor or which type of firm plays the driving or leading role in the elaboration and management as well as performance of this role); and (4) the institutional framework through which national and international conditions and policies shape the globalization process at each stage in the chain (Gereffi 1994).

The focus of GVC studies have been mostly on the governance aspect of the chain (Henderson et al. 2002). In the GVC school of thought the concept of “governance” refers to “the inter-firm relationships and institutional mechanisms through which non-market coordination of activities in the chain takes place” (Humphrey and Schmitz 2002: 3). It thus
refers only to governance within the chain and does not apply to the interaction of market, state and civil society. I will refer to this type of governance as “market governance”. Governance in this interpretation is interpreted more narrowly, and focuses nearly exclusively on the relationships of chain actors.

The approach departs from the standpoint that markets and technology are the main drivers of the dynamics in the chain (Gerrefi et al. 2005). GVC scholars try to understand how lead agents build, coordinate, and control the linkages and flow of produce between raw material suppliers, processors, primary traders, wholesalers, and retailers (Raikes et al. 2000: 394). By focusing on the capacity of value-chain analysis to map input-output relationships, and by identifying governance structures and their inherent power asymmetries along the chain, it is possible to analyze the factors explaining inter-country distributorial outcomes in a sector (Fitter and Kaplinksy 2001). Discussions have revolved around questions of power and the distribution of benefits along value chains, which entry barriers characterize value chains, and how unequal distribution of rewards can be challenged in favor of developing countries (Ponte 2007).

Chains may be driven by the producer, the buyer (Gerrefi 1994), the trader (Gibbon 2001), or by other types of inter-firm coordination (see Gereffi et al. 2005). In producer-driven chains, such as the automobile industry, the producers influence chains by means of their licensed dealership systems. In buyer-driven chains—often found in the field of agricultural commodities—supermarkets and retailers set the conditions under which the goods are produced and distributed. These “lead firms” act as strategic brokers that link producers and markets; their knowledge of strategic research, marketing, and financial services grants them a privileged position (Gibbon 2001; Gerrefi 1999 in Laven 2010: 25). Lead firms therefore can create entry barriers to generate different kinds of rents (Kaplinsky and Morris, 2003). In addition, quality standards are becoming increasingly important in governance of the chain. Quality standards communicate information about the attributes of a product and are of great importance for developing countries’ firms because they determine whether and how the firms can participate in specific global value chains and shape market access to specific countries (Ponte and Gibbon 2005).

The dichotomy of buyer-driven and producer-driven chains posed by Gereffi has been challenged from various perspectives (Gereffi 2001; Sturgeon 2001 2002; Ponte and Gibbon 2005). Gibbons (2001: 351) adds a third category; the trader-driven chain. He argues that there are a number of primary commodities, such as cotton and fish, where international traders act to govern the chain (see e.g., Gibbon et al. 2008; Gibbon 2001). In this way, international trader companies are constantly able to secure specific volumes and quality mixes. Different market governance styles of the chain create a different set of advantages and limitations for participating actors (Gereffi et al. 2005).

One particular style of market governance may not, however, pervade throughout the entire chain, and a chain might be characterized by a variety of governance forms. Although lead firms in a chain might have the most power, there are intermediate roles and positions possible where firms may not be able to control all parts of the chain, but are capable of controlling certain parts of it (Smakman 2003). Market governance forms are not static and might change over time as well. The recent economic crisis can be expected to have an impact on the market governance of seafood value chains. As the world economy and consumer
confidence deteriorate, value chain actors’ terms of trade can be expected to change. Scholars have pointed out that within the GVC approach there has been disproportionate attention paid to lead firms, at the expense of the heterogeneity of suppliers or producers (Laven 2010; Bush and Oosterveer 2007). Regarding the differences among producers, generally a distinction is made between large and small primary commodity producers (Gibbon 2001; Kaplinksy 2004 in Laven 2010).

Another important critique of the GVC approach relates to the world systems theory from which it originates. The world systems theory is criticized for neglecting the different stages or levels of national development within what appears to be a unified global economy (Petras 1981). Although the approach recognizes that firms are inserted in value chains, which in turn are affected by the different local, regional, and national institutional frameworks in which they operate, the approach provides few tools to analyze this state of affairs. Focusing on international fish chains, Bush and Oosterveer argue that although the combination of vertical and horizontal features in commodity chains illustrates the multi-scalar global dynamics, “attention also needs to be given to the specific arrangements under which fishers and farmers operate in their local context, including access to land, technology, market information, finance and trade” (2007: 396).

Governance in the GVC approach typically relates to governance within the chain and there is a tendency to ignore the importance of other governance structures, such as the role of the government and international regulations (my italics; Gibbon 2001; Humphrey and Schmitz 2000; Smakman 2003; Bush and Oosterveer 2007; Laven 2010). Market governance of chains is also usually considered to be predominantly top-down: either Northern buyers, or manufacturing firms or traders, have decisive influence on the position of producers in the South. This is, however, a rather narrow approach to understand local economic development, as little attention is paid to local and national conditions (Monnereau and Helmsing 2011).19

In this research I will use the GVC approach to investigate, analyze, and compare the structure, governance, and dynamics of the lobster chain in the three countries involved. I will explore the following elements:

1. The structure of the chain, by looking into a) input-output structure, b) chain actor involvement, quality issues, and export rules and practices; and
2. Market governance within the chain by means of a) dependency relationships, and b) barriers to entry; and
3. the dynamics of the chain due to the economic crisis.

The economic crisis and consequent drop in price and demand has offered additional research opportunities: (i) to examine how the three lobster chains coped with the economic shocks;
(ii) to determine the mechanisms through which the effects spread throughout the chains; and (iii) to learn the extent to which differences in local embedding enabled actors, situated at different functional positions in the chain, to cope with the crisis. The Global Value chain in this research entails looking at:

- Structure
  - Input-output structures
  - Chain actors
  - Quality standards and practices
- Market governance
  - Dependency in the chain
  - Barriers to entry
  - Impacts of the economic crisis on chain governance

1.3 The pursuit of well-being

Well-being is a concept common to the social sciences (Smith and Clay 2010), and frequently used in policy debates about environmental sustainability (Coulthard et al. 2011) and development (McGregor 2009).\(^{20}\) In this thesis I follow the definition coined by McGregor (2009: 3) “Wellbeing is a state of being with others, which arises when human needs are met, where one can act meaningfully to pursue one’s goals, and where one can enjoy a satisfactory quality of life.” This definition suggests well-being is broader than economic or material circumstances alone. It includes both an objective assessment of conditions but also subjective elements that indicate how these conditions are perceived by participants (Smith and Clay 2010: 158; Gough et al. 2007; White and Allison 2006; Coulthard et al. 2007).\(^{21}\) It is therefore a concept that refers to the holistic nature of people’s poverty.\(^{22}\)

The concept acknowledges that poor people in a developing country cannot be defined by their poverty alone and that they strive to achieve well-being for themselves and their children (Gough et al. 2006). It’s an expansion in development thinking since the 1970s. Poverty was then seen increasingly as not only lacking in basic needs but also to include a lack of basic human rights. The development of this more holistic perception on poverty has its roots in various theoretical debates, ranging from the entitlement approach by Sen (1981), the vulnerability approach (Chambers 1983), and the livelihoods approach (see Carney 1998; Bebbington 1999). Amartya Sen’s (1981) development of an entitlement approach to


\(^{21}\) And it’s exactly this subjective component that, among others things, differentiates the concept of well-being from that of the livelihood approach. The livelihood approach encompasses the assets (natural, physical, human, financial, and social capital), the activities, and the access to these mediated by institutions and social relations) which together determine the living gained by the individual or household (see Bebbington 1999). The concept of well-being attempts to go beyond this by including a subjective component. However, both approaches share the focus on a wider definition of poverty than the focus on material well-being alone.

\(^{22}\) There are discussions and debates on many different types of poverty; from consumption poverty and income poverty, to poverty defined in terms of the human development index or in terms of social exclusion, to poverty considered as being relative or absolute (Gough et al. 2007: 3). Gough et al. (2007) argue that “well-being” is a wider concept that can usefully encompass and connect these debates over different types of poverty.
understand famines in the early 1980s provided a very important stimulus for new thinking in the area of well-being and poverty (Gough et al. 2007). Sen argued that the absolute lack of resources is only one of the numbers of reasons why people lack access to the resources they need for sustaining their livelihoods and introduced the idea that power differences constrain people’s entitlements, or abilities to secure access to resources needed. Later he developed the capability approach, focusing more on the social structural factors that constrain entitlements and the developmental interventions that could counter them. Their lack of command over food and other necessary resources is thus governed by a range of social, economic, cultural, and political factors (Béné 2003). This type of approach thus shifted analysis beyond a narrow focus on income and the material resources people owned, towards the investigation of how they secured access to what they need (Gough et al. 2007). However, the approach has been criticized for its weakness in dealing with a more social perspective on the nature of human agency (Evans 2002; Robeyns 2005; Den elin and McGregor 2010). The lack of command over food and other necessary resources is thus governed by a range of social, economic, cultural, and political factors (Béné 2003).

The well-being framework attempts to address this holistic approach and encourage an understanding of the differentiation that can be found among fishers and fishing communities. Heterogeneity is important for understanding how different fishers will respond to management and policy measures (Coulthard et al. 2011), as well as how fishers will be affected by them. Whereas policy measures might improve the well-being of some fishers, they can deteriorate those of others.

The study of well-being is understood to have three dimensions: material well-being, relational well-being, and subjective well-being (IDS 2009; Gough et al. 2007). These three dimensions connect to various theoretical discourses, which I explore below:

1) Material dimension: the resources a person is able to command, i.e., where human needs are met;
2) Relational dimension: what people are able to achieve with these resources, and in particular what needs and goals they are able to meet, and;
3) Subjective dimension: the quality of life a person is able to achieve and where one can enjoy a satisfactory quality of life.

Material dimension
The first dimension of well-being refers to the resources a person is able to command, and ideally to a situation where human needs are met. This dimension finds its origin in a range of theoretical approaches that have taken place in development thinking over the past 50 years and need not be summarized here (see Gough et al. 2007: 9; Peet and Hartwick 2009; Allison and Horemans 2006; Gasper 2007). The developments in poverty thinking from the 1970s shifted from a narrow focus on income and the material resources people owned, towards the

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23 Martha Nussbaum (2000) has further developed this idea by embracing numerous non-economic aspects of life, such as the expression of imagination and emotions, affiliation, and play (Gough et al. 2007).
24 These include differences in: social status, social norms, values, and aspirations among fishers (Coulthard et al. 2011).
The investigation of how the poor secured access to what they need. The roots of these developments lay in various theoretical debates, ranging from the entitlement approach of Sen (1981), the vulnerability approach (Chambers 1983), and the livelihoods approach (see Carney 1998; Bebbington 1999).

The material dimension refers to main material assets and attempts to define the absolute minimum resources necessary for long-term physical well-being. Whereas traditionally the list only included “basic needs,” such as food and water, shelter, and clothing, recent lists emphasize the inclusion of sanitation, education, and health care. The Human Development Index (HDI), for example, is composed from data on Life Expectancy, Education, and GDP per capita (at purchasing power parity). In addition to the usage in the HDI, in the last decade the basic needs approach has also reemerged through usage in the Millennium Development Goals (MDG) (Gough et al. 2007; Peet and Hartwick 2009). The MDG has set targets and identified indicators for many basic needs, for instance survival, health, hunger, access to safe water, and education (Gough et al. 2007; Peet and Hartwick 2009). Building on the above, Coulthard et al. (2011) use the following for the material dimension of well-being in fisheries: monetary income, fish to eat, fishing assets.

Regarding the attainment of well-being, taking the large heterogeneity of fishers into account is of great importance. The heterogeneity of material circumstances among fishers has been well documented (Breton et al. 2006; Kooiman et al. 2005; Van Ginkel 2007; McGoodwin 1990; Coulthard et al. 2011). With regard to fisher’s heterogeneity, Van Ginkel states:

Fishing may be for subsistence, for the market or a combination; it may be open-access, communally managed or privatized; it may be subject to quota regulations, licensing or other measures; it may be small-scale, medium-scale or large-scale; it may be inshore, mid-water or offshore; it may be seasonal or year-round; it may full-time or part-time; it may be owner-operated, done by crewmen who are hired by land-based ship-owners, or vertically integrated; it may be bases on share system of remuneration, a wage system or a combination (2007: 5).

In addition, one could add that fish can be caught for the export market, local market, or household consumption, or a combination of these. These types of characteristics show the large heterogeneity among fishers, which has a great influence on the material well-being of lobster fishers in the Caribbean. Lobster fishers in the Caribbean can, for instance, operate on a small scale or large scale (industrial), fish in inshore or offshore areas, or be part of a single-species fishery or of a multiple-species fishery. These differences will profoundly impact the ability of a fisher to achieve well-being. It will directly relate to such matters as his working conditions, safety, absence from home, and income. The heterogeneity between individual fishers can be seen by differences in age and position within a fishery, differences in fishing scales (small-scale vs. industrial fishers), and gear (trap fishers vs. divers).

Fishers work under different circumstances as a result of individual differences, differences in relation to the fishing métier (scale, type of gear), and of geographical factors. Safety is a crucial aspect of fishers’ material well-being, as it is still one of the most dangerous professions in the world (Pollnac et al. 2011). In addition, some fishers are full-time fishers, while others are part-time fishers and engage in other economic activities. These elements will also be of influence on the remuneration of fishers. Remuneration is often the
result of a share system, and therefore tied to the level of production of a particular fishing unit and fleet (Van Ginkel 2007: 20; Acheson 1981). In this research I will therefore examine the following factors for the material dimension of well-being: differences in working conditions; safety; remuneration; whether it’s a single species or multiple species fishery; and whether fishers are able to engage in economic alternatives across the different lobster fishing métiers. For the material dimension I will thus investigate:

- Working conditions
- Safety
- Remuneration
- Single-/multi-species fishery
- Economic alternatives

**Relational dimension**

The relational dimension in the well-being approach can be interpreted in multiple ways. In order to operationalize this dimension for the purpose of my research, I focus on fishers’ trade relations (related to fishers’ independence and dependency), and fishers’ ability to cooperate and to participate in decision making.

Doyal and Gough (1991 in Gough et al. 2007) claim “autonomy” is a basic human need, a universal precondition for any individual action in any culture. According to these authors autonomy refers to the ability of people to make informed choices regarding what should be done and how to go about doing it (Gough et al. 2007). Devine et al. (2006) make a nuance by claiming autonomy is a universal psychological need but that its expression is always contextual. In fisheries, autonomy is also regarded to be of great importance to fishers. McGoodwin states that the majority of fishers stress independence, self-reliance, freedom from regimentation, and challenge as important aspects of their occupation (1990: 23). Autonomy in fisheries refers to the ability to be your own boss, to own your own business, and to have an adventurous life, and is also widely acknowledged in the job satisfaction literature on fisheries (see Pollnac and Poggie 1998). Fishers’ autonomy, freedom, and pride in their profession are part of their “way of life.” Their autonomy and freedom are essential elements of their lifestyle, and an issue discussed in terms of being considered an integral part of the well-being of fishers in this thesis.

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25 The link between freedom and fishing in the Caribbean can be traced back to the time of slavery. Price (1966) argues that during the colonial period skilled fishers acquired some measure of independence, which gave them a distinct social identity and made them relatively free from the oppressive slave-plantation system. He has stressed the high level of independence experienced by plantation fisher slaves in the Caribbean as far back as the 17th and 18th centuries. “From the first, fishing slaves—first Indians, then Negroes—received special treatment, and from the first they exercised potentially important economic skills that stressed independence.” Price also argued that Caribbean fishermen—at first Indians and then Africans—were from the very beginning a privileged slave group within the plantation system. Besides the repressive character of the plantation system, it incidentally endowed fishing slaves with valuable economic skills as well as with considerable self-reliance and independence (Price 1966: 1364). Price also argued that their special socioeconomic role permitted a particularly smooth transformation to a life as free fishermen. Emancipation offered the opportunity for a new way of life to the enterprising freedman who had admired the success and prestige of his fishing colleagues during slavery (Price 1966: 1364).
The concept in this research also refers to the ability of fishers to enter the fishery: whether it is an open-access resource from a legal perspective, and whether there are other barriers to entry. Independence and self-employment are highly valued, particularly among small-scale inshore fishers who own their own boats and work alone, or with a small crew of kin. However, autonomy does not refer merely to “radical independence or individualism,” as autonomy also implies a degree of dependence on other actors and external environments (Devine et al. 2006).

Devine et al. claim autonomy is constituted relationally and contextually, and it must always be achieved in an institutional context, assuming interdependence (2006: 10-11). They argue “coherent accounts of autonomy must always recognize the interdependence of people in groups, and that autonomy can coexist with substantial relationships of dependence” (2006: 2). Autonomy and independence thus also relate to a fisher’s dependency relationships in his trade relationships. Fishers are often highly dependent on intermediaries, and other market and patron-client relationships between traders and fishers—but also between fishers—are often seen as intrinsic to fisheries (see Acheson 1981; Johnson 2010; Platteau 1989; Van Ginkel 2007). Although fishers often stress the importance of their independence, their autonomy is often highly curtailed by the patron-client relationships in which they are involved. Fishers are mostly “price-takers,” who have to adjust to fluctuating prices over which they have no control (Platteau 1989). Fishers often have very little withholding power, as fish tends to spoil swiftly, and have a weak bargaining position vis-à-vis traders and politicians (Van Ginkel 2007: 16).

Fishers have been—and still are often—dominated and sometimes exploited by fish traders and processors. Since fishermen are away from home for so much of the time, they are often underrepresented in the political arena, and are usually dependent on intermediaries who are often in a position to exploit them (Acheson 1988: 277). Fishers thus depend on the traders and processors to market their catch, and the latter can thus restrict a fisher’s independence, as relationships are often asymmetrical. Their indebtedness to intermediaries or processors for fuel, ice, bait, and loans for gear and boats, tends to decrease their autonomy. Fishers need intermediaries and processing plants for credit and supplies, as well as to serve as a market, but this dependency can suffer from a high level of “interlocking” relationships between fishers and patrons.26

Patron-client relationships differ across fisheries and between countries. Certain patron-client relationships can, according to Johnson (2010: 265), “hamper fishers ability to organize and thereby their capacity to engage in collective action for resource allocation and stewardship.” However, patron-client relationships also provide many advantages and security, as they provide a guarantee of commitment from fishers to boat owners at times, in return for the promise of a basic subsistence provision when fishing is bad, and advances or periodic loans to cover irregular costs (Johnson 2010: 269).

According to Jacinto and Pomeroy (2011), fisheries are vulnerable to overexploitation in open-access situations. In this view, depletion of marine resources can be regarded as a collective action problem, and they argue that, as a result, increased levels of organization

26 For the two terms patron and client I follow Johnson (2010: 270). Johnson uses the terms in a broad sense to refer to relative positions in the fishing chain. The individuals who are dependent on others for credit are clients; those who supply the credit are patrons.
among resource users and stakeholders in the chain could serve as a key solution. Fishers have often responded by establishing fishing cooperatives to help their position in trade networks, to gain leverage vis-à-vis fish traders and processing plants, and to circumvent as many intermediaries as possible (King 1999; Acheson 1981; Van Ginkel 2007: 16). Autonomy and dependency relationships are thus also linked to collective action. Cooperatives may enable fishers, as a unified body, to influence decision making more easily, and thus provide a way to participate in—or exercise influence over—management of the fishery.

Fishers often join cooperatives in order to face and reduce the many risks and uncertainties they face (Acheson 1981: 284). Marketing cooperatives are designed to provide many of the same services fish dealers do under ideal circumstances (i.e., a steady market for fish; fair prices for fish; credit; supplies; bait at reasonable prices; information about the market). “Cooperatives tend to be formed when fishermen have been or feel badly used by buyers, and join together to get fairer prices and steadier markets for their fish” (Acheson 1981: 284). They might also be formed when outside entrepreneurs begin to invest heavily in the fishing industry and fishers are afraid to lose control.

Cooperatives have received support from governments and international aid agencies, but they have a mixed history in realizing lasting benefits for rural constituents (Jentoft 1986; King 1997). Some cooperatives last for decades; others fail before participants see any returns on their investments in time and money. While some are organized and operated under supportive government regimes, others in fact might be frustrated by indifferent or unfavorable governments (King 1997). Results of fishing cooperatives are thus diverse. Van Ginkel (2007: 15) summarizes the reasons that can explain the phenomenon of organization failure among fishers. These include: 1) practical barriers caused by frequent absence of fishers; 2) uncooperative behavior as a result of capitalist modes of production (competition is a key element in this pattern of production, impeding cooperation); 3) fishers are argued by some to be competitors in open-access regimes, with competition as a consequence; 4) the independent and autonomous nature of fishers; 5) competition and economic and socio-cultural autonomy lead to the physiological character trait of a “need for independence,” and these traits do not support cooperation among fishers; 6) fishers are a very heterogeneous group at various levels with often very contrasting goals, ideologies, and behaviors. Jacinto and Pomeroy (2011) have also examined fishing cooperatives and analyzed the underlying factors for successful fishing cooperatives.

However, fishers do at times manage to cooperate. When cooperatives are successful and provide services to communities, they may, over time, attract new participants. Growth in membership, capital assets, and productive output are all signs of successful development, particularly when the economic benefits are reserved for cooperative members and their local communities (King 1999). Factors that help fishers manage cooperation successfully can be found in the literature of collective action (see Ostrom 1990; Agrawal 2001; Wade 1986; Baland and Platteau 1996). In many countries, fishers do indeed form strong movements, unions and cooperatives (Jentoft 2007: 432). The relational dimension in this research thus refers to a fisher’s trade relationship (focusing on autonomy and dependency), and his ability to participate in decision making. In this regard, I particularly focus on the presence of fishing cooperatives. For the relational dimension I will thus investigate:
Subjective dimension:

The third dimension of the well-being approach relates to how people feel about what they have and are able to do. This dimension goes by several labels, including quality of life, subjective well-being, life satisfaction, and happiness. Different disciplines and perspectives have contributed to this stream of research, but three have been of exceptional importance: subjective quality of life research by health psychologists and clinicians; the economics of happiness; and the psychology of affect balance and life satisfaction. Although these have originated in the developed world, they are increasingly gaining ground in developing countries (Gough et al. 2007). Critiques on the first stream relate to its primary focus on questions of health, the absence of a link with the issue of autonomy, and its design mainly by experts, rather than people’s own perceptions (ibid.: 28).

The economics of happiness approach reflects the move by some economists from the exclusive use of “revealed preferences” to self-reported accounts of satisfaction with life or happiness. It combines techniques used by economists and psychologists to assess well-being, and explores areas where revealed preferences provide limited information (e.g., the effect on well-being of inequality and unemployment). Researching happiness and subjective quality of life is problematic, however, in the context of developing countries (Gasper 2007; Gough et al. 2007: 30). People tend to adapt to changes in their life circumstances and to adjust their expectations to reality, while issues of cultural bias and preferences are often problematic (Gough et al. 2007: 28-31). At present, most research in this strand has been carried out in rich Northern countries, and the applicability of many of these findings to the “trapped and the exploited is, to say the least, unproven” (Gough et al. 2007: 33).

Psychologists have been mainly concerned with the third stream, and questions of life satisfaction and happiness (e.g., Maslow 1954). Initially work was carried out on life satisfaction on “life as a whole,” while later much of the research was carried out in terms of domain-specific satisfactions, such as satisfaction with work, family, housing, etc. Job satisfaction has been studied by a variety of disciplines from various angles, from organizational behavior studies, psychology, sociology, and—more recently—labor economics. In the 1930s and 1940s many studies were carried out to determine the correlations of high and low job satisfaction. Such studies related job satisfaction to seniority, age, sex, education, occupation, and income, among other things (Lawler and Porter 1967). It is a “subjective, individual-level feeling that reflects whether a person’s needs are or are not being met by a particular job” (Lambert et al. 1999). Job satisfaction theory has a strong foundation in industrial society; however, recently a few studies in the South have been carried out (see Smyth et al. 2009; Heywood et al. 2006).

Anthropological studies of fisheries that have measured subjective well-being often include objective measurements. For example, anthropologists have argued that job satisfaction is often more important than income to fishermen (Gatewood and McCay 1990). Sometimes, fishermen actually subsidize their desire to fish with other income and tend to
emphasize the benefits of fishing over the costs (Smith 1981; Daw et al. 2012). Even though fishing ranks among the most dangerous occupations and economic returns also vary greatly, fishers are generally very attached to their occupation (Pollnac and Poggie 2008; Daw et al. 2012). The view that fishing is more than “a way of life” is thus frequently expressed by fishers and has been well documented (Pollnac and Poggie 2008; Pollnac et al. 2001; Acheson 1981, 1988; Van Ginkel 2007). Results of a study on job satisfaction and income suggest that commercial fishers have higher than average perceptual well-being (Smith and Clay 2010).

Pollnac and Poggie (2006) have argued that levels of job satisfaction are associated with a number of socially significant variables, such as mental health and longevity, family relations, and job performance—all factors impacting and impacted by one’s level of happiness. Measuring fishers’ job satisfaction is thus one of various very important indicators for measuring people’s overall subjective well-being. Job satisfaction indicators allow for adaptation to specific work fields and is thus an attractive method as it facilitates comparing fishers’ satisfaction both within countries as well as between countries. In line with the trend in job satisfaction studies, job satisfaction studies in fisheries have been plentiful but mostly concerned with North America (see Pollnac and Poggie 1979, 1988; Smith 1981; Apostle et al. 1985; Gatewood and McCay 1990). Job satisfaction studies in the South have been gaining ground nevertheless (Monnereau et al. 2010; Pollnac et al. 2001, 2011; Bavinck et al. 2012; Monnereau and Pollnac 2012; Pollnac et al. 2012).

The job satisfaction studies that have been undertaken in fisheries have been largely based on Maslow’s (1954) hierarchy of needs (Bavinck and Monnereau 2007), distinguishing three basic categories: views on fulfillment of basic needs, social needs, and needs of self-actualization. Pollnac and Poggie (1988) authored one of the first publications focused on job satisfaction in fisheries, making use of a list of 22 items, with two additional questions on overall job satisfaction. The first asks whether a fisher would still go into fishing if he had his life to live over again; the second whether or not he would advise a young person to go into fishing. The results of this survey, tested among different fishing groups in New England, yielded significant results. The authors concluded there was more to fishing than pure money-making and that these non-monetary factors should be taken into account for effective and humane management programs (1988, 2008). Other scholars made small modifications to this original set of items, yet their analysis indicated that its overall structure was sound (Gatewood and McCay 1988, 1990; Binkley 1995).

Poggie and Pollnac have been engaged in the topic ever since (see e.g., Pollnac and Poggie 1998, 2006, 2008; Pollnac 2001, 2011, 2012). In this research I draw on this grand body of work, as I also make use of job satisfaction surveys. The job satisfaction surveys consist of 27 questions and three yes/no questions. The questions are divided into five categories: basic needs; social needs; self-actualization; management; and nature. The three yes/no questions investigate the perception of fishers on the future of the fishery and their position in it. The five categories show overlaps with the material and relational dimensions of well-being. The first categories of basic needs—with questions on the satisfaction with inter alia income, health, time to get to the fishing grounds—therefore relates to the material

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27 The job satisfaction surveys are also part of the work carried out by Maarten Bavinck and myself for the ECOST project. See 1.5 research methods for a broader explanation on the ECOST project.
well-being dimension. The social needs and self-actualization category—with questions on the satisfaction with inter alia the ability to be your own boss, level of autonomy, challenge of your job—relates to the relational dimension. The subjective dimension of well-being in this research thus relates to:

- Job satisfaction
- Willingness to change to another fishing type/occupation
- Whether a fisher would advise a young person to enter the fishery

1.4 Conceptual framework
The concepts of governance, global value chain analysis, and well-being as used in this research thus brings us to the following conceptual framework:

![Conceptual Framework](image)

Fig. 1.1: Conceptual framework.

The framework shows that governance of fisheries is comprised of the interaction between state, market, and civil society. Market parties are, however, also part of the lobster chain, which is why the market is located between governance and value chain. The governance style of a specific country impacts the structure and governance of the lobster chain directly. However, both governance and value chain are also influenced by the international level. Both the lobster chain and governance arrangements impact the well-being of fishers. Yet fishers and all others involved in the chain also possess agency, and exert influence over governance, as well as over chain structure and governance.
1.5 Research methods
This research departs from a comparative case-study approach, as I compare Belize, Jamaica, and Nicaragua. The comparative case-study approach is valuable for this type of research, as it is an excellent method to examine the relationship between contextual factors and a specific topic (Yin 2003). It embodies the logic of comparison in that it implies that we can understand social phenomena better when compared in relation to two or more meaningfully contrasting cases or situations (Bryman 2004: 53). A main argument in favor of multiple case studies is that it improves theory building (Bryman 2004: 55). Bryman argues that by comparing two or more cases, the researcher is in a better position to understand and determine the circumstances in which a theory will hold or not hold (2004: 55). Selecting cases that represent extreme types can be very valuable, and finding which factors are common to the cases can be just as interesting and important as those that differentiate them (Bryman 2004: 55).

Departing from this comparative case-study approach I had to streamline the research methods across the three countries. During my fieldwork in the three countries, I conducted informal interviews, unstructured and semi-structured in-depth interviews, administered questionnaires, carried out participant observation, and participated in state and non-state policy meetings. All of this thus had to be done across the three countries in the Caribbean, while I also conducted interviews with importers in the US and Europe.

I spent a total of seven months in the field: ten weeks in Belize, nine weeks in Jamaica, and twelve weeks in Nicaragua. Belize and Jamaica I visited twice, Nicaragua three times. All fieldwork was conducted between 2006 and 2009. In addition, I carried out interviews with importers in the US and EU. These interviews took place at the Boston Seafood Show (2008 and 2009) and in Brussels (2008 and 2009), as well as informally in New York City. I participated in the Fifth International Meeting on Spiny Lobster (Panulirus argus) Management (19-29 September 2006) of the WECAFC, organized by the FAO in Merida, Mexico. Here I conducted semi-structured interviews with all states representatives present (besides the three interviews with representatives from Belize, Jamaica and Nicaragua this amounted to an additional ten interviews) I also participated in the special one-day symposium on the responsible use of the spiny lobster resource in the Caribbean region at the GCFI conference in Punta Cana, Dominican Republic (5-9 November 2007). Here I presented my own research, participated in the meetings and held informal interviews with a variety of scientists, policy-makers, importers and exporters.

Choice of locations in each country
The choice of countries was carried out on the basis of their different governance styles. Within each of the selected countries, different fishing métiers were present, based on scale (small-scale and industrial) and gear (diving and trapping). The choice of research locations within each country thus had to reflect the ability to target the different fishing métiers in each country (see Fig. 1.2).
A) **Belize:** In this research I focused on fishers in the northern and central part of the country, as they are responsible for the largest share of the lobster production in Belize.\(^{28}\) I conducted interviews, surveys, and participated in fishing trips with fishers in Caye Caulker and Belize City. In Belize there are two types of lobster fishers: divers and trap fishers. Although there are two main lobster trap fishing villages in the north—San Pedro and Caye Caulker—I chose Caye Caulker, as many studies on the lobster fishery have already been carried out there (e.g., King 1997, 1999; Huitric 2004). All diving boats are stationed in the harbor of Belize City, so by conducting my fieldwork here I was able to target both types of fishers. The Fisheries Department and Caribbean Regional Fisheries Mechanism (which hosted me for six weeks during the period October-November 2006) are also located in Belize City.

B) **Jamaica:** The main fishing grounds for lobster are the Pedro Bank and several small fishing villages along the southern coast. The parish of Westmoreland on the south coast is one the largest producers of lobster in the country. I chose the village of Whitehouse, Westmoreland, as one of my two research villages. It hosted several different types of lobster fishers: day-fishers and fishers leaving for a week to fish the Pedro Bank, and both divers and trap fishers. In addition, a fishing cooperative with a long history was located in Whitehouse, as well as being home to an important fishing cooperative leader who served as a key informant. In addition, I investigated the fishing on the Pedro Bank (Middle Key). Pedro Bank is the most important fishing ground of Jamaica, and the Fisheries Department supported my stay on Middle Key on Pedro Bank during several days in 2007. I also spend two weeks in Kingston, where I spend time at the Fisheries Department.

C) **Nicaragua:** The three main lobster fishing centers on the Atlantic coast are: Bluefields, Corn Island, and Puerto Cabezas. In this research I have focused on Corn Island and Puerto Cabezas, as they represent 45 and 44 percent of the total spiny lobster production in the region, respectively. The best fishing grounds for fishers in Puerto Cabezas are located at the Miskito Keys. I therefore went out to the Miskito Keys to interview fishers there as well, but have grouped them under Puerto Cabezas. On Corn Island three different lobster fishing métiers are present: small-scale divers, small-scale trappers, and industrial trappers. Puerta Cabezas hosts the fourth fishing métier: industrial divers.

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\(^{28}\) The cooperative in the south (Placencia) is only responsible for two to three percent of annual lobster production (average FD statistics 2007-2009).

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<tr>
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<th>Belize</th>
<th>Jamaica</th>
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**Fig. 1.2: Different lobster fishing métiers in Belize, Jamaica, and Nicaragua.**
Participant observation and fishing trips

Gaining access to fishers can often be complex and difficult. Fishers at times had little opportunity to spend time and converse with me, and often couldn’t fully understand why I wanted to know every little detail of what they were doing. At the same time many were very enthusiastic that someone coming from “so far” was taking the time to understand their livelihood. In order to gain a thorough understanding of the fishery, I conducted “participant observation” for hours on end, at docks, landing beaches, government offices, and fishing boats. Sometimes my presence would lead to a group conversation, or eventually an interview with a fisher; sometimes I could just sit and observe.

Being on board the different fishing vessels was the most informative and fun. At times the rapport I had built in a community or with a particular person would enable me to go out on a fishing boat, whereas my presence on board would stimulate even more rapport with the fishers. My presence as a (relatively) young white female from a different continent on the boats (up to five days at a time) never sparked moments, whereby “I blended in with the background.” Yet fishers would continue fishing as they were used to and allowed me into their world without much fuss. Although I am sure my presence caused some slight changes in their behavior, generally my presence would become less of a curiosity, and fishers would go about business as usual. Fishers would go to the “toilet” at the back of the small sailing boat in Belize, while I was still finishing my cup of coffee a meter away. On other occasions I would sleep on a thin mat tightly squeezed between two short fishers on folded-out cardboard.
boxes in the hold of a diving boat. In the morning I would eat the undersized lobsters with tortillas just like the rest of the crew and start my day out snorkeling with the free-lung divers from small dugout canoes.

On an industrial boat in Nicaragua I slept with my mattress right between all the fishers in the kitchen (even though I was given the captain’s hut) because the storm scared me, and the presence of fishers sleeping or talking about regular things like soccer and sex soothed me. While out fishing I never attempted to actually participate in the fishing, as fishers always have a particular way of doing all their chores, and I was sure my attempts would mess up efficient fishing practices. I didn’t want to cause fishers any delays, and know I didn’t actually have the strength or know-how to do the things they were accustomed to doing. Nevertheless, sitting there, observing and asking many, many questions gave me a wealth of information. The time spent on board also enabled me to approach sensitive subjects like trade partners, drug finds, corruption, and illegal fishing. In total I spent 23 days at sea: three times for three days, and once for five consecutive days. The remaining days were day trips with fishers. On some occasions I would approach the fishers directly to ask if I could go to sea with them, when doing an interview, for example. For longer periods on board I either worked through my contacts at the Fisheries Departments who knew trustworthy fishers, or I used my contacts with the processing plant owners who employed the industrial boats. My ability to speak fluent Spanish and Creole (English used by the black inhabitants of Belize and Nicaragua), and a little bit of patois (Jamaica) helped in building up trust, making jokes, and “being treated like a princess” on board.

**Interviews**

I have conducted two different types of interviews: informal, unstructured in-depth interviews, and semi-structured in-depth interviews. The table below shows the unstructured and semi-structured in-depth interviews with a variety of actors conducted in the three countries. The way interviews were conducted differed substantially, ranging from a very formal to a very informal setting. Importers were, for example, interviewed at the Boston Seafood show at their booths, during dinner, in a causal restaurant in New York City, or even at the parking lot booth where one importer worked (and which he owned as well). In addition, I have interviewed several importers and exporters at the Brussels Seafood Show in 2009 and 2010.

With a number of importers and exporters I have also kept close contact by means of e-mail and telephone. Every now and again I would either check in with them or they with me. The e-mails and phone calls kept me up to date with current events in the lobster fishery, even when I wasn’t out in the field. I have approximately 50 e-mails from importers where we discuss lobster issues and which I have also used as data.

State representatives of the three countries were mostly interviewed in their respective offices, but also while on trips out to the field, restaurants, and during trips to processing plants. During the WECAFC meeting in 2006 I conducted structured interviews with each participating country (11 in total).

In Belize I spent six weeks at the CRFM, a building located next to the Fisheries Department. The office of the coast guard and the licensing department were all located in the CRFM building. I would therefore often meet government workers right out front, or inside
Intermediaries (also known as middlemen) were mostly visited in their “offices” if they were the more official type of intermediaries and indeed had offices. Other more informal intermediaries were interviewed on the beaches where fish and lobster were landed, at piers were boats docked, or randomly on the street or on their porches. Fishers were mostly targeted at landing beaches, while with intermediaries, at their homes, shops, and bars, or during fishing trips out at sea. Interviews with fishers could be conducted on beaches full of noisy fishers, and bottles of rum and beer, but also while they were cleaning fish and lobster at the landing site, or when they were just hanging out—basically any fisher that was willing to talk to me and had the time to do so. I also tried to convince fishers that were shy or reluctant, which sometimes worked well and at other times did not. At times I would start interviewing one fisher, but ended up in a group interview with multiple fishers all giving their opinion on the questions. This was usually very interesting and led to stimulating discussions. At times it would lead to nothing but chaos and the fishers would end up talking among themselves about completely different subjects. Or the person I was interviewing would just leave half-way through the interview, if he got bored, was short on time, or had other commitments.

After the initial round of fieldwork, I decided to print pictures of lobster fishing in the three countries. These pictures would entail the different fishing fleets (boats, gears, methods) and I would have pictures of the different types of lobster that exist throughout the world. These pictures, gathered in a book, would often evoke many stimulating conversations and discussions with fishers. Fishers were able to reflect on how different traps could be (size, material, whether bait was used or not), or, for instance, on ways of diving. This way fishers were able to reflect on their own fishery and, in so doing, provide me with interesting information; they mostly seemed to quite enjoy it.

If I needed more fishers from one specific métier, I would go to a place where these types of fishers could be found (e.g., a middleman working only with divers, or a middleman working only with trap fishers). I aimed to meet fishers at a variety of times during the day, in the morning when they would go out, or, for example, in the afternoon when they would return from sea. Visits to their homes and interviews in bars or during fishing obviously also occurred throughout the day. The sampling of fishers was thus one of convenience sampling, whereby fishers were interviewed simply because they were available (Bryman 2004). Of the fishers “simply available” where I was at the time, I had to find the ones who were willing to spend time with me for an interview. In addition, the only fishers that would be excluded from interviews were the ones that were completely drunk or stoned or both.

The same method was applied to the well-being questionnaires and job satisfaction surveys below. I only listed 23 qualitative interviews with fishers following a similar line of questioning. Yet, considering the number of hours I spent talking to fishers at the landing beaches, bars, on board boats, or hanging out at intermediaries, cooperatives, or other spots, I have in fact done many more interviews. These might have varied between ten minutes and a few hours, and I have not listed all these interviews separately here. The 23 interviews are therefore only a fraction of all the qualitative interviews or chats with fishers and others with knowledge in the fishery that have been carried out in this research.
<table>
<thead>
<tr>
<th>Interviews per category (as used in thesis)</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Importers in the US and EU</td>
<td>16</td>
</tr>
<tr>
<td>B: Exporters</td>
<td>16</td>
</tr>
<tr>
<td>C: State representatives in Belize, Jamaica, and Nicaragua</td>
<td>17</td>
</tr>
<tr>
<td>D: State representatives of other countries in the Caribbean</td>
<td>10</td>
</tr>
<tr>
<td>E: Interviews with fishers (besides the: informal interviews; surveys; fishing trips; and participant observation)</td>
<td>23</td>
</tr>
<tr>
<td>F: Cooperatives</td>
<td>13</td>
</tr>
<tr>
<td>G: Intermediaries</td>
<td>12</td>
</tr>
<tr>
<td>H: Scientists and NGOs</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total number of interviews</strong></td>
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</tr>
<tr>
<td><strong>Well-being questionnaires</strong></td>
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</tr>
<tr>
<td><strong>Job Satisfaction questionnaires</strong></td>
<td><strong>84</strong></td>
</tr>
</tbody>
</table>

**Fig. 1.3:** List of interviews per actor group (see Appendix A for dates of interviews) as well as number of well-being and job satisfaction questionnaires.

**Surveys**

In addition to the qualitative interviews, 88 well-being questionnaires were completed and 84 job satisfaction surveys were conducted in total for this research in the three countries (see Fig. 1.3) (see Appendix B and C for both questionnaires). I developed the questionnaires to shed light on the material and relational dimension of well-being. The questions entailed more general questions on age, number of dependents, place of birth, and place of residence, as well as on: the location of fishing grounds; absence from home; multi-species/single-species fishery; economic alternatives; trade relations; conflicts; the role of the government; and illegal fishing. These questions were able to provide a general picture of the material and relational dimensions of well-being. Similar to how the interviews were conducted, the questionnaires were completed by fishers who were willing to do so and who had the time.

For information on subjective well-being, job satisfaction surveys were used. The research survey was administered to a sample of 83 lobster fishers from Belize, Jamaica, and Nicaragua. Thirty-one fishers were interviewed in Belize, 26 in Jamaica, and 26 in Nicaragua. Despite the fact that fishers are divided by gear type (trap fishers and divers), the majority of respondents are small-scale. Only four respondents in Nicaragua employ industrial type methods. The survey of job satisfaction used in the current research is based on the model developed by Pollnac and Poggie (1988), to which two categories of questions have been added. The survey therefore consists of five categories: basic needs, social needs, self-actualization, management, and the value of nature. The basic needs category relates to fishers’ health, earnings, and their ability to feed their families. The second category of social needs refers to fishers’ satisfaction with time at sea, being one’s own boss, and the time they spend away from their families. Self-actualization relates to the notion of fishing as a challenging, adventurous, and worthwhile occupation. Management is a new category, and considers views on conflict and conflict resolution, rules and regulations, performance of government officials, possibilities for participation, and overall management. The nature category refers to the satisfaction of fishers with their landing site, as well as with levels of fish stocks.
The Likert scale (Bryman 2004) was used to rank the responses to the 27 questions in the survey. The Likert scale is a multiple-indicator measure of a set of attitudes relating to a particular area, in this case their job. When responding to a Likert questionnaire item, fishers specify their level of agreement according to a five-point scale ranging from (1) very unsatisfied, (2) unsatisfied, (3) neutral, to (4) satisfied, and (5) very satisfied. In addition, three overall questions on job satisfaction were added, relating to whether a fisher would enter a job outside fishing, or move to another type of fishing, and whether he or she would advise a young adult to enter the fishery.

In Belize the job satisfaction surveys (31) were carried out by a research assistant (Iris de Hoog). In Jamaica fifteen job satisfaction surveys were carried out by Billy Honeghan, and in Nicaragua fifteen surveys were carried out by Eugene Dixon. These research assistants were trained by the author and all followed similar methods in carrying out the surveys. The well-being questionnaires and job satisfaction surveys were not necessarily carried out during the same period. The 88 and 83 fishers are therefore not the same fishers, but two different groups, although a number of them (approximately 35) were administered to the same group at the same time (in Belize).

Secondary data

A thorough literature search is vital to the success of any research project (Bernard 1988). I have therefore read a large number of documents for this thesis: official government documents; scientific articles; gray literature; white papers; PowerPoints; proceedings; and newspaper articles. In addition, I gained access to an American data supplier, Urner Barry, “a business publisher specializing in the accurate and unbiased reporting of market news and quotations” to clients in the poultry, egg, meat, seafood, and related segments of the food industry through a variety of print and non-print media.”

I needed access in order to track the historical price developments and volume of lobster imports into the US. The University of Amsterdam allowed me to purchase access to the Urner Barry database, containing current and historical records, as well as trade data. I used their data to map price developments of the different types of lobster throughout the past decades (see Chapter 1), and attempted to use the available trade data to learn which companies are the largest importers, from which countries they import, from which companies they buy the product, and how long the relationships are in general between importer and exporter (see Chapter 7). It turned out, however, that the Urner Barry data was a far cry from transparent, and roughly 40 percent of the lobster imports came into the US under the heading “order,” which means no company name is listed. This showed the high level of secrecy and competition that prevails in this sector (see Chapter 7 for more information).

1.6 Limitations of research

The sample size of the job satisfaction surveys is small. A larger sample size would have enabled me to use it for more statistical tests. Although the sample size of the material and relational surveys was also rather small (appr. 30 per country), these surveys did enable a thorough understanding of the three dimensions of well-being. A larger sample size would,

however, have enabled me to make more nuanced statistical comparisons between the three countries and widened the number of tests I could have carried out. In a future study I would like to carry out more surveys (both for the job satisfaction component as well as concerning the material and relational well-being). I did, however, also interview many fishers outside the confines of the questionnaires, in order to investigate the answers that came out of the surveys in more detail. In addition, I also participated in many (multi-day) fishing trips, which also enabled me to gather more in-depth information to back up the information found in the surveys.

Secondary literature from official sources at times was untrustworthy. The official catch statistics often suffer from the high levels of illegal, unreported, and unregulated fishing (known as IUU fishing) in the region. This was particularly the case in Jamaica and Nicaragua. In Nicaragua, however, nearly all the officially landed lobsters go through official processing plants, giving adequate data on the means, by which the lobster has been caught. In Jamaica, on the other hand, data on landings is very limited. Part of the catch goes through the processing plants and is exported, but precise data are unavailable. This limits this research in the sense that I was not able to adequately compare the different tracks the lobster travelled in Jamaica and the lobster chain, both nationally and internationally.

Some questions that highly interested me from the start—such as: how much illegal sized lobster do you catch; how much of this do you sell or consume; do you catch all the berried females that you catch; do you fish for lobster during the closed season; how much money do you make from narco-trafficking (or helping narco-traffickers refuel); how much cocaine have you found in total; and what did you do with this money (reinvest in fishery or invested in other causes)—I considered unfit to ask. So in order to come up with any sort of indication of IUU fishing, I asked fishers how many fishers out of ten would land a) undersized lobster, 2) berried females, or 3) engage in fishing during the closed season. The results of these questions are not very precise, but they do provide an indication of the levels of illegal activity in each country. With regard to fishers’ involvement in narco-trafficking, I only had them relate what they wanted to share. I never opened the topic, but once they started talking about it, I would ask more in-depth questions. The topic, however, requires much more thorough and systematic study and analysis in order to be able to make any major generalizations about the topic.

This research required access to a variety of circles, for instance: a variety of fishing groups; intermediaries; processing plants; importers in the US; national civil servants; NGOs; and so on. I needed to gain access to all of these different circles in each country, which required trust, rapport, and guts. Ultimately, I wasn’t able to gain access to everyone I needed to, and often one actor would refer me to the next important person to talk to. However, my talking to one person would in turn sometimes deter others from talking with me. This was especially notable at the Seafood conferences in Boston, where my interviewing an importer would not go unnoticed by anyone. Access at times was difficult, as some actors are more easily approachable than others. Gaining access to US importers and processing plants in the various countries proved especially difficult. I have developed various very good relationships with a number of US importers and processing plants, so rather than conducting a single interview with many importers, I ended up having many interviews and e-mail exchanges with just a few importers, and likewise regarding contacts at processing plants.
The last limitation of this study I would like to highlight is the time factor. The field research took place in the period 2006-2009. When I started carrying out the research and surveys, the sky was the limit when it came to lobster prices on the world market. By 2009, prices for lobster from the Caribbean had dropped 40 percent. Any surveys that would have been carried out during these times might have evoked different responses. This made assessment of the income of fishers (from data as supplied by them) much more difficult, as the surveys were carried out during different time periods in different countries. If I had known about the crisis beforehand, I would have scheduled to have all surveys done in all countries at the same time, and for any future study I will follow this strategy. This, however, proved impossible in this case, as the impacts of the crisis only slowly dawned on me. Given these limitations, arriving at precise estimates of the income of fishers proved impossible. Based on the interviews, surveys, participants’ observations, invoices from intermediaries, data files from intermediaries, and secondary literature I was able to compare the revenues of the different fishing groups.

Conclusion

This chapter has discussed the three main theoretical concepts that underlie this thesis, and the application of these three main concepts for this research. In addition, this chapter has shown the different research methods used, and the limitations of this study.

The three concepts used in this research—governance, global value chain analysis, and well-being—all stem from different theoretical discourses and backgrounds, and are used in a variety of social sciences. Governance is defined as the interaction between market parties, public parties, and civil society, at multiple levels. The interaction will differ between countries and sectors. The overall result of the interaction per country, between market parties, state, and civil society, can be seen as a distinct governance style. Kooiman et al. (2005) distinguish three ideal types of governance styles of interaction: self-governing, co-governing, and hierarchical. The authors argue that all societies demonstrate, and require, mixes of these three modes or styles. In this regard, I agree with these authors when they argue that, although these three types are idealized types, a fisheries governance style in a certain country can be argued to show more characteristics of one style than another. I follow the literature that suggests that different governance styles impact the final ability of fishers to achieve well-being in different ways. The literature suggests that certain governance styles, for instance co-management, are more beneficial for both the distribution of benefits throughout the chain, and for increased levels of individual well-being. The interaction between these three concepts will co-determine value-chain structure dynamics and therefore directly and indirectly the well-being of lobster fishers. To examine the different governance styles of the three countries I investigate the following: the development orientation of the state; the orientation towards the fishing sector; stakeholder representation; state institutions, laws, and policies; state-market relations; and NGO-state market relations in MPA management.

This chapter also explored the Global Value Chain approach. The GVC describes the range of activities that are required to bring a product from its conception to its end use and beyond. The Global Value Chain approach helps to address questions on the lack of correspondence between the geographical spread of economic activity and the spreading of
gains from participating in global production markets (Kaplinksy 2000: 118). The lobster fishery in the Caribbean is a prime example of a value chain that starts with harvesters in the South and extends to consumers in the North. In this thesis, I investigate the structure and governance of the value chain in each of the countries. A variety of market governance structures within the chain have been presented in this chapter. Governance within the chain refers to the distribution of benefits and dependency relationships throughout the chain. Different types of chain governance can impact the ability of fishers to achieve well-being differently. In this research I will focus on chain structure (input-output, chain actors, quality standards, and practices), as well as governance of the chain (dependency relations, barriers to entry, and the impacts of the economic crisis on chain governance).

The well-being of fishers is measured across three dimensions: material, relational, and subjective well-being. This chapter has shown the different schools of thought behind these three dimensions, although the origins of the different schools also partly overlap. The concept of well-being is one result of this development, and provides a holistic view on well-being of people, as it attempts to combine both objective as well as subjective measurements of well-being. The three dimensions try to encapsulate this holistic angle, as well as the ability to compare fishers’ well-being across different countries and métiers. Fishers can score differently across the three dimensions, both between fishing groups in one country and fishing groups in different countries. The three dimensions link back to different aspects of the characteristics of the governance arrangements and the lobster chain that a fisher belongs to. The conceptual framework thus shows the embedding of fishers in the governance arrangements and lobster chain, and the linkages between the different concepts. This chapter has thus hopefully convinced the reader that, in order to view the lobster fishery in the Caribbean as an integrated whole, and answer the research questions that underlie this study, we need to draw on fisheries governance, the Global Value Chain approach, and the well-being approach.
Chapter 2: The alchemy of lobsters: from fertilizer to red gold

Introduction

Lobster is currently known in North America and Europe as a luxury seafood appreciated by the upper classes. Lobster is culturally associated in these regions with extravagance, romance, sex appeal, and regarded as an aphrodisiac. Each society considers its particular food and eating protocols as normal, as the way things “should be” (Mintz 1986). Although choices are evidently dependent on the availability of foods, this is not exclusive as people never eat everything their environment has to offer. Choices for foods can both differ between countries as well as within countries, with their choice carrying symbolic meaning. Bourdieu (1984) has argued that judgments of taste are related to social position. Eating habits are one way in which people can present likes and dislikes, showing the world their status and distancing themselves from others, such as “lower” groups (Bourdieu 1984).

In Bourdieu’s food classification, he shows that different social classes eat very distinct foods (1984). Fish in this categorization is associated with delicate and lean foods, more appreciated by the better-off. For the working classes, fish tends to be regarded as an unsuitable food for men; it is a light food, insufficiently “filling,” something which would only be cooked for health reasons. “It is one of those ‘fiddly’ things which a man’s hands cannot cope with and which make him look childlike” (1984: 190). Fish is therefore mostly eaten by the more well-to-do and elite classes. Lobster consumption initially appears to fall neatly into Bourdieu’s taste classifications as a food mostly appreciated by the upper classes. It is an expensive food item, difficult to eat for those not accustomed to it, and thus poses a barrier to the lower classes.

Bourdieu’s theory has been criticized for its limited applicability outside of the French context (see, e.g., Lamont 1992; Halle 1993). This chapter will demonstrate the dynamics of lobster appreciation and consumption across space and time. One might assume that the image of lobster as a luxury food, only fit for the elite, is valid globally; this chapter will show, however, that while lobsters have been appreciated in Europe as a luxury product for centuries, in the US only a few centuries ago lobster was known as “food for the poor.” Although this historical lack of appreciation for lobster in the US—in the light of its current image—might come as a surprise, other seafood products that we relish today have similar

30 The association of lobster with lust and sexuality seems to have existed for the last 500 years (King 2011). In 1620 it was already considered an aphrodisiac by Dr. Tobias Venner and in the eighteenth century many poems were written linking lobsters and lust, and concerning its use as an aphrodisiac (King 2011: 115-116). See also the design of the “Lobster Telephone,” also known as the “Aphrodisiac Telephone” created by Salvador Dalí in 1936. He created the telephone with the specific intention of aligning the lobster’s genitalia with the end of the phone into which one would speak, thus bringing the speaker’s mouth in line with the lobster’s genitalia (King 2011). King also makes many associations between lobster and sex in movies, such as Flashdance (1983), and Splash (1984).
31 Bourdieu also showed that different classes vary in restaurant visits, the percentage of total expenditure they spend on food, and food categories (1984).
32 But mostly so, Bourdieu claims, because fish has to be eaten in a way which totally contradicts the masculine manner of eating, that is “with restraint, in small mouthfuls, chewed gently, with the front of the mouth, on the tips of the teeth” (1984: 190).
histories. Charles Dickens already noted in The Pickwick Papers that “the poorer a place is, the greater call there seems to be for oysters” (1905). A few centuries ago, oysters were considered a staple food by Native Americans and the first settlers, and were eaten by the gross (i.e., a dozen dozen) rather than by the dozen. In the second half of the eighteenth century it was noted that the poorest people in Manhattan lived all year on “nothing but oysters and bread” (Kalm in Kurlansky 2006: 82). Nowadays, the oyster is considered a unique gastronomic experience for which consumers pay extraordinarily high prices. The Atlantic halibut, now described as “America’s favorite whitefish,” was considered revolting in the early 1800s. Similarly, until the 1930s, Atlantic bluefin tuna were discarded as trash fish in the waters around Denmark. In 2001, a 200-kilogram Atlantic bluefin tuna sold just under USD 175,000 at a Tokyo auction (Jacquet and Pauly 2007). Parisians in the 1920s would spit out caviar offered by Russian traders, as they still yet “had to learn to eat caviar in the 1920s in Paris” (Carey 2005). Current caviar prices range between USD 6,000 and USD 12,000 per kilogram.

Eating habits are thus among the most deeply rooted elements of culture. Food is an important factor in defining culture and often carries symbolic meaning.

For us humans, then, eating is never a “purely biological” activity [...] The foods eaten have histories associated with the pasts of those who eat them; the techniques employed to find, process, prepare, serve and consume the foods are all culturally variable, with histories of their own. Nor is the food simply eaten; its consumption is always conditioned by meaning. These meanings are symbolic [...] they also have histories (Mintz 1986).

These symbolic meanings not only differ across cultures, but also across subcultures, nations, and continents. In addition, just as the previous examples have shown, the symbolic meaning of foods can change over time. This chapter will explore lobster consumption in the US and Europe throughout the past centuries, as well as the development of lobster fisheries and consumption in the Wider Caribbean and in the three countries under investigation in particular. This will show how a food classification of lobster in a framework such as Bourdieu is limited when examining the changes over the past few centuries and across different regions. This chapter begins with a description of lobster and its key characteristics. I continue with a thorough account of lobster demand and consumption in the United States over the past centuries where, inter alia, the changes of the symbolic meaning and appreciation of lobster will be discussed. I will continue by showing the development of lobster fisheries in the Caribbean region as a result of the increase in demand in the United States, and then elaborate on the specific development of the lobster fisheries in Belize, Jamaica and Nicaragua. The different development trajectories of lobster fisheries in the three countries since the 1950s will be discussed, as well as the current appreciation of lobster in the region.

2.1 Lobsters
Fossils found in Europe and the Americas show that lobsters have existed for 250 million years (Townsend 2011: 24). Current clawed and clawless lobsters have a common ancestor that lived approximately 251 to 290 million years ago (Townsend 2011: 12). In Bavaria, lobster fossils found date from almost 200 million years ago, whereas in England fossil remains have been found from 146 million years ago (Townsend 2011: 24). They have thus
survived immense climatological and geographical changes. The earliest species of lobster by far predate man and, in fact, “they are biologically so much older than mammalia they might as well have been from another planet” (Wallace 2005: 237). Lobsters are the result of a combination between bugs and locusts, so basically could be considered giant sea insects.

The main distinction among the different varieties of lobsters is between clawed and clawless lobsters. The clawed lobster consists of a group of American, European, and Norwegian lobsters that are found in the colder, northern Atlantic Ocean (Townsend 2011: 11). The clawless lobsters are lobsters from the waters of Asia, Australia, and the Caribbean. They have developed into different species across the world, and currently the earth’s oceans are home to a large variety of lobsters.

Lobsters with claws like hair combs sift mud in offshore trenches. Clawless lobsters with antennae like spikes migrate in clans in the Caribbean and the South Pacific. Flattened lobsters with heads like shovels scurry and burrow in the Mediterranean and the Galapagos. The eccentric diversity of the world’s lobsters has earned them some of the most whimsical names in the animal kingdom. There is a hunchback locust lobster and a regal slipper lobster. There are marbled mitten lobsters, velvet fan lobsters, and even a musical furry lobster. The unicorn and buffalo blunt-horn lobsters inspire admiration; the African spear lobster, the Arabian whip lobster, and the rough Spanish lobster demand respect (Corson 2004: 21).

This thesis concentrates on the clawless spiny lobster (*Panulirus argus*, Latreille, 1804) in the Caribbean region. The spiny lobster is found in the Western Atlantic, from Bermuda and North Carolina’s eastern US coast, down to Rio de Janeiro, Brazil, including the entire Gulf of Mexico and the Caribbean Sea. Spiny lobsters are a transboundary resource that throughout their different life stages move through different sea habitats. They consequently have a complex life cycle requiring three distinct habitats: coral reef (adults); open ocean (larvae); and a shallow, vegetated coastal zone (juveniles) (Butler et al. 1997: 4).

Up to two million eggs can be released by a female lobster, but only a few might survive to become an adult. Once the egg has been released from its mother the larvae drift for up to a year on the ocean currents. As it spends up to a year drifting in the ocean currents, this means that some countries are supplying larvae to their neighbors or countries even further away. Lobster is thus a shared resource, by virtue of its planktonic larval dispersal (Ehrhardt et al. 2011). Developments in one country, such as the destruction of nursery grounds, therefore potentially affect the prospective harvest of the neighboring countries. Several larval dispersal currents and lobster fisheries areas in the region can be distinguished (see Figure 2.1). In addition, the variety and length of the highly transient larval stages make predicting stock sizes a challenge (King 2011: 87).

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33 The Old English version of the word “loppestre” is probably related to “loppe,” meaning spider. But the original derivation goes back to the Latin “locusta.” Pliny the Elder wrote in the first century AD about lobster using the term “locustre,” or locust of the sea, because of the fact that lobsters appeared to disappear “with a single bound or leap as a locust or grasshopper might do” when surprised (Corson 2004: 25).
From their post-larval to their pre-juvenile stage, lobsters seek shelter and food and move to more secluded areas among mangroves, sea grasses, and shallow coral reef ecosystems. As juveniles mature, they move deeper into the ocean to complete their development into an adult.

While the lobster grows and increases in size, predation becomes less severe as it moves into deeper water as it matures. If a young lobster has managed to survive the dangerous first years when up to 99 percent of lobsters die, it will become a sub-adult at three years of age. Lacking the large defensive claws of their northern cousins, they use their spiny shell as armor. They also use their two enormously long spiky antennae as a defensive measure, rubbing them against their skeleton to make a screeching sound (Townsend 2011: 18). The eyes of a spiny lobster (and clawed lobsters as well) are on stalks to provide a 360-degree view, yet they can still quickly retract them under their shells (King 2011: 29).

Rays, sharks, skates, and other large fish are the largest predators of adult spiny lobsters. They can swallow lobsters whole and will digest them in due time (Woodard 2004: 244). Smaller lobster might also be eaten by triggerfish, blue crabs, and snappers, as well as by sea turtles. In unfished areas, spiny lobsters can grow into giants measuring nearly half a meter (max. 45 cm) and can weigh over 5 kg (11.2 lbs). However, this is hardly the case in the Wider Caribbean, due to heavy fishing, as 90 percent of the legal-sized adults may be harvested annually; consequently the average size is approximately 20 cm. It will take a lobster up to 10 years after they have been released as a tiny little egg to first reach sexual maturity (FAO 2001).

At an adult stage lobsters are sociable and migratory (Butler et al. 1997: 13). They inhabits shallow waters, occasionally down to 90 m in depth, and perhaps even deeper. The lobster is a cold-blooded omnivore that enjoys hiding in the gloom beneath rocks, reefs, and eelgrass beds, or in any habitat that provides protection. They are famous for their autumnal
migrations. They relocate to deeper waters, moving in single file in groups of around 60 lobsters (Townsend 2011: 19). Yearly, approximately 100,000 lobsters migrate in this way to evade the autumn storms that produce waves on the coast. They will use their antennae when travelling to stay connected to their companions, resting them on the lobster in front of them. “It’s a lobster conga line, snaking across the floor of the Caribbean” (Townsend 2011: 19). They do this apparently in response to the onset of summer and fall storms. Trap fishers take advantage of this migration when they target the lobster migrations in the seagrass beds in some areas in the region (Huitric 2005).

Fig. 2.2: Spiny lobster.
Source: Manoel Jose Cifuentes-Markwordt

2.2 From delicacy to food for the poor

Humans have been eating crustaceans since prehistoric times. Many of the earliest hunter-gatherers lived near oceans, seas, lakes, and rivers, and naturally took advantage of every available food resource. Large piles of shells known as middens have been found on British shores, proving the popularity of shellfish among prehistoric coastal communities. But piles of shells have also been found in South Africa, dating from approximately 100,000 years ago, and in Australia and Papua New Guinea from approximately 35,000 years ago (Townsend 2011: 24). King argues, however, that within these middens archeologists have never identified many lobster remains anywhere on earth (King 2011: 56).

The reason for this might be that they were not widely eaten or available, but more likely is the fact the lobster’s shell is very thin and biodegradable (King 2011: 56). It could be that other food was so readily available that lobster was only a minor part of the diet, or that the ecosystems at the time only provided room for small numbers of lobsters (King 2011: 56). However, when combining the rare archeological finds with early depictions of artifacts and the accounts of European contacts with native peoples, it can be argued lobsters were eaten or used as bait or for other purposes “as part of the pre-colonial coastal cultures on each

34 The exoskeletons haven’t survived as well as the more calcified shells of molluscs (King 2011: 560).
and every populated continent and throughout the South Pacific and Caribbean” (King 2011: 57).

The earliest depiction of a lobster is a carving on a temple wall in Egypt from the fifteenth century BC (Townsend 2011: 9; King 2011: 58). In Europe, people are believed to have been eating lobsters since the Stone Age (Townsend 2011: 2). Romans in the early centuries of the common era considered shellfish a treat, and even transported it over considerable distances (Townsend 2011: 25).

![Fig. 2.3a: Second-century mosaic with a lobster and fish from Papalonia, near Rome.](image)

![Fig. 2.3b: Mosaic of sea creatures found at Pompeii. Source: Archeological Museum of Naples, Italy](image)

The Romans often portrayed lobsters, along with other edible sea creatures such as squid, octopus manta rays, or finfish, on mosaic floors that formed part of domestic and public decoration (see Fig. 2.3a). Among the ruins of Pompeii for example, spiny lobster appeared on a mosaic floor from the first century BC, as well as on several wall paintings and in an alabaster relief (Reese 2002: 310) (see Fig. 2.3b). Roman noblemen would throw copious sea banquets showering their rivals with banquets costing the equivalent of up to USD 80,000 (Roberts 2007: 19). Lobsters and oysters, both a rarity at the time and therefore expensive, were often used in these sea banquets.⁷

During the Viking period (late eighth to eleventh century) and afterwards, Northern European consumption of fish and shellfish grew. The increase in demand for fish was particularly high by the eleventh century due to the increase in population, with more and more people eating fish for protein, through religious obligation, and for prestige.⁵ Seafood wasn’t commonly consumed up to the end of the first millennium, as previously people had been eating mostly freshwater fish. However, the switch from freshwater fishing to sea fishing was a result of a complete collapse of freshwater fish stocks in the eleventh century (Roberts 2007: 19). Population growth increased demand for fish, while Catholicism in particular boosted demand tremendously, as the medieval church instilled days of fasting, on which sexual intercourse and eating flesh were forbidden, although eating “cold” food was permitted (Kurlansky 1997: 24: see also Roberts 1997: 19). Fish was considered a “cold” food and as the number of fast days and the forty days of Lent could amount to 130-150 days of the year, fish was in high demand (Roberts 2007: 19).
Archeological remains show that within a century or so people in continental Europe turned from eating freshwater fish to eating saltwater seafood. Where in Europe prior to 1000 AD people mainly ate freshwater fish, by the fourteenth and fifteenth century cod, herring, and other saltwater fish constituted 60-80 percent of fish bones in archeological deposits (Roberts 2007: 18). The combination of increased demand for fish due to religious obligations, increasing populations, and the decreasing supply from freshwater sources, increased marine capture throughout Europe.

Technological advances and improved high-sea vessels supported the expansion of the fishing fleets in Europe throughout the Middle Ages. In that era, lobster found its way into prestigious households as a means of demonstrating affluence, and lobster was probably among the seafood consumed on fish days instead of meat (Townsend 2011: 28). Lobsters were consumed at elaborate banquets by royal families, and in the courts of Vienna and Prague (Townsend 2011: 29). It was also appreciated among the royal and aristocratic families of France, the Netherlands, and Britain.

Renowned seventeenth-century Dutch painters such as Andries de Coninck, Jan Davidsz de Heem, Jacob Foppens van Es, Frans Snyder, and Willem Kalf often depicted lobsters in the foreground of their still lifes showing presentations of delicacies the upper class might enjoy, such as oranges, grapes, and oysters (Figs. 2.4).

For a variety of reasons fish stocks in rivers had become depleted. Not only had people overharvested fish, but fish stocks also plummeted because of the building of dams and weirs, due to the clearing of farmland that clogged waterways with silt, water mills that caused slow-moving water (difficult for spawning fish going up the river), the use of barrier nets and many other fishing techniques, extensive use of aquaculture ponds in rivers, pollution of rivers by increased population with ever-growing quantities of sewage and toxins, and the reclamation of farmland (Roberts 2007).

In the early 1400s, for example, the Bishop of Salisbury consumed at least 42 different types of crustacean and fish at his table over a nine-month period (Townsend 2011: 28).
It was the Dutch as well who sparked the first substantial lobster industry in Norway. When Holland had exhausted its own stocks they turned to Norway to meet their great demand for lobster. The Norwegians had not fished commercially for lobster up to that point, as they had little appreciation for lobster on the table (King 2011: 69). It was not until the Dutch sailed across the North Sea to search for lobster that Norwegian commercial lobster fishery began (King 2011: 69). The live lobsters were sent by ship to Holland. In the eighteenth century it was also reported the Dutch came at least twice a year to haul home Norwegian lobster, and Norway also expanded the market to England.38

With lobster being rare and exclusive in Europe while demand was high, the first Europeans traders in the New World were more than happy to trade goods and materials with the Native Americans for lobster. Coastal Native Americans held shellfish and most seafood in high regard and relied on them as principal sources of protein and oil (Townsend 2011: 31). Explorers in other regions were also happy to trade items for lobster. Figure 2.5 shows an English naval officer bartering with a Maori at the end of the eighteenth century on one of Captain Cook’s voyages. The Europeans traded lobster for, inter alia, iron nails and building tools.

In 1769 Joseph Banks wrote during one of James Cook’s voyages to New Zealand how the natives they encountered on their way would haul lobster pots. He describes eating supper at the home of Indians which consisted of “fish, shellfish, lobster and birds” (Banks Journal II: 76) and writes with enthusiasm about the luxurious lobster they encountered on their journey (1770):

But above all the luxuries we met with the lobsters or sea crawfish must not be forgot, which are possibly the same that in Lord Anson’s Voyage are mentioned to be found at the Island of Juan Fernandes; they are large tho not quite so large as those at Juan Fernandes and differ from ours in England in having many more prickles on their backes, and being red when taken out of the water. Of them we bought great quantities of the natives every where to the Northward, who catch them by diving near the shore, feeling first with their feet till they find out where they lie. (Banks 1770: 318-319)

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38 In 1733 alone, Norwegians supplied 23 shipments sailing for Holland (a total of 160,000 lobsters) as well as 41 apparently smaller cargoes bound for England (King 2011: 70). In the 1820s the Norwegians would annually export some 1.5 million lobsters to Holland and England (King 2011: 70).
When the first settlers arrived in North America in the sixteenth and seventeenth centuries they were therefore amazed by the number and size of the lobsters. Boston’s seashore could be littered with lobster after hard storms (Corson 2004: 25, Wallace 2005: 238). In North America there are accounts of Plymouth Pilgrims wading out and capturing all they wanted by hand, and their gladly helping themselves to fresh lobsters that had been piled on the beach by Native Americans. Native Americans living on the coast of New England as a result ate them in quantity (Woodard 2004: 170). In 1622, the Englishman Thomas Morton observed (in Townsend 2011: 31) the following:

This being knewne, they shall passe for a commodity to the inhabitants; for the Salvages [sic] will meete 500, or 1000 at a place where Lobs ters come in with the tyde, to eate, and save dried for store; abiding in that place, feasting and sporting, a month or 6 weckes together.

Lobsters did not retain their popularity with the Europeans that travelled to the New World however. The utter abundance of lobster changed its image within just a few decades of the first settlers’ arrival. William Wood, a colonist in 1620s Massachusetts, mentioned the abundance of lobster and its relatively low value:

Lobsters be in plenty in most places, very large ones, some being twenty pounds in weight [9 kilograms]. These are taken at a low water amongst the rocks. They are a very good fish, the small ones being the best; their plenty makes them little esteemed and seldom eaten. The Indians get many of them every day for to bait their hooks withal and to eat when they can get no bass (Wood [1634] 1993, in Roberts 2007: 39).

In 1622, the leader of the Pilgrims, Governor William Bradford, already reported shame at having to serve lobster for lack of a more appropriate dish (Corson 2004: 26). He apologized to newly arrived settlers that the only dish he could present was “a lobster... without bread or anything else but a cup of fair water.” William Wood in *New England’s Prospect* in 1634 noted “their plenty makes them little esteemed and seldom eaten” (In Townsend 2011: 34).
In the seventeenth and eighteenth centuries, lobster was so common in North America it was considered “junk” food and food for the “poor.” When caught in great quantities or stranded on shore after severe storms, lobsters served as garden fertilizer (Acheson 1997; Woodard 2004). In 1881, an English visitor called John Rowan described farmers in New Brunswick, Canada, fertilizing acres of potato field with lobsters gathered from the beach after a storm (King 2011: 94). He reported lobster being ground up and fed to the pigs and “lobster shells about a house are looked upon as signs of poverty and degradation” (in King 2011: 94).

Fishers would also use lobsters as bait and would toss ground-up lobster overboard to attract schools of mackerel (Woodard 2004: 171). It was considered a staple food, fit to give to widows, orphans, indentured servants, and prisoners. Lobster was thus fed to these less privileged groups instead of commercially more valuable products such as cod, mackerel, or grain. It was so commonly used as a food for indentured servants, that Massachusetts passed a law forbidding its use more than three times a week—a daily lobster dinner was considered cruel and unusual punishment (Woodard 2004: 170). Corson (2004: 25) and King (2011) argue that the common claims of lobsters being considered a “junk food” only fit for “swine, servants, and prisoners” to be an exaggeration. Most scholars nevertheless agree that lobster at this time was generally considered a low-class dish for human consumption (Corson 2004; King 2011). Fishers would eat lobster, but most probably more out of economic necessity as finfish was too valuable to eat. Finfish was sold for profits, whereas the lobster was nearly worthless and consumed at home (Corson 2004: 26).

2.3 Popularization of lobster in the United States
The image of lobster in the eighteenth century as a food fit for the poor and servants slowly changed, and gradually its meat became desirable to the well-off urbanites (Corson 2004: 26). As the populations of New England and New York City grew, some fishers began earning extra income by supplying them with live lobster (Woodard 2004: 171). By the early nineteenth century, fishers were catching lobster commercially. King (2011: 91) pins the starting date of commercial lobster fishery slightly later, at mid-nineteenth century. Around New York, where the population rapidly increased, lobster fishing now became a full-time occupation (Woodard 2004: 171). The abundant offshore lobster stocks declined and fishers moved a bit further from shore and started fishing from small rowboats and at greater depths. The city’s fishers, however, could no longer meet the explosive demand for live or freshly boiled lobster, and fishers in Connecticut started supplying a greater portion of the lobster; soon they too, however, faced declining catches (Woodard 2004: 171).

The commercial development of the lobster industry did not fully begin until the 1840s with the development of the “smack,” wooden sailing vessels developed and designed to transport live lobster (Acheson 1997: 6). These smacks had large tanks onboard with circulating seawater and would keep thousands of lobsters alive for anywhere from several

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39 Townsend notes this is a myth and that there is not shred of evidence to support the argument that there was a law protecting prisoners/servants from having to eat lobster more than three times a week (Townsend 2011: 340.

40 Initially, this occurred with a type of net hanging from an iron hoop and shaped like a cauldron. Later, trap fishing with traps made of wood and twine were found to be far more efficient than nets, and caught on in New England (Corson 2004).
days up to two weeks (Woodard 2004: 171). This permitted the long-distance trade of live lobster to Boston, New York, and other coastal cities (Acheson 1997: 6).

Lobster canning started in 1842 and quickly caught on. Although sales were initially slow, they developed at a remarkable speed and more canneries opened. In the 1850s there were only three lobster canneries, by 1880 there were 23 (Woodard 2004; Acheson 1997). The canneries flourished along the coast and provided livelihood for many; of all the lobster caught in 1880 approximately two thirds went to the canneries (Woodard 2004). The canned lobster was distributed far and wide, and introduced Americans all over the country to lobster meat.\footnote{Roughly half of the production was exported to Europe, particularly England (Woodard 2004: 179).} The canning technology thus expanded markets for lobster meat and sparked a “lobster rush,” severely depleting lobster stocks in the Gulfs of Maine and St. Lawrence (King 2011).\footnote{The canning process and large number of casualties of lobster during transport was wasteful and consumed an extraordinary amount of lobster. It took four and a half to six pounds of live lobster to fill a one-pound can with meat (Woodard 2004: 179; Acheson 1997: 6).}

By the 1860s, however, lobster fishery showed clear signs of trouble; the catch per unit of effort\footnote{Catch Per Unit of Effort (CPUE) is used in fisheries and conservation biology and used as an indirect measure of the abundance of a target species. CPUE standardizes the data based on the effort, i.e. the number of individuals caught per number of traps and total time of the trapping event. CPUE assumes constant catchability and that all animals have the same probability of being captured (Zimmerman and Palo, 2011).} declined as more and more fishers entered the business, while the catch remained the same (Acheson 1997: 6). By the 1870s and 1880s the first conservation laws were established (Acheson 1997: 4). After 1870, the market for fresh lobster grew enormously due to the introduction of the new technological possibilities provided by, for instance, railroads and cooling facilities. This enabled the shipping of iced lobster to markets, and the invention of lobster pounds—large enclosures for storing live lobsters (Acheson 1997: 7). As the live lobster market expanded, more and more fishermen began to supply lobster (Acheson 1997: 7). Live lobster fishery further developed after the 1880s, when a major part of lobster demand came from tourists visiting Maine.\footnote{Wealthy tourists travelled to Maine to escape city heat and enjoy the ocean, while simultaneously discovering pristine seafood, including lobster. They provided a critical boost to Maine’s inshore fishers on the coast by eating a great deal of fresh seafood (Woodard 2004: 185).}

What began with a few tourists a year, developed into an extraordinary 100,000 annual tourists visiting Maine by the 1880s, and indulging in shellfish and fish (Townsend 2011: 46). On their return home to Boston, New York, or Philadelphia, many continued to crave fresh seafood and so boosted demand in urban markets as well, and thus popularized the idea of their consumption and luxury status. Technological innovations developed at the same time, enabling lobster trade across larger distances. Up until the 1870s canneries supplied the bulk of lobster meat in the United States, but after this time the market for fresh lobster grew significantly (Acheson 1997). Conservation laws also worked in favor of the live lobster industry and profits in the canning industry declined (Acheson 1997: 7). After 1880, the canneries began to close and many moved to Canada (Acheson 1997: 7).

Lobster dealers and fishers mainly traded fresh large “dinner” sized lobsters, which were sold to restaurants in the large cities of the East Coast (Acheson 1997: 7). These affluent diners showed off their wealth by eating several lobsters at one sitting.
The lobster pounds which had been developed allowed live lobster to be stored for months, if necessary, until the prices improved. With lobster pounds and new shipping methods, lobsters could be profitably stored and shipped to half the country, and lobster finally became big business in the United States (Woodard 2004: 187).

The demand and image of lobster changed from food for the poor to desirable seafood. “In the thirty years between 1850 and 1880, lobster had gone from a cheap form of bait to a $430,000 industry, exceeding all other Maine fisheries save cod, mackerel, and herring” (Woodard 2004: 187). The growing urban population with increasing desire for fresh seafood, dietary changes, and rising incomes stimulated an even larger demand for lobster in the United States. In 1919, catches declined sharply, however, and they remained low until World War Two. During the entire interbellum period, catches were only 25 percent of what they had been in the last decade of the nineteenth century (Acheson, 1997: 10). The fishery remained attractive until the Great Depression, however, despite declining catches, because of the rising prices (Woodard 2004; Acheson 1997). Lobster had become an expensive luxury item until the Wall Street Crash and the ensuing Great Depression of the 1930s (Woodard 2004: 191). Demand from hotels and restaurants fell, as they started buying smaller, cheaper lobster from Canada (Woodard 2004: 191). The number of fishers fell by a third (Woodard 2004: 191). Many fishers left the industry and those that remained did so mostly only as part-time fishers (Acheson 1997: 10).

The fishery did not recover until after World War Two (Acheson 1997: 10). Catches recovered during World War Two, and remained relatively constant for the next several decades (Acheson 1997: 14). After the war, the consumption of lobster was on the rise again. During the war, lobster had become a prized alternative for beef and other foods that were rationed, and lobster meat filled the increasing demand for protein-rich foods. Moreover, as the economy boomed after the war, many could afford to buy lobster. Although there was a decline in lobster purchases immediately after the war, lobster consumption rapidly rebounded.

It has been the increasing demand, alongside technological advances, that has enabled lobster fisheries in other parts of the world to develop, in order to supply the US market. Beginning around 1900, the development of the internal combustion engine ushered in a series of technological advances in catching lobster around the world (King 2011: x). Later on in the twentieth century, the introduction of freezing technology and airline shipping further

45 Similar changes can be observed in South Africa. The commercial exploitation of the species began only in 1875, when a processing plant was established in Cape Town. This cannery began to export to Europe, where its product was seen as a cheap substitute for northern hemisphere lobster (Melville-Smith and Van Sittert 2005). Although exported to Europe and consumed by the bourgeois class in Paris (Melville-Smith and Van Sittert 2005: 33) the image of lobster in South Africa itself remained that of a “food for the poor” (Hauck 2009: 135). “In the not too distant past, no self-respecting white person was seen to eat lobster (at least not in public) here in South Africa. Lobsters were considered food for the underprivileged (read blacks and coloureds)” (Stewart 1998). Its abundance, and its tendency for “massing at the sewer outfalls in Table Bay” confirmed its low status, it was used for bait in the nineteenth century in Cape Town and generally shunned by the middle class (Melville-Smith and Van Sittert 2005).

46 Between 1900 and the 1920s, decadent, scandalous, late-night restaurants, called “lobster palaces” opened and became popular in New York City with the rich and famous (King 2011: x). The palaces were sensual, high-publicity restaurants where men held parties in private rooms and late-night lobster suppers were eaten (King 2011: 117).
expanded the global market for spiny lobsters (King 2011: 101-102). These advances also refer to the use of plastics, the wire trap, radar, scuba equipment, and GPS (global positioning system) technology. The freezer shipments to the US after World War Two really developed the market for frozen spiny lobster tails, as demand for the species continued to rise alongside (Townsend 2011: 50).

Table 1 shows the increase in the production of crustaceans since the 1950s in North America and the Caribbean. The figure clearly indicates the increase in crustacean production since the 1950s in North America and the Caribbean, with production quadrupling in North America and tripling in the Wider Caribbean between 1950 and 2005.

![Production of crustaceans in North America and the Caribbean and Central America between 1950-2005](image)

Table 2.1: Production of crustaceans in North America & Central America, and the Caribbean between 1950-2005.
Source: author based on data from EarthTrends 48

Figure 2.6 shows the largest producers of lobster in the world are the US, Canada, the United Kingdom, Australia, the Bahamas, Brazil, Ireland, Cuba, and France (Chetrick 2006). The American lobster (54%) and the spiny lobster (38%) are by far the most important species in world lobster production, followed by rock lobster (8%) and European lobster (2%) (Tsekelis and McCarron, undated).

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47 The figure shows the production of crustaceans (this includes, e.g., shrimps and prawns) rather than just lobster, for lack of available data on only lobster.
Over the last decades, world exports and imports of lobster have grown steadily, with world lobster exports rising 87 percent between 1992 and 2004. The United States has remained the largest importer of all lobster products, accounting for USD 1 billion or nearly 47 percent of global imports, followed by Japan with USD 178 million. Currently lobster imports represent 2.7 percent of all seafood imports (in value, incl. fresh and frozen seafood as well as canned seafood) in the US. The Caribbean spiny lobster, *Panulirus argus* (Latreille 1804), is the most intensively harvested palinurid lobster in the world, accounting for nearly 42,000 tons (Chavez 2001, 2009).

Figure 2.7 shows current frozen lobster imports into the United States. The main exporters are Australia, Brazil, the Bahamas, the United Arab Emirates, Nicaragua, and Honduras. If you were to combine the volume of lobster exports of all the countries in the Wider Caribbean Basin, lobster imports from the Wider Caribbean region are 75 percent of all spiny lobster imports. Remaining lobster imports come mainly from the United Arab Emirates and Australia.

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50 2007 data taken from foreign trade data, NOAA.
2.4 Lobster fisheries development in the Caribbean region

Prior to the start of commercial lobster fishing in the mid-twentieth century, fishers had only sparingly caught lobster for commercial purposes. Locals living in coastal areas would occasionally eat lobster, as the resource was plentiful and provided protein for their diet, but it wasn’t in high demand. A few centuries earlier, when the Europeans first came to the Wider Caribbean region, travelers noticed the Island Caribs catching lobsters. “The Island Carib fisherman reportedly used his legendary skills as swimmer and diver in several fishing techniques. When they see lobsters [...] they take a large rock in their two hands and dive head first, and leaving the rock on the bottom, return with the lobsters” (Dutertre 1667: II, 381 in Price 1966). It was also reported that in Martinique, slaves, who were poorly fed, would supplement their diet with lobsters caught in the little free time they had (Price 1966).

The lobster fisheries in the Wider Caribbean started mainly as a result of increasing international demand in the 1950s and 1960s in the United States, in combination with the improved technology of freezer ships. The figure below shows the lobster production figures of the top producing countries (except for Cuba and Mexico) since 1975, showing the rising trend of lobster production in the Wider Caribbean region. Most countries show trends with a general decline in production in the second half of the 1990s, and later as a result of the economic crisis in 2008 and 2009 (see Chapter 5 for more information on the effects of the economic crisis). In addition, differences per country can be observed with large fluctuations from year to year. These can be due to ecological circumstances, as well as such matters as political turmoil in the country.

![Lobster production figures in the Wider Caribbean region](image)

**Fig. 2.8:** The lobster exports of the top seven producing countries in the Wider Caribbean (plus Jamaica) to the US.

Source: Author, based on data provided by Urner Barry

When we take a closer look at the production of the three countries under investigation, we see the lobster production in Nicaragua is the largest (1.1 million lbs), followed by Jamaica (700,000 lbs) and Belize (533,000 lbs).
Figure 2.9 shows clearly that lobster imports were low in the 1970s but have increased since, although there were sharp rises and drops along the way. Although lobster imports from Belize were higher up to the end of the 1990s, from the beginning of the twenty-first century their lobster imports have remained relatively stable. Lobster imports from Nicaragua, however, have shown wide fluctuations over the last 25 years. During the civil war in the 1980s, lobster imports from Nicaragua came to a full stop. The trade only started again after the trade bans were lifted in 1990. From that moment on, lobster imports have increased sharply.

Nevertheless, these sharp rises in imports were also followed by sharp declines in trade, although overall the trade has increased over the last few decades, up until the economic crisis in 2008. The development trajectory of the lobster fishery in each country has been strikingly different. The following sections will provide a more detailed overview of the development of the lobster fishery in Belize, Jamaica, and Nicaragua.

**Belize**

Belize is famous for its large barrier reef that extends for no less than 260 km along the coast. It’s the largest in the western hemisphere and second largest in the world (Fairweather-Morrison 2006). The extensive reef complex in Belize comprises over 1,060 mangrove and sand cays, with three offshore atolls to the east of the reef in deeper oceanic waters (Gillet 2003). The large barrier reef has enabled the country to claim a very large Exclusive Economic Zone (EEZ) in comparison to its land size. Belize’s EEZ is a total of 170,000 km², over seven times its land mass (Gillet 2003). The large and shallow EEZ has stimulated a heavy reliance on fishing, for domestic consumption, and to provide income and employment for a significant part of the population and substantial foreign exchange.

The commercial exploitation of lobster started in the 1920s in Belize, the earliest of the three countries discussed here. The fishery developed initially due to an American entrepreneur who hired Belizean fishers to gather lobster in 1915 (Huitric 2005). In 1923, a
Canadian entrepreneur introduced the lobster trap to the lobster fishers and set up a barge with a cannery (Huitric 2005). Although he abandoned the cannery in the 1930s, fishers continued catching for their own use and to sell (King 1999: 79; Huitric 2005). Prior to this North American entrepreneurship, lobster was considered a “food of last resort” in Belize. After a heavy storm, lobsters would wash up on the shore in their hundreds, and older local residents remember the bottom of the sea being colored red from the massive amounts of lobster at the time (King 1999: 79). Fishers would carry the lobster to Belize City to sell, but as they were so abundant, they often went unsold, and fishers would often discard hundreds of lobsters as they would spoil in the sun in the heat of the day at the market (King 1999: 80).

It was not until the late 1940s and 1950s that Belize’s lobster export fishery began its largest expansion (King 1999: 80). In the 1950s, processing and freezing facilities were established in Belize City, allowing year-round fishing and processing of lobster, while the colonial government installed export duties in the 1950s (Huitric 2004). After World War Two, American buyers and processing facilities arrived, and various American buyers controlled the fishery during the late 1940s and 1950s. Although they provided a steady market, the fishermen profited very little in comparison to the foreign buyers, as prices were low for fishers at the landing sites. The main profits went to the foreign entrepreneurs and companies, to the dissatisfaction of the fishers. In the 1950s, fishers only received around BZD 0.01-0.05 per lobster for whole lobsters, and between BZD 0.15 to 0.40 per pound for cleaned tails from foreign buyers (King 1999: 87).

The expansion in the 1940s and 50s coincided with the colonial government passing its first fisheries legislation that regulated the lobster fishery in British Honduras (King 1999: 80). In the 1940s, the colonial government of British Honduras enacted legislation to promote credit unions and cooperatives (King 1999: 88). Catholic priests advanced these community-based institutions as a means for rural agriculturalists and fishers to improve their well-being through collective action, and the lobster fishers took advantage of this development (Price-Daly 1986: 6-63; King 1999: 88).

Fishers in Caye Caulker, a small island to the northeast of the capital, had first learned about the credit union and cooperative moments in the 1950s (King 199: 88). They established a credit union, but their initial attempts to organize a cooperative failed (Sutherland 1986). In 1960 they tried again and succeeded, as they had sought assistance from a politician in the area who supported them vis-à-vis the colonial government. The fishers were motivated to attain higher prices and, together with the support from a local politician, a Canadian expert on cooperatives—and aided by an American manager of one of the fishery plants—the first fishing cooperative was begun (King 1997: 457).

At the opening of the lobster season of that year, the fishers from Caye Caulker managed to collectively negotiate higher prices from the foreign seafood buyers. A few months later, the fishers achieved formal recognition by the colonial government and were registered as the Northern Fishermen’s Cooperative Society (NFCS). The cooperative processed, stored, and marketed the lobster fishers sold to it, and fishers were earning up to USD 2.00 per pound for lobster tails by the middle of the 1960s (King 1999: 89).

With the introduction of marketing cooperatives in the 1960s, economic and social conditions greatly improved for fishers. Through collective processing and marketing, the foreign intermediaries were eliminated and larger profits realized. Within two years, the
cooperative had its own processing plant, and, soon after, fishers were earning substantially more from the lobster exports than previously. Three more fishing cooperatives were established between 1960 and the mid-1960s, and between 1959 and 1964, fishers were earning over 13 times more per pound of lobster (King 1997: 457). By 1965, the government of British Honduras (known as Belize as of 1980) outlawed foreign exporters and conceded authority to the cooperatives to become the sole exporters of this species. The commercial fishery therefore evolved from one of foreign-dominated purchasing and marketing companies to locally owned cooperative organizations (Gillet 2003).

In Belize today, four fishing cooperatives still exist which were formed at the beginning of the 1960s. The spiny lobster (*Panulirus argus*), queen conch (*Strombus gigas*), and pink shrimp (*Penaeus dourarum*) are currently the economically most important species with respect to production and economic value in the marine capture fisheries in Belize (Belize Statistical Report, 2005). The fisheries sector (incl. aquaculture) is now the third largest foreign exchange earner, with aquaculture yielding USD 30 million, and marine capture USD 11 million in 2005 (Fairweather-Morrison 2006). Lobster exports are highly important, as in 2003 they were worth nearly USD 7 million per year, conch over USD 2 million.51

Even though lobster has become an undeniably important trade commodity, Belizian fishers still have no strong desire to eat lobster themselves. Household surveys carried out by King (1999) recording meals and foods eaten in Caye Caulker, a small island community with high lobster production numbers, showed locals rarely eat lobster. The household food journals indicated that those participating only ate lobster in 3 percent of their meals, whereas fish was the seafood item most consumed (King 1999: 112). Although one could imagine that lobster are too valuable to be eaten, fishers can and will consume undersized lobster. In the surveys52 conducted for this research, Belizian fishers (from both Caye Caulker and other areas) also clearly indicated fish was still their preferred seafood item for personal consumption, with only 19 percent of fishers preferring to eat lobster to fish.

**Jamaica**

Jamaica is an archipelagic state located in the Caribbean Sea 145 km south of Cuba and 161 km west of Haiti. The country consists of a main island, and several offshore keys, banks, rocks, and shoals (Morris 2010). The EEZ is very large, measuring 274,000 km², equal to 26 times the area of the main island (Van Riel 2005). This is the result of some small keys to the south and southwest of the island called Pedro, Morant, and Formigas Cays. These have historically been inhabited by Jamaicans, which enabled Jamaica to declare itself to be “an archipelagic State.” In total the country consists of over 60 islands, cays, and rocks, about six of which are continually inhabited. Marine fishing is therefore divided into two main types, namely inshore and offshore fishing. The inshore fishing includes operations carried out on the island’s shelf areas within 64 km of the mainland, while offshore fishing includes

51 The bulk of lobster exports consists of lobster tails. However, Belize also exports a small percentage of lobster head meat. These are used as the base of seafood soups and are marketed in, e.g., China (NFCS Annual Report, 2005).

52 N=31
operations performed outside the EEZ’s proximal banks (areas further than 64 km from the country’s mainland).

The Jamaican government has played a major role in the development of fisheries since the 1940s, as the main force behind its modernization and development. Fisheries developed in the 1940s, and already in 1949 the Fisheries Division of the Ministry of Agriculture was established, as a sub-division of the Forestry Department, to promote the fishing industry in general, and fish farming in particular, as it was felt that aquaculture had considerable economic potential. In the 1950s, the Jamaican Social Welfare Commission began promoting fishing cooperatives among the fishermen on different beaches around the island. It was believed that the development of the Jamaican fishing industry depended upon the development of cooperatives for the improvement of production and marketing techniques. Although lobsters were harvested in those days, the commercial lobster fishery was still limited.

Moreover, in 1960 loans were provided to fishers for both offshore as well as inland fishing, as the fishers’ primary disadvantage was lack of mechanized power. The government organized a boat-mechanization and credit program in 1956. A major phase of the program consisted of a revolving fund which provided credit facilities for commercial fishermen, by supplying outboard engines under generous hire-purchase terms. By 1961, over 630 engines had been supplied to fishers, and the loans repaid for nearly 90 per cent (Venema 2004). In addition the government started to supply a duty-free gasoline-oil mixture, and began the construction and operation of gasoline stations adjacent to fishing beaches.

By 1975, several forms of subsidies to develop the fisheries further existed, such as gas-oil mixtures for outboard engines at low prices; diesel fuel for larger vessels, with a discount subsidy by the government; cash refund on mesh wire rolls for use in fish-pot construction; tax-free supply of outboard engines for bona fide fisheries; and repair and training facilities at the Fisheries Division of the Ministry of Agriculture, in Kingston, for the maintenance of outboard engines.

The subsidy program for the fisheries sector began in the 1970s with subsidized outboard engine fuel. Since 1976 there has been a small subsidy on mesh wire for fish traps and for diesel fuel for larger decked vessels. These subsidies were curtailed in the 1980s. The Fisheries Division has operated a revolving loan scheme for canoes and engines (Aiken and Haughton 1987). Fishers purchased outboard fuel mixture for less than half its market value. Equipment used by fishers was imported duty-free. This led to more and more people entering the fishery industry and overcapitalization, and a downward trend in catch per unit of effort (Aiken and Haughton 1987).

In Jamaica, an industrial fishery started in the 1970s with diving boats employed by a processing plant in Kingston. In the early 1980s, this processor changed from diving to trapping as a method. Large companies and investors began processing and exporting conch and lobster caught on offshore banks by large, decked vessels. These industrial vessels were mainly active on the Pedro Bank, generally fishing for conch and lobster. More fishers settled on the cays of the Pedro Bank, while others started fishing the offshore banks from beaches on the main island, mainly from the south coast. Their catch went to both the national market

53 Based on a report by the Inter-American Development Bank (IDB).
and the international market. The industrial fleet was quite large between 1980-1988, but due to overexploitation there has virtually been no large-scale lobster fishing since 1990 (Aiken and Kong 2000). The fishing cooperatives have been less successful in Jamaica, and no fishing cooperative currently holds any processing facilities. Processing facilities are rather in the hands of small commercial business entrepreneurs. In 1990, a 60 percent devaluation of the national currency greatly increased the cost of living, and lowered living standards across the island. In desperation, increasing numbers of Jamaicans turned to fishing as a source of income and protein, a move facilitated by the fishery’s “open-entry” policy (Waltho and Biggers 2004). Waite et al. (2011: 5) believe fisheries contribute directly and indirectly to the livelihoods of more than 100,000 people island-wide, or nearly 5 percent of the population.

The gross revenues from the sale of reef-related fish (incl. lobster) between 2001-2005 averages USD 33.1 million per year, including an estimated USD 24.2 million per year from domestic sales and an estimated USD 8.9 million per year from exports. Subsistence catches are estimated to be worth USD 1.2 million. The total value of the reef-related fishery can therefore be established at an average USD 34.3 million per year between 2001 and 2005, equivalent to 0.3 percent of Jamaica’s annual GDP (Waite et al. 2011: 6). The Pedro Bank fishery alone is estimated to value USD 8.8 million from conch, USD 4.4 million from lobster, and USD 13.2 million from finfish.

The fisheries sector is therefore very valuable for fishers and all those involved in the fish chain. Besides the direct benefits, fishers also find themselves in a situation where their operations are subsidized through government loans, concerning matters such as fuel, engines, and mesh. With the recent economic downturn, these subsidies have been cut and the loans been withdrawn. The country’s fishing industry is described as small-scale in nature. Jamaica’s capture fisheries sector includes a very small industrial fleet, mostly fishing the offshore banks for conch, lobster, and fish (Auditor General 2008: 11). The main fishing exports are conch, lobster, tilapia, and ornamental fish (Venema 2004). No secondary data are available to determine lobster consumption in Jamaica or any changes that have taken place in this regard. The surveys conducted for this research, however, indicated that only 15 percent of the interviewed fishers preferred to eat lobster over fish.

Nicaragua

Nicaragua’s Caribbean continental shelf harbors one of the main spiny lobster (Panulirus argus) stocks in the Central Western Atlantic. The extended continental shelf, its shallow depth and the occurrence of abundant coral reefs provides a good habitat for the spiny lobster that inhabits shallow waters up to 90 meters deep (Cochrane and Chakalall 2001). In Nicaragua the spiny lobster is distributed over an area of 37,000 km² (66 percent of the Nicaraguan platform) in the Atlantic Ocean, but is principally concentrated around the Miskito Keys and within a radius of 40 nautical miles around Corn Island (FAO 2001: 252).

The political turmoil in Nicaragua has had consequences for the lobster fishery. Since the fishery began in the 1950s, it has been influenced by the overall political developments in the country. Until the 1950s, exploitation of the lobster resources on the Atlantic coast of Nicaragua was limited, mainly due to the difficulty isolated coastal communities lacking infrastructure for transport and processing had in accessing international markets (World Bank 1999: 1). However, in 1953 large-scale fishing on the Atlantic coast began when a US
company obtained a contract to fish for shrimp and other shellfish off the Atlantic Coast of Nicaragua (Vilas 1989:76). The fishery expanded rapidly in response to increasing demand in the US. By 1970 the fleet had increased to around 55 boats, and by 1978 there were already 100 lobster boats in operation on the Atlantic Coast, both trapping and diving (World Bank 1999: 7; FAO 2001: 238).

Several processing plants were established in the Caribbean region. They were financed with US capital, as well as funds from the government; the production was primarily for export, the main market the United States (Vilas 1989:76).

Nevertheless, the civil war that started in 1979 curtailed most lobster exports. The private industrial fleet passed into state ownership and the former owners of a part of the fishing fleet removed everything of value from it. Part of the fleet was clandestinely sent to Costa Rica, Honduras, or San Andrés (Vilas 1989: 137). The processing companies were mostly abandoned, yet the revolutionary government held on to a few processing plants in order to gain some revenue from the fishery (Vilas 1989: 103). During the Sandinista years there was a marked reduction in fishing on the coast, with an average of just eighteen industrial boats in operation during the decade prior to 1989 (World Bank 1999: 8).

With the end of the civil war in 1989, economic sanctions against Nicaragua were lifted, and in 1990 the new government reinstituted private enterprise, once again attracting business interest from the US (Meltzoff and Schull 1999: 12). This led to a boom in the sale of foreign fishing licenses, and the opening of the vast US market in frozen lobster tails (ibid.). The situation therefore returned to how it had been previous to the civil war. The government granted a huge number of licenses to the industrial fleet and numbers rose to 77 industrial boats by 2000. A large part of the fleet was foreign (mostly Honduran or Colombian).

The nationalization of the fleet in 1992 did not alter this profoundly, as former foreign vessels now carried a Nicaraguan flag, while captains and a large part of the crew often remained foreign. Licensing of the industrial fleet supplied the government with substantial revenue. All processing plants are privately owned and no fishing cooperatives in Nicaragua have processing facilities. Lobster, shrimp (cultivated), and finfish currently are the economically most important species.

In a household study conducted in the small coastal community of Tasbaupani on the Caribbean coast by Nietschmann in 1972, lobster was not even mentioned as a food item. At this time lobster was already widely exported to the US. Nietschmann’s research showed most of the meat from hunting and fishing came from three species (green turtle, white-lipped peccary, and whitetail deer), with no mention being made of lobster consumption (Nietschmann 1972). In a similar household consumption study in 2008 in Pearl Lagoon (another coastal community on the Caribbean coast of Nicaragua), Garland and Carthy (2010) revealed similar results. When interviewees were asked about their preferred ranking of meats and seafood, lobster was not ranked in the top three. Although the top three differed slightly per age group, only (sea) turtle, chicken, fish, and beef were mentioned as preferred foods. When the scores were shown, categorized by socioeconomic status, only the highest socioeconomic group listed lobster as the third preferred food, with shrimp and chicken at numbers 1 and 2. The surveys I carried out among lobster fishers in Nicaragua also indicated only 2 percent of the fishers preferred to eat lobster over fish and other seafood.
Conclusion

This chapter has provided background material on the spiny lobster species, and on lobster appreciation, consumption, and harvesting that enables the reader to place the current lobster fisheries in the Wider Caribbean in a historical and geographical context. Lobster as a species by far predates man. They have developed differently throughout the world and different types of lobsters can be found across the globe. The most common distinction is between clawed and non-clawed lobster. This thesis focuses on the non-clawed lobster from the Caribbean region: the spiny lobster (*Panulirus argus*). This chapter has demonstrated that the spiny lobster is a transboundary resource and that actions taking place in one country could impact the lobster resource in another country in the region. Spiny lobster fishery is a major industry in the region and, from a regional perspective, spiny lobster is the most imported lobster species into the US.

Present lobster consumption and appreciation in the US and Europe fits neatly with Bourdieu’s (1984) food space classification. It is a luxury food mostly enjoyed by the elite. This chapter has, however, clearly shown that lobster consumption and appreciation is culturally bound and has differed over time. In Europe, lobster has been appreciated as a luxury food item since prehistoric times. In Roman times, lobster was already regarded as an extravagance, and the elite would throw lavish sea banquets the included lobster.

Although currently in North America lobsters are regarded to be in line with caviar and oysters, and a food associated with wealth and luxury, this image has not been consistent throughout the previous centuries. Its abundance along the coast of North America resulted in lobster being considered “food for the poor” in the seventeenth and eighteenth century. Fishers would eat it, but only because other seafood was often too expensive; lobster was often used as bait and given to servants.

The growing urban population with its increasing desire for fresh seafood, dietary changes, and rising incomes stimulated a growing demand for lobster in the United States. In combination with technological advances, a shift took place in the latter half of the nineteenth century and the alchemy of lobster from fertilizer to “red gold” became a fact. Lobster demand and prices on the world market showed an increasing trend up until the end of the twentieth century. The Great Depression marked a sharp drop in demand, yet prices continued to rise.

Since the 1950s, the demand for lobster in the US has grown exponentially, sparking lobster fisheries development around the globe. The demand was caused by changing dietary patterns, increased urbanization, population growth, and increasing wealth in the market countries. International trade was enabled by technological advances enabling long-distance travel. Lobster receiving high unit prices on the world market was the result. The strong demand, high unit prices on the international market, combined with improved technology such as freezer boats, have stimulated lobster fisheries in the Caribbean region.

The fisheries have developed directly as a result of increasing demand from the US since the 1950s. No commercial lobster fisheries existed prior to this development, and it is not a product commonly appreciated as a food product in the three countries. In the three countries under investigation, lobster is highly valued as a commodity with a high unit value, and desired by tourists and foreigners.
This chapter has demonstrated that lobster commonly lacks the symbolic value of a luxury product, romantic food, or an aphrodisiac in the region. It is highly valued as a trade and export product, but without the same symbolic meaning as elsewhere. The three country surveys conducted for this research, taken together, lead to the conclusion that on average 81 percent of the fishers preferred eating other seafood over lobster.

The Caribbean region is at present the largest exporter of lobster to the US. In this chapter, I have placed the three lobster fisheries in the context of developments of lobster fisheries worldwide. The chapter has illuminated the different historical trajectories of the lobster fisheries in the three countries under investigation. This has revealed that the most striking aspect of the lobster fishery in Belize is the prominent place of fishing cooperatives. From the onset of the fishery in 1960s, the state has granted exclusive export rights to fishing cooperatives. In Jamaica the state has attempted to stimulate fishing cooperatives, yet few of these are still in existence today. In Nicaragua political turmoil has played a pivotal role in the development of the lobster fishery. During the civil war the lobster fishery nearly ended completely, but the fishery quickly reemerged at the end of the civil war, after 1990. Market parties have played an important role in the Nicaraguan fishery from its onset.

The following chapter will place the lobster fishery in each country in its respective larger societal embedding. From a comparative perspective it will further investigate the different fisheries governance styles, the different development orientation of the states involved, and the current governance arrangements, involving the interaction between state, market and civil society at a national level.
Chapter 3: National governance compared

Introduction

International demand for lobster has sparked commercial lobster fisheries throughout the region since the 1950s and 1960s. Technological developments such as the introduction of freezing technologies and airline shipping further enabled this development. Although initially most countries focused on fishery development, in the 1990s difficulties began to crop up. Currently the lobster fishery in the region is facing severe problems concerning such matters as: the open-access nature of the fishery; large-scale landing of juvenile lobster and berried females; large-scale illegal, unregulated, and unreported (IUU) fishing; lack of fishery control and surveillance; insufficient financial resources and human capacity in government institutions; and lack of capacity (organizational, human, financial, and technical) among fishers and others involved in the fishery to engage meaningfully in its management (FAO 2007).

These problems, however, are not equally severe across the countries, although many countries in the region face similar problems. In some countries some problems are more severe than in others. Management laws and policies are strikingly similar, yet governance of the lobster fisheries appears quite diverse. Although the lobster fisheries in the region developed during a similar period, with an identical product delivered to a similar end market, the inherited sociopolitical and economic traditions are distinct. The national fisheries governance arrangements in the different countries in the region can be expected to develop out of already existing frameworks. They are the result of dissimilar historical trajectories in each country, the varying importance of the lobster fishery as an economic sector in each country, as well as the role of civil society, the state, and market parties at the national level.

International governance of lobster fisheries can be expected to equally impact the different lobster fisheries in the region, and differences thus need to be explained by looking at national governance arrangements. The aim of this chapter is thus to examine the different governance styles that are present in each country, by investigating the role of the state, state-civil society, and state-market relations.

Market governance is considered to be an element of overall governance, and although briefly discussed in this chapter, it is examined in more detail in Chapter 7. Traditional fisheries governance is only found in one of the three countries: Belize. In Belize, trap fishers around Caye Caulker and San Pedro have developed a sea tenure system, whereby fishers have territorial rights over a certain marine area. They are able to exercise rights over these areas as if they were property; they may trade and sell them, and are able to exclude others from making any use of their fishing territory. This group of fishers is, however, only part of the total fishing population of Belize. This sea tenure system is discussed in more detail in Chapter 4, as the system only applies to a limited number of fishers in Belize and this chapter will focus governance at national level.

This chapter begins by exploring international level governance of lobster fisheries in the region. It addresses the level of exploitation of the lobster resource throughout the region, the various organizations involved, and these organizations’ ability to influence lobster
fisheries governance outcomes. Based on the previous elaboration of the concept of governance and governance styles, in this thesis I investigate the:

1) development orientation of the state, by looking into:
   a. the orientation of the state at a more general level;
   b. dominant domestic groups present in the lobster fishery; and
   c. the orientation of the state towards the fishing sector;
2) state institutions, laws and policies;
3) stakeholder representation (by looking into: Fishery Advisory Boards, fishing cooperatives; and
4) Non-Governmental Organization (NGO) involvement in the institution and enforcement of Marine Protected Areas (MPAs).

Although the governance styles under investigation are not expected to fit exactly in one category or the other, as various governance styles often overlap, each country’s fisheries governance style is expected to be different and express characteristics that tend more towards one style than the other.

3.1 International level governance
The lobster resource in the region faces problems of overexploitation (FAO 2007). This development is in line with developments in capture fisheries worldwide, which have developed rapidly since the 1950s and now face severe overexploitation (Pauly 2008; Worm et al. 2006; FAO 2010). The spiny lobster in the Wider Caribbean is degraded throughout much of its range. The majority of the spiny lobster fisheries in the region are either fully exploited or stable, whereas the lobster fishery is overexploited in six countries. The lobster fishery of Belize is regarded as being fully exploited while Jamaica’s and Nicaragua’s lobster stocks are overexploited.

<table>
<thead>
<tr>
<th>Status of stock</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underexploited</td>
<td>Venezuela (some areas)</td>
</tr>
<tr>
<td>Fully exploited or stable</td>
<td>Puerto Rico &amp; Virgin Islands; Turks and Caicos; United States of America; Mexico; Belize; Costa Rica; Cuba; Antigua and Barbados; Venezuela (some areas)</td>
</tr>
<tr>
<td>Overexploited</td>
<td>Nicaragua; Jamaica; Dominican Republic; Brazil; Colombia; Honduras</td>
</tr>
</tbody>
</table>

Table 3.1: Level of exploitation of the Caribbean spiny lobster in the 19 most important lobster fisheries in the region.
Source: FAO 2007: 4

54 The level of exploitation in the region has caused the Caribbean spiny lobster to be listed in Annex III of the Protocol Concerning Specially Protected Areas and Wildlife (the SPAW protocol) of the Cartagena Convention. This implies that each party, in cooperation with other parties, shall formulate, adopt, and implement plans for the management and use of such species. However, currently only nine countries have ratified the agreement (not including any of the three countries under investigation in this thesis).
Table 3.1 suggests the spiny lobster resource is currently only underexploited in one country, Venezuela (and only in some areas).

As the resource is crucial for the livelihood and employment of many, as well as an important source of foreign exchange, adequate fisheries governance is of great importance. We have seen in Chapter 2 that lobsters are a transboundary resource, as lobster larvae are widely distributed across the Caribbean Sea; this biological feature of a wide larval dispersal has implications for lobster-producing nations in the region, as adequate lobster fisheries governance in the countries thus requires international cooperation. This international cooperation is taking place with a varying intensity and level of success throughout the region. The need for international management in the Wider Caribbean has, however, been recognized by institutions such as the Gulf and Caribbean Fisheries Institute (GCFI), Western Central Atlantic Fishery Commission (WECAFC), Caribbean Regional Fisheries Mechanism (CRFM), the Organization of Fishing and Aquaculture in Central America (OSPESCA), and the National Oceanic and Atmospheric Administration (NOAA).

Countries in the Wider Caribbean are member of various Regional Fisheries Organizations (RFOs) (see Fig. 3.1). With regards to international lobster fisheries governance in the Caribbean, the three most important RFOs are the WECAFC, CRFM, and OSPESCA.

Fig. 3.1: Various RFO memberships of countries in the Wider Caribbean.
Source: Chakalall et al. 2007

The WECAFC is a regional fisheries body established under Article VI of the FAO constitution. The goal of the commission is to promote international cooperation for the conservation, development, and sustainable utilization of the living marine resources for the WECAFC area. The main objectives are to facilitate the coordination of research, to encourage education and training, to assist member governments in establishing rational...
policies, and to promote rational management of resources that are of interest to two or more countries. The commission is not actively involved in fisheries management, however, as responsibility is left to the member countries. The WECAFC lacks regulatory power and functions only in an advisory capacity. The WECAFC has a special spiny lobster working group and up until the present (2012) has held five regional meetings on lobster fisheries management. In the 1980s, the FAO WECAFC initiated a Working Party on spiny lobster management in San José, Costa Rica. The WECAFC has promoted five workshops on spiny lobster fisheries management in the region in recent years: the first in 1997 in Belize; the second and third in Merida, Mexico, in 1998 and 2000; the fourth in Cuba in 2002; and the fifth once again in Mérida, Mexico, in 2006. One of the major decisions of the meetings has been allocating the stocks in the region to four Working Groups, based on the coastal shelves and knowledge of the prevailing currents in the region:

1. Northern stock: Bahamas, Bermuda, Cuba (North), Turks and Caicos Islands, and the US (Florida)
2. North Central stock: Belize, Cuba (Southwest) and Mexico
3. South Central stock: Colombia, Costa Rica, Dominican Republic, France (Guadeloupe and Martinique), Haiti, Honduras, Jamaica, Nicaragua, and the US (Virgin Islands and Puerto Rico).
4. Southern stock: Antigua and Barbuda, Brazil, Netherlands Antilles, Saint Lucia, and Venezuela.

The CARICOM is addressing the challenges of fisheries governance by means of the Caribbean Regional Fisheries Mechanism (CRFM). This RFO facilitates cooperation for the sustainable development and conservation of marine resources in the CARICOM countries. The CRFM was initiated in 1991 as a collaborative effort between CARICOM and Canada, when the CARICOM fisheries resource assessment and management program (CFRAMP) was launched to promote sustainable use and conservation of the fisheries resources in CARICOM countries. The CRFM was formerly established by intergovernmental agreement in 2002 (Parsons 2007). The CRFM’s overall goal is “to promote sustainable use of fisheries and aquaculture resources in and among member states by the development, management, and conservation of these resources in collaboration with stakeholders, to benefit the people of the Caribbean region” (Parsons 2007: 8). It has a mandate for a full range of functions, but only for a subset of the countries of the Wider Caribbean (Chakalall et al. 2007). Currently, a common fisheries policy for CARICOM member countries is being drafted, which could enhance sustainable use of marine resources in the region. However, this only applies to the member states. Jamaica and Belize are members of the CRFM, but Nicaragua is not.

Another regional organization involved in addressing shared fisheries management in the region, and that of spiny lobster management in particular, is OSPESCA. The OSPESCA, established in 1995, is the organization for the fishing and aquaculture sector of the Central American isthmus. The seven participating countries are: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama. The organization has been involved in pursuing harmonized fisheries management measures for shared resources, including the spiny lobster. In recent years, the OSPESCA has been quite successful in coordinating
cooperation between several Central American countries on harmonization of spiny lobster management measures. In 2005, it carried out a workshop in Managua, Nicaragua, on “Regional Alternatives for the Harmonic Administration of the Lobster Fishery in the Caribbean, on the Basis of Joint Lines of Action.” The output of this workshop and the workshops that followed was a signed agreement between Nicaragua and Honduras on the harmonization of the following regulations: closed season; minimum size; size of escape grill; number of traps per industrial vessel; and the establishment of protected areas. In addition, agreement was reached on the removal of all traps from the sea during the closed season, and a ban on the export of minced lobster meat. The agreements were witnessed by government representatives of Belize, Guatemala, Costa Rica, and Panama, countries considering eventually joining this agreement. In collaboration with the WWF, the OSPECA is currently involved in the design and implementation of a large-scale project in Honduras and Nicaragua to enhance sustainable fishing practices among lobster fishers.

Belize, Jamaica, and Nicaragua are all member of the WECAFC. This organization has, however, no binding power and has to date mainly supported data collection and management meetings of the countries involved. The WECAFC provides coordination of development, information gathering and analysis of spiny lobster data, but has no binding decision-making capacity (Mahon and McConney 2004). The CRFM and OSPESCA have a mandate for the full range of functions, but only for a subset of the countries of the Wider Caribbean (Chakalall et al. 2007). Belize and Jamaica are members of the CRFM, Nicaragua and Belize of OSPESCA. It is clear that current arrangements for international governance of the spiny lobster resource are inadequate, as no overarching organization has the mandate to carry out and make management decisions. Nevertheless, regional attempts are made, especially by OSPESCA, to work on harmonization of spiny lobster regulations. The NOAA (National Oceanic and Atmospheric Association) has also supported the harmonization of legislation among a variety of countries in the region.

3.2 State features and development orientation of national states

The following section will discuss political orientation, the role of the state in fisheries development, and the importance of the fishing sector for each of the national fisheries. Table 3.2 starts with a number of general features of Belize, Jamaica, and Nicaragua in reference to their respective populations, Gross Domestic Product (GDP), Gross National Income (GNI) per capita, and Human Development Index score. These show that Nicaragua is the poorest of the three, and holds the 124th place in the United Nations Human Development Index (UNDP 2007). The annual GNI per capita is around USD 2,430 and according to the United Nations Development Program 48 percent of the population of Nicaragua lives below the poverty line, and 80 percent of the population lives on less than USD 2 per day. Nevertheless, in 2006 the GDP growth rate of Nicaragua was slightly above that of Jamaica. Nicaragua’s poverty is therefore clearly higher than that of Belize and Jamaica.

Belize had the highest growth rate at 3.5 percent. Jamaica and Belize are generally characterized as middle-income countries. Jamaica ranks 100th in an index of 162 countries, while Belize holds a similar position with its 93rd place on the HDI. The annual per capita income in Jamaica and Belize is also much higher than that of Nicaragua, at USD 6,487 and USD 5,812 respectively. When looking at the GDP per country, the table shows Belize’s
economy is relatively small. Until recently, the Belizean economy has been dominated by its export sector, which leans on three agricultural products: sugar, bananas, and citrus. Jamaica’s economy is by far the largest of the three countries. Jamaica’s economy is eleven times the size of that of Belize, but only 2.3 times the size of Nicaragua’s economy.

The state features and development orientation of each of the states are further discussed below.

<table>
<thead>
<tr>
<th>General features</th>
<th>Belize</th>
<th>Jamaica</th>
<th>Nicaragua</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (x 1000)</td>
<td>322.1</td>
<td>2,690</td>
<td>5,680</td>
</tr>
<tr>
<td>GDP (in USD billion)</td>
<td>1.37</td>
<td>15.07</td>
<td>6.59</td>
</tr>
<tr>
<td>GNI per capita USD (PPP)</td>
<td>5,812</td>
<td>6,487</td>
<td>2,430</td>
</tr>
<tr>
<td>Human Development Index³</td>
<td>0.772 (93rd place)</td>
<td>0.766 (100th place)</td>
<td>0.699 (124th place)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>State features</th>
<th>Belize</th>
<th>Jamaica</th>
<th>Nicaragua</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Parliamentary democracy</td>
<td>Parliamentary democracy</td>
<td>Democracy with executive presidency</td>
</tr>
<tr>
<td>Independence since</td>
<td>1981</td>
<td>1962</td>
<td>1821</td>
</tr>
<tr>
<td>Political parties</td>
<td>Two-party system</td>
<td>Two-party system</td>
<td>Multiple parties but two main parties dominate</td>
</tr>
<tr>
<td>Development orientation</td>
<td>Social democratic, emphasis on role of cooperativism</td>
<td>Neo-liberal (agreement with IMF to restructure economy and its debt)</td>
<td>Neo-liberal, despite socialist claims by Ortega (agreement with IMF to restructure)</td>
</tr>
<tr>
<td>Dominant domestic groups</td>
<td>Middle-class elite and foreign investors</td>
<td>Middle-class elite and foreign investors</td>
<td>Small traditional elite, oligarchic but some foreign investors</td>
</tr>
<tr>
<td>Orientation towards fishing sector</td>
<td>Protecting interest of small-scale fishers and cooperative system</td>
<td>Initial focus on small-scale fishers and cooperatives failed. Ad-hoc support in times of crisis and natural disasters</td>
<td>Focus on development of the fishery and foreign exchange. Industrial fleet and processing plants favored.</td>
</tr>
</tbody>
</table>

Table 3.2: General and state features and development orientation of Belize, Jamaica, and Nicaragua.

Belize

Belize has been shaped by its history of slavery, the plantation system, and colonialism. Belize is the only English-speaking country in Central America, and its political system mirrors that of the United Kingdom. Belize has a parliamentary democracy, whereby executive power is exercised by the government. There are only two political parties that participate in elections, the currently (2012) ruling United Democratic Party (UDP), and the opposition People’s United Party (PUP), which ruled for two consecutive terms until 2008. Despite the fact there are only two parties, there are few strong ideological differences between the two (EUI 2009).

Belize gained its independence from Great Britain relatively late, in 1981. Although its current political system is stable, governance problems did plague the previous administration (1998-2008), and contributed to the sharp increase in debt and the ensuing economic crisis (World Bank 2009). The colonial past of Belize has been described by
Moberg (2003: 145, in Pisani 2007: 48) as being controlled by “a close-knit of oligarchy of timber companies and expatriate merchants [who] ruled the territory as a virtual fiefdom, often in defiance of the Colonial Office in London.”

In the 1940s, however, the colonial government of British Honduras enacted legislation to promote credit unions and cooperatives (King 1999: 88). Catholic priests advanced these community-based institutions as a means for rural agriculturalists and fishers to improve their well-being through collective action (Price 1986: 6-63; King 1999: 88). The state therefore actively strived towards cooperative movements in primary product production. The economy before independence was centered on a few export products for the world market. Since independence, the government of Belize has attempted to overcome this dependency on a restricted number of export products by setting up a cooperative organizational structure, as the government favored the institution of co-ops. Currently Belize is a moderately stable parliamentary democracy in a region known for civil strife (Pisani, in Balboni and Palacio 2007). The two main fishing cooperatives have been granted exclusive rights over exports of fisheries products by the government of Belize. Within the Ministry of Agriculture & Fishing, there is a Cooperative Department. The fishing cooperatives, however, have been the most successful of the 28 active agricultural/marketing cooperatives Belize numbers. The state has supported the establishment of fishing cooperatives and granted them exclusive powers over processing and export, which has translated into large-scale financial and political power for the fishing cooperatives.

Investments are made by the local elite, which can be classified as an elite middle-class, as well as by foreign investors. Tourism and the education sector are the main beneficiaries of large-scale foreign direct investment (FDI). The Belizean economy is principally based on agriculture, agro-based industry, and trade, with tourism and construction recently assuming greater importance. Its main trade products are cane sugar, citrus concentrate, marine products (including lobster), bananas, clothing, molasses, and crude oil. Sugar accounts for nearly half of its exports, while the banana industry is the country’s largest employer. The country has been turning to tourism to counter the risk for those employed in the agricultural sector. The GDP annual growth in Belize has been relatively high.\(^{55}\) This relatively sturdy GDP growth is a consequence of the government’s monetary and fiscal policies. Major concerns continue to be the sizable trade deficit and heavy foreign debt, equivalent to nearly 70 percent of GDP.

Belize relies heavily upon fishing both for domestic consumption as well as for income and employment for a significant part of the population. The marine capture industry gives direct employment to 2,026 fishers and 123 people working in the processing industry. In addition, the sector is an important source of foreign exchange for the national economy as the fisheries sector (incl. aquaculture) is now the third largest foreign exchange earner (Fisheries Statistical Report 2005). Aquaculture is—with the 73 percent it contributes—responsible for the majority of this foreign exchange, while marine capture is responsible for the remaining 27 percent. The sector is the third largest export earner in Belize, with aquaculture responsible for USD 30 million and marine capture for USD 11 million 2005

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\(^{55}\) GDP growth rates have fluctuated over the last decade from 12.2 in 2000, 3.1 in 2005, 1.2 in 2007, and 3.0 in 2008 (World Bank 2009).
Lobster exports are highly important as in 2003 they were worth nearly USD 7 million per year and is thus at present the largest export earner of the capture fisheries in terms of value.

Jamaica

Jamaica gained its independence from Great Britain relatively late, in 1962, and developed into a two-party parliamentary democracy based on the British parliamentary system (Grugel 1995: 18). Its political system is therefore highly influenced by the two main political parties: the Jamaican Labour Party (JLP) and the People’s National Party (PNP), with the JLP representing more conservative politics and the PNP somewhat more liberal views (Jaffe 2006). Although there is considerable strife between the two parties, they share similar views on the major challenges facing Jamaica, including the large national debt, the high levels of crime and violence, and the low levels of education (Grugel 1995: 118; Jaffe 2006). Both political parties had—and to some extent still have—relationships with their constituency commonly referred to as “garrison politics” (Jaffe 2006; Clarke 2006). The term covers such issues as using state resources to secure votes and supplying loyal communities with material benefits such as housing or employment, thus creating a system of political clientelism. However, for the party supporters, material benefits are not the only issue, as it also offers their followers “a sense of belonging, identity, and hope” (Jaffe 2006). On the other hand, politicians have also used their patronage to buy votes, have formed links to gangs to terrorize opposition electors at the community level, or to fight the gangs associated with their political opponents (Clarke 2006).

Jamaica has also been shaped by its history of slavery, the plantation system, and colonialism. The founders of the two parties in Jamaica were both representatives from the middle class (Grugel 1995: 72). The basis of the political and economic elite until Jamaican independence was therefore more permeable than the oligarchies of Central America, where political power rested with only a tiny fraction of the population. As in the colonial Caribbean, the government was in the hands of the metropolitan state and its bureaucracy, planters did not assume direct responsibility for decision making, such as was the case in Central America. The elite in Jamaica has therefore been more open to new sources of wealth, such as merchant capital, and investment in bananas or transportation, as well as to professionals, such as doctors or lawyers (Grugel 1995: 66). Following independence, given the weakness of the local leading class, the foreign bourgeoisie and even the metropolitan state therefore remained central reference points for national decision making; Jamaica does, however, have a stronger middle class than Central American countries, which is more incorporated into the political system (Grugel 1995). Nevertheless, this has not prevented Jamaica’s political development from also showing clear signs of class struggle, violent conflicts, and corruption (Clarke 2006).

The Jamaican government has played a major role in the development of fisheries since the 1940s, being the main force behind its modernization and development. In 1960, loans were provided to fishers for both marine as well as inland fishing, as the primary reason preventing fishers from earning more was lack of mechanized power. The fishing cooperatives have been less successful in Jamaica, and no fishing cooperative currently has any processing facilities. Processing facilities are rather in the hands of small commercial
business entrepreneurs. In Jamaica the state has attempted to stimulate fishing cooperatives, yet few of these are still in existence today.

Jamaica’s key economic sectors center on agriculture, industry, and tourism. The main export products of Jamaica are aluminum, bauxite, sugar, bananas, chemicals, citrus fruit and products, rum, and coffee. Although these export products generate revenue for the country, it also often makes domestic consumption very expensive, as a large part of the most productive land is used to grow export products. Besides the mining industry, the tourist industry is important, having grown explosively since the 1960s; tourism earnings currently make up a large part of the GDP. Remittances account for nearly 20 percent of GDP and are equivalent to tourism revenues (CIA 2009). Foreign direct investment (FDI) in Jamaica is currently mainly in the tourism sector, which is promoted by the government. As a small open economy in the Caribbean, Jamaica is vulnerable to both external economic shocks as well as natural disasters that tend to have severe negative impacts on the economy. The recent Hurricane Ivan (with damage estimated at 8 percent of GDP) was a harsh reminder of this vulnerability (CIA 2009). This September 2004 hurricane was catastrophic for many fish farmers: 25 percent suffered loss and destruction to their farm infrastructure, and 62 percent also suffered loss or destruction of fish stocks and equipment (Jamaica country profile, 2009).

Jamaica’s fishing industry contributes to employment and exports, as well as to food security. It contributes to direct and indirect employment of over 40,000 persons and contributes to the local economy of many fishing communities, while making indirect contributions to the livelihoods of over 200,000 (Van Riel 2005). The fishing sector contributes 7.5 percent of the GDP of the agricultural sector, and 8 percent of the agricultural export earnings (Van Riel 2005). To the total GDP it therefore only contributes 0.4 percent. However, these estimates could in reality be much higher due to a lack of data (Venema 2004: 6).

Nicaragua

Although Nicaragua’s independence (1821) came nearly a century and a half before that of Belize (1981) and Jamaica (1962), its political history has by no means been stable. Nicaragua has suffered from a variety of dictatorships during the last century, but currently has a democratically elected president. For decades the country has been run by a few elite families, primarily the Somoza family until the Sandinista Revolution in 1979 (World Bank 2009). The country’s politics could therefore be seen as run by an oligarchy. Central American oligarchies are often a closed socioeconomic elite or class, whose power rests upon economic control backed up by the diffusion throughout society of values and symbols which uphold elite power (Grugel 1995: 67). Extreme concentration of income remains an important feature of Central American economic and political life. The oligarchies in Central America were basically the only group enjoying state power until after the 1930s. The middle class is therefore much less developed in Central America than in the English-speaking Caribbean countries such as Jamaica (Grugel 1995: 72).

Today the oligarchy is less closed than in the past; nowadays the term “oligarchy” could be seen as referring to the political agreement between the export-oriented groups with the new urban businesses, both commercial and financial, tied to foreign capital, thus excluding other social groups from effective participation, and maintaining privileges
important to the pre-capitalist modes of production (Grugel 1995: 69). The economic diversification of leading socioeconomic groups, the professionalization of politics, and the mobilization of other groups together have challenged oligarchies’ exclusive hold on power (Grugel 1995: 69). However, until recently the state has tended to exclusively defend the interests of the dominant socioeconomic elites and/or external interests. Civil society is weak in comparison to the English-speaking Caribbean (Grugel 1995).

The lobster fishery in Nicaragua was initially funded with foreign capital during the 1950s, and the fishery developed rapidly. In 1953, large-scale fishing on the Atlantic coast already began when a US company, Alberti Seafoods, obtained a contract to fish for shrimp and other shellfish off the Atlantic coast of Nicaragua (Vilas 1989:76). In 1961, six trapping boats were brought from the US to start industrial-level operations in the southern Caribbean region of Nicaragua, and by 1970 the fleet had increased to around 55 boats, some 8-22 meters in length. These processing companies were financed with US capital, as well as with funds from the Somoza government. Production was primarily for export, and the main market was the United States (Vilas 1989:76). Over the period of 1966 to 1975, the export of shrimp and lobster caught on the Caribbean coast grew from 19 percent to 53 percent of the entire coastal export (Vilas 1989: 76).

In 1973, fishing activity was extended to the northern part of the coast, and by 1978 there were 100 lobster boats in operation on the Atlantic, both trapping and diving (World Bank 1999: 7, FAO 2001: 238). In 1978, 2.8 million pounds of lobster tails were exported. The increase of the fishing industry had a big effect on the Caribbean coast of Nicaragua. As Vilas (1989: 85-86) describes:

Fishing, by its very nature, is an activity with strong multiplier effects. Its growth helped raise activity levels in a wide variety of sectors: construction of and repairing of boats and fishing implements; unloading, processing, and storage: maintenance of equipment; transporting and supplying fuel [...].

Due to the civil war (1979-1990), fishery came to a near standstill. In 1979, the revolutionary government declared it had exclusive rights over the natural resources “including the earth, the subsoil, the atmosphere, the continental shelf and the territorial waters” and the private fleet passed into state ownership (Vilas 1989: 110). Before the revolution, North Americans had headed the foreign fishing companies, managing and directing the companies. There had been no diffusion of technology or training of the local labor force. When the revolutionary government nationalized the capital goods in 1979, there was nobody to take over and the companies were abandoned (Vilas 1989: 103). Foreign-owned shrimp and lobster companies and boats were expelled from the Atlantic seashores, drastically reducing fish, shrimp, lobster, and turtle catches. The revolution led to capital flight, with Chinese merchants and foreign business fleeing the country in the months following the revolution, and also leading to a rapid drop in the number of US fishing boats in the Nicaraguan coastal ports. The former owners of the fishing fleet removed everything of value from the fleet, and some vessels were clandestinely transferred to Costa Rica, Honduras, or San Andrés (Vilas 1989: 137). Only one processing plant on Corn Island was kept open.
In the first few years after the end of the civil war in 1990, Nicaragua made swift steps towards becoming a market-based economy. It lowered trade barriers, reduced the size of its large public sector and modernized the government (World Bank 2009). The lobster fishery, which allowed thousands of people to find employment and supplied the impoverished government with foreign exchange, was supported in its development by the state. With the end of the civil war in 1989, economic sanctions against Nicaragua were lifted, and in 1990 Violetta Chamorro’s new government reinstituted private enterprise, attracting business interest from the US once again (Meltzoff and Schull 1999: 12). This led to a boom in the sale of foreign fishing licenses, and the opening of the vast US market in frozen lobster tails (ibid.). Most of the industrial ships that had been brought to Honduras, Costa Rica, and San Andrés during the revolution came back to the region. The new national government privatized the Sandinista fleet. Local and foreign businessmen bought the vessels with credit from the central government. Some businessmen, whose production capital had been nationalized as a consequence of the revolution, had their businesses on Corn Island returned (ibid.).

The fishery once again developed rapidly, with the state supporting the limited number of processing plants. The relatively few processing plants (some 8-10 at most) were allowed to own the majority of the industrial fishing fleet, and to become the buyers of all lobster in Nicaragua. As the processing plants’ revenues increased to millions of dollars during the 1990s, the processing plants’ position became even more prominent in the fishery. From 1990, with the installation of the new government, a variety of laws, ministerial agreements, and communication papers, as well as other documents, were drawn up, which increased the influence of the industrial fleet on management of the fishery (Ehrhardt 2004).

Nicaragua is primarily an agricultural country, as agriculture constitutes 60 percent of its total exports. The main export products of the country are coffee, shrimp and lobster, beef, sugar, industrial goods, gold, and bananas. Nicaragua, like Jamaica, depends heavily on remittances from Nicaraguans living abroad. In 2008, Nicaraguans received almost 13 percent of its GDP from abroad, mainly from the United States.

In the 1990s, more public spending was geared towards the poor, while the education and health sectors were reformed, and extreme poverty quickly reduced. Although in the 1990s the economy slowly started to show signs of improvement, the devastation caused by Hurricane Mitch in 1998 was a severe blow. Mitch left over 50,000 dead, rendered 20 percent of the population homeless, and caused billions of dollars’ worth of damage (World Bank 2009). After years of political conflict, a civil war, and numerous natural disasters together with an unfavorable economy, Nicaragua now is the second poorest nation in the Western hemisphere, after Haiti. After the change of government in 2007, with Daniel Ortega being elected as the new president (and reelected in 2011), economic progress continued. Foreign direct investment (FDI) is mainly in mining and textile, but Ortega’s government did not necessarily support large-scale FDI, preferring nationalization. Nicaragua relies exceptionally heavily on international economic assistance to meet internal and external debt financing obligations. Since 1990, the importance of the fishery sector for the national economy of Nicaragua has increased considerably, with only 0.4 percent of the working population of Nicaragua employed in the fishery sector. By 2000, however, this number had grown to 2.6 percent of the working population (Rivera 2003).
3.3 National institutions, laws, and policies for lobster fishing

Development of the lobster fisheries over the last decades has resulted in a number of severe governance problems. As we have seen in the introduction, lobster fisheries in the three countries are confronted by the following issues: overexploitation; the open-access nature of the fishery; large-scale landing of juvenile lobster and berried females; large-scale illegal, unregulated and unreported (IUU) fishing; and lack of control and surveillance. In each of the three countries a department or ministry has been instituted to manage marine resources. These provide a regulatory framework for management of the national fisheries, but often fall short of offering the safeguards necessary for ensuring a sustainable fishing industry.

The Fisheries Department in Belize, the Fisheries Division in Jamaica, and INPESCA in Nicaragua have installed a variety of laws and regulations in order to safeguard sustainable use of the lobster resource. The Ministry of Agriculture and Fisheries (MAFC) of Belize is the government agency with primary responsibility for formulating, executing, monitoring, and coordinating policies related to fisheries management. It executes these responsibilities through its primary legislative tool, the Fisheries Act (1980). The Fisheries Department is responsible for the establishment of an advisory board, fisheries access agreements, local and foreign fishing licenses, fish processing establishments, and fisheries research, including aquaculture developments, and marine reserves’ establishment and management. The Fisheries Department focuses on the capture fishery industry, aquaculture, and ecosystem management, which includes marine protected areas (MPAs). Belize’s current lobster management policies are founded on regulations first enacted in 1948, when the colonial government responded to the expansion of the export trade in spiny lobster, and passed the colony’s first fisheries legislation that regulated lobster fishing (King 1999: 49).

This ordinance prohibited the capture, sale, and possession of juvenile lobsters, berried females, and all lobster during the closed season (initially 15 March to 15 July, changed in 1995 to 15 February to 15 July). The Fisheries Regulations of 1977 expanded the protection of lobster to include prohibitions from taking molting lobster (soft-shelled lobster) and reduced the minimum carapace length to 3¼ inches (8.26 cm) and including a tail weight minimum of 4 ounces (113 g) (King 1999). The law also prohibits fishing during the lobster-spawning season between 15 February and 14 June, in order to give them time to reproduce.

The Fisheries Division of the Ministry of Agriculture in Jamaica was established in December 1949, as a sub-division of the Forestry Department, to promote the fishing industry and fish farming. The administration of the fisheries industry in Jamaica is subject to the provisions of the Fishing Industries Act (1975), as well as other environment-related and trade and industry-related legislation. The Fisheries Division is responsible for all matters regarding capture fisheries and aquaculture. The Fisheries Act of 1948 prohibits the fishing and selling

56 Chapter 210 of the Belizean civil code, which was revised in 1993.
57 The closed season was originally set from 15 March to 15 July. In 1995, the closed season was expanded by a month.
58 The main policy instruments guiding the development and management of capture fisheries are the Fishery Industry Act 1975, the Fishery Industry regulations 1976, and the Morant and Pedro Cays Act 1907. The Fisheries Act of 1976 also establishes certain guidelines and legal and regulatory framework for the management of the national fisheries.
of juvenile lobsters with tails less than three inches (7.6 cm) long, or a tail weight of less than four ounces (113 g), “berried” female lobsters (carrying eggs), and soft (recently molted) lobster. It is illegal to land lobsters below the minimum size, or to offer such lobsters for sale, while berried females are protected by law.

In Nicaragua, the Ministry of Trade, Industry and Commerce (MIFIC) is the institution responsible for the use and exploitation of the fisheries resources, with the state deemed the owner of these resources. The National Administration of Fisheries and Aquaculture (AdPESCA), currently named INPESCA (Instituto Nicaragüense de la Pesca y Aquicultura), is the organization responsible for the application of the laws and regulation, together with the General Directorate of Natural Resources. Their mission is to apply rational and sustainable policies to the natural fishery resources and thus ensure a sustainable form of cultivation. INPESCA monitors, controls, and supervises the fishery resources of Nicaragua, and is responsible for laws concerning closed seasons, restrictions on fishing licenses, minimum sizes for lobster, and restrictions on types of fishing. In 1961, the first law on fisheries exploitation was published in Nicaragua, yet these did not contain strategic objectives (Ehrhardt 2005: 7).

By 1998, a new law on the access to fishing and the licensing thereof was established and in the years 1996-2004 much effort was spent on designing a new Law on Fisheries and Aquaculture in Nicaragua. It is illegal to catch juvenile lobster, berried females, or molting lobster, while the closed season runs from 1 March until 31 June.

The staffing of fisheries departments is frequently minimal, and expertise is mainly limited to fishery biologists. The departments are often poorly funded and budgetary constraints severely impair their ability to strengthen technical expertise, to conduct research and monitoring, and to enforce management measures. In the three countries the institutions in charge of fishers are facing severe budgetary constraints. This has severely impaired the departments’ ability to strengthen their technical expertise and base, their ability to carry out research, and to monitor and enforce management measures.

Management laws and regulations in the lobster fishery

Management policies comprise two main sets of instruments and institutions: 1) input control which limits access to fish stocks through measures such as boat or operator licensing, restrictions on vessel capacity, closed seasons, or closed fishing zones; and 2) technical measures restricting the efficiency or selectivity of fishing gear, through restrictions concerning such matters as the minimum mesh size for nets, and the prohibition of certain

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59 See for Belize, McConney et al. 2003. At the department there are approximately 20 people working full-time, with several more who are not permanent staff. The departmental budget is about USD 250,000, of which 90 percent is used for salaries, leaving only a very small operational budget for performing its functions (McConney et al. 2003). The departmental budget represents only 2.2 percent of the total foreign exchange generated by the capture fisheries in 2005. In Jamaica it is believed the current public financing of fisheries is in a chronic state of imbalance. The FD received only 5-6 percent of the total agriculture budget (Van Riel 2005: 27). The total budget is low and an expansion of the revenue imperative if fisheries policy is to be effectively implemented (Van Riel 2005). The inadequacy of budget funds reflects the general fiscal constraints faced by the central government. Ehrhardt has argued the budget of INPESCA (formerly known as Adpesca) in Nicaragua is very low (see Ehrhardt 2005). He has calculated the department budget has gone down since 1990, while the export revenue from the fishery has only gone up. The budget reflects only 0.4 and 0.62 percent in Nicaragua, which is low for the region, as in other Latin American countries the figure is more in the order of 2-5 percent of export revenue generated by fish products (Ehrhardt 2005).
types of gear. In this research we can mainly identify input control and technical measures, although Belize has an annual quota regulation in place which is regarded as an output control.

The laws and regulations discussed in the section above are outlined in Table 3.3. All three countries have a minimum size for lobster tail (in tail weight in ounces, with 1 ounce equaling 28.4 g), as well as for carapace length. The minimum size of lobster is 4.2 ounces in Belize, and 5 ounces (and therefore running up from 4.5 in reality) in Jamaica and Nicaragua. In addition, catching berried females and molting lobster is illegal in all countries. The problems with minimum weight compliance by fishers and illegal harvest of undersized lobster and berried females are further discussed in Chapter 5.

In addition, in Belize destructive fishing methods are prohibited: poison, dynamite, scuba gear, nets, and hookah (small air compressors on board vessels which supply air to a diver through a 50-meter tube) are prohibited by state law in the fishery in Belize (Huitric 2005). All three countries have regulations in place for a closed season for lobster fishing, and although these closed seasons are in the same period, the dates are not exactly identical. Belize and Jamaica have a three-month closed season, while Nicaragua has a four-month closed season. Table 3.3 shows these different management measures in place in the three countries.

<table>
<thead>
<tr>
<th></th>
<th>Belize</th>
<th>Jamaica</th>
<th>Nicaragua</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size limit (tail weight in ounces)</td>
<td>4.2</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Size limit (length in cm)</td>
<td>7.62</td>
<td>7.62</td>
<td>7.60 cm carapace</td>
</tr>
<tr>
<td>Closed season</td>
<td>1 April-30 June (three months)</td>
<td>1 March-30 May (three months)</td>
<td>1 March-30 June (four months)</td>
</tr>
<tr>
<td>Berried females prohibition law</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Molting lobsters prohibition law</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>SCUBA prohibition</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Limit to # licenses</td>
<td>No</td>
<td>No</td>
<td>Yes (since 2009)</td>
</tr>
<tr>
<td>Industrial fleet</td>
<td>No</td>
<td>Yes (4)</td>
<td>Yes (78)</td>
</tr>
<tr>
<td>Type of fishing (small-scale or industrial)</td>
<td>Small-scale (industrial fleet prohibited)</td>
<td>Small-scale and industrial</td>
<td>Small-scale and industrial</td>
</tr>
<tr>
<td>Per cent of total catch by fishing type</td>
<td>100% small-scale</td>
<td>60% small-scale and 40% industrial</td>
<td>50% small-scale 50% industrial</td>
</tr>
<tr>
<td>Gear regulations</td>
<td>Using scuba gear is prohibited</td>
<td>Using scuba gear is allowed; hookah as well</td>
<td>Using scuba gear allowed</td>
</tr>
</tbody>
</table>

Table 3.3: Laws and regulations regarding the lobster fishery in Belize, Nicaragua, and Jamaica.

One of the problems facing sustainable management of the lobster resource is therefore the open-access nature of the resource. In all countries small-scale fishers need a license or permit to fish (see pictures below), but every fisher can obtain the permit, as there

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60 The third set of management practices, i.e., output controls, such as quotas, Total Allowable Catches (TACs) and limits on permissible by-catch proportions (Allison and Ellis 2001: 382), are rarely found in low-income developing countries, due to the high costs and administrative difficulties that arise out of the implementation of such measures (Allison and Ellis 2001: 382).

61 The tail weight in Belize is smaller than that of Jamaica and Nicaragua, as Belize’s reef waters are believed to be shallower, and therefore the average lobster found there is smaller than in Nicaragua and Jamaica.
are no restrictions on the number of permits. The permits are usually inexpensive, and although in most cases fishers need to visit the national capital to acquire their fishing permits, in some cases the fisheries inspectors will bring the fishing licenses to far-off locations, such as the Pedro Bank in Jamaica. On the side of input control in the three countries, there are thus no limits to the entry of small-scale fishers.

There are limits, however, both in Jamaica and Nicaragua, to the number of licenses of the industrial fleet. Licenses for the industrial fleet in Nicaragua are a good income earner for the government, as an industrial license in Nicaragua costs approximately USD 20,000. While the number of industrial licenses in Nicaragua was growing until at least 2008, in Jamaica the number has been diminishing since 2000, because the industrial fleet became more and more unprofitable due to the resource’s overexploitation. In Nicaragua, the current number of industrial fishing licenses is 78, while in Jamaica there are only four industrial boats in operation. The scale of the industrial fleet in these three countries is, however, very different, as in Jamaica it is supposed that the four industrial vessels obtain 40 percent of the catch while the remaining 60 percent is caught by small-scale vessels. In Nicaragua there are 78 industrial vessels active, responsible for 50 percent of the catch.

The pictures below show fisheries inspectors distributing licenses to fishers on the far-off atoll Middle Key, on Pedro Bank in Jamaica. The number of licenses has been growing in all three countries over the last decades.

Fig 3.2: Distribution of fishing licenses on Middle Key, Pedro Bank, Jamaica.
Source: Author
Closed season

In all three countries we can distinguish a closed season, ranging between three months in Belize and Jamaica, to four months in Nicaragua. Closed seasons are set at the time of peak spawning and this reduces fishing pressure on the resource. As the closed season runs for months at a time, and limitations on fishing efforts by other means have been limited, the closed season is one of the most important management measures in lobster fishery. In Nicaragua the fishery is a single-species fishery, where fishers only harvest lobster. In Belize and Jamaica, however, the fishery is a multi-species fishery, which means that fishers are allowed to harvest other seafood products during the closed season. They might, for example, fish for conch or finfish when it’s illegal to harvest lobster. In Nicaragua during the closed season, the whole fishery—and therefore the entire economy of the region—comes to a full stop when the closed season begins.

At the beginning of the closed season, all trap fishers need to have their traps out of the water (both the small-scale as well as industrial fishing fleet). In Belize, hotels, restaurants, and the fishing cooperatives are checked as well. In Nicaragua, the processing plants virtually shut down, as the finfish fishery and occasional shrimping activity is too small scale to keep many of the plants running.

In Belize, the closed season appears to function relatively well. In general it is easy for the government to check the two fishing cooperatives, as they are also located in Belize City. Fishers can’t bring lobster to them during the closed season. Trap fishers located further away with less government supervision have a bit more opportunity to continue harvesting lobster and sell it to the tourist industry. A government official commented that “most trap fishers will take them [the traps] out but some will leave them out at sea, we couldn’t enforce the taking out of the traps. We don’t know how many he puts in, or takes out. We would like to know but we just don’t.” He added that “fishing during the closed season is very small, those that still fish will sell it to Honduras and Guatemala. However, it’s difficult to get data on how much they catch and where they sell it to.”

As the Belizean fishery is a multi-species fishery, fishers have other fishing options during the closed season. This only applies to the lobster divers, however, as the trap fishers in Belize are single-species fishers who only catch lobster.

In Jamaica, the trap fishers continue to fish during the closed season, as they still fish for finfish (or conch). The lobsters they catch during closed season are supposed to be thrown overboard. Divers can’t fish for lobster during this period and can only harvest conch and fish. Even the government official admits that the “majority of fishers will fish during the closed season, enforcement and monitoring is very low.”

Illegal trade in lobster exists during the closed season, although inspections are carried out by the government. These inspections relate to monitoring the stocks of intermediaries, restaurants, and hotels. The restaurants have to declare how much they have when the closed season starts; however, this doesn’t work

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62 Interview C4: 3/10/2006
63 Interview C2: 23/09/2006
properly, as the numbers of hotels, restaurants, and intermediaries are so large in Jamaica that the number of FD staff is not adequate to carry out these inspections. Joint patrols are conducted with police, game wardens, and Fishery Inspectors, both at sea and in food establishments and on fishing beaches. People who intend to store lobster during this period are asked to declare the amounts to the Director of Fisheries prior to the start of the closed season. Inspection teams then verify these amounts at the locations concerned and issue a declaration certificate and inspection receipt. Although the goal is understandable, in practice this law is very difficult to enforce. If traders keep stock levels stable, no one will know whether it’s the same lobster all along, and intermediaries confessed to me they often did not obey these regulations. In addition, it is difficult for the Fisheries Division to monitor the exact amount of lobster that is exported to foreign countries, as there are numerous illegal exporters.

In Nicaragua, the closed season runs for four months, during which the fishers have very few economic alternatives. Industrial boats need to retrieve their traps prior to the closed season, while the small-scale fishers are given a ten-day grace period to retrieve their traps; catching lobster is obviously forbidden. Together, INPESCA, the coast guard, and village and regional government officials are responsible for adequately maintaining the closed season. During the closed season, trips to sea are made to make sure no traps have been left out at sea. Those that are found are destroyed (La Gaceta 2009: 2204). Nevertheless, retrieving all the traps during the closed season can be difficult. As the traps are only used for one season, the fishers will often just leave them. Sometimes they will destroy them, so lobsters don’t get entangled in them, on other occasions they are just left behind. In order to retrieve the traps, larger boats from the processing plants are used. Fishers complain, however, that they have to pay for the crew (and their food) and fuel of the larger vessels sent out to retrieve their traps.

The closed season in Nicaragua appears to work better for the diving sector than for the trap fishers. With the industrial fleet it might be difficult to bring in traps that exceed the legal number of traps, which is currently 2500. It is generally agreed the industrial fleet in practice might have as many as 4,000 to 5,000 traps. They might therefore leave thousands of traps out at sea, rather than bringing them in at the beginning of the closed season. This can result in “ghost fishing” as traps continue trapping lobster, while these lobsters will then starve inside the traps.

As the fishery is a single-species fishery, all fishers have few alternatives during the closed season. Ehrhardt (2006) has analyzed the catch rates of trap and diving fleets attempting to catch the same lobster stock, but in gear-segregated fishing areas of Nicaragua. Since the implementation of closed-season regulations in 2002, catch rates have been much higher in the diving-operation areas than in the trap-operation areas, which is a consequence of the ghost-trap mortality.64

**Illegal fishing**

The lobster fishery in the Wider Caribbean has over the last 20 years seen widespread Illegal, Unregulated and Unreported (IUU) fishing. This can refer to fishing for undersize lobster (lobsters that according to national legislation are under the legal size or weight limit),

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64 Ehrhardt (2006) argues more studies assessing the ecological impact of trap “debris” left in critical spiny lobster habitat are needed to evaluate this potential threat to the environment and future fishery production.
and/or berried females (egg-bearing female lobsters), harvest by boats without a permit, or fishing during the closed season. In all countries these three types of IUU fishing will occur. The magnitude of the problem, however, differs between the three countries. This section discusses the level of overexploitation in the countries involved, the level of harvest of undersized lobster and of berried females at the local level, and state enforcement of related legislation. The role of the processing plants and international importers in the US in illegal lobster fishing and export is further discussed in Chapter 7.

The large-scale illegal lobster catch, which can be between 25-50 percent of the total catch in some countries, is not reported to the national fisheries agencies and can lead to significant bias in estimates of the biomass and the age structure of the stocks; IUU fishing can severely hamper sustainable management of the resource.

In Belize, the level of exploitation is disputed. The lobster fishery is variously claimed to be stable (FAO/OSPESCA 2005), fully exploited (FAO 2007), and overexploited (Huitric 2005). Generally, however, stocks are perceived to be healthier than in surrounding countries. The harvest of undersized lobster is believed to be nearly 10 percent of the total (FAO 2007). In Belize, fishers intentionally soak their catches in buckets of water before presenting them to the co-ops to be weighed (Thigpen Pers. Comm). This practice allows fishers to earn extra income, as under-weight tails absorb water and weigh more than they would otherwise (Ibid.). This can throw data collection off and imply that larger animals are being caught than in reality.

Both trappers and divers are believed to catch undersized lobster and berried females. The lobster cannot be sold to the cooperatives, and will therefore be sold mostly to hotels and restaurants. They are also often consumed at home or on board. In Belize, divers will go out to sea for nine-day fishing trips. During these trips they will often consume illegal-sized lobster on board. In Belize, fishers estimate they consume between 10-15 pounds of illegal sized lobster each trip. If fishers make nine-day trips followed by a three-day rest, with a few holidays a year, this might amount to around 24 trips per year. The total weight of the small lobster then comes to 240-360 pounds of undersized lobster per year. If you take the smallest number, and multiply this by the number of dories (fishing vessels), this will still come to 156,240 pounds per year. The total export of lobster in Belize is 533,315 pounds.

In Jamaica, 30 percent of the total lobster sampled was under the minimum size as described in the Fishing Industry Act of 1975 (FAO 2007). The inshore fishery of Jamaica is believed to be severely overexploited (FAO 2007). The fisheries at the Pedro and Morant Banks are believed to be exploited at or near the estimated maximum sustainable yields (FAO 2007). In addition, large-scale illegal harvesting of lobster is believed to occur around these banks. The outlet of the illegal sized lobster might be local restaurants and hotels, but also international trade. At the local level, fishers will often eat undersized lobster on board, or bring it home. At the beach at Whitehouse in Jamaica, fishers will openly sit and scrape out the eggs of berried females. The fisher I was interviewing was cleaning an entire box of berried females and didn’t care this was against the law. He told me that he knew this was illegal, but claimed that “everyone was doing it.”

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65 Interview E12: 03/03/2008
Illegal, Unreported and Unregulated (IUU) fishing is high on the Pedro Bank. The Pedro Bank is the best fishing ground in Jamaica, but as it is 80 km out from the mainland shore, it is very remote, with few enforcement officials present; it harbors some of the best fishing grounds for lobster and conch. It is estimated Jamaica has lost more than USD 132 million in lobster tails to poachers over the past five years (2006-2011). The annual value of the fisheries is estimated at roughly USD 33 million. The poachers are mainly Hondurans, but there are also Nicaraguans at work. In a similar vein, two Jamaican vessels were seized by the Nicaraguan government for illegal fishing in their waters. The Jamaican fines for illegal fishing vessels that have been caught in action are very low compared to to surrounding countries. The Minister of Agriculture and Fisheries, Christopher Tufton, said in 2011 that the government would be trying to bring the fines levied on those caught fishing illegally in Jamaican waters on a par with other countries. He referred to the seizure of two Jamaican vessels by Nicaraguan authorities in April 2011 which saw the owners forking out approximately USD 35,000 to retrieve their boats. He stated that if such an act had taken place in Jamaican waters by Nicaraguan vessels the maximum penalty chargeable would be USD 2.30 per vessel for operating an unregistered vessel and USD 11.60 charged for fishing without a license. This number does not act as a deterrent unless the vessel is forfeited by the courts (The Gleaner, 3 June 2011/Jamaica Observer 2 June 2011). The Minister declared the new Fisheries Act will move up the penalty significantly. According to the Agriculture Minister, illegal poaching of conch and lobster, over the past five years (2005-2010), had deprived the sector of more than USD 132.3 million. He stated:

We take from our waters, approximately 400 metric tonnes of lobster per year, about 1/3 of which is exported and the rest is consumed locally. It is estimated that through illegal poaching, we lose as much as twice of what we benefit from our waters. So, we lose up to 800 metric tonnes per year because of illegal poaching. (...). A conservative estimate is that poachers take at least twice as much lobster as the country does, and at an average price of US$15 per pound; Jamaica has lost approximately US$132.3 million over the past five years.

In January 2011, The Jamaican Coast Guard (JCD) killed a Honduran captain of an illegal fishing vessel, and wounded two crewmen when they ignored radio calls and fled. They were suspected of fishing illegally near the Pedro Bank prompting the Jamaican patrol boat to fire the fishing boat.

The Nicaraguan lobster fishery is believed to be extremely overexploited (Ehrhardt 2006). The AdPESCA states that the illegal catch might have been as big as the legal catch during the 1990s (Kuninski 2003: 5). Ehrhardt estimates that the undersized fishery might be 50 percent of the total catch (2006). Small-scale fishers have continued to harvest juvenile lobster, as well as the industrial fleet. The magnitude of the illegal-sized lobster catch for the international market has diminished since 2000 according to interviewees. The small-scale fishers will sell the undersized lobster to certain acopios or intermediaries (who are both men and women), or the product is used in the household. Although the processing plants no longer accept undersized lobster, industrial crewmembers will still harvest and sell undersized

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lobster. The product is sold on land, or transmitted to boats that operate illegally in Nicaraguan waters or to national boats that land the product illegally in neighboring countries. Ehrhardt (2006) argues that 60 per cent of all landed lobster consists of undersized lobster that has not yet reached an adult stage (Ehrhardt 2005: 28). Fishers also sell directly to hotels and restaurants, but tourism is limited on the Caribbean coast.

Fig. 3.4a: Bucket full of egg-bearing females at a middleman in Whitehouse, Jamaica (left).
Fig. 3.4b: Breakfast of undersized juvenile lobster at a diving dory in Belize (middle).
Fig. 3.4c: Eggbearing females landed at Pedro Key, Jamaica (right).
Source: Author

In Nicaragua the price of a pound of illegal lobster is approximately USD 3, therefore much lower than regular price of lobster, but still profitable in comparison to no profit at all (Ehrhardt 2006). The minimum price paid to fishers is approximately between USD 1 up to a maximum of USD 2.85. Intermediaries much more often receive a much higher price, ranging from USD 2.81 to 6.32 per pound. In addition to the legal market, additional profits are thus made by fishers and traders through the illegal-sized lobster fishery, which yields around USD 6 million annually (Ehrhardt 2006).

In surveys, I asked fishers if they could indicate how many fishers out of ten would engage in catching: a) berried females, b) undersized lobster, and c) fish during the closed season. Jamaican fishers believed that they had the highest number of fishers engaged in fishing for lobster during the closed season (on average 4.95 out of 10), followed by undersized lobster (on average 3.95 out of 10) and berried females (on average 3.33 out of 10). In Nicaragua, fishers believed nearly 40 percent would catch berried females, slightly fewer (31 percent) would catch undersized lobster, whereas nearly 40 percent would continue catching lobster throughout the closed season. The questionnaires thus showed that fishers who are the most satisfied with the functioning of the closed season are in Belize. Here fishers believe that only a relatively small proportion of fishers (9%) catch lobster during the closed season, in comparison to nearly 40 percent in Nicaragua, and 50 percent in Jamaica.

In Belize the numbers are: berried females 31 percent, undersized lobster 37 percent, and during the closed season a very low 9 percent. Although the sample (N=84) is relatively small, the figures do provide an overall estimate of how fishers perceive the level of illegal fishing in their fishery.
Table 3.4: Percentage of fishers engaging in illegal fishing activities according to fishers themselves.

<table>
<thead>
<tr>
<th>Country/question</th>
<th>Berried females</th>
<th>Undersized lobster</th>
<th>Closed season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belize</td>
<td>31</td>
<td>37</td>
<td>9</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>39</td>
<td>31</td>
<td>39</td>
</tr>
<tr>
<td>Jamaica</td>
<td>33</td>
<td>39</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total average</strong></td>
<td><strong>34.3</strong></td>
<td><strong>35.7</strong></td>
<td><strong>32.7</strong></td>
</tr>
</tbody>
</table>

Although fishers might profit in the short term, in the long term this will be detrimental to profits. The Fisheries Division in Jamaica has estimated the following loss to fishers’ income in the long term when harvesting berried females.

The cost of harvesting berried females (Andre Kong FD):

- Take four females lobster tails bearing eggs, weighing 2 lbs.
- The weight of the tails is one-third the total weight.
- Therefore the total weight of the whole lobsters would be the weight of the tails multiplied by three (3), which is equal to 6 lbs.
- Female spiny lobsters produce an average of 830 eggs per gram of body weight, while 1 lb = 454g. Therefore female lobsters weighing 6 lbs would have produced 830 x 454 x 6 = 2,260,920 eggs.
- After hatching out, 1 percent would survive and be recruited to the Jamaican lobster fishery. Thus 22609.2 spiny lobsters offspring would have been produced.
- These lobsters would take between 3.8 to 4.5 years to reach legal size, with a tail length of 7.62 cm, weighing 1 lb each.
- Thus if the four berried lobsters were allowed to produce their offspring, after 3.8 to 4.5 years, 22,609 lobsters weighing approximately 22,609 lbs would have been available to Jamaican fishers.
- Recalling that lobster tails are one-third the whole weight, the 22,609 lbs of lobsters would produce 22,609 / 3 = 7,536 lbs of tails.
- **At current lobster tail prices of USD 16.00 per lb, Jamaica has lost earnings of 16 x 7,536 = USD 120,576 as a consequence of destroying four berried female lobsters.**
- (A fisher will not receive USD 16 per pound, however, but only up to around USD 8-10. But even with these figures at least USD 60,000 to the fishery (and thus in income to fishers) is lost according to these calculations.).

The calculation above shows that Jamaican fishers will have lost over USD 120,000 as a consequence of harvesting four berried females. Ehrhardt estimates that if Nicaraguan fishers had waited for the illegal-sized lobster caught in one year to grow one additional year, they and the intermediaries would have received USD 11.7 million more per year (2006: 74). Illegal harvest thus not only constitutes a loss for ecological sustainability, but also for the material well-being of fishers.

**3.4 Stakeholder representation**

**Civil society-state relations**

In Belize and Jamaica, the governments have installed a Fishery Advisory Board (FAB). An FAB is an institutionalized group consisting of a number of stakeholder representatives that meet regularly, discuss issues at hand in the fishery, and advise the government. The FAB in Belize was installed to advise the Minister on issues regarding the fishery; both exporting cooperatives are represented in the FAB, as well as the Fisheries
Department, NGOs, and sport fishing organizations. All stakeholders involved therefore have a means to potentially influence lobster fisheries management.

Another organization that was formed in Belize to support the organizational strength of the fishermen’s cooperatives was the fishers’ umbrella organization, the Belize Fishermen Cooperative Association (BFCA) (Brown and Pomeroy 1999). “The BFCA was established for a number of reasons: to unite the affiliated cooperatives, by eliminating unnecessary competition; to organize for the defense of their territorial rights; and to bargain with government for concessions and influencing decisions” (Brown and Pomeroy 1999). According to Brown and Pomeroy, the BFCA has ensured affective representation of its affiliated members on the National Fishery Advisory Board and in international meetings. During the past decade, however, the BFCA’s role has been declining due to the resignation of one of the two main members, Northern Cooperative. This has severely impacted the financial stability of the BFCA as well as their representative power. A representative from the Fisheries Department therefore called it a “dormant organization” which had not “lived up to its expectation,” while board members of both cooperatives did not feel the BFCA played a very large role in decision making.

In Jamaica, a Fishery Advisory Board was initiated in 2008 by the government, with the aim of advising the Minister in matters of policy. The FAB is comprised of stakeholder representatives from the commercial fishing industry, sport fishers, small-scale fishers, and marine ecologists. The board was created to monitor fisheries activities and issues, and to advise the Minister of Agriculture and Fisheries (and the Fisheries Division) on possible actions. The majority of members of the FAB, however, are parties with an interest in fishing (e.g., they are often sport fishers), but according to one informed observer they do not necessarily have in-depth knowledge of fishery. There is only one scientist on the Board, and while the FAB is supposed to be an objective advisory board, it does not have any representatives from within the fishing industry. In addition, no NGOs are represented on the board. As a result, the board is not fully informed as to the main issues in the fishery.

One of the problems mentioned by interviewees is the lack of continuity among participants: if one person leaves the FAB there is no one else to take up the job. In addition, most small processors in Jamaica are not represented on the FAB, and thus would appear to be underrepresented in fisheries management. At the same time, interviewees stated that “if you have the right connections within the Ministry of Agriculture and Fisheries you can get what you need.” The “tying of strings within the Ministry” in this regard is extremely important. Those entrepreneurs with financial means, power, and connections are therefore able to gain access to those in charge more easily. Leaders of fishing cooperatives are frequently consulted in the decision-making process.

In Nicaragua, there is no official FAB as in the other two countries, but government officials do frequently meet with the parties concerned. The central government depends heavily on the foreign exchange earned by the lobster fishery, and supports its potential to provide income and livelihood for many in the impoverished Caribbean region. The government has focused on development of the fishery by granting numerous industrial fishing licenses over the last two decades. The economic power—and consequent political power—of the processing plants is significant in this process. Government officials frequently
meet with the Camera de La Pesca (CAPENIC). The industrial fishing fleet is represented by their owners in the CAPENIC, mostly the processing plants, but also some private owners.

This organization advises the government on issues related to the fishery. The majority of the industrial vessels are owned by the processing plants, and the processing plants exert a great deal of influence on the government of Nicaragua regarding management issues. Small-scale fishers are not well organized and thus have less influence on decision making. In addition, government officials have been known to be prone to corruption and to be used by the processing plants to their own advantage. Quite recently, during the summer of 2009 the head of the INPESCA was accused by a Norwegian donor organization of using funds destined for fisheries projects for his own purposes. During the fall of 2009 the national newspaper (El Diario, 15 Dec 2009) reported on the misuse of government money by INPESCA. The Norwegian donor has now withdrawn entirely. Another former government official from INPESCA has been charged in the US by the NOAA (National Oceanic Atmospheric Association) for corruption regarding allowing processors to export illegal sized lobster.

**NGO involvement in Marine Protected Areas**

National and international NGOs can play a major role in establishing as well as in the protection of Marine Protected Areas (MPAs). These can be of great importance in enhancing sustainable use of ocean resources, and thus of lobster habitat and nursing grounds. MPAs come in many forms, with various names, such as parks, reserves, and sanctuaries (Charles 2001; Pomeroy et al. 2004). MPAs are usually created in an attempt to protect and conserve the function and integrity of marine and coastal ecosystems—for example by preserving endangered species (e.g., fish, turtles, and birds), biodiversity, and habitats (e.g., spawning/breeding grounds, mangroves, coral reefs). They often have an explicit socioeconomic purpose and are also often perceived as a more effective fisheries management tool than other mechanisms that seek to reduce fishing effort and achieve sustainable yields (Gonzales and Jentoft 2010).

Belize has a long history of setting aside protected areas for the conservation of biodiversity and the controlled extraction of resources. In 1966, the National Parks commission was created with the express purpose of identifying areas worthy of national park designation throughout the country. In 1977, the Belize Audubon Society (BAS) convinced the government to declare several small keys as official bird sanctuaries. The BAS was given management authority of the park thus created by the government. Since then, many national parks in Belize have come under the management of NGOs, are co-managed by community organizations, or are under private control. The BAS management position was formalized in the form of an agreement between the government and BAS in 1984 (Young and Horwich 2007).

For the enforcement of and ensuring of compliance to the regulations of national parks, the Belizean government depends highly on international actors and NGOs. To handle the issue of unlawful activities, the Coastal Zone Management Authority and Institute (CZMAI) has served as monitors and has patrolled to prevent any illegal fishing, whether national or international. The Belizean Fisheries Department, with the help of NGOs, holds workshops, seminars, and meetings to heighten awareness of the need to preserve the lobster.
population and to “respect the closed season.” Some larger NGOs, such as the BAS, are involved in patrolling the MPAs and attempt to keep fishers out of these areas.

In Jamaica, a number of NGOs are involved in MPA design and implementation. The Nature Conservancy has played a crucial role in the establishment as well as enforcement and regulation of the MPAs. Beginning with the establishment of the Montego Bay Marine Park in 1991, Jamaica’s MPAs now cover over 2,000 km² (Waite et al. 2011:9). While the National Environment and Planning Agency (NEPA) has overall control of the park, daily management responsibility has been delegated to an NGO (Reid-Grant and Bhat 2009). The government has established three MPAs, which now cover 22 percent of the island’s reefs (Reid-Grant and Bhat 2009).

However, they only received meager financial support from the very start, have inadequate staffing, and their regulations are not enforced (Reid-Grant and Bhat 2009). Only a few have received adequate legislative authority from the state (Figueroa, 2005). The state approach has been rather ad hoc, according to Figueroa, with the state handing over some management, yet without entering into a full co-governance approach to MPAs. The MPAs have received various levels of funding, while enforcement and protection remain an ongoing challenge, due to sporadic and limited funding, and inadequate management capacity (Waite et al. 2011). Several MPAs have, however, been successful, since in 2008 it was concluded that commercially important fish species and lobster were between 2 to 3.4 times more abundant inside an MPA than outside it (Waite 2011: 9). A number of NGOs attend regular monthly and bi-monthly meetings on the management and policy issues regarding MPAs that are held by the Fisheries Division at their offices downtown in Kingston.

The Jamaican government has an environmental regulatory agency called the Natural Resources Conservation Authority (NRCA); there is, however, no agency dedicated to the management of parks and protected areas. Government policy calls for the delegation of management responsibility to suitable NGOs, and so far management responsibility for two areas has been delegated to NGOs. This relationship was formalized in the fall of 2009. In December 2010, the Ministry of Agriculture and Fisheries signed a Memorandum of Understanding with seven NGOs and CBOs to monitor sanctuaries. Under the agreement, the government allocated USD 265,000 to the local organizations for monitoring and patrolling (Waite 2011: 13). The aim of the NGOs is to work closely with multiple stakeholders, such as fishermen, fish vendors, and those agencies responsible for regulating and protecting reef resources (the Fisheries Division and the National Environmental and Planning Agency), to control and minimize these threats. In Jamaica, private parties such as Sandals Resorts are also involved in MPA management. In conjunction with the government, Sandals has set up MPAs along the shores of their resorts, which the Sandal Foundation monitors. In two of the MPAs established by Sandals, the water-sports teams monitor the MPA. The government has therefore ceded control of large coastal areas to private commercial entities.

In Nicaragua, the involvement of NGOs as well as the initiation of MPAs has been rather limited. On the Caribbean coast, only one initiative involving the founding of an MPA

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has been developed. An American NGO called CACC (Costa Atlantica Communities and Conservation) has struggled to establish an MPA on the Caribbean Coast (Gonzales and Jentoft 2010). The initiative itself, however, comes from local communities and local authorities. The MPA was regarded as a solution to problems with foreign private investors who were involved in conflicts over land with local communities. The small keys, formerly used by lobster fishers, had been sold to foreigners. Fishers could no longer make use of the keys for drinking water, refuge, or as a landing site. Local communities felt robbed of the keys they had formerly used, and their foreign owners have shot at both the locals and government representatives. The MPA is intended as a way to reclaim “land stolen from the communities” (Gonzales and Jentoft 2010). There is division, however, between the various communities, as some feel the MPA will threaten their indigenous claims, while others are hoping it might enhance their claims (Gonzales and Jentoft 2010). Up to the time of writing, the MPA has not yet been installed and no agreement between the parties has been reached.

The World Wildlife Fund (WWF) has, however, initiated a project to diminish unsustainable fishing practices and overcapacity in the lobster fishery of Nicaragua and Honduras. The NGO wishes to encourage fishers to use more sustainable fishing practices, and to diminish their fishing in order for the resource to recover. This project, for instance, promotes the voluntary adoption of “better fishing practices” by fishers in at least 50 percent of the industrial fleet in both Nicaragua and Honduras, and 25-30 percent of the small-scale trapping fleet. In addition, in 2006-2009 INPESCA received financial help from Norway to help fund the administration of the fisheries sector in Nicaragua.71 This is a collaboration between INPESCA, DGRN, NORAD, and the Centre for Development of fisheries cooperation. In recent years, several international donors have been organizing meetings aimed at improving the sustainability of the lobster resource. Many people involved in the fishery attend these meetings, including many fishers, but also exporters and importers. However, one prominent processor has now stopped attending the meetings, as he says “there are only fishermen there, they are not able to decide anything. It’s between the state, processors and importers. I can’t waste my time with these people.”72 The lack of decision-making power on the part of any of these international organizations may well undermine their success.

Conclusion

This chapter has shown that the lobster resource is facing a number of serious management problems. The open-access nature of the fishery, the high level of IUU fishing, and declining resource are the main problems associated with the fishery. To counter these problems, all three countries have similar management regulations and policies in place. Yet the severity of the problems differ, as well as the effectiveness of the management regulations and policies. This chapter began by discussing the international governance of lobster fisheries in the region. The lobster resource is a transboundary resource which is facing severe challenges with overexploitation throughout the region. This requires international cooperation, and several RFOs have become involved in lobster fisheries

72 Interview B16: 29/08/2009
governance, notably WECAFC, CRFM, and OSPESCA. None of these regional RFOs have decision-making power, and are usually only advisory bodies unable to directly influence policy making at the national level. Therefore, in this research, national governance arrangements are considered to be the most influential, when considering lobster fisheries governance in Belize, Jamaica, and Nicaragua.

This chapter has examined the lobster fisheries governance styles in the three countries by examining the development orientation of national states, the dominant domestic groups, and the orientation of the state towards the fishing sector. In addition, the state institutions, laws, and policies in place in each country and the stakeholder representation have been discussed. Table 3.5 shows the main conclusions concerning each of the lobster fisheries governance arrangements in each country.

Belize ranks highest out of all three countries on the HDI, in 93rd place. The pivotal involvement of fishing cooperatives since the 1960s is undisputed. The state has been pro-developmental, committed, and supportive of the small-scale fishers’ initiative begun in the 1960s to organize as cooperatives. The cooperatives act as intermediaries between fishers and government. From the early 1960s, the government has granted exclusive rights over lobster export (and all other seafood) to fisheries cooperatives. Only two fishing cooperatives are allowed to export seafood products, and as fishers are owners of the fishing cooperatives, no commercial market parties are involved, and all benefits derived from the fishery flow back to the fishers. Since 1965, requests from foreign firms to harvest, process, or export fish have been rejected. This protective measure is aimed at securing the profits of the fishery for the fishers, as no large commercial intermediaries are present to skim the profits. High export earnings have strengthened the cooperatives economically, thus translating into political strength and a determination to protect the privilege of the monopoly over export that they enjoy.

The management laws and regulations on closed seasons, limits to weight and length, and the catching of berried females are generally well enforced. The FAO has characterized the Belizean lobster fishery as “fully exploited” whereas Jamaica and Nicaragua are listed as overexploited. Fishers themselves believe only nine percent of fishers fish during the closed season, and the percentage of fishers believed to catch berried lobster is the lowest of the three as well.

In relation to the involvement of NGOs, Belize recognized its limited means and ability to manage its natural resources early on, and so established and formalized the aid provided by national and international NGOs. In addition, the full array of stakeholders involved is represented on the FAB, including the cooperatives and NGOs. The FAB is a strong and powerful group of parties influencing decision making on lobster fishery issues in Belize. I therefore conclude the Belizean lobster fishery governance style is one of co-governance.

<table>
<thead>
<tr>
<th>Governance style</th>
<th>BELIZE</th>
<th>JAMAICA</th>
<th>NICARAGUA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development orientation of the state</td>
<td>Co-governance</td>
<td>Hierarchical/Co-governance</td>
<td>Hierarchical Governance</td>
</tr>
<tr>
<td>Social democratic, emphasis on role of</td>
<td>Neo-liberal, agreement with IMF to restructure</td>
<td>Neo-liberal although Ortega claims socialist</td>
<td></td>
</tr>
</tbody>
</table>

98
<table>
<thead>
<tr>
<th>Dominant domestic groups</th>
<th>Cooperativism</th>
<th>Economy and debt</th>
<th>Views</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamaica</td>
<td>Middle-class elite and foreign investors</td>
<td>Middle-class elite and foreign investors</td>
<td>Small traditional elite, oligarchic but some foreign investors</td>
</tr>
<tr>
<td>Orientation towards fishing sector</td>
<td>Protecting interests of small-scale fishers and cooperative system</td>
<td>Initial focus on small-scale fishers and cooperatives failed. Ad hoc support in times of crisis and natural disasters</td>
<td>Focus on development of the fishery; foreign exchange. Industrial fleet and processing plants favored.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stakeholder representation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FAB</strong></td>
</tr>
<tr>
<td><strong>NGOs</strong></td>
</tr>
<tr>
<td><strong>State-market relations</strong></td>
</tr>
<tr>
<td><strong>National laws and policies</strong></td>
</tr>
<tr>
<td><strong>Weight limits/closed season</strong></td>
</tr>
<tr>
<td><strong>Access</strong></td>
</tr>
</tbody>
</table>

Table 3.5: Concluding framework on governance styles in Belize, Jamaica and Nicaragua

Jamaica ranks 100th in the HDI, which puts it second to Belize. In Jamaica, the state has attempted to create and support strong fishing cooperatives from the start of the fishery in the 1950s. Yet, due to organizational problems, many of these cooperatives have not been very successful and have not evolved into an organization with either market or decision-making power. The government has maintained a special focus on the small-scale fleet, and few industrial boats have been licensed. Historically, fishers have also had subsidized fuel, mesh wire, engines, and boats.

The fishery is regarded as being overexploited by the FAO (2007). The regulations on closed season, weight, and size limits have had limited success. IUU fishing is considered to be high and data collection poor. Fishers themselves believe that approximately 50 percent of the fishers fish for lobster during the closed season, 39 percent fish for undersized lobster, and
33 percent catch berried females. These numbers are high and show the lack of management enforcement and control.

The interests of small-scale fishers are poorly represented in decision making, while the subsidies by means of tax exemptions and cheap fuel were curtailed in the 1990s, when the government ended the subsidies and services to the fishing industry. All decisions concerning the fishery are taken by the government, although users have been involved in the process, and an FAB has recently been established. This FAB has failed to involve all stakeholders, though, and market parties and fishing cooperatives were not represented.

Current lobster fisheries governance is thus one of hierarchical state governance, but the role of NGOs and market parties in management of MPAs has been increasing in Jamaica. The governance style in Jamaica can be regarded as defective co-governance, which has developed into a hierarchical governance by the state. At the same time, the state is making attempts to move in the direction of co-governance but has been unsuccessful to date.

Nicaragua is by far the poorest country of the three. In the HDI the country ranks 124th and this leaves a wide gap with the next of the three in line: Jamaica in 100th place. The lobster fishery developed rapidly beginning in the 1950s, but the civil war in the 1980s put an end to the fishery for a decade. After 1990, the fishery once again gained prominence as an economic activity on the Caribbean coast of Nicaragua.

Since the initiation of the lobster fishery in Nicaragua, the large processing plants and industrial fleet owners (which to some extent are often one and the same) have been very influential in lobster fisheries management. The state has shown difficulties in withstanding the pressure from interest groups, such as the industrial fleet owners and processing plant owners, as they are both politically and economically very powerful. A small, powerful group is therefore able to influence decision making, leaving very little room for other pressure groups, such as fishing cooperatives or NGOs. The fishing cooperatives that have developed are small, and have neither market power nor decision-making power.

The fishery is highly overexploited, with extremely high levels of IUU fishing. Both secondary literature and fisheries indicate that catching berried females and undersized lobsters, and fishing during the closed season are commonplace in Nicaragua. Monitoring and enforcement is low and corruption is prevalent.

MPA development has been slow in Nicaragua. No MPA on the Caribbean coast has yet been established, although the process has been initiated. International market parties and NGOs are, however, currently slowly initiating cooperation with the Nicaraguan state and lobster industry to improve the sustainability of the resource. Market party influence over decision-making in the lobster fishery has been disproportionately large in comparison to civil society actors. The lobster fisheries governance style in Nicaragua can be characterized as hierarchical governance where the boundaries between the state and market in governance are fluid. At the same time, the fishery shows signs of a market style, whereby the state is very absent. Even though the governance style is listed here as hierarchical—because it definitely does not show characteristics of either self-governance or co-governance—I do not mean to imply a very strong and forceful state. The state in fact has a rather limited steering ability. The market has either entered this void or created the void partly by exercising influence over the state and other parties.
This chapter has clearly shown that although the fisheries in the three countries developed in a similar period, they all have distinct governance styles. The following chapters will examine the impacts of the distinct governance styles on the well-being of fishers in Belize, Jamaica, and Nicaragua.
Chapter 4: Peaceful fishing within Belize’s cooperative lobster fishery

Introduction
Gilberto Downs spreads his arms in a Jesus-like fashion and points at the beautiful turquoise water that surrounds him. As the sun blazes down on our heads on the little lobster fishing boat in Belize, he stretches his arms towards the village of Caye Caulker at half a mile distance and declares “You can buy all of this sea-space for 2,500 dollars.” “However,” he adds ironically, “no one wants it anymore.”

For decades, lobster fishing was the main economic activity of Caye Caulker. Since the beginning of the commercial lobster fishery, the villagers developed their own informal sea tenure system. The fishing village of Caye Caulker and San Pedro are one of the areas in the world where fishers have property rights over their fishing territory (King 1997; Sutherland 1986). Fishers have carved out their “own sea territory,” and are able to both exclude others as well as sell their “property.” This sea tenure system is based on customary law rather than on state law. It is a set of traditional common law rules that has been developed by the villagers since the expansion of the lobster fishery in the 1950s (King 1999; Sutherland 1986). However, as tourism has become the main economic pillar of the village, fishing is now becoming less and less important for young men, and inheriting or buying sea property has also lost importance to a large degree. Although this system is still in practice, is widely described in the literature (see King 1997, 1999; Sutherland 1986; Vega 1978), and known throughout the region as one of the few examples where fishers still hold territorial rights, the system it is not characteristic for the lobster fishery in Belize as a whole.

This sea tenure system only applies to trap fishers in Belize; it does not apply to the lobster divers that are active in the fishery. Thus, besides the case of trap fishers in the
villages of Caye Caulker and San Pedro, no other lobster fishers in Belize use a sea tenure system. It is therefore only one element of the lobster fishery governance and practice in Belize. In Chapter 3, I have examined the governance arrangements of the lobster fishery at the national level, where I concluded the governance style of Belize is one of co-governance. This chapter explores the achievement of well-being of lobster fishers in Belize, as a result of this governance style in which the fishers are embedded. As explained in Chapter 1, I depart from a three-dimensional view which distinguishes: material well-being, relational well-being, and subjective well-being. These dimensions will be different across the two fishing métiers practiced in Belize: small-scale trapping and small-scale diving. In this chapter I will argue that the well-being of trap fishers in Belize is higher than that of lobster divers.

4.1 Belize’s lobster fishery

Belize is famous for its large barrier reef that extends no less than 260 km along the coast. The barrier reef with its many atolls has enabled the country to claim a very large Exclusive Economic Zone (EEZ) in comparison to its land area. It’s EEZ of 170,000 km², is in fact over seven times its land area (Gillet 2003). The large and shallow EEZ has stimulated a heavy reliance on fishing by a significant part of the population, for domestic consumption, income, and employment, while also ensuring substantial foreign exchange. The large reef also protects the coast and keys from hurricanes (King 1999) (see Map 4.1).

Fishers fish for species such as the spiny lobster, queen conch, pink shrimp, finfish, aquarium fish, aquatic invertebrates, and stone crab. The spiny lobster (*Panulirus argus*), queen conch (*Strombus gigas*), and pink shrimp (*Penaeus dourarum*) are the economically most important species (Belize Statistical Report 2005). The lobster fishery is thus currently the largest export earner in value of the capture fisheries; it is no surprise that fishers (N=31) consider lobster to be their most valuable product. In 2007, lobster supplied 75 percent of all revenues of the fishing cooperatives, conch 18 percent. In 2008, however, the lobster revenues percentage had dropped to 66 percent, with conch supplying 31 percent, 73 which is most probably due to decreasing prices as a result of the economic crisis. In the last three decades, the number of fishers in Belize has nearly tripled, rising from 790 registered fishers and 565 boats in 1973 to about 2026 fishers and 652 boats in 2005 (McConney et al. 2003; Villanueva 2005). Map 4.1 below lists the major fishing communities in Belize, as well as the different reefs and atolls.

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73 Fisheries Department Historical Statistics (2007,2008)
4.2 Material well-being

In the Belizean lobster fishery, there are two major fishing groups: small-scale divers and small-scale trappers. Although certainly similarities exist between the trap fishers and divers in Belize, a variety of differences can also be observed in relation to their material and relational well-being. Prior to exploring these three dimensions, I will therefore examine the working conditions, safety, investments, and remuneration of the two different fishing métiers, as well as discussing single-species and multi-species fishery, and the various economic alternatives fishers have. I will focus on the lobster fishers of Caye Caulker, and divers from Sarteneja (see Chapter 2 for further information on choice of location).

Trap fishers

Trap fishers are active in the northern zone of Belize in the fishing villages Caye Caulker and San Pedro on Ambergris Caye (see Map 4.1). Caye Caulker is located approximately 34 km northeast of Belize City, and is eight km long and less than half a km across its widest point, south of the village (King 1999: 74). Ambergris Caye (with San Pedro as its main village), the largest of Belize’s keys, is located 24 km north of Caye Caulker. The islands were uninhabited for centuries, until the mid-1800s, when refugees fleeing the Caste Wars from the Yucatan settled on the keys. Trappers from Caye Caulker are of mixed ethnic identity. Although islanders who have grown up on the cayes primarily identify themselves as “Spanish” (King 1997), there are also many Creoles. Spanish, English, and Creole are all commonly spoken and most islanders are bilingual or multilingual (King 1997).

As we have seen in the introduction to this chapter, sea tenure plays an important role in the trap fishery in Belize. Although the exact start of the sea tenure system is unknown, the
first reference is from 1969, in the annual report of the Northern Fisherman Cooperative (NFCS) (see King 1999: 86).

In so far as most of our members fish by traps, we wish to state here that we recognize that there is a tradition among our fishermen that each one finds his area to set his traps and that is not within the general accepted tradition for other members who set within the same area covered by that fisherman. Due to the expansion of the industry we can foresee that some problems will arise here and so we are asking all members to respect this tradition established by our fishermen, when and if they are expanding their operations, or for some when they start going into this business. (NFCS 1969: 11 in King 1999: 86).

This fragment shows the territorial system has been long part of Belize’s fishery system and that cooperatives were established early on. The cooperatives aimed to protect the territorial rights of the fishers. The cooperatives in turn were supported by the government who granted exclusive export licenses to the cooperatives.

Access to the productive lobster fishing territories from the very beginning have been regulated through kin ties, community membership, and continued participation in the fishery (King 1997, 1999; Sutherland 1986). Young fishers normally enter the fishery through working with older relatives, usually their fathers or uncles. Once they reach the age of 16 to 18, they may choose to become fishers themselves (King 1997). Families and individuals who established access to the fishery in the 1950s and 1960s have maintained their rights to fish in the area. These same fishers from Caye Caulker were the first to establish a fishing cooperative in Belize in 1961, after which a few more followed. Now the fishing cooperatives hold exclusive export rights, which means no commercial parties can be involved in exporting seafood.

As fishers are able to “own” sea territory and exclude outsiders, this permits fishers to not to have to mark the traps, and also to invest in shades. Shades are rectangular structures

74 To establish their own territory, they either may be given some traps and a portion of an established relative's territory, or they may be given traps to place at the margins of a territory fished by their relative, and then work to “carve out” a territory of their own by adding more traps when able to do so (Sutherland 1986: 23-24). Alternatively, a fisher may inherit a territory from his father or uncle. King (1997) writes of younger men trying to acquire new fishing territories in unclaimed waters, yet this is difficult, as few fishing territories remain untaken.
consisting of a wooden (palmetto) frame to which a sheet of zinc, measuring approximately 1 x 1.5 m, is nailed, although sizes can vary (see Fig 4.2b). Sometimes fishers will use ferrocement shades as well and, even the hood or roof of vehicles are used as “shades.” These all work as artificial hiding places, providing shelter that mimics the habitat where lobsters naturally hide during their growth phase, and thus are used to attract lobster. Shades are employed worldwide by commercial and recreational fishermen to increase their catch while decreasing effort (Seaman et al. 1989). The shades are subsequently fished with hooks by divers (free-lung) with a snorkel mask, usually the crew members of trap fishing vessels (see Fig. 4.2a). They are weighed down with a heavy object to prevent predators, such as nurse sharks and dolphins, from flipping them over for an appetizing meal.

Alienation rights, combined with the rights of exclusion, produce incentives for owners to undertake long-term investments in a resource (Schlager and Ostrom 1992). The right of alienation refers to the “collective-choice right,” permitting its holder to transfer part or all of the collective-choice rights to another individual or group, and thus the right to sell or lease it (Schlager and Ostrom 1992). For successful sea tenure to emerge, fishers must be confident in the commitment of other nearby fishers working in the same fishing grounds to limit access to sea territories and monitor other fishers’ behavior (King 1999: 25). In addition, fishers are only allowed to fish in their own fishing territory within this area.

The lobster sea tenure system practiced by lobster fishers in Belize shares similarities with the territoriality practiced by Maine lobster fishers75 (Acheson 1988, 2003), Mexico (Schlager and Ostrom 1992; Castillo and Defeo 2001), and Cuba (Joyce 1997; Conrad and Danoff-Burg 2011). The fact that lobster lives in relatively shallow waters, within a limited geographical range, assists lobster fishers in certain cases in developing a territorial system.76 The exact reasons for users of common-property resources to arrive at successful management practices, and when this is not the case, is far from clear (Acheson and Gardner 2010).77

75 The Maine lobster fishery is one of the most successful fisheries in the world, where catches over the last decades have been going up rather than down (Acheson and Gardner 2010). Acheson has described two types of lobster fishing territoriality that are present in the Maine lobster fishery: perimeter-defended and nucleated areas (1988). Nucleated areas are large areas, with membership reserved for members of particular fishing communities or harbors. The boundaries are rather fluid in comparison to perimeter-defended territories. The perimeter-defended territories refer to much smaller, individually defended territories, with more precise boundaries (Acheson 1988). According to King (1999: 87), the sea tenure system in Belize resembles both the nucleated type of territoriality as well as perimeter-defined territoriality. Individual and kin-based groups divide the fishing grounds surrounding the Caye into more defined territories which are held by the respective person or family from season to season. These are the “areas” referred to in the cooperative report excerpts cited above, and they resemble Maine lobstermen’s perimeter-defined territories (King 1999: 87).

76 Two of the world’s largest lobster fisheries—Australia and Maine in the US—are regarded as being successfully managed, with high and stable annual production. In March 2000, Australia’s rock lobster fishery became the world’s first fishery to be certified as sustainable by the Marine Stewardship Council (MSC), according to the MSC environmental standard. The Mexico Baja California red rock lobster followed in 2004, while the Maine lobster fishery in the US is currently under MSC assessment, and full certification is expected in May 2011.

77 Much literature concerning governing the commons has centered on the question of why some local communities and governments have been able to generate effective rules to conserve stocks while others haven’t managed this (Ostrom 1990; Agrawal 2001). Noble Prize winner Elinor Ostrom (1990), Baland and Platteau (1996), and Wade (1988) have written some of the most eminent books that produce theoretically informed generalizations about the conditions under which groups of self-organized users are successful in managing their commons dilemma. Nevertheless, it has been far from clear why exactly it is that some fisheries have developed effective rules while others haven’t (Acheson and Gardner 2010).
Cuba, it has been the central government which established lobster fishing territories (Joyce 1997; Conrad and Danoff-Burg 2011). Here the government provides access to specific groups of fishers, and enforces the rules and regulations that apply. In Mexico, on the other hand, it has been fishing cooperatives that established fishing territories (Schlager and Ostrom 1992; Castillo and DeFeo 2001). The cooperatives define the territories for individual fishers, and enforcement is carried out by the fishers themselves (Schlager and Ostrom 1992).

The fishers from Caye Caulker and nearby villages are largely single-species fishers, catching only lobster and the occasional stone crab. Fishers use fiberglass skiffs or motorized dories, equipped with outboard motors (15-115 hp), approximately 3.5 to 12.5 meters in length. They employ traps, shades, or drums. The traps used are rectangular “palmetto” traps, normally un-baited (or baited with coconut), with a funnel entrance on one side. They are set in the seagrass beds behind the reef crest in shallow waters (3-16 m) (see Fig 4.2a) (FAO 2003: 715). It is estimated there are 62,000 traps in Belize, maintained at a cost of USD 25 per trap season (McConney et al. 2003). This amounts to a USD 1.55 million investment by trap fishers in Belize.

These traps usually last one season to two seasons maximum. Traps are “pulled,” or “hauled” with a long wooden pole with a metal hook at the end. They are not marked, as in Nicaragua and Jamaica, as the water is shallow and clear enough to spot the traps, and, as we have seen in the introduction to this chapter, fishers only fish in their own sea territory. Only when the water is murky—due to storms for example—does spotting the traps and shades prove difficult, according to the fishers interviewed.

The majority of trap fishers interviewed stated they had between 300-500 traps, although some only had 180 traps. Fishers leave early in the morning and return in the afternoon. The fishing grounds are very near to the village of Caye Caulker and fishers state they generally take between 10-30 minutes to reach the fishing grounds. As fishing grounds are so near to shore, fishers are able to bring their cell phones in case of an emergency, and also often bring along life jackets and use GPS to locate the traps if necessary. Trap fishers usually only spend five to nine hours at sea per fishing day. Lobsters are stored in the shade of an old trap, and are thus kept alive until they are brought back to shore to be “tailed” and gutted. There is therefore no need for these fishers to bring along ice. The majority of trap fishers indicated they only went out three days a week but some fishers indicated they work the full seven days of the week.

Shades—commonly known in the Wider Caribbean region as *casitas*—and drums are also used by trap fishers. Approximately 2,470 shades were deployed in various fishing zones in at a value of USD 15 per shade (adding up to another USD 37,050) (McConney et al. 2003). In addition, 100 used vehicle tires were recorded being used for fishing lobster; these are often obtained as waste at mechanic shops (McConney et al. 2003: FAO 2007). Trap fishers thus mix a variety of fishing gears. Although I use the term trap fishers, part of their fishing activity thus also relates to diving for lobster when they empty their shades. One day they might go to sea to empty their traps, the next day they will be retrieving lobster from their shades. Of the seventeen trap fishers interviewed in the survey, eleven indicated they also used shades.

The division of profits of trap-fishing vessels differs, but has certain commonalities. The boat owner, often the captain, usually has two crew members working with him, who can
be both kin as well as non-kin. In some cases, the crew who are kin will have their own territories to work, and all parties have at least some ownership at stake; the labor provided is based on kin relations and does not involve wage or other direct compensation (King 1999). The other common type involves fishers who own traps, and hire labor to help haul the trap; these helpers can be both kin as well as non-kin. Captains will always deduct fuel costs first, before making calculations for the crew’s share. The distribution of benefits is dependent on the catch of the day, and the profits made are split based on a pre-arranged formula for each person’s contribution in labor and capital (King 1999: 103). In some cases there can also be a combination of wage labor and kin relations. Some trap fishers thus work independently, while others are crew members. On one boat there can be a combination of both.

Eugenio has been a trap fisher for over 30 years on Caye Caulker, fishing with 120 traps and twelve casitas. He owns a boat, outboard engine, traps and casitas and a sea territory of 2 km² in the vicinity of the village. Both his son and a crew member help him out fishing on their day trips. We met when I was doing interviews at the fisheries cooperative receiving station, when he invited me to join them. We meet at 7 AM and move swiftly through the turquoise shallow waters. I have never arrived so quickly at any fishing grounds and in ten minutes we arrive at the first trap. This has been his sea property for years, and Eugenio knows exactly where all the traps are. The helper only needs to hook them with the long pole with its metal hook, while standing at the bow of the vessel.

Eugenio’s son helps haul the traps, and then empties and repairs them, before putting the traps back in the water, mostly at a different spot from where they were retrieved. The son and crew member told me their payment was based on the catch of the day (thus a share system), but that the percentage was non-fixed and that they thus could not give me an exact percentage of the share they received. The son received a higher percentage than the non-kin, as the son had a more difficult job. He had to pull the trap out of the water, while the non-kin crew member only had to “spot” the traps. This job was perceived as being of lesser importance and difficulty, and therefore the payment was lower. We catch a few stone crabs, fish, and slipper lobster during the day as by-catch in the traps. Everything is taken home except for the poisonous fish.

It’s not until we arrive back at the small landing beach that Eugenio’s son and other helper tail and clean the lobster. This means they have been kept alive in an old trap on board for the entire trip, and thus are of good quality. Eugenio goes and brings the bucket full of lobster to the receiving station of the cooperative with his little golf cart. After they have sold the product and showered, we meet up again, back at the small landing beach and drink rum for the rest of the lazy afternoon in the golf cart, while we talk about fishing. Eugenio’s wife arrives an hour into our drinking session in their second golf cart. “Aha,” she says, “now I understand why you all ran off so fast after you had showered and eaten.” We talk a bit and get acquainted. She ends up leaving, telling Eugenio she doesn’t want him back in the house very drunk.

Lobster trap fishers have high investments. A fisher with 180 traps will have to invest USD 4,500. Fishers’ interviews indicate they have either used their savings (11), have taken out loans from the cooperatives (4), or have been able to obtain a loan from a bank (2). The boats used by trap fishers are less expensive than the sailboats used by divers (see section below) and cost approximately USD 4,000, while engines are approximately USD 3,000.

If divers operate in the same areas, traps can be easily emptied, and theft is common. Fishers complained about these practices to me in interviews, but the literature shows it has been a complaint since the beginning of the fishery in Belize (see King 1997, Sutherland 1986). As investments are so high for trap fishers, theft is considered a serious concern. Many trap fishers complain of other fishers emptying the traps or shades, as well as stealing the traps.
Only three out of seventeen trap fishers did not mention the emptying or theft of traps when asked about conflicts in the fishery.\(^78\) Thus although the trap fishery has certain characteristics such as ownership and safety, as you own your own sea territory and it’s relatively close to shore, at the same time theft is common. The sea tenure system is changing, as more tourists visit Caye Caulker. Today, as tourism is taking over as the main source of income in the village, young men are reluctant to become fishers and would rather seek economic opportunities in tourism. The clash between lobster fishing as a fulltime occupation, and the increasing importance of tourism in the village, was particularly visible during my visit in the summer of 2009.

The fisher Gilberto, discussed in the introduction, tells of his fishing “neighbor” William, who has been fishing for lobster for decades, but now wishes to retire. His sea property, however, will remain in his hands. Nevertheless, his son doesn’t want to work as a fisher, and prefers to work in tourism, having no desire to follow in his father’s footsteps. In the village no other young person is interested in either working or buying William’s sea property. Business investors have shown an interest, but William only wants to sell to someone “who works the sea.” Gilberto would have liked to buy the territory and add it to his 2 square miles but he doesn’t have the USD 2,500 required. As the day continues, and Gilberto, his son, and the crewmember continue emptying the traps, I ask Gilberto’s son if he wants to continue in his dad’s footsteps. He laughs timidly, looks away from his father and mumbles, “I really don’t know.”

Thousands of tourists visit these villages every year, and fishers will often be engaged in tourist activities such as such as running a bed & breakfast, offering tourist snorkeling tours or running a bakery or shop. Sutherland (1986) concludes from her research on Caye Caulker that the emergence of tourism in the village parallels fishers’ control over the development of fishing after organizing the cooperative, whereby local families with control over local resources (land and fishing grounds) have developed businesses that accumulate wealth locally. The accumulation of wealth from the lobster fishery supported the development of tourism on Caye Caulker by local residents rather than outsiders in the 1970s and 1980s, as locals—most often fishers—had the capital to invest (King 1999). Fishers interviewed indicated they earn extra income as tour guides, renting their house or cabins, taking tourists on fishing trips, running a grocery store, or working on the side as a water taxi. Of the seventeen trap fishers interviewed, fourteen indicated they earned additional income from these alternatives.

In order to protect the fishery, it is closed for three months of the year for lobster fishing (in Belize the closed season runs from 1 April to 30 June). Usually at the end of the lobster season, fishers will go out fishing less frequently, as the availability of the resource

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\(^{78}\) Besides theft, hurricanes are also a major concern for fishers. They will often lose traps, boats, and gear, and sometimes even their lives. The 2006 NFCS annual report provides an illustration of the role hurricanes play in daily life. “It is stated that there is going to be another active Atlantic hurricane season. Let us pray that our country, Belize, is not in the path of one of these hurricanes when and if they form. However, if we are in the path and sustain a hit, let us prepare and ask the Almighty to save our families, our communities, our industry and ourselves, as with the preparation the consequent re-building will be much easier.” Hurricanes thus affect trap fishers more heavily than divers, as their traps and shades, and thus their investments, are often lost.
starts to decline and at times the weather doesn’t permit them to go out. Trap fishers are single-species fishers, as they only target lobsters, and will not fish at all during the closed season.

Divers

The coastal village of Sarteneja, in Corozal Bay in the north of Belize, has a large fishing population (see Map 4.1), with fishing being the major economic activity of the village. There are approximately 1,591 fishers, which means one-third of the total fishing population of commercial fishers in Belize lives in Sarteneja (Programme for Belize 2003). Fishers here are the descendants of Mexican and Mayan refugees of the Caste War which took place on the Yucatan peninsula in Mexico. As the community was established in 1854 by Mexicans fleeing persecution by the Spaniards, the primary language has remained Spanish, despite the fact that English is the official language in Belize.

The brackish waters surrounding Sarteneja are not particularly good for fishing. Yet these fishers at one time also had their own fishing cooperative, just like those in Caye Caulker. Until the beginning of the 1980s, Sarteneja had its own fishing cooperative, and fishers would make the long commute up and down the coast to the good fishing grounds in the middle and south of Belize. Fishers would not fish in the bay where Sarteneja was located because the fishing was not very productive, and fishers would take their boats to central and south of Belize to fish. This was, however, very time consuming, and fishers started stationing their boats in Belize City and selling their product to the two cooperatives there.

The cooperative in Sarteneja deteriorated as a consequence. As more and more fishers started selling their product to the cooperatives in Belize City, they stopped paying off their debts and selling their product to the fishing cooperative in Sarteneja. The cooperative went bankrupt and the fishers joined the other two main cooperatives in Belize. Currently, the Sarteneja fishers thus work out of Belize City, which implies a four to five-hour bus commute from their homes to the sailboats stationed in Belize City. In some cases, divers working on the sailboats in Belize City don’t come from coastal towns like Sarteneja, but from the interior towns and villages of the country, such as Orange Walk.
times. When I came back three years later, both brothers had left fishing. The younger brother had joined his dad at the farm, as he had now become a parent himself, while the elder was now learning to become a car mechanic.

Fig. 4.3a: Giovanni preparing lobster on board for breakfast (left).
Fig 4.3b: Josua and Giovanni in the harbor of Belize City getting ready to go home (center).
Fig 4.3c: Josua and Giovanni at home at their parents’ farm (right).
Source: Author

Divers leave to fish for approximately eight days, doing so mostly in the fishing grounds in the central and southern area (e.g., Glover’s Reef or Turneffe Key). Fishers can fish anywhere except for those areas designated as MPAs. The sailboats, often called “dories,” have a small auxiliary motor and often sail far offshore. They are mostly stationed in Belize City. The sailboats are made of wood, with a minimal auxiliary power in the form of a small outboard engine (15-40 hp) fastened to the stern. The outboard engine is commonly only used when the boat is moving from one fishing spot to the next during the week. They are mostly up to 9-10 meters in length, although a few boats are longer and up to 14 meters. The reefs where the catch for divers is best (e.g., Glover’s Reef and Turneffe Reef) are up to approximately ten hours sailing time—or even up to two days sailing if they have left late on the first day—from Belize City.

When they leave in the morning from Belize City, they will reach the fishing grounds in the evening, and can start fishing the following morning. Before departure, fishers will spend hours, and sometimes even a whole day, collecting the ice, fuel, drinking water supply, and provisions they will take on board. Sometimes gathering the provisions, ice, and fuel and water takes too long, and they end up leaving Belize City after lunch. In this case they will spend the first night at a nearby key, and then sail the remaining part the next day. They won’t be able to fish, however, until the day after. If you count the day for the return this means the fishers might spend three days travelling, out of their nine to ten-day journey. These days they don’t make any money, but they do spend money on food and fuel, while their costs at home obviously continue as well.

Sailboats commonly carry nine to twelve divers. The large sailboat is used as the “mother ship” where divers eat, sleep, and store all their catch. The boat owner is commonly the captain, although in some cases boat owners employ a captain to “work the boat.” Each diver brings his own small canoe, made of wood or fiberglass, to fish for conch, lobster, or
finfish during the day. Divers are thus multi-species fishers, catching conch, lobster, or finfish or a combination of these, depending on the season.

At around 6 AM, right after breakfast, fishers will leave the dory in their canoes to hunt for conch, lobster, or finfish. Breakfast can consist of some undersized lobsters with tortillas, some buns, johnnycakes, and often tea or coffee. On one boat the fishers preferred tortillas to rice, as they said it filled better, but I have also been on a journey where hardly any tortillas were made and rice was eaten every day. They spend the entire morning away from the sailboat, out by themselves looking for lobster, conch, and finfish. There is no territorial system like in the trap fishery, and divers can fish “anywhere.” Divers are in fact very mobile in comparison to trappers and move to a new fishing location every day. Conch is retrieved by hand from the seabed, lobster using a metal stick with a sharp hook to get them out from underneath rocks and coral, while finfish are caught by speargun. Lobsters at times are killed instantly by the sharp hook (see Fig 4.5). However, some will survive until they get back to the boat at the end of the morning and those are not tailed until the fishers are back at the boat, in order to prevent quality loss. The divers do not use any auxiliary gear, but dive up to 25 meters purely on lung capacity while catching lobster, conch, and fish. I have only witnessed a few fishers wearing complete wetsuits, and usually they will just work in shorts, socks, and flippers.

The first trip on a sailing boat in 2006 was with Captain Bildo. Upon my return in 2009 I discovered Bildo had sold his boat and was now working as an independent fisher on Juan’s boat. Bildo was very excited to bring me along again but needed to convince Juan that I wouldn’t be a nuisance. This took some convincing, but I end up going along with Juan in a very large boat that he and his brother had built themselves. We ended up losing a day, as the cook had been sent to buy some extra fuel but never returned. He most likely got sidetracked with the USD 100, and although the fishers looked for him frantically, we ended up leaving nearly a day behind schedule, with no cook. Every fisher then had to take a day’s responsibility for cooking and washing up. We ended up eating a lot of plain rice, fried lobster, and fish with ketchup. As Juan was now the captain, he had taken full responsibility for my presence on board, and I went out fishing with him every day instead of with Bildo.
The canoe is tied with a long rope to their waist as they swim across the patches of rocks and coral. The entire catch is stored in the canoe, and neither conch nor lobster (if at all possible) is killed until the canoe gets closer to the sailboat at the end of the trip.

Fig. 4.5: The caught lobster is retrieved from under the rocks and brought up to the dug-out canoe. Source: Author

Upon their return to the mother boat, between noon and 2 PM, fishers will clean the fish, conch, and lobsters they have caught. It can get busy at the boat if all fishers arrive about the same time to clean their product. Lobsters are cleaned on board by taking off the head and “gutting” the tail with the lobster’s own antennae. The tails are soaked on board in a bucket of fresh water with a tiny bit of sodium sulphate, in order to prevent melanosis (dark discoloration).

The tails are stored in new transparent plastic bags in the ice cooler on board every day. The different sea products are all stored in separate bags in the ice cooler, and fishers mark their individual bags with a certain mark, like a can label, or playing cards. These marks will identify the owner of the bag upon their return in Belize City. The large ice cooler is constructed at the center of the boat. It is filled with chipped ice, and each afternoon a few fishers will readjust the ice in the cooler when everyone wants to store their newly caught bags of product. The ice cooler is made of fiberglass, and once covered with its thick lid will additionally be covered with a large plastic cover to keep the product clean and cool.

After cleaning, the fishers will have lunch. This often consists of fresh fish, lobster, or conch, but fishers also bring chicken and beef to eat during the week. After lunch they will usually not go back out to sea—only in case they have had an exceptionally bad catch that morning. Often the few hours in the afternoon—after the product is cleaned and before night falls—are used to move the boat to a new location in the fishing area, or to clean or repair parts on the boat. By moving to different locations, various fishing grounds can be worked. The captain and crew discuss what fishing grounds are to be fished. Although hierarchically

79 Melanosis or blackspot is a dark discoloration, which is unattractive to consumers and reduces the market value of crustaceans. Sulphiting agents are still the most effective and practical method to prevent melanosis but residual levels should be low since they can produce health problems for consumers. In the case of trap fishers this is done at the cooperative.
the captain holds the most powerful position, he will often discuss the best fishing area to be fished with the rest of the fishers.

When the fishers are finished with dinner, they play dominos, cards, or listen to the radio if they are still close enough to the coast to pick up a signal (see Fig. 4.6a and Fig 4.6b). They listen to the weather report once a day, and twice a day if they are going through or expecting bad weather. The radio is very important, as their fishing grounds are too far from shore for their cell phones to work. In addition they will often bring life jackets, and usually a compass.

Fig. 4.6a: Three fishers listen to the radio on board when making their way back to Belize City after a nine-day trip (left).
Fig. 4.6b: Playing a game of dominos while moving to a new fishing spot (right).
Source: Author

Fishers bring along chicken, as well as beef, but this is not sufficient and they supplement their diet on board with freshly caught fish and undersized lobsters. Fishers guessed that during the lobster season they might eat up to 15 pounds of lobster per boat per fishing trip. These are undersized lobsters that are used for breakfast, lunch, or dinner (see Fig. 4.7).

See Chapter 7 for a discussion on the potential for salmonella contamination by stocking chicken in the same ice cooler as lobster.

If—considering the number of boats, fishing trips, and the length of the season (8 months)—the amount of small undersized lobster taken above and beyond the numbers taken according to the government is quite large, and could significantly alter the total figure of undersized lobster taken. The results from the survey and my observations on the diving boats do not provide conclusive evidence for an illegal catch (lobster caught out of season, berried females, undersized lobsters) higher than ten percent, but it does definitely point in that direction. New research is necessary to obtain more precise data on this issue.
Often brothers, uncles, cousins, and nephews can be found on the same boat, yet this is not exclusively so, and fishers often change boats as well. Fishers state they will try and find a boat they are comfortable with and stay with that boat. Yet as captains and fishers move across the different boats, this will affect whether other fishers still feel comfortable with that boat. Although fishers of sailing boats appear to at least know each other before going out fishing together, they do not necessarily have to be family or friends. Divers often move from boat to boat. A captain might sell his boat, and if a new captain takes over, only a few will stay behind. The rest disperse themselves over the other boats. Several fishers indicated they had been on three to four different fishing boats over the last five years.

In 2005, Bildo bought the boat “La Princessa” from his brother Eddy. When I went out fishing with the “La Princessa” in 2006, his brother Eddy was an independent fisher on Bildo’s boat. Eddy needed money to support an ill family member and had to sell the boat. Another brother fished on this boat and the crew members were happy with their team. Upon my return in 2009, however, I was told that in 2008 Bildo needed money, as his family had grown to include four daughters, and he had sold the boat to a fisher named Alejandro. Bildo did not continue fishing on “his” boat but started fishing with another boat called the “INRI”. Eddy in the meantime worked on yet another boat, and so did most of the other crew members that I had previously been fishing with. Two had left fishing all together, while only two fishers who had worked with Bildo previously on “La Princessa” had remained working on the boat with the new captain Alejandro upon my return in 2009. This example shows that boat/crew membership is not fixed and neither is boat ownership. Fishers move from one boat to another, and captains sell and buy boats frequently.

A captain who is able to keep order and find good fishing grounds will gain respect among the crew. Fishers indicate a boat is considered respectful if captains don’t yell at them, if it is a boat where all fishers will get a plateful of food no matter what time they return from the fishing grounds, and is a place where one can work and live side by side peacefully, where few quarrels exist. Fishers mentioned other boats where things can get rowdy, where fishers smoke marijuana and cigarettes, and where fishers will lose their chance of a meal if they fall asleep. I witnessed only one boat where the captain brought his wife and young child along on all fishing trips. She didn’t participate in fishing, but spent the time on board taking care of their child and doing some of the chores.
Fishers also cooperate in times of need. If a boat encounters problems with fuel supply or fresh water storage, for example, another boat will help. Fishers won’t fish “together” with other boats, but they will sometimes “tie up” together for the night if they are close to one another. Although fishers work at such a distance from shore, they know exactly which boat is operating in which area. Fishers know each other from the villages, bars, and cooperative, and know the fishing areas certain fishing boats frequent.

Fishers complained they had to work hard at times for their captains (e.g., cleaning the algae off the boat’s hull) while not getting paid. A few independent divers who previously had been captains told me they preferred not to be captain, but to work independently, as “it’s too much hard work.” A fisher named Gancho explained:

My stepfather taught me to fish, so I started fishing. I was a captain for seven months, but it’s too much work. You don’t pay the 4 lbs a day, but that’s all the advantage. You have to work hard, steer your boat through the rain, and when the waves get high, you have to know all the passages through the Big Blue, Tobacco Key [names of sea areas] and all of them and keep your fishers safe.82

After having been a captain and selling their boat, they thus give up part of their earnings, but also gain a bit of freedom, as they say. You don’t need to organize food, fuel, water, and ice before a trip, to solve potential problems on board, fix engine problems, give guidance on fishing locations, and provide credit to your fishers if needed. In addition, if you are a captain, you can never skip a fishing trip, as you need to be there for your crew, while other fishers indicate they skip a fishing trip sometimes when a family member is ill, or they want to spend more time with their family. A fisher, who had previously been a captain, told me how he had recently skipped a fishing trip, as his wife had begged him to stay home. “She told me ‘life is not all about money,’ and convinced me to stay another week ‘because it was my daughter’s birthday.’”

Divers fish in the extended shallow reefs of Belize. The shallowness and the presence of many keys and atolls make it relatively safe. In case of hurricanes or tropical storms, fishers are easily able to find refuge. In addition, divers are only permitted to dive “free-lung.” The use of scuba gear or hookah equipment is illegal in commercial fishing in Belize. Both scuba and hookah often cause decompression sickness among divers. The fact Belizean divers are not allowed to use this thus makes their working conditions relatively safe.

Remuneration

Remuneration differs per fishers and per fishing group. As we have seen in the previous section, in the trap fishery the owner makes the largest profits, but also makes the largest investments (boats, traps, sea property, etc.). The crew is paid according to a share system, although there is no fixed share system in place. The captain sells the product to the cooperative receiving station at the island, and maybe brings the “rejects” to sell in his own or someone else’s tourist restaurant. Trap fishers are single-species fishers and thus only catch lobster. Nevertheless, they are usually also employed in the tourist industry in Caye Caulker.

The remuneration of divers is slightly more complicated. We have seen in the previous section that sailboats host nine to twelve independent fishers, and that all profits go to the

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82 Interview E5: 05/11/2006
individual fishers after a number of cost deductions. Prior to the trip the captain will pay for provisions, fuel, and ice. This amount will be shared by all at week’s end, calculated per head, and usually amounting to approximately USD 65-75 per person. In addition, each fisher pays the captain a fixed price per day for the use of the boat. Fishers pay 1 lb of lobster per day during the lobster season or 4 lbs of conch (market clean) during the conch season per fishing day. Sometimes captains will give their crew a break if they only fish half a day, or the weather has been bad. However, on a fishing trip on one boat where I was a participant, fishers complained that the captain never gave them a break, and one fisher commenting on his captain said while we were out fishing: “When we start fishing, the clock starts ticking.”

Another captain told me proudly that even his dad—who was 73 at the time—had to pay him the 4 lbs of conch and 1 lb a day, when he worked on his boat. When I expressed my surprise, he responded that his dad had not always treated him fairly over the years, in comparison to his brother. And, he added, you have to be fair to all your crew. In addition, divers pay the cook USD 15 (and as a cook once explained to me, this was actually divided into USD 2.50 for cleaning the dishes and USD 12.50 for cooking).

Captains of sailboats have a lot more invested in the boat than trap fisher captains, as their vessels cost around USD 11,500-15,000 and USD 5,000, respectively. Yet, divers in general have much less invested, as they only have their canoe, peddle, mask, flippers, and a speargun. Spearguns are not used for lobster or conch, but only to catch finfish. As all divers are multi-species fishers, they will all have a speargun as well. Divers may have fewer investments, but they also have fewer economic alternatives, as they might only spend two days at home before returning back to sea. Of the thirteen divers interviewed, two did indicate that they earned additional money as tour guides, while one also occasionally worked at the landing place for one of the cooperatives. On occasion, divers will skip a fishing trip in order to stay with their families a bit longer. This is not for the purpose of engaging in other economic alternatives, but rather is just a way to spend more time with the family, or it happens in cases where the divers are ill. As divers target multiple species, they can continue fishing even when the lobster season is closed, so their fishing is a year-round activity.

After catching the lobster either by traps or diving, the lobster is sold to one of the four fishing cooperatives. The fisher builds a track record of how much fish, conch, and lobster he produces in a year, and in relation to his catch volume he is able to receive benefits from the cooperative. These are, for instance, access to credit for gear, gasoline, and provisions, and the use of ice-rooms/storage rooms. Other benefits fishers also have that non-members do not have include a Christmas bonus of around USD 100, medical care of approximately USD 150 per year, and coverage of burial costs when a fisher dies at sea. Cooperatives also often have several funds and reserves that help their members: they may have an education fund, a disability fund, hurricane fund, pension fund, or a lobster aquaculture fund (in case of NFCS). This provides fishers with a form of security.

In Chapter 1, I have described the historical development of the fishing cooperatives in Belize. Currently there are four cooperatives in operation. Only two of these have processing licenses and facilities. In 2004 the four cooperatives had a total membership of 1,396 (producing and non-producing) (Belize annual report 2005). The difference between producing and non-producing members is related to whether they have actually sold the cooperative fish product (lobster, conch, or fish) over the past year. Producing members are
fishers that deliver their catch in their name to the cooperative. Non-producing members can be fishers that deliver in another person’s name (see next section), but they can also be retired fishers or related to fishers that are currently engaged in other economic alternatives, but who might return to fishing in due time.

<table>
<thead>
<tr>
<th>Cooperative</th>
<th>Location</th>
<th>Number of producing members</th>
<th>Number of non-producing members</th>
<th>Total number of members</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFCS</td>
<td>Belize City</td>
<td>373</td>
<td>342</td>
<td>715</td>
</tr>
<tr>
<td>National</td>
<td>Belize City</td>
<td>324</td>
<td>170</td>
<td>494</td>
</tr>
<tr>
<td>Caribeña</td>
<td>San Pedro</td>
<td>15</td>
<td>121</td>
<td>136</td>
</tr>
<tr>
<td>Placencia</td>
<td>Placencia</td>
<td>32</td>
<td>19</td>
<td>51</td>
</tr>
</tbody>
</table>

Table 4.1: The cooperatives, their locations, and numbers of producing and non-producing members (2004).
Source: Fisheries Department Annual Report, Belize, 2005

Table 4.1 shows that the National and NFCS are the largest cooperatives. Northern (i.e., NFCS) has 715 members in total, National 494, followed by Caribeña with 136, and Placencia with 51 members. When looking at the producing members, however, Northern and National are nearly equal with 373 producing members at Northern, versus 324 producing members at National.

The fishers receive an initial price for either product, called a “first payment.” The first payment is generally set high, as an incentive for fishers to be loyal and sell their lobster to the cooperative. After the fiscal year has been closed and all expenses and income calculated, all benefits are returned via second payments to producing members. The cooperative calculates the second payment by the total income the cooperative has received throughout the season, minus the difference of the first payment, processing costs, and other costs, such as administrative costs and financial costs related to outstanding debts. The second payment is dependent on the product weight the member has produced over the year (lobster and conch). The official announcement of the second payment comes during the cooperative’s Annual General Meeting, held each year after the cooperative’s accounts are audited (King 1999: 116). The second payment enables fishers to “save” part of their income for a later moment and tides them over when income is low.

At the NFCS the first payment was between BZD 18 and BZD 20 per pound in 2006 (at the time, 1 Belizean dollar (BZD) was equivalent to USD 2) with a second payment up to BZD 9, for conch this amounted to BZD 4 for the second payment. The second payment in 2005 had been BZD 8.75 per pound for lobster tails and BZD 1.50 per pound for conch showing the fluctuations of second payments (in this case for conch). The total price per pound of lobster was thus BZD 26.75, which equals approximately USD 13.37 per pound. The NFCS also supplied an additional bonus for those fishers who delivered their catch in Belize City, paying BZD 0.10 per pound for lobster tails and BZD 0.15 per pound for conch. However, all of these figures are relatively flexible on close inspection. First, there are differences between the two large cooperatives. Especially during the economic crisis the fishers at Northern would receive higher prices than fishers at National. In addition, the

83 As we saw in the previous chapter, fishers from the National cooperative didn’t switch to the NFCS until the second payment was made in 2008, in the heart of the economic crisis. The moment they found out the second payment was so low they switched over.
second payment changed markedly because of the crisis. At some point fishers were receiving no second payment or only BZD 0.25 while the first payment had dropped to BZD 12-14. In addition, fishers might sell part of their catch through intermediaries or part to another cooperative (see section below).

Typically, fishers who sell their product to the fishing cooperative, of which they are a member in Belize City, will receive a personal check from the cooperative. The following steps can be observed in the process of sale:

a) Fishers will bring their product by sailing boat or their own skiff to the cooperative, of which they are members.
b) Fishers wait in line (up to an hour if it’s a busy day) to bring their product to the cooperative employees who will check the product.
c) Cooperative employees will go through the product in order to take out the rejects (soft-shelled lobster, lobster with cracked shells, tar spots, or undersized conch and lobster).
d) The product is now weighed in total per product (lobster, conch (market clean or filet), finfish filet etc.).
e) A note is made with the name of the fisher, the membership number, number of pounds per product (lobster, conch (market clean or filet), finfish filet etc.), and date.
f) The fisher signs the note in his name and takes the note to the cooperative administrators. If the fisher has a debt with the cooperative they will deduct a certain amount from the paycheck. The remaining amount will be on the personal check which the fisher can cash at the bank.
g) Fisher goes to the bank.
h) The above is often followed by a trip to the Bamboo Bar, a large bar in the harbor filled with fishers, their girlfriends, wives, and perhaps even a few prostitutes. It’s a lively bar where all fishers catch up on the recent gossip and fishing activities, but also a place that is frequented by officials from the Fisheries Department or coast guards who will come here to have a beer and chat with the fishers, and thus enhance their relationship with the fishers.

Every few hours the Sarteneja fishers will leave the Bamboo Bar in a rush, drunk and carrying along more beers, as they jump on the bus to their hometown in the Northern zone. And at times wives or girlfriends will come down from Sarteneja to wait for their husbands’ return and secure some of the wages, before their husbands spend it all at the bar. The women want to make sure they end up with some of the fishing’s profits in their hands.
This section has shown that the material well-being of trap fishers and divers is quite different, even though they also share commonalities. The working conditions of trap fishers are relatively easy. Fishers own their own sea territory, which is located close to shore. They are day fishers who leave early in the morning and return in the afternoon. Their working conditions are thus very safe. The capital investments for the boat and traps are very high for the owner, but the crew makes no investments. Trap fishers are single-species fishers who only catch lobster, so do not fish at all during the closed season. They are, however, often engaged in economic alternatives such as tourism.

Working conditions for divers are more intensive, as they are gone for eight to nine days at a time and spend approximately eight hours a day diving in the sea to fish. It is hard work and on average they only spend two to three days at home. Their opportunities to engage in economic alternatives outside of fishing are limited. Safety is relatively high, and although divers often work far from the coast, the extended reef of Belize is very shallow and there are many small keys and atolls where fishers can find refuge in times of hurricanes or when they have fallen ill. Divers are multi-species fishers who also catch conch and finfish. During the closed season they thus continue fishing for other products.

For both types of fishers the remuneration is high, as fishers are mostly members of fishing cooperatives. These cooperatives have been granted exclusive export rights. As a result, all benefits flow back to the fishers, and fishers are able to reap some of the highest benefits for lobster in the region (Huitric 2005).

4.3 Relational well-being

The distribution of lobster catches in Belize differs between trap fishers and divers. The majority of lobsters are legal sized, yet a percentage, currently held to be roughly ten percent is undersized (FAO 2007). Divers will catch more undersized lobster for their own
consumption, as they consume it on board during their eight- to nine-day trips. Trap fishers will sell more lobster to the hospitality industry, as these fishers themselves often also work in this industry, and their village is full of hotels and restaurants. Divers return straight back to Belize City, and therefore have less opportunity to sell undersized lobster to the hospitality industry.

A large percentage of lobster is sold directly by divers and trap fishers to the cooperatives. Yet as this section will show, intermediaries might be responsible for buying up to 40-50 percent of the total catch sold to cooperatives. The two cooperatives NFCS and National are the only seafood companies permitted to export seafood product from Belize. All exported lobster from Belize is therefore processed at one of their two processing plants. As divers spend up to ten days on board, their consumption of lobster is higher than that of trap fishers. Trap fishers are often located in Caye Caulker or San Pedro. These fishers cannot sell directly to the two large cooperatives, but either sell to the receiving station in Caye Caulker, or the Caribeña cooperative in San Pedro. The lobster will finally be further distributed to the two large cooperatives with export permits.

Most export from the two processing plants is destined for the US, but a minor proportion is also shipped to Mexico, Canada, and Asia. Especially in recent years, since the economic crisis, the sales to Mexico have been on the rise (see also Chapter 7).

The Cooperative Societies Act of 1948 structures lending relationships between cooperatives and their members (King 1999). When members avoid their commitments by not marketing to the cooperative, the remaining membership bears the burden of the disloyal member’s unpaid debts, realized as an increase in costs in order to fund the credit pool, and maintain the cooperative’s resilience over time. The loans provided by the cooperatives are both a blessing to fishers, as they have few alternatives to seek credit, but also carry the seed for the destruction of the cooperative.

The cooperatives distribute credit at the beginning of the lobster season to make the terms favorable for members, and because members repay their debt to the cooperative through the value of the catch marketed to it. Capital is secured by the cooperative from a lending institution, and the cooperative then makes it available to participating members, who must follow specified rules concerning repayment in order for credit to be available in the future. Loans can be quite substantial, with loans between USD 2,000 and USD 5,000 to purchase materials to build and repair traps, boats, and engines, and sometimes will include larger loans in excess of USD 15,000 (King 1999: 32).

According to the literature (Huitric 2004; King 1997; Gillet 2003; McConney et al. 2003), fishers in Belize sell nearly exclusively to the cooperative, of which they are a member. However, in cases such as Caye Caulker, with its large tourist market, fishers will also sell part of the lobster product to hotels and restaurants there, but also to ones in San Pedro. In Belize, officially there are no intermediaries, as fishers in general are members of one of the fishing cooperatives and usually sell directly to these. Only fishers who are not yet members, and still have to prove themselves, will sell to the cooperative through another member. The existence of intermediaries in the Belizean lobster fishery has therefore not received much attention in any publications to date.

There is a general conviction concerning the absence of intermediaries in the Belizean fishery. There have been accounts, however, of members selling the product in the name of
another member. King (1999) provides an interesting and in-depth account of the process of filtering by the lobster fishers on Caye Caulker. He describes the process of filtering as members who sell in the name of another member in order to avoid paying off their debts and/or the desire for more immediate cash in the short term rather than the long term. The fishers selling the lobster to another fisher will receive a higher payment up front, but will lose a margin to the fishers selling to the cooperative, who will then take the second payment. The second payment is largely unknown beforehand, however, so it is a bit of a gamble for both fishers involved (see examples below). In King’s research on the NFCS on Caye Caulker, the first fisherman’s cooperative ever established in Belize, he concludes that this filtering started when hundreds of unknown fishers joined the cooperative. Originally, fishers knew the size of each other’s debts with the cooperatives and how they were being paid off. Fishers kept an eye on other fishers, to make sure they were paying off their debts and not selling off product in some other way.

As the number of fishers grew, however, the credit process became more anonymous and fishers were unable to access the debts of other fishers without their consent, thus supporting a system whereby fishers were no longer able to monitor the credit repayment behavior of the other fishers. When the fisherman’s cooperative in Sarteneja went bankrupt due to lack of repayment of loans in the early 1980s, the remaining fishers joined the NFCS. According to King, the influx of hundreds of unknown members resulted in an increasing rate of filtering, and member delinquency. The result was less control, trust, and monitoring among the members with regard to the levels of loans and repayments, and it became more acceptable to sell through other members as “everyone is doing it.” Free-riding became commonplace, although fishers are aware of the possible consequences (Huitric 2005).

None of these authors use the term intermediaries, when they see fishers selling through other fishers rather than through the official intermediaries that can be found in other countries. My data, however, suggest that currently the system of filtering has developed into one of actual intermediaries. These intermediaries provide services, such as credit, to individual fishers, as well as supporting certain boats with fuel and ice. They are relatively difficult to spot at first, as they are present on the grounds of the cooperatives, and simply appear to be fishers. They are located at the receiving station in Caye Caulker or in Belize City. On occasion they are even board members of the same cooperatives that officially do not allow intermediaries to be present on their premises. Rather than selling directly to the cooperatives, the fishers will sell to the intermediaries, who in turn sell directly to the cooperative—while all this takes place at the cooperative itself. Fishers will arrive with the product, but sell in the name of the intermediaries. Intermediaries are thus members of the cooperatives and, even though they do not go out fishing, they make large sales to the cooperatives.

The official policy of the cooperatives specifically declares that intermediaries are not good for the long-term benefit of the cooperatives, and should not be present on the premises. Yet cooperatives have turned a blind eye to the current practice and, according to interviewees, some of the intermediaries are actually board members of the cooperatives. Intermediaries give the fishers a higher price than cooperatives up front, but as a result fishers lose entitlement to the second payment. The intermediaries gamble on the height of the second payment and thus need to stay in close touch with market developments, and hope to
generate a profit of around USD 0.5 to USD 1.50 per pound. One middleman told me he had access to the Urner Barry site (which is an American food product pricing institute which costs a few hundred dollars per quarter) to follow the international price development of lobster in the US. Urner Barry provides an update twice a week on all lobster prices at the importer/retail market in the US, and provides monthly updates on lobster market developments. Investing in access to these types of databases is thus quite advanced, and goes well beyond filtering and selling in another fisher’s name.

In interviews intermediaries indicated they have groups of fishers working specifically for them. These are not random fishers that decide they will only sell through a middleman on a single occasion, because they, for instance, need to buy their children books and school uniforms at the beginning of the school year (which does frequently take place), but are fishers that work exclusively with a particular middleman. The intermediaries work with two types of fishers—a group of fishers that sell exclusively to them (for example, one middleman might have 20-25 fishers working exclusively for him), and fishers that occasionally sell to them. Intermediaries also give credit to fishers before their trips, just like cooperatives, and one middleman indicated fishers owed him USD 8,000 in loans. Intermediaries will sell to the cooperative in their name once the fisher has weighed the product and all rejects are taken out.

When I thus refer to intermediaries, I do not mean the filtering process as described by King, which also takes place frequently. Fishers often told me they initially sold through the name of the captain to ensure a higher price (and thus lose the second payment), or, for example, in the name of their father. They do this to make an extra dollar, but sometimes also to, for instance, help their nephew or brother, who has been selling mostly through intermediaries, to make the minimum sales to the cooperative necessary to receive the Christmas bonus. These are not intermediaries, however. Divers go out on long sailing trips and are full-time fishers, and so are not even able to act as intermediaries. Trap fishers are constrained by the fact they often live far away from the cooperatives. The intermediaries I am referring to have made it more or less their profession, and have extensive financial capital to fund fishing operations. They spend all their time at the cooperative and do not go out fishing (this includes intermediaries observed and interviewed in both Belize City as well as Caye Caulker). In addition, they have access to market information which regular fishers do not (Urner Barry updates on international prices).

The intermediaries indicated they face the same challenges as the cooperatives at those times when fishers shy away from selling their product to them since they have to pay off their debts. One middleman stated he works six days a week, and on Sundays too if necessary. He doesn’t like taking a day or afternoon off, he says, as he “doesn’t like the idea of losing money.” If he isn’t there himself, fishers he otherwise could have traded with will sell to another trader.  

In conclusion, one could say there are a number of ways in which fishers can sell their catch to the cooperative:

1. A fisher can sell his product in his own name, and pay a small percentage of his first payment towards his debts (if applicable). He receives the second payment at the end of the fiscal year.

84 Interview G2: 27/10/2006
2. A fisher can sell his product in the name of another fisher. A diver might sell the product to his captain, for example. If the first payment is USD 8 and the second payment that year is expected to be USD 3, the captain will pay the diver USD 10 per pound. At the end of the year the captain or another fisher he has sold to will pocket the extra dollar on all the pounds he has sold under his name. Sometimes fishers will sell in the name of a family member to help him to receive certain bonuses. I watched a fisher sell the product in the name of his nephew, so he would receive his Christmas bonus at the end of the year.

3. Fishers can go to a cooperative where they are not members (members of Northern to National and vice versa). This could be for several reasons, of which the most important are that:
   a. They do not wish to pay off their debts to the cooperative of which they are a member (board members of the cooperatives estimated in interviews around 70 percent of the fishers are indebted to the cooperatives).
   b. The other cooperative is giving a better price.
   c. The intermediaries of that cooperative is giving a better price.

4. A fisher can sell through a middleman of the cooperative, of which he is a member. He receives one payment up front, but loses the second payment. Interviewees indicated anonymously that National has four intermediaries (of whom three are board members) and Northern has two (non-board members). These intermediaries do not go fishing (anymore), but make enough money as intermediaries (and board members) to make a decent living.

Thirteen out of 31 fishers interviewed indicated they sold their catch through intermediaries (41%). And when asked how many fishers they believed to sell through intermediaries the answers were between 25-50 percent. One of the board members of a large fishing cooperative in Belize City claimed as many as 40-60 percent of the fishers sold through intermediaries. Intermediaries themselves claimed in interviews that the figure was around 50 percent in 2006, but that it had been even higher between 2000 and 2006. They stated that intermediaries started operating around the mid-1990s, but that only after 2000 had the business taken off; intermediaries also claimed that at the beginning of the year 2000 up to 80 percent of fishers made use of intermediaries.

The intermediaries indicated in interviews in 2009 that this figure had dropped to 35 percent, as prices were very low and some intermediaries had gone out of business due to the economic crisis. When prices started dropping significantly in 2008, some intermediaries went out of business then. The intermediaries had gambled and lost. The fishers had received a high payment from the intermediaries, but at the end of the fiscal year, as prices on the world market dropped significantly, intermediaries received less than they had paid the fishers. I have estimated—based on data of the June 2005 catch supplied by one of the large cooperatives in Belize City—that in 2005, 42 percent of the catch was sold through intermediaries.85 Taking the annual production of lobster in 2005 (443,135 lbs) and

85 The data showed that this month producing members sold 46,274 pounds of lobster tails in total. The fourteen largest sales by “fishers” (value range between 526.5 and 6077.5 lbs, N=14) resulted in an average of 1409.4 lbs per person. The other group of fishers (N=230, range between 0 and 450) had an average of 115.4 lbs per fisher.
calculating the loss in income of fishers to intermediaries, this amounts to a loss of USD 93,058, even if fishers lose only USD 0.50 per pound. If fishers in that year lost USD 1.50 per pound, the fishers would end up losing nearly USD 280,000 to the intermediaries. These figures explain why intermediaries have been jumping into the business, as it can be very lucrative.

The cooperative allows intermediaries with a special permit to work from the premises, even on Sundays when the cooperative is officially closed. Intermediaries will not go out fishing but spend all day at the cooperative. This means that each cooperative is actively involved in the intermediaries’ business. The coops are satisfied if the product is brought to them, no matter how payment takes place. The NFCS 2005 annual report (page 17) states “…we are appealing to all members to begin to deliver their catch in their names to service their accounts. […] If everyone would deliver in their names and commence paying, then we would be in a position in a few years to reduce and eliminate all out external debt…”

In interviews, the Fisheries Department of Belize doesn’t find the existence of intermediaries to be very important. When I asked questions about intermediaries in the fishery, they stated that the occurrence of intermediaries “doesn’t really happen.” Or they would say “Maybe a few fishers, but not many.” He doesn’t want even want to call them “intermediaries,” as he believes they are producing members who sell fishing colleagues’ product in their name. 86

Fishers did, however, acknowledge the existence of intermediaries to me, although they were at times reluctant to talk to me about the issue. I spent a few hours observing and talking to fishers at the receiving station in Caye Caulker, when it became obvious that one man was acting as a middleman. He was reluctant to talk about it and one fisher was shocked when I asked him about it. The fisher got really offended and shouted “You can’t talk about it, never.” 87 Other fishers, however, as well as intermediaries, were much more open and easygoing about the subject.

The financial mismanagement of the cooperatives has been caused by problems with loan repayment by members, but it is also due to board members taking out personal loans, which they then prove unable to pay back. Northern was close to collapse a few years ago, when it became public that the cooperative had a debt of USD 5.5 million. The government supported the cooperative, however, which saved it from crumbling. The relational well-being of fishers is Belize is more complex than appears at first glance. Although it seems fishers are tightly secured in a cooperative system where most fishers are member of the cooperatives, and all benefits flow back by means of a second payment at the end of the year, my data shows that in reality intermediaries skim off part of the profits. My data indicates approximately 42 percent of fishers make use of intermediaries. Not all fishers depend on these intermediaries for credit for fuel, food, and gear; cooperatives often give loans as well. Divers are all independent workers and, with the exception of the boat owners, investments are low. Their dependence on intermediaries I argue to be higher than trap fishers, as not all

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86 Interview C15: 08/08/2009
87 E22: 07/08/2009
trap fishers are independent. To a greater degree than divers, trap fishers are also crew members. Crew members do not sell their catch or use intermediaries, only captains do so.

4.5 Job satisfaction of fishers
The last component of well-being relates to the subjective component. Job satisfaction surveys among Belizean fishers are considered to add an interesting addition to the more objective measures of well-being. This dimension aims to highlight fisher’s level of job satisfaction among the five different categories. In conjunction with these quantitative results I also link it to the outcome of open-ended questions related to the subject of conflicts and the role of the government.

Twenty trap fishers were interviewed in Caye Caulker, and eleven divers in Belize City (N=31). The results of the job satisfaction study showed varying fisher satisfaction within the five categories: Basic Needs, Social Needs, Self-Actualization, Management, and Nature. The Social Needs category scores high, followed by Self-Actualization, Basic Needs, Nature, and Management (Fig. 4.9). Most scores fall well above the midpoint (of 2.5), demonstrating that fishers are satisfied on most counts, except for the Management category.

![Fig. 4.9: Mean values and confidence intervals for job satisfaction categories in Belize.](image)

The lower result of satisfaction with the Management category could relate to the issues raised by fishers in the well-being surveys with partial open-ended questions. Fishers indicated dissatisfaction with the large area that is reserved for MPAs, in their views “at the expense of fishers.” Others complained about the Fisheries Department being corrupt and only “bothering the fishers.” A frequent complaint is the lack of enforcement of fishing laws (e.g., closed seasons, MPAs, undersized catch). Although the category scores lower than other categories, the average is still above the midpoint of 2.5. In the surveys, fishers’ response to questions concerning their attitude towards the government was: ten out 30 were positive, ten were neutral, and ten negative. Fishers believed in half the cases that the government was the most important actor in improving fisheries management, whereas the other respondents believed the fishing cooperatives were the most important actor. The importance of both the government and cooperatives is logical, considering their respective importance to the system.

The high scores on Social Needs and Self-Actualization could relate to the fishers’ autonomous position in the lobster fishery, as most are independent workers. All divers work
independently and, of the trap fishers, a third are captains and independent. None of the fishers spend more time away from their family than nine days at a time, and if a fisher is not a captain he will at times skip a week’s fishing to spend more time with his family. In addition, fishers work no more than eight hours a day. In the evenings, they often listen to the radio, if possible, or play games like dominos or cards. Day trap fishers are home every day with their family and friends, and are able to fully participate in family and community life. As only 31 surveys were carried out, the sample was too small to make a distinction between the two groups; yet one could imagine that divers are less satisfied with “time away from home” and “time to get to the fishing ground” than trap fishers who are only day fishers.

The Basic Needs category scores high as well. This could be caused by the fact both type of fishers have an alternative source of income besides lobster fishing during the closed season, as well as receiving high lobster profits per pound. Divers are multi-species fishers and thus able to target conch and finfish during the closed season. Trap fishers, we have seen, are single-species fishers, but are also engaged in other economic alternatives such as in the tourist industry.

Although all categories, except for Management, score well above the midpoint, and benefits are high in the fishery, the survey showed that 61 percent of the fishers stated they would leave fishing for another occupation, while only 29 percent said they would advise a young person to enter the occupation. It could be the result of a negative view of the future of the fishery. Lobster and conch production have been decreasing substantially in the last decade, and the prices since 2008 have been declining significantly due to the economic crisis. In qualitative interviews, seventeen out of 32 fishers therefore indicated they saw the future of the fishery negatively, in comparison to ten fishers who were more positive about the future and five who were neutral. Those with a negative view stated: “Right now, fishing is really hard so maybe I would want to look for another job,” “I need to do something besides fishing as this won’t be forever,” and “It is bad, bad in fishing and bad in tourism.” Fishers who saw fishery prospects and their role more positively stated: “I always wanted to be a lobster fisher,” “I love it so I am staying to be a fisher,” and “If the lobster is OK, I am OK.”

Results show that there are no significant relationships between the background variables and willingness to change fishing type (see tables below). However, results do indicate that older fishers and those with more fishing experience are less willing to leave the occupation of fishing than younger or less experienced fishers. Willingness to change is expected to be related to levels of job satisfaction—the higher the satisfaction the less willing a fisher should be to change fishing type or leave the occupation of fishing, and the more willing they should be to advise a young person to take up fishing as an occupation. Mean values on job satisfaction categories in relation to responses to these questions are examined in Tables 4.2 through 4.4.

The analysis presented in Table 4.3 indicates that those who say they are unwilling to change fishing type are likely to score higher on the Social Needs job satisfaction category. These fishers enjoy being out at sea, they enjoy being their own master, and are not dissatisfied with the time they have available to spend with friends and family. It is therefore unsurprising they are less willing to change occupations. None of the other differences are statistically significant though. Finally, Table 4.4 indicates that those who are willing to
advise a young person to enter the occupation of fishing are more likely to score higher on the Nature category of job satisfaction.

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<th>Table 4.2: Mean value of job satisfaction categories by willingness to change occupation in Belize</th>
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</thead>
<tbody>
<tr>
<td><strong>Change occupation</strong></td>
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<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Basic Needs</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Social Needs</td>
</tr>
<tr>
<td>No</td>
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<tr>
<td>Yes</td>
</tr>
<tr>
<td>Self-Actualization</td>
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<tr>
<td>No</td>
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<tr>
<td>Yes</td>
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<tr>
<td>Management</td>
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<tr>
<td>No</td>
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<tr>
<td>Yes</td>
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<tr>
<td>Nature</td>
</tr>
<tr>
<td>No</td>
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<td>Yes</td>
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* = p < 0.05 (1-tailed test)

<table>
<thead>
<tr>
<th>Table 4.3: Mean value of job satisfaction categories by willingness to change fishing type in Belize</th>
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</thead>
<tbody>
<tr>
<td><strong>Change fishing type</strong></td>
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<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Basic Needs</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
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<tr>
<td>Social Needs</td>
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<tr>
<td>Yes</td>
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<tr>
<td>No</td>
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<tr>
<td>Self-Actualization</td>
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<tr>
<td>Yes</td>
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<tr>
<td>No</td>
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<tr>
<td>Management</td>
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<tr>
<td>Yes</td>
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<tr>
<td>No</td>
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<tr>
<td>Nature</td>
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<tr>
<td>Yes</td>
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<tr>
<td>No</td>
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* = p < 0.05 (1-tailed test)

<table>
<thead>
<tr>
<th>Table 4.4: Mean value of job satisfaction categories by willingness to advise a young person to enter the occupation of fishing in Belize</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advise young to fish</strong></td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td>Basic Needs</td>
</tr>
<tr>
<td>No</td>
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<tr>
<td>Yes</td>
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<tr>
<td>Social Needs</td>
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<tr>
<td>No</td>
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<tr>
<td>Yes</td>
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<tr>
<td>Self-Actualization</td>
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<tr>
<td>Management</td>
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<td>No</td>
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<td>Yes</td>
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<tr>
<td>Nature</td>
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<tr>
<td>No</td>
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<tr>
<td>Yes</td>
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</tbody>
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* = p < 0.05 (1-tailed test)
Conclusion

In Chapter 3 we have seen Belize has the highest Human Development Index score of all three countries. I concluded that the fisheries governance style of Belize is one of co-governance. The central involvement of fishing cooperatives is undisputed and the state has been pro-development, committed, and supportive of the initiative by small-scale fishers in the 1960s to organize as cooperatives. From the early 1960s on, the government has given exclusive rights over lobster export to fisheries cooperatives. Only two fishing cooperatives are allowed export seafood products, and as fishers are owners of the fishing cooperatives, no commercial market parties are involved and all benefits derived from the fishery flow back to the fishers. In addition, fishers were well represented in the decision-making process, together with civil society. The state and NGOs have a long history of cooperation in management and enforcement of MPAs.

This pro-developmental cooperative system has also been the key factor in the high levels of well-being of fishers. The state has prohibited licensing of an industrial fleet, thereby allowing small-scale fishers to be the main beneficiaries of the fishery. This chapter investigated the material, relational, and subjective well-being of these small-scale lobster fishers in Belize. This chapter has shown that the lobster fishers in Belize show relatively high levels of well-being, as seen in relationship to the lobster fishers in Jamaica and Nicaragua, who will be discussed in the next two chapters. In addition, we can conclude there is a large divide between divers and trap fishers in Belize.

The working conditions of trap fishers are relatively easy, as fishers own their own sea territory, which is located not too far from shore. They are day fishers who leave early in the morning and return in the afternoon, thus making their absence away from home short. In addition, they often do not go out every day and their working intensity is thus low. Their working conditions are safe, as the fishing grounds are all very shallow and close to shore. The capital investment is very high for the boat and traps, but for crew members non-existent. Trap fishers are single-species fishers who only catch lobster, and as a consequence during the closed season they do not engage in fishing.

Divers leave for approximately eight days fishing trips and are full-time fishers. They are not able to engage in many economic alternatives. Divers are multi-species fishers that also catch conch and finfish, and consequently continue fishing during the closed season, when lobster fishing is forbidden. Scuba gear and hookah equipment is prohibited in Belize, providing a relatively safe environment for divers. The shallow reefs and numerous keys and atolls also help provide fishers with a safe working environment. However, they are absent for eight days at a time, and they work all day swimming in the sea, so the working conditions are ones of high intensity.

<table>
<thead>
<tr>
<th></th>
<th>Trap fishers</th>
<th>Divers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Working conditions</strong></td>
<td>Safe and low intensive</td>
<td>High intensive</td>
</tr>
<tr>
<td><strong>Remuneration of fishers</strong></td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td><strong>Single-/multiple species fishery</strong></td>
<td>Single-species</td>
<td>Multi-species</td>
</tr>
<tr>
<td><strong>Economic alternatives</strong></td>
<td>Yes (tourism)</td>
<td>Limited</td>
</tr>
<tr>
<td><strong>Capital investment requirements</strong></td>
<td>Trap investment high, skiffs medium</td>
<td>Gear diving low investment; diving boat</td>
</tr>
</tbody>
</table>
Capital investment for trap-fisher boat owners and captains is high, as traps are very expensive. Investment in gear is therefore much higher for trap owners than it is for divers, as diving equipment investments are insignificant in comparison. Yet, investment in diving boats is much higher than in trap-fishing skiffs. Diving-boat owners’ investments are thus very high in comparison to the other divers and trap fishers.

The fishers sell their lobster in a cooperative system, whereby fishers are actually owners of the cooperative, and fishers receive a second payment at the end of the fiscal year. As many fishers are members of the cooperatives, the remuneration can be high. Cooperatives are not commercial enterprises that skim off the profits, but rather all benefits flow back to the fishers. In addition, fishers are able to receive extras through the cooperatives, such as a Christmas bonus and insurance in case of accidents or death. The system therefore supports a high level of well-being of fishers.

Nevertheless, intermediaries have entered the stage in the Belizean lobster fishery, and are skimming off part of the profits. As a result, fishers will lose out financially, but also lose the secondary benefits of being a member of a cooperative. The use of intermediaries is regarded by all involved to be bad for the fishery in the long term, yet when it comes to the short term, many fishers make use of them. They are thus able to reap the short-term benefits, yet lose out on the long-term ones.

Fishers are generally satisfied with their jobs, as all scores fall above the midpoint. The Management category scores significantly lower, however, compared to the other four categories. Nevertheless, fishers are generally positive about the future of the fishery and most would advise a young person to enter the fishery.

Collective marketing has provided fishers with the institutional means to appropriate most of the value generated through the processing and sale of seafood products, bringing them high returns for their labor and capital inputs in their fishing operations. The cooperatives therefore possess economic as well as political power, and they represent the small-scale fishers in the decision-making process with the government. One could therefore say that the lobster fishery in Belize is one of both individualism and collective action. Fishers mostly work independently, although from a marketing and political viewpoint they are collectively organized. The cooperative system has, however, been challenged by the short-term thinking of many of those involved in the fishery.

<table>
<thead>
<tr>
<th></th>
<th>Safety conditions</th>
<th>Trade relations</th>
<th>Participation in decision making</th>
<th>Job Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Medium usage of intermediaries</td>
<td>High</td>
<td>High (above mid average)</td>
</tr>
<tr>
<td></td>
<td>High (but lower than trap fishers)</td>
<td>Higher use of intermediaries</td>
<td>High</td>
<td></td>
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</table>

Table 4.5: Well-being of lobster fishers in Belize.
Chapter 5: Fishing and haggling along the frontiers of Jamaica

Introduction
Jamaica’s best fishing grounds are located 80 kilometers from the mainland. A few tiny inhabited atolls, in a very extensive reef, harbor the most productive fishing grounds for lobster in Jamaica. As it is a fifteen-hour boat ride to return home through the “deep blue,” fishers live on two atolls of the Pedro Bank. Pedro Bank is a large bank of sand and coral located approximately 80 km south and southwest of Jamaica. It is relatively shallow and large which makes it extremely suitable for fishing for conch and lobsters.

Pedro Bank was once a busy and treacherous shipping passage used by seafaring Europeans in the sixteenth and seventeenth centuries; archaeologists estimate there are over 300 shipwrecks on the Bank. Originally named La Vibora (the Viper) by Spanish mariners because of its shallow reefs, the rocks and shoals are laid out in the shape of a gigantic serpent. Four keys are situated in Pedro Bank, of which two are inhabited: Northeast Cay and Middle Cay. Hundreds of fishers will live for years on these two miniature atolls without electricity, running water, or toilets. Most fishers will stay on the keys for eleven months per year, only going back to see family and friends for a short period during the hurricane season. These atolls are home to hundreds of fishers, at least 25 sex-workers and eight coast guard members. As the keys are located so far from shore, fishers living on the Pedro Bank are highly dependent on intermediaries to buy their fish and lobster, and bring water, fuel, and food. There are thousands and thousands of fishers in Jamaica who fish from the mainland as well. Even though the Pedro Bank is the most productive fishing ground of Jamaica, lobster fishing is also conducted nearer to the mainland. Along the coastline of Jamaica there are 148 landing sites where fishers land their catch. This chapter examines the well-being of both the inshore and offshore lobster fishers in Jamaica.

In Chapter 3, I have examined the governance arrangements of the lobster fishery at the national level where I concluded the governance style of Jamaica is a combination of co-governance and hierarchical governance. The government had attempted to set up a cooperative structure in the 1950s and 1960s but failed in its endeavor. Currently attempts are being undertaken by the government to involve more stakeholders in the governance of the fisheries in Jamaica. Nevertheless, market parties as well as fishers’ representatives are only slowly becoming involved in the process. This chapter explores the achievement of well-being of lobster fishers in Jamaica as a result of the governance arrangements in which fishers are embedded.

As I have discussed in Chapter 1, I depart from a three-dimensional view which distinguishes material well-being, relational well-being, and subjective well-being. These dimensions will be different across the three fishing métiers in Jamaica: small-scale trappers, small-scale divers, and industrial divers. I will cover the fishers living on the mainland and Pedro Bank separately in this chapter. The fishing grounds in Jamaica are diverse and spread widely across the country’s waters. First I will provide an overview of the different fishing grounds.
5.1 Fishing grounds

Jamaica is an archipelagic state located in the Caribbean Sea 145 km south of Cuba and 161 km west of Haiti. The country consists of a main island, several offshore keys, banks, rocks, and shoals (Morris 2010). It consists of a total of over 60 islands, cays and rocks, of which some six are continually inhabited. The total area of the mainland is 10,991 km², with a coastline that is approximately 885 km long (Kelly 2002). The exclusive economic zone (EEZ), at 274,000 km², is very large, equal to 26 times the area of the main island (Van Riel 2005). This is the result of the location of some of the small keys to the south and southwest of the mainland called Pedro, Morant, and Formigas Keys. These have historically been inhabited by Jamaicans, which enabled Jamaica to declare itself to be “an archipelagic State.” In addition to the EEZ, there is a Joint Regime Area (JRA) which represents a Maritime Zone jointly managed by the governments of Jamaica and Honduras. The Jamaican government has divided the fishing areas into four fishing zones for policy purposes (FAO 2005b):

1. The continental shelf around the main island of Jamaica, including the slope down to 200 m adjacent to it, often divided into the north coast, where the shelf is very narrow and the south coast, where the shelf is much wider;
2. All banks inside Jamaican waters down to 200 m, in particular the large Pedro Bank and Morant Bank, except the Jamaica/Columbia Joint Regime Area;
3. The remainder of the EEZ of Jamaica, consisting of waters deeper than 200 m;
4. The Jamaica/Columbia Joint Regime Area, consisting of the Alice Shoal, a fishing area that lies far away and that is managed under an agreement with Colombia.

The spiny lobster is found in the Areas 1, 2, and possibly 4, although no fishing currently occurs here. The main lobster fishing zones are thus zone 1 and 2: the shallow continental shelf on the south side, and the fishing banks (especially the Pedro, Morant, and Formigas Banks). The focus of this research will therefore be on these two areas.

The country’s fishing industry is described as small scale in nature, with most vessels between eight and eighteen meters in length. Jamaica’s capture fisheries sector includes a very small industrial fleet mostly fishing the offshore banks for conch, lobster, and fish (Auditor 2008: 11). The small-scale fishery is an open-access multi-species fishery. With the exception of the Pedro and Morant Banks, which require a special license, the general commercial fishing license authorizes small-scale fishers to fish anywhere in Jamaican maritime space for any species of fish.

The local fishing industry is a vital social and cultural activity in many coastal communities, where it is the main means of livelihood; it provides employment for over 20,000 fishers—including 14,000 registered and 6,000 unregistered ones. During my fieldwork, only four industrial boats were in operation. Four industrial boats only employ approximately 50 fishers. This is a very small number in comparison to the total number of approximately 20,000 fishers in Jamaica. In addition, the owner of the boats claimed the crew were Honduran rather than Jamaican. I have not included the industrial fleet in this research.

There are estimates, however, by Van Riel (2005) who claim that when unregistered fishers are included, the real number of fishers might be double. In their scenario the local fishing industry provides direct employment on a full-time, part-time, or seasonal basis to at least 34,000 individuals, making the industry contribution to total employment comparable with that of small farming in the agricultural sector (Van Riel 2005).
During the 1980s, about 60 percent of total lobster landings came from the Pedro Bank, but that declined to 20 percent in 1996-1997 (CRFM 2009: 6). The contribution of lobsters landed in Jamaica that come from the island shelf and the banks have not been recently quantified (CRFM 2009). The main landing parishes are seen in Figure 5.1.

![Figure 5.1: Landings (metric tons) of spiny lobsters in 1997 per month per parish.](image)

Source: CARICOM 2000

The figure shows landings in the parishes Westmoreland, Clarendon, St. Catherine, and St. Andrew are highest. These catches relate also to small-scale fishers’ lobster catches in Pedro Bank and Morant Banks, as small-scale fishers go there for approximately eight days and bring the catch back to shore. Westmoreland, Clarendon, St. Catherine, St. Andrew, Pedro Keys, and Portland are the parishes in Jamaica where most fishers reside (see Fig. 5.2).

---

89 No more recent data could be obtained.
Fig. 5.2: Jamaican fishers by parish, divided into full-time and part-time fishers.
Source: CARICOM 2000

Figure 5.1 shows the landings of spiny lobster in 1997 per parish (comparable to a province) per month of the year by full-time and part-time fishers. The figure clearly shows the parishes of Westmoreland, Clarendon, St. Catherine, St. Andrew, and St. Thomas produce the largest number of lobsters. These are as can be expected also the parishes where most boats are registered (CFRAM/CARICOM 2000). Only few fishers are part-time fishers, in general fishers are full-time fishers. Only in St. Andrews do fishers to a larger degree engage in part-time fishing. In Jamaican in total there are 148 fishing beaches and an additional few on the Pedro Keys and Morant Keys (CFRAM/CARICOM 2000). Nearly 60 percent of the fishermen are based along the South Coast because the continental shelf is largest on this side of the island (CARICOM, 2000). According to surveys done in 1996 fishing communities in Jamaica are considered among the poorest of the island (Van Riel and Wijkstrom 2005).

Types of fishing gear

The majority of the fishing vessels (79%) can be considered small-scale with a length not exceeding 8.9 meters; there are 3,217 of such vessels. Most boats are made of fiberglass, followed by wood, and a combination of wood and fiberglass. In addition, there are another 689 boats up to 25 meters and only seven larger than 25 meters (FAO 2005a). Although the boats used most frequently are large, open wooden boats, fishers employ a variety of fishing gear in the lobster fishing industry. These are traps (wooden and chicken wire), diving gear (scuba, hookah and free-diving), and nets. The figure below (Fig. 5.3) shows the variety of types of gear used and the percentage of the lobster catch they represent. The figure clearly shows that Antillean Z-traps and diving (free-diving followed scuba) are the main gear types employed. Wooden traps, employed by the industrial fleet, only account for a small percentage of the total landings (FAO 2007).
The Antillean “Z” is named for the shape of the trap outline and is used for catching coastal fish and lobster. The traps are built from wooden or metal frames with wire mesh (chicken wire) covering them. Two entrance funnels are shaped to allow fish and lobster easy access, while the tapered shape of the entrance makes escape difficult. These typical Jamaican fish traps consist of rectangular wood-framed boxes measuring on average 230 x 120 x 60 cm, encased in hexagonal wire mesh through which an ingress cone is fitted to allow the fish to enter but not to escape (Waltho and Biggers 2004). Traps should be constructed with 44 mm minimum mesh size; however, this is not consistently done and often 32 mm mesh size is used. This does not allow sufficient juveniles to escape the traps (Waltho and Biggers 2004).

The trap fishers using wire mesh are generally not considered to be specific lobster fishers, but multi-species fishers. Their main target is finfish, lobsters are considered valuable by-catch. On the Pedro Banks interviewees indicated they placed these traps specifically at more easily accessible bottoms covered in seagrass in order to target lobster. If placed on rocks they aim for fish. If there are plenty of lobster and the lobster season is open, fishers are more likely to target lobster. The traps are set near (but never on) the fringing reefs at depths between 20-40 m (Aiken and Kong 2000).

Diving is conducted in three ways: using scuba tanks, “hookah,” which is by means of an air tube, and “free diving” in which divers do not use any equipment. Scuba tanks are used by divers on the south coast to target lobster. In the hookah system, air is supplied to one or more divers through hoses from a compressor on a boat. Use of compressed air allows divers to spend one-and-a-half to two hours underwater. The tubes are often up to 50 meters in length, but as fishers do not always swim directly under the boat, the depths will be up to 35 meters. The tube is tied around the torso of a fisher. The conch and lobster fisheries are the major diving fisheries. In both of these fisheries, the majority of divers use compressed air to permit exploitation of areas deeper than is possible for free-divers. The divers take their catch by hand (conch), or with a stick with a metal hook or wire loop (lobster).
**Lobster nets** or **gillnets** are used by some fishers to catch lobsters. These lobster nets are similar to trammel nets. A trammel net is a larger mesh gillnet made of synthetic material set near coral reefs for coral reef fish, or in open areas targeting jacks. Lobster nets are similar to these nets but have a larger 4½-inch mesh size (4½ inch = 11 cm) set near reefs to capture lobster. The nets are made with panels of netting attached between a floating top-line and a weighted line at the bottom (i.e., a leadline).

**Florida traps** are used exclusively by the industrial fleet based in the fishing grounds of the Pedro and Morant Banks. These industrial vessels, ranging size from 20-35 meters, are the only ones licensed to fish with wooden traps, known as Florida traps. The vessels are steel-hulled, usually 20 x 5.7 x 3 m and have an inboard engine up to 500 hp. Crew size ranges from eight to twelve. The vessels fish with approximately 1000 traps. Average immersion time is around three days. Fishers might spend up to three months at sea before returning to the mainland. Smaller quantities of lobster are carried to the mainland by other vessels going that way.

**5.2 Material well-being**

The main lobster fishing areas are thus on the south coast of Jamaica and on the Pedro Bank. The main villages of concern to lobster fishing are Whitehouse, Old Harbour Bay, Port Royal, Rocky Point on the mainland, and the Pedro and Morant Keys. For this research I have focused on the lobster fishers in Whitehouse on the southwest coast, and on the Middle Key on Pedro Bank.

![Map 5.1: Major fishing banks and lobster fishing towns in Jamaica.](image)

Source: UvA kaartenmakers

**Pedro Bank**

The Pedro Bank is one of the largest offshore banks in the Caribbean Basin (Espeut 2006). The total area of the bank measures 8,040 km². Approximately 2,400 km² are less than 20 m deep, with just over 3,000 km² up to 40 m deep.⁹⁰ Large concentrations of lobsters are

⁹⁰ [http://en.wikipedia.org/wiki/Pedro_Bank#cite_note-NZ-0](http://en.wikipedia.org/wiki/Pedro_Bank#cite_note-NZ-0)
found on the Pedro Bank, which accounts for about 60 percent of the total lobster landings (Venema 2004: 18).

Prior to the 1950s and the widespread introduction of outboard engines, fishing on the Bank was limited. In 1944, several fishers were encouraged by the Fisheries Officer to live and establish a fishing camp on the cays: “Establish a large ice box there for the storage of fish, and use his vessel to carry ice and supplies to the Cayes and bring back the fish caught.” Finding suitable fishers was difficult, however, as few fishers were prepared to undertake the hardship, long absence from home, and the long journey to get to the banks (which often had to be made by sail, as engines were still difficult to find). The scheme was abandoned in 1945 (Thompson 1945 in Espeut 2006: 18). In the 1950s 50-70 fishers lived on the cays who sporadically visited the mainland and dependent on traders to buy their fish, bring them food and water from Kingston. The traders were critiqued by the Commission of Enquiry on Beaches and Foreshore Lands for the lack of responsibility shown towards the fishers. As a response to the growing use of the cays, in 1956 a navigational beacon was erected by the Harbour Master of Jamaica (Espeut 2006).

By 1959, a total of a 100 fishers lived on the Pedro Bank cays. Despite the hardships on the cays in those days—even worse than today—fishers were able to make approximately one and a half times the income from fishing that they would be able to make on the mainland (Espeut 2006). It was generally believed to be very productive, with fishers making a lot of money on the cays. Currently it is estimated that between 300-400 fishers live there, although Espeut concludes that in the years prior to his investigation in 2004-2005 up to a thousand fishers inhabited the cays. Aiken and Kong write in 2000 that a thousand fishers and 200 boats were registered with the Fisheries Division for fishing on the Pedro and Morant Banks.

Four keys are situated in Pedro Bank, of which two are inhabited: Northeast Cay (locally known as Top Key), and Middle Cay (locally known as Middle Key). Despite the decades of inhabitation in the keys, living conditions are marginal at best. There are insufficient operational sanitary facilities, no piped water supplies, no electricity, and no social services. Southwest Cay was designated a bird sanctuary in the 1970s, while Top Key and Middle Key continue to be used by the fishers.

The Jamaica Defence Force also operates a security post on Middle Cay. The soldiers patrol the community, but specific activities depend on the Chief of Duty for that week (TNC 2012: 6). Each morning, one soldier in full regalia raises the flag. In the afternoon the soldiers
patrol, relax, or play games. In the evening the soldiers will patrol as well, and when accidents or violent conflicts occur people will approach the defense unit for help.

![Image](image1)

**Fig. 5.5.a**: Middle Key with large building owned by Jamaica Defense Force (left).
**Fig. 5.5b**: Jamaica Defence Force soldiers playing a game (right).
Source: Author

Middle Key is the more densely populated island of the two islands, with 212 houses and seventeen shops which are all concentrated on the north side of the island. At the center of the key there is a small depression containing a small amount of water (Espeut 2006). On Top Key there are approximately 125 houses and eight shops. Permanent standing structures are not allowed to be built by the government on either of the islands, so structures usually have a sandy floor, wooden walls, and corrugated iron roofing. Some structures are completely built from corrugated iron, such as some storage rooms. However, on a few occasions more sturdy materials such as cement blocks and steel are used.

![Image](image2)

**Fig. 5.6a**: “Street” on Middle Key (left).
**Fig. 5.6b**: Mini-market called “Iris” on Middle Key (right).
Source: Author

As no standing structures are allowed, a collection of rugged shacks is scattered across the island. Nearly 60 years after the first people first settled on the islands, there is still no
running water, no electricity, and no toilets. A section of the beach is designated as toilet and when you take the boat out you see people squatting on the beach. Even though there is one toilet located here as well (with a runoff pipe into the sea) it doesn’t function.

Figure 5.7a: Inside a hut of a fisher (left).
Figure 5.7b: A fisher making a fish trap in front of his house (right).
Source: Author

Fishers live on the keys for many years on end. Most fishers (36.8%) have lived on the Pedro Cay between 11-20 years, whereas nearly one fifth indicated they had lived on Pedro Cay between 21-30 years (Espeut 2006). Fishers do not usually live on the key the entire year; most fishers indicated they live between 8-11 months on the key (Espeut 2006: 62). This is still a very long time under these rough conditions, and even though fishers told me they “loved” the life on the Pedro Keys, they also told me how it can be difficult. There are no medical services, no sanitation, and in case of storms and hurricanes very little protection is available.

Figure 5.7a shows the interior of a fisher’s hut: chicken wire, a drum of fuel, a barrel of water, and a few clothes. The picture on the right (Fig. 5.7b) shows another basic house built by a fisher. These are very basic living conditions considering that the fishers live there for decades. Fishers indicated, however, that they often have a concrete house on the mainland where their family lives. Yet they are only able to spend a few months a year on the mainland. The remaining part of the year they spend in their little tin hut on the Pedro Bank keys. The community is small, with fishers, intermediaries, and shopkeepers highly dependent on one another. This creates close friendships as well as disputes, fishers tell me. Quarrels can occur as a result of theft, or over women. The soldiers patrol and can help out to settle disputes. Some fishers share their sleeping quarters and become even closer during the years they spend together so far from their families and friends.

I watch fishers playing soccer on a small stretch of beach on Middle Key while I sit on a gasoline drum on the windy beach. I talk to some other fishers sitting around regarding their life here on the key. One fisher offers to show his hut, a small construction made of corrugated iron. It is beyond basic: a small narrow hut containing a 1.5 m high wooden bed frame. The space under his bed is filled with chicken wire to build traps, next to his bed, is a barrel of gasoline, one with drinking water, and some fishing equipment. He gets rainwater off the roof. The
run-off pipe ends indoors, as otherwise people steal the drinking water, he explains. He has only a few worn clothes that hang on the walls throughout the room. He’s been a fisher for ten years he tells me. He loves to be a fisher, the freedom. But it is a hard life he tells me. “You miss your family, your kids. I live here all alone and in the night I stare at the stars. Yet this is where the fish are and I can’t complain,” he says. He likes to go out drinking sometimes and asks whether I can find him a girlfriend in my country as he writes down his phone number. Middle Key, despite being located in the middle of the ocean, has some extraordinary nightlife. While during the day the little tin huts in the blasting sun don’t raise many expectations, during the night the little streets transform completely. There are many shops that also serve as bars, there are DJs, and men and women dance and drink for hours. The generator necessary for the party is noisy well into the night. Besides drinks, the shops also sell little bags of weed hanging freely among the other products for sale. Women offer their services, and the little packed sand streets, so deserted during the day, turn into lively dancing stretches in the night.

The majority of fishers are trap fishers (83%), hand-line fishers another make up another eleven percent (11%), while the remaining number of fishers are mostly divers (scuba, hookah or free-divers) (Espeut 2006). Only hand-line fishers do not fish for lobster. Hookah divers use scuba regulators attached to a long air hose connected to an air compressor on board the fishing boat. One or two divers can be attached by tube to the air compressor. Divers interviewed stated they can stay down for two to three hours. Sometimes they wear rugged wetsuits (see Fig. 5.9 below), but they have often had little training with regards to diving safety. According to The Nature Conservancy (TNC), an environmental NGO, hookah diving is much more efficient than free diving (i.e., breath-holding, as practiced in e.g., Belize), and has been replacing free diving since it was introduced to Jamaica by Hondurans in the late 1980s and early 1990s.91 Divers work during the day as well as in the night, depending on the preference of the fisher. During my visit in 2007 I saw many fishers leave at the end of the afternoon, yet in 2012 this was made illegal throughout Jamaica.92 Some fishers indicated they dive as deep as 120 feet (36.6 meters). Decompression sickness (DCS), also known as the bends, is considered a problem on the keys (Espeut 2006). Bringing them to the decompression chamber in Discovery Bay is a challenge as well as a costly event.

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91 http://www.sciencewithoutborders.org/the-other-end-of-the-bank/#more-1615
92 Ibid.
Fishers get up early in the morning to go fishing in the fishing areas. Although divers can thus fish both during the day and night, trap fishers only fish during the day. Yet interviewees indicated they are day fishers, as well fishers for longer periods (approx. 4-5 days). On average, trap fishers use 63 traps (Espuet 2006). Interviewees indicated they usually empty the traps every two to four days. This means they have a lot of idle time while their traps are soaking. Fishers play dominos, games of soccer, cook fish on little grills, or simply hang out on the beach (see Figs. 5.10a and 5.10b).

Putty is a boat owner from Treasure Beach. He’s sitting on a few fuel drums right at the beach waiting for his boats to come in. He has been living on the keys for seventeen years. He used to be a fisher, but he now he owns two boats and doesn’t go out anymore. One boat has 55 traps, the other 76. He likes Middle Key because it’s peaceful. “You know everyone,” he says. Top Key is quieter, Middle Key has all the bars. He likes the fact it is a lively island, but sometimes it’s too much he says. When he first got here there were hardly any women. Now you fall over them on the streets he says. And “the fisherman them like to drink plenty an them cause trouble.”
Trap fishers have more time on their hands than divers (as they go out every day). Traps are set between 80 and 110 feet (24-34 meter). Divers are active up to depths of 13 to 30 meters (Espeut 2006).

Fishers share these frontier keys with 400 other fishers, eight coast guard members, and 25-50 sex-workers. The large revenues generated by fishers from their fish and lobster catch on the banks has attracted the sex-workers to the island. No wives or children are allowed to live on the keys, as everyone needs a fishing license. As a consequence, even the sex-workers often hold a fishing license, which might even state a gear restriction. Despite the fact they are located so far from shore and lack even the most basic infrastructure, there is no shortage of nightlife on the keys. No one under fifteen years of age is allowed to be on the Cays. In fact, no one without a special permit from the Fisheries Division is allowed to be on the Cays, and the minimum age for obtaining a fishing license under the Fishing Industry Act is fifteen. Most residents are young, with the majority between 30-40 years of age (Espeut 2006). The survey by Espeut revealed the youngest person was seventeen and the oldest 84. Most homes only have one resident (66%), while remaining houses have two to three people living in them. In approximately 34 percent of these cases this was a man with his girlfriend. Some men live together with sex-workers. Some women are fish traders, shopkeepers, or a bartender or hairdresser. Most likely these women combine several jobs.

Fig 5.11a: Sex-workers on Middle Key, Pedro Bank (left). Fig 5.11b: Fishers and sex-workers (right).
Source: Author

On an early morning after the fishers had left to go fishing, I got involved in a conversation with a few fishers, intermediaries, and sex-workers. They stated living conditions were rough for women on the keys. There are no toilets, and no running water or electricity. It’s dangerous for women to go outside to go to the bathroom in the night they claimed. Payment for sex differed according to their “arrival” on the island. When they first arrive the women receive a higher price for sex. “If you are fresh and just come in from the land you get 40 dollars [USD].” After a week or two this will drop down to approximately seventeen. However, the women explained to me, “If you are a regular customer, it’s only nine dollars.” The men told me that intermediaries bringing fresh water could sometimes “get it” for only five gallons of water. This is also the reason many intermediaries bring extra water, the fishers
explained. The women indicated they also did laundry for the men, or cook on the side, in order to make some money. The women lived for a shorter period on the island than men did. Most women, nearly 60 percent, lived on the island between two and five years, nearly 24 percent less than one year (Espeut 2006).

Natasha has been coming to the keys for the past dozen years. She’s introduced to me by one of the fisheries officers with whom I came to the island. They are good friends apparently, and have known each other for eight years. The Fisheries Division had actually helped me to get to the Pedro Keys by offering their boat, services, and staff. The only advice the fisheries officer gave me before he ran off was: “Don’t write anything down in front of them, it makes them nervous.” So I didn’t. Natasha is from St. Andrews and comes to the key every few months. She has three children on the mainland by two fathers. They don’t provide any care for them so she’s been doing this for years. It makes good money in a few months, she tells me, and she was able to send her kids to a decent school. She initially had come along with her boyfriend, but they had split up long ago and she began in the business on the island soon after she broke up with him. A lot more money can be made here than on the mainland. She’s got some investments in traps, and she cooks and does laundry as well for some to the men. She lives on the key with a new boyfriend. He doesn’t particularly like her job, but he has to accept it because that is how she makes a living. It’s safer for her to live with him, she explains. It’s not a dangerous place but a “girl has to protect herself.” She likes living on Middle Key as it’s like living in a small village.

Espeut has estimated fishers make an annual gross income on the cays of USD 3,417-12,074 per fisher. The Fisheries Division is convinced that the real income can be much higher. Even though the fishery is declining, fishers on the Pedro Cays are still earning more than they could at a minimum-wage job on the mainland (USD 2,632 per year) (Espuet 2006). This helps explain why fishers choose to live a large part of their life under these basic conditions far away from their families. Despite the high earnings, they also face serious safety risks. On Pedro Bank, both fishers and intermediaries run high safety risks. They need to cross the great distance to the Jamaican mainland frequently, often in the night. On the keys most fishers also leave on average for three-day fishing trips, followed by fishing trips taking two days, one day, and four days respectively. These fishers, mostly without life jackets or radio, face high safety risks. In addition, when hurricanes hit, or other bad weather occurs, there is no way to get in touch with these fishers.

Whitehouse

Whitehouse is a small fishing village located on the coast of Westmoreland. The village has a strong history in fishing, and fishing at present is still a major contributor to the local economy. There are two fishing beaches: Top Beach and Bottom Beach. The fishers use large wooden boats with outboard engines. In Whitehouse there are two main groups of fishers: day fishers who have slightly smaller boats, and fishers who leave for approximately six days at a time and fish around Pedro Bank. The day fishers leave early in the morning (between 4-5 AM) and return in the afternoon around two.
“It’s all up here,” he says, and taps his forehead. He knows the location of the trap, but the precise location is marked by a long pole sticking out from the water. Some pieces of cloth attached to it mark it as Gilly’s, and a few empty plastic bottles keep the pole straight and afloat. To protect their hands during the heavy lifting, the fishers have cut out protective gloves made from the inner lining of car tires. The trap is emptied and some fish, a crab, and a lobster are retrieved. The small juvenile fish are clubbed to death and serve as bait in the trap. We keep the trap on board once empty, and set it again at a ten-minute boat-ride distance.

The traps we pull this morning are not all owned by captain Gilly. His brother and crew also have their own traps. We empty these as well this morning. Everybody knows exactly which are which, and each man has a bucket where his catch is thrown into. Gilly explains that if his brother’s catch is very low he will give him something, otherwise he doesn’t have to pay him, as his payment is in the fuel and boat. Upon our return, the fishers sell their catch to different buyers. They sell the lobster to female buyers on the beach and at the fish market, but not all to the same one. Each fisher has his own trading connections and might sell different types of fish and lobster to different traders.

The day fishers set their traps in the vicinity of the village. Some day fishers also operate without a boat and free-dive close to shore. Every evening you can see many snorkelers speargun fishing in the vicinity of the village. Yet most of the fishers from Whitehouse fish at Pedro Bank. Of the 21 fishers interviewed in Whitehouse, only two fished inshore, the other nineteen at Pedro Bank. Most of these fishers are trap fishers (15), whereas six fishers are divers (one using scuba gear, one free-diving, while the remaining divers use hookah). Excluding the day fishers, fishers on average make trips of for approximately five to six days. These fishers do not actually visit the atolls of the Pedro Bank (see previous section) but fish on the bank itself.
These fishers have to prepare for an entire day before they set off to Pedro Bank. The long trip to the distant fishing grounds requires large barrels of fuel, drinking water, food supplies, and blocks of ice. In the middle of the boat there is a large square wooden structure to hold the ice, and later also fish and lobster. After it is filled, it is closed off with a thick plastic cover to keep the sun from heating it. The fishers going to Pedro Bank are either trap fishers or divers. Out of the 21 fishers interviewed, thirteen respondents said lobster was their most valuable catch, followed by fish (7), and conch (1).

Unfortunately, I was not able to go with any of the fishers out to sea for safety reasons so have not been able to witness these types of fishing trip. Fishers indicated in the surveys and interviews it takes them 10-21 hours to get to the fishing grounds. They own 25-40 traps, which are located on the Pedro Bank. They do not always fish in the same area, but move their traps within a certain area which they frequent.

Fig. 5.13a: Boats preparing to go out to Pedro Bank at the pier at Top Beach, Whitehouse (left).
Fig. 5.13b: Filling up the ice-hold with blocks of ice (right).
Source: Author

When fishers arrive after a few days fishing, they usually do so in the night, or early in the morning. Fishers call their intermediaries from sea once inshore, in order to have the intermediaries meet them at the beach straightaway. The lobsters are too valuable to leave on the boat during the night. The intermediaries will come at whatever hour and pick up the lobster; the fishers won’t be paid until daylight, however, as they otherwise run the risk of being robbed, they told me. The finfish, on the other hand, are sold in the morning at the landing beach to the numerous vendors (often women) that are around.

93 My contacts at the Fisheries Division strongly advised me not to engage in these sorts of fishing expeditions for safety reasons. The journey to the fishing grounds is long and dangerous (10-20 hours), and conditions difficult and dangerous for the entire fishing trip. Fishers usually do not bring life jackets, and do not have any way to communicate in case of problems and storms. As I was able to visit the Pedro Bank with the Fisheries Division and was taken aback by the large waves we experienced crossing “the big blue,” I felt I should follow their advice.
Every morning, the beach is full with tens of people shouting and moving around the small beach trying to sell and buy the fish. Others are trying to sell coffee, breakfast, such as “ackee and saltfish,” or marihuana. Other fishers are just hanging around, grilling fish on the beach, or drinking and discussing politics. The fish is placed on large pieces of cloth—all finfish are spread out across an area of approximately three by three meters.

![Fig. 5.14a: Fish trade at the landing beach in Whitehouse (left).](image)
![Fig. 5.14b: The same beach with fishers grilling some fish in the morning (right).](image)

Fishers stated they earn on average USD 412 per month from the lobster fishery. In addition, money is made from fish, and the total income according to the fishers in the survey is close to USD 600 per month. This is an average of USD 7,200 per year, and significantly higher than average minimum-wage job on the mainland, which makes USD 2,632 per year (Espuet 2006). Fishers indicated they made more money than teachers in the area. Out of the 21 fishers in Whitehouse and surroundings, ten claimed they had additional income from activities such as barbering, farming, and working as taxi driver.

Fishers mostly have to invest in fixed costs for the boat and traps. In addition, they need to pay for fuel and ice. Investment for trap are high, as the traps costs between USD 35 and 60 to make (wire, nails, poles, man-hours etc.), depending on size and material. The average number of traps that the interviewees had was 34 traps. In the case of USD 35 in value each, the total investment comes to USD 1,190; if it were USD 60 per trap, to USD 2,040 in total. In two cases fishers stated their wives had invested in their traps, in one case the fisher’s sister had invested in the traps.94

More than half of the interviewees stated they owed money, mostly to their intermediaries or to the boat owners. Payment of trap fishers depends on the style of ownership of the boat. If the captain is boat owner, he will give a share to the crew, although sometimes crew will have their own traps, which will be regarded as payment. A captain might, for instance, own approximately 20 traps and all the crew owns their own traps. In

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94 The role of wives, sisters, and female fish buyers in trap investments is very interesting, but proved beyond the scope of this research. It would provide an interesting topic for further research.
other cases fishers own either only a few and the captain owns the majority, or the captain owns all traps. One fisher explained:

I am the captain [of a trapping vessel] but not the owner. I own my own pots [fish/lobster traps]. The boat I work on works with 290 traps, the owner owns 96 traps, I own 34. All crew members have their own too, roughly 20 traps. There are seven crew total, so in total we have 300 and leave for three days [two nights] every week.95

Divers indicated in interviews they are usually not boat owners. In case of a boat owner who is not a captain, the diver’s profits are split between the three. One fisher stated he had to pay 60 percent to the boat owner. The fishers that fish at the bank will be paid immediately for the lobster, whereas the payment for fish will come after it has been sold on the beach in the morning. Fishers mostly sell to different vendors, but nine fishers stated they usually sell to the same intermediaries, ad had been doing so for over six years, on average.

With regards to safety, Jamaican fishers have a poor record. Even though the Pedro Bank is located further than any fishing ground of Belize or Nicaragua, fishers in Jamaica rarely carry a radio on board or life jackets. Interviewees indicated they might carry a few life jackets, but seldom actually wore them. Many small boats are lost at sea, due to a lack of navigation, emergency, and safety equipment (FAO 2007). Small boats seldom carry radar reflectors or compulsory flares, which makes detection difficult.

One fisher said: “We bring no radio and no lifejackets but we have no accidents. You have to watch the weather carefully.” Another fisher indicated they do have accidents, but it would be of no use bringing life jackets, as they were not convinced the coast guard would come and search for them. “Fishing is about life and death, when something happen they coast guard is not gonna [sic] come out and look for you. Better to die one time.”96

Fishers in Whitehouse fishing inshore are safer due to the smaller distance and being able to return easily if the weather deteriorates. Fishers from Whitehouse fishing on the Pedro Bank run more risk, as they have to cross the long distance in heavy seas, and are not able to come back as easily if the weather turns bad. In addition, they cannot communicate if something happens while out at sea.

Fig. 5.15: Boat called “Satisfaction” on Middle Key
Source: Author

95 Interview E14: 05/03/2008
96 Interview E13: 04/03/2008
5.3 Relational well-being

Jamaican fishers sell their catch in a number of ways via different fish traders and intermediaries. There are a large number of people employed by the spin-offs of the fishing industry, such as in gear making and repair, engine repairs, boat building, fish processing, and in the fish trade as vendors (CFRAM/CARICOM 2000). Fishers hardly ever sell their lobster directly to the processing plant; it always goes through the hands of at least one middleman. Fish is often sold several times before it reaches the consumer.

In Whitehouse, the local fish market is located in the fishing complex. The Whitehouse Fishing Complex (WHC) in Westmoreland was constructed through a partnership Grant Aid Project between the governments of Japan and Jamaica. The WHC was supposed to be equipped with fish handling and sorting facilities, gear lockers, and an area designated for boat repairs. It was designed to facilitate effective and efficient fishing operations and marketing, and it was envisaged that fishers and fish vendors would participate in making the WHC self-sustaining after its completion. The facilities were completed in 1999 at a cost of USD 6.5 million, and are owned and operated by the Fisheries Division (Audit 2008).

Nevertheless, there are no proper fish handling and sorting facilities, gear lockers, or boat repair area. Instead, the female fish traders usually have a metal-framed icebox which they themselves own, and which can be closed with a padlock. The facility provides electricity—but not always—and the quality of fish storage is still relatively low, given the initial investments made. The fish stored are not properly cooled, and the electricity often fails, causing the quality of the fish to deteriorate. I witnessed many fish sitting in a puddle of melted ice in the “coolers.” Yet many customers drive for hours in order to buy the fish from Whitehouse.

Fishers sell lobster to small traders or intermediaries. In the case of lobster, most fishers indicated they work with intermediaries for a longer period of time. The surveys with fishers in Whitehouse revealed the average number of years fishers worked with the same vendors was over seven years.

![Fig. 5.16a: Typical catch by small-scale inshore Whitehouse fisher—lobster, and some finfish (left).](image-url)
These are not necessarily intermediaries in the sense they provide credit for supplies or fuel, these can also be smaller traders that do no supply credit up front. Fishers often have a longer-term relationship with the intermediaries, who supply the fishers with credit to buy food supplies, fuel, and ice. One fishers said he sold his lobster to “a friend so he can make a little money too.” One fisher was more practical and said regarding his middleman: “I owe him 25,000 dollars⁹⁷ for the traps, so I need to pay him back.”

Although fish is often sold to the female traders⁹⁸ who work from the fish market in Whitehouse, lobster is mostly sold to male intermediaries. They often have scarcely any trading facilities or stock freezers at home full with lobster. These intermediaries have lasting relationships with the fishers, and often also provide fishers credit and advances. Fishers are therefore “tied” to selling to these particular intermediaries. A number of intermediaries also indicated in interviews they actually own the boats the fishers go out in. The intermediaries sell the lobster either to the hospitality industry or to small processors. The intermediaries will stock up the lobster and sell it to their contacts in the hospitality industry every few weeks or months, depending on the season. These small processors export the lobster to the United States. These relationships between fishers and intermediaries are long-lasting and clearly defined. A boat works for a particular middleman. The middleman helps the boat with credit and getting supplies before the start of the fishing trip.

⁹⁷ The fisher means Jamaican dollars and at the time of the interview (summer 2009) this equaled approximately USD 350.
⁹⁸ Women contribute greatly to the post-harvest sector in Jamaica, in line with other areas in the world. The great contribution of women to the fisheries sector has long been recognized by researchers and the development community (Williams et al. 2002; Mills et al. 2011). Yet I have observed that particularly in the case of lobster it is mostly men that buy up the lobster. Nevertheless, I do not have precise data on this subject and this would need further research.
Although all fishers in Whitehouse sell to intermediaries, fishers on Pedro Cay depend on their intermediaries to an even greater extent. Fishers on the Pedro Keys cannot leave the area, and depend on the intermediaries for food supplies, fuel, sales, and ice. The intermediaries can be in “packer” boats (larger covered boats with inboard engines), or regular open wooden boats. The intermediaries that come to the keys can operate licensed packer boats which transport fish and lobster from the Morant and Pedro Cays to the mainland. The CFRAM/CARICOM (2000) makes the following distinction between “packer boats” and “carrier boats.” “Carrier vessels may simply carry fish purchased offshore from others, primarily inshore vessels operating from the cays, and land it on the mainland of Jamaica. These are ‘packer’ boats. Others both fish for themselves and carry for the others and are called ‘carrier’ boats. In either case, these are larger vessels (>10 m) than either inshore type and are equipped with inboard or outboard engines. These are limited to the reef fish fisheries.” The licensed packer boats are commonly contracted (owned) by processing plants to whom the catch is sold exclusively. In 2006, ten industrial vessels were licensed to fish with Florida traps on the Pedro Bank. These vessels are contracted by four companies. In 2009 only four industrial vessels were licensed to fish for lobster on the Pedro Bank (and in entire Jamaica as well).

Fishers on the Pedro Bank also work with a third category: intermediaries that arrive in the regular small-scale wooden boats which have a large ice hold. These intermediaries stay on the Pedro banks for eight to ten days (they wait until the freezer is full and the ice has not yet melted). Both types of intermediaries bring supplies, ice, and drinking water for the fishermen. Intermediaries on the keys complain it can be difficult to “tie” fishers. At times fishers might do business with another middleman to whom they are indebted. As a result, the intermediaries have to wait longer at the keys until their ice hold is full and therefore lose income. One middleman explained:
I get stressed when other packermen come and steal my fish away. Then you have to wait and lose money. Before I used come and fill my igloo in two days at Pedro Bank. Now I mostly have to wait and stay for six or seven days.99

A fisher explained:

I usually sell to the same vendor but when you have a lot of expenses you have to take the vendor that offers the best price. You have to.100

Another middleman on Pedro Bank:

I have been coming here for seventeen years and stay for five or six days and go back to land. When I is not here the fisher them sell to another buyer so fishers have different buyers they work with. We bring them ice for free because you want them to sell to you.101

The relationship between middleman and fisher is thus complex. Fishers depend very much on the intermediaries, but intermediaries also can not survive without the fishers.

Fish and lobster might be sold to different vendors. Some intermediaries only buy lobster, whereas others might only buy fish. The icebox on the boat in which lobsters and fish are held is generally made of fiberglass. Lobsters are usually kept alive and intact until they reach the mainland. Lobsters are generally kept alive until they reach the mainland. Due to the handling of the product, the long time before the product is frozen, and the high temperatures, the quality of the product is low. To start with the latter: rather than using chipped ice, blocks of ice are used. This cannot fully encompass and protect the lobster. The trip to the keys takes approximately fifteen hours, and what is more, intermediaries will often stay an entire week

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99 Interview G3 22/01/2007
100 Interview E9: 22/01/2007
101 Interview G4: 23/01/2007
on the keys. The ice slowly melts, and as it is not chipped ice, the lobsters are soaked and not surrounded by pure ice. The temperature of the lobster (held in the same hold as other fish and conch) is therefore relatively high in the ice hold. Once on land, lobsters are either tailed and cleaned by intermediaries and transported to the processing plants, or—alternatively—tailed, cleaned, and wrapped individually in small plastic bags for the tourist industry. These bags of individually wrapped lobsters are filled with water to protect the lobster from freezer burn. The water will obviously also add weight to the lobster tail.

The small-scale catch is thus distributed by both licensed and unlicensed carrier boats to the fishing terminal in Kingston Harbour, among other places, or by the fishermen themselves, usually on Jamaica’s south coast, for instance at Whitehouse and Rocky Point (Clarendon) when landing from Pedro Bank, and at Rocky Point (St. Thomas) when landing from Morant Bank. These lobster tails are sold in individually wrapped in plastic. Another part of the lobster catch is sold to processing plants. These lobsters are processed according to international standards and packed in boxes and shipped in large container ships. The quality of the lobster for the hospitality industry is lower than the lobster designated for the international market.

Fishers in Jamaica are thus multi-species fishers that sell their catch to different outlets. Fishers in Jamaica are not well organized in cooperatives. In 1952, the Inter-American Bank already began promoting fishing cooperatives as a way to improve production and marketing techniques. The Jamaica Social Welfare Commission began promoting fishing cooperatives among fishers on different beaches around the island. The government sold engines to fishers between 1956 and 1961 in order to encourage fishing. Government supported aid to fishers (engines, mesh wire, cheap fuel). A no-tax rule on fuel was established in 1964. Yet these cooperatives and initiatives by the government have in general been unsuccessful. In some areas fishers have formed cooperatives, but most of these have failed. Members used their cooperative more as a “shop,” and did not pursue the social benefits that can be derived from such cooperatives. Currently only a small proportion (6%) of the fishers is organized in fishing cooperatives.

In Whitehouse, the fishing cooperative has 160-170 members, of which only 90 are active members. The director of the cooperative explains that fishers are weary of cooperatives as they have had bad experiences with them.

In 1957, when we first developed the coops they were run bad and fishers lost their money. These fishers told their sons and they told their sons not to become a member. Now we have to go around and explain people why they should be a member.

In times of disaster the cooperative attempts to help the fishers. Even in recent years Miss Nathalie Zenny from The Nature Conservancy attempted to set up a cooperative for fishers on the Pedro Keys. In this way fishers could collectively bargain for a better price. She

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102 I found the Fisheries Division has very little information regarding the fish-processing sector, due to the fact this sector falls under a different ministry (FAO 2005a).

103 Interview F3: 26/10/2006
collected a small payment from many fishers but after complaints of fishers who were afraid the money would be lost, she returned it all and no cooperative was set up. This shows the mistrust fishers have of fishing cooperatives in Jamaica, as they have often have failed in the past.

As fishers are generally poorly organized, they have very little decision-making power in official affairs. In addition, fishers are poorly organized at the level of collective market bargaining, and their bargaining power is thus severely limited. Even though fishers acknowledge the fact that cooperation is crucial, they are still skeptical as so many attempts have been made and failed (Bedasse 2004). Cooperative representatives are invited by the government to attend meetings on fisheries management issues. Yet, fishers view cooperatives as belonging to the “Old Boys Club” and as not being unbiased. In addition, fishing cooperatives have a history of disappearing funds and generally fail in setting out an overall policy. However, the government does often hold consultations with the fishing cooperatives, and a representative group of Jamaican fishers has recently visited Belize to learn from their cooperative structure and fisheries governance. The influence on management of these cooperatives appears to remain in Jamaica mainly at the level of consultation. A government representative commented:

Fishers can give feedback to the government when the government visits them in their communities. The involvement of fishers is low, as they only come by once a year [to register]. It could definitely be far better and I think the fishers would want to more involved.  

Entrepreneurs with financial means, power, and connections have easier access to those in charge, given the importance of “old boys networks” in Jamaican politics in general, with the fishery sector being no exception. Jamaica’s fishing cooperatives often function more as cheap stores than as entities through which fishers engage in collective action and lobbying.

5.4 Job satisfaction of fishers

The last component of well-being relates to the subjective component. Job satisfaction surveys in Jamaica were administered at a variety of fishing beaches in and surrounding Whitehouse. The results of the job satisfaction surveys per category (see Fig. 5.20) show that the category Nature scored highest, followed by Social Needs and Basic Needs, whereas Self-Actualization and Management scored equally low. Mean values for all scores, except those for Management, fall above the mid-point of 3, indicating general satisfaction with regard to the other four categories. The result for the category Nature is rather striking, as the fishery is believed to be highly overexploited. Nevertheless, fishers are satisfied with the landing sites and level of stocks. This could be related to the fact it is a multi-species fishery, and fishers have other marine resources they can fall back on when certain catches are low.

104 Interview C1: 22/09/2006
The category Social Needs is second, closely followed by Basic Needs. Social Needs relates to fishers’ satisfaction with being their own boss, and the time they have available to spend with family and friends. In fact, the question on the respondents’ satisfaction with “being their own boss” is the highest scoring item of all. This could relate to the fact fishers in the Jamaican fishery are highly autonomous in their working conditions and very satisfied with this state of affairs.

Satisfaction of fishers with the Basic Needs category could relate to the fact it is a multi-species fishery, whereby fishers are able to target conch and finfish during the closed season for lobster, with conch and lobster both being high-value products. Fishers rate their satisfaction with their ability to provide for their families very high (third highest scoring item in the survey). They are also very satisfied with their level of earnings, which could maybe also be related to the fact it is a multi-species fishery, where fishers are never without an income any time of the year; prices for conch and lobster are high at the international market. In addition, this chapter has shown fishers’ income is clearly above the average minimum-wage income on the mainland. High lobster prices in the hospitality industry aid fishers’ income.

Management nevertheless scores relatively low; fishers are clearly less satisfied with the “level of conflicts,” as well as with the “performance of government officials,” and “rules and regulations” of the fishery. This could relate to the government’s inability to enforce rules and regulations due to lack of funds. In the qualitative interviews mentioned previously, ten out of the 21 fishers interviewed were very negative about the role of the government. Fishers were not convinced the government worked in favor of the small-scale fishers. This can also be the result of previous subsidy schemes by the government. The government in the 1970s and 1980s provided discounts on fuel and imports of equipment, and provided loan schemes for boats and engines. As this ended in the course of the 1990s, fishers grew dissatisfied and are convinced the government should help them with wire for traps, engines, and so on.

The level of trust between government and fishers appears to be very low, although this might not be unique to the sector. A government official stated: “There is very little trust between fisher population and the government, but this also goes for the rest of the...
population.” Fishers were convinced “the government don’t really care about fisheries,” and added: “They are not doing enough for fishing industry.” Nevertheless, the majority of fishers in the interviews preferred not to say too much about the government unless it was in a very informal setting.

When asked in what way the government could help the fishers, the majority of fishers responded by naming very practical things, such as fish tackle, subsidies, and wire for traps. This makes sense, given the history of the government of Jamaica in supplying fishers with these items, as mentioned in the sections above. Fishers did not mention things such as better enforcement, or more regulations. Fishers are coming from a situation where their operations were subsidized for years, for example their fuel. Easy access to wire, engines, and boats have also been seen to through government loans. This system failed, as fishers did not repay their loans. There was also a time when they were compensated for loss brought upon them by natural disasters, such as hurricanes. As this has now stopped, they consider themselves wronged by the government—by their not helping them. None of them mentioned, however, any other type of help they might need. In answer to the question what group(s) should play an important role in improving fisheries management, very few listed the government first, while in fact most fishers replied with either “don’t know,” or “everyone.”

In Jamaica the job satisfaction surveys examines factors influencing willingness to change fishing type, to leave the occupation of fishing, or to advise a young person to fish. In the Jamaican sample, 62 percent said they were unsure, 23 percent said they would not, and 15 percent said they would change fishing type. A full 46 percent said they would leave fishing for another occupation, while 39 percent were unsure, and 15 percent said no. With regard to advising a young person to enter the occupation, almost all (85 percent) said yes, 11 percent said they were unsure, and only 4 percent said no. These responses indicate an ambivalence concerning the occupation, but the large percentage reporting that they would advise a young person to fish seems to imply a rather positive evaluation of fishing as an occupation. At the same time, it relates to the surveys carried out whereby ten fishers out of 21 indicated their father had not been a fisher. This indicates that many fishers entering the fishery were not necessarily brought up in a fishing family. One could argue that they are less attached to the fishing occupation than might be expected.

**Conclusion**

In Chapter 3, I concluded that the governance style in Jamaica can be regarded as a combination of a defective co-governance style which developed into a hierarchical governance of the state. In Jamaica, the state has attempted to create and support strong fishing cooperatives from the start of the fishery in the 1950s. The government has maintained a special focus on the small-scale fleet and few industrial boats are licensed; historically, fishers have also been supplied with subsidized fuel, mesh wire, engines, and boats. At the same time, fisheries governance cannot be actually regarded as co-governance. The interests of small-scale fishers are poorly represented in decision making, while the subsidies by means of tax exemptions and cheap fuel were curtailed in the 1990s when the government removed the subsidies and services to the fishing industry.

This chapter has examined the well-being of fishers in Jamaica. The fishing sector is mostly made up of small-scale fishers. They are multi-species fishers working in both inshore
and offshore areas. In this research I focused on fishers in Whitehouse and those on the Pedro Keys. These fishers use multiple types of gear: trap fishers and divers (scuba, hookah, and free-diving).

Some fishers from Whitehouse operate close to shore and are day fishers. The inshore fishers leaving on day trips will sell their catch to different intermediaries, mostly female traders from the Whitehouse Fish Market facility. The working conditions for these fishers is medium intensive and relatively safe. They do not work every day, and when they work they return to shore in the early afternoon. They work close to shore and if conditions are bad they can decide to not go out or return to shore.

These day fishers are in the minority though, as most fishers actually fish in the offshore areas of the Pedro Bank. These fishers work approximately five to six days at a time and are thus absent from their families a large part of the year. They do not frequent the keys of the Pedro Bank but only fish at the bank, which implies at least a ten-hour journey from Whitehouse for them. These are dangerous trips, while fishers take very few safety precautions. Working conditions are difficult, as fishers live on small boats for five to six days at a time, in the middle of the ocean with very little protection.

Fishers on the Pedro Bank often live separated from their family for years. Living conditions on the Pedro Keys are very basic. Fishers live in very small, corrugated iron dwellings, with no running water, electricity, or toilets. They are either day fishers or fish in other areas of the bank for three or four days. As fishers are so far from the mainland, they strongly depend on the intermediaries for food supplies, water, fuel, and ice. Relationships between intermediaries and fishers are thus very important to both. Fishers on the keys are able to make a large profit from the fishery. Even though they will live in a basic dwelling all year round, their wife and children might live in a very nice and large concrete house on the mainland. Safety is low and fishing highly dangerous. Fishers usually do not carry life jackets or radio equipment. Fishing in these areas at 10-20 hours from the mainland is extremely dangerous. Remuneration of fishers is high in comparison to the average minimum wage on the mainland.

<table>
<thead>
<tr>
<th>Jamaica</th>
<th>Whitehouse</th>
<th>Pedro Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remuneration of fishers</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Single-/multiple species fishery</td>
<td>Multi-species</td>
<td>Multi-species</td>
</tr>
<tr>
<td>Economic alternatives</td>
<td>Yes (tourism)</td>
<td>No</td>
</tr>
<tr>
<td>Capital investment requirements</td>
<td>Trap investment high; skiffs high</td>
<td>Gear diving low investment; traps high; boats high</td>
</tr>
<tr>
<td>Safety conditions</td>
<td>Inshore fishers high; offshore fishers low</td>
<td>Low</td>
</tr>
<tr>
<td>Trade relations</td>
<td>High use of intermediaries: medium dependency</td>
<td>High use of intermediaries: high dependency</td>
</tr>
<tr>
<td>Participation in decision making</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>High (above mid average)</td>
<td>High (above mid average)</td>
</tr>
</tbody>
</table>

Table 5.1: Well-being of fishers in Jamaica.
Fishers indicated they have long-term relationships with intermediaries. They often last over six years. Fishers have different intermediaries or vendors for different types of their catch. Fish, lobster, and conch might have different vendors for the fishers. Fishers also have relationships with different vendors, with some for a longer period of time, and with others for a much shorter period of time. Part of the lobster catch is sold to the hospitality industry, and part to small processing plants that export lobster to the international market. The quality desired by the hospitality industry is lower than the standard demanded by the processing plants. As lobster is generally poorly handled, the quality of the product is relatively low in comparison to other countries in the region.

Historically, the fishers are poorly organized. Although in the past the government has attempted to support fishing cooperatives, these initiatives have usually failed. Only six percent of the fishers are members of a fishing cooperative, and these cooperatives serve more as shops than as powerful economic groups that are able to influence the politics of fisheries governance. Nevertheless, the representatives from some of the cooperatives are often asked by the government to give advice on the fishery. Fishers are also poorly organized from a market perspective, and their bargaining position regarding prices is thus very low. Job satisfaction of fishers is generally high, with average scores per category above 3 points. This could partly be explained by the fact it is a multi-species fishery with high remuneration in comparison to other jobs. Although the job entails high safety risks, fishers enjoy the high level of autonomy they experience in the lobster fishery.
Chapter 6: Nicaragua’s oligopolistic fishery: hardship in the wild, wild west

Introduction
Lobsters nowadays connect the Miskito Indians on Nicaragua’s Caribbean coast with the global market, just as sea turtles have done for centuries. The Miskito Indians are a waterside people with settlements almost always located along a river, lagoon, or coastal beach (Nietschmann 1972). The extensive seafloor covered in seagrass off the coast of Nicaragua has long been known for its large-scale aggregation of foraging green turtles (Chelonia mydas) (Laguex 2005). The Miskito Indians living in the region developed excellent sea turtle fishing skills that have proven vital for their existence over the last centuries as they bartered them for tools and guns with the Europeans (Nietschmann 1972; Dennis 1981).

The sea turtle trade that began in the 1600s has only been the first of several “boom-and-bust” industries based on the exploitation of natural resources in the region, of which lobster is the most recent variant. The geographically isolated coast was never colonized by Spain, and in the nineteenth and twentieth centuries the British presence was followed by the arrival of foreign companies, especially American ones, who came to exploit the region’s resources such as; timber, rubber, sea turtles, and gold, then in later years bananas, followed by shrimp and lobster in the 1950s.

The lobster fishery developed in the region during this period as a result of international demand, mainly from the US. Although the Miskito Indians living in the region traditionally had lobster, fish, and conch in their diet (Ehrhardt 2006), no commercial lobster fishery existed prior to this point. Although the hunt for sea turtles by Miskito Indians, to supply the international market, and their hunt for lobster for the same purpose share certain similarities, the lobster fishery—and in particular the diving industry—has had a disastrous effect on the health of fishers along the coast. Although the lobster fishery in Nicaragua is carried out by trapping as well as by diving, the Miskito Indians are mainly involved in the diving industry using scuba gear.

The fishers dive up to sixteen times a day, 21 days in a row. Ehrhardt (2005) has estimated that per fishing season (8-9 months), 32 percent of the divers suffer from diving accidents. Onboard research has revealed that 75-100 percent of the divers suffer at least “mild” decompression sickness (DCS) (Barratt and Van Meter 2004). In 2001, eight divers’

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105 Marine turtles once numbered in the tens of millions in the Caribbean Sea (Jackson 1997), and as sea turtles could be stored (on their backs and stored in small fresh-water basins onboard), they were very important for the European explorers as a source of fresh protein even when at sea for long periods of time. Carr (1955) even observed that “all early activity in the New World tropics—exploration, colonization, buccaneering, and even the maneuverings of naval squadrons—was in some way or degree dependent on turtle.”

106 Generally speaking, Miskito Indians are divers (both small-scale and industrial), while Creoles are mostly trappers (especially small-scale, to a lesser extent also fishers in the industrial fleet). Meltzoff and Schull (1999) and Monnereau (2004) indicate that nearly all divers on the island are Miskito, while trap fishers nearly exclusively Creole. In 2010, however, Rothuizen found in his research that by then one third of the trap fishers were Miskito. These boundaries are thus not fixed and can change over times as we can see on Corn Island, for instance.
deaths were reported, with up to 200 divers treated at the hospital (Barratt and Van Meter 2004). This makes the diving industry of the lobster fishery in Nicaragua the most dangerous job in the world, with the highest health risk, and the International Labour Organization (ILO) now regards lobster diving in Nicaragua as one of the most dangerous occupations in the world (Acosta 2005).

In Chapter 3, I examined the governance arrangements of the lobster fishery at the national level and concluded that the governance style of Nicaragua is one of hierarchical governance. In hierarchical governance the boundaries between the state and market in governance are, however, fluid. The fishery also shows signs of a market style, whereby the state has a limited steering ability and is at times absent. The market has either entered this void, or created the void, partly by exercising influence over the state and other parties. This chapter explores the impact this has on the achievement of well-being of lobster fishers in Nicaragua. As I have discussed in Chapter 1, I depart from a three-dimensional view which distinguishes the following: material well-being, relational well-being, and subjective well-being. These dimensions are expected to be different across the four different fishing métiers in Nicaragua: small-scale trappers, small-scale divers, industrial trappers, and industrial divers. In this chapter I will argue that the well-being of trap fishers in Nicaragua is higher than that of lobster divers. Due to the wide variety of fishing métiers in Nicaragua, the material and relational well-being will be discussed together per métier. I will start by giving an overview of the two main fishing areas (Corn Island and Puerto Cabezas, along with the Miskito Keys), followed by a discussion of the material and relational well-being per fishing métier, then give an analysis of the main economic alternative on the coast, namely, “the white lobster,” followed by a section on job satisfaction among fishers.

6.1 Fishing grounds

Nicaragua’s Caribbean continental shelf harbors one of the main spiny lobster (Panulirus argus) locales in the Central Western Atlantic. The extended continental shelf, its shallow depth, and the occurrence of abundant coral reefs provide a good habitat for the spiny lobster (Cochrane and Chakalall 2001). The spiny lobster is distributed over an area of 37,000 km² (66% of the Nicaraguan platform) in the Atlantic Ocean, but is principally concentrated around the Miskito Keys and Corn Island (FAO 2001: 252). The Miskito Keys are part of the Northern Atlantic Autonomous Region (commonly referred to as RAAN, an acronym for Región Autónoma del Atlántico Norte), while Corn Island is situated in the Región Autónoma del Atlántico Norte (Southern Atlantic Autonomous Region:RAAS).
The Caribbean region is isolated from the rest of Nicaragua, geographically as well as culturally and linguistically. There are few roads, and until very recently all traffic was by boat through the rain forest or by small plane to Bluefields, Puerto Cabezas or Corn Island. As it was a British protectorate from the seventeenth century onward, but never part of the Spanish empire, the inhabitants of this region are more likely to speak English or a native language than Spanish in everyday conversation (Hale and Gordon 1987).

On the Caribbean coast, the lobster fishery, with its high-unit value commodity, is the foundation of the economy, and represents a source of employment and income for a large part of the population in the Caribbean region, as well as export earnings for the national economy. On the entire Caribbean coast it is estimated 2,128 industrial fleet fishers are employed full-time in the lobster fishery. The estimated 2,690 small-scale fishers (divers and trappers), exceeds the number of industrial fishers (FAO 2003). Besides direct employment in the fisheries, indirectly through employment in the processing plants, commerce, maintenance, and fishers involved in other seafood products, a large percentage of the RAAN and RAAS population is involved in the fishing industry.

Nicaragua’s Caribbean region is thus a multilingual and multiethnic region, home to indigenous groups such as the Miskito and Rama, a Spanish-speaking mestizo population, as well as English-speaking Creoles. The boundaries between these ethnic groups are, however, highly permeable.

I have used the FAO figures (which uses data supplied by the government of Nicaragua). However, other figures on the number of fishers are higher. A 2005 survey carried out by Ehrhardt shows there are 4,493 small-scale lobster (and other fish species) fishers (both divers and trappers), 823 intermediaries for lobster and fish, and 1,496 crew members of the industrial diving and trapping fleet. This makes a total of 7,628 people involved in the fishery (Ehrhardt 2006). Research carried out by the ILO indicates that between 2,500 and 3,000 divers are active in the region, although official figures do not exist (Ehrhardt 2006: 7).
The lobster fishery of Nicaragua is divided into “small-scale” and “industrial” sectors and, in addition, by technique: diving and trapping. This gives rise to four different fishing métiers: small-scale-trapping, small-scale diving, industrial diving, and industrial trapping. These fishing métiers are distinctive in terms of areas of operation (depth and area), as well as type and quantity of gear. The catch percentage of each of the different fleets is roughly 25 percent (Kuninski 2004).

On the coast, there are three main lobster fishing processing centers: Bluefields, Corn Island, and Puerto Cabezas. In this research I have focused on the latter two, as these places represent 45 and 44 percent of the total spiny lobster production in the region, respectively (INPESCA 2011: 27). All lobster from the fishing grounds of the Miskito Keys is transported through Puerto Cabezas.

Corn Island depends nearly solely on lobster fishing, with few other economic alternatives present. The island is responsible for around 50 percent of the total lobster catch in Nicaragua, and hundreds of fishers are present on the island. The lobster fishery of the island started at the end of the 1960s, when small-scale lobster fishing for the export market began. Corn Island is the most important lobster fishing community in RAAS and consists of two islands: Big Corn Island and Little Corn Island. Big Corn Island is the most populous island, with a population of nearly 7,300 in 2002; Little Corn Island has a population 1,100 (Roque et al. 2002: 58). The high population density of Big Corn Island is the result of the large lobster industry on the island, which attracted many Miskito Indians to the island after 1990.

The Miskito Keys are host to the most productive lobster fishing grounds in RAAN. The keys are the main fishing grounds, yet it is the city of Puerto Cabezas where all industrial diving boats are based, and where several processing plants are located. Puerto Cabezas has several large processing plants and a very large pier where container ships come to collect the lobster and transport it to such destinations as the United States. The Miskito Keys hold three of the most productive ecosystems in the world, combining mangroves, marine grasses, and coral reefs, and are therefore the perfect habitat and feeding area for lobster. It is also the area with the biggest concentration of juvenile lobsters and is therefore an area of great importance for the whole lobster population (Kuninski 2004). Since the end of the 1990s, the Keys have experienced an in-migration of fishers and intermediaries, and the population has grown to an estimated 600 (Kuninski 2004).

6.2 Material and relational well-being

Small-scale trap fishers

Nearly all trap fishing, both small-scale and industrial, is carried out from Corn Island. Small-scale trap fishers are day fishers who leave early in the morning and return in the afternoon. They typically operate from fiberglass (and the occasional wooden) skiffs that are 7-10m long, powered by 40-85 hp outboard engines and crewed by three to four fishers. Respondents indicate they use 60-200 traps, depending mostly on financial means, or as they put it: “What our pocket can stand.” A few owners own enough traps to make it worthwhile to go out to check the traps every day (with a total of 250-350 traps). However, a large number of owners have “only” 60-250 traps, known locally as “pots,” making it economically more
sensible to go out every two or three days. Some fishers indicated they check their traps once a week. Respondents indicate that this frequency depends on the number of traps and seasonal and weather conditions. The most frequent number of traps utilized on Corn Island was some 100 traps (35%), closely followed by 150 traps (16%), 200 traps (14%), and 50 traps (9%) (Ehrhardt 2006). Remaining fishers had 300-350 traps; however, by law, small-scale fishers are not allowed to have more than 300 traps (Barnutty 2006: 9).

Depending on the number of traps, the season, the wind, and the weekly catch, fishers generally pull their traps every five to seven days. The traps are made of wood (known locally as nanciton) and typically last a single season. The more expensive longer-lasting pine (typically two seasons) is also available; however, it is often too expensive for fishers. Traps, or “pots,” are set in strings, these comprise on average of 20-25 traps (Monnereau 2004). Space between traps is 18 fathoms (1 fathom = 1.83 meters), with a 25-fathom marker line at each end (ibid.). At the end of the string, one can find wooden sticks with flags made of old T-shirts or pieces of plastic to recognize the buoys by, as well as Styrofoam balls. Fishers leave early in the morning and travel to the fishing grounds to empty their “string of pots” and set them in a different location. Fishers use GPS or compass to find their traps and copy the locations in a notebook at home. However, fishers usually know the exact location by heart, yet use the GPS both for security and to “sink them down” without using buoys. This means the pots are set just below the water surface, and only by using GPS are fishers able to relocate their traps; they do this to decrease trap theft.

Traps are “pulled,” or “hauled,” with a long pole with a metal hook at the end, or by a winch on bigger (but still small-scale) boats. The traps are hauled on board, emptied, and a new piece of dried old salted cowhide is inserted in the traps using a thin metal wire. The stench from the bait is horrifying, especially for those who are prone to seasickness. The fishers will clean the traps with an ordinary stiff brush, scouring the slats and frame to reduce any flourishing marine growth. If left unclean, the traps not only deteriorate more rapidly, but also do not seem to attract as many lobsters, according to the fishers. Broken slats are repaired immediately, and the frame reinforced with additional nails if it has become loose, before throwing the trap back overboard, as any broken slats permit lobsters to escape. Fishers do not need to bring ice, as lobsters are kept alive until they are tailed once on shore, or close to shore.

The majority of small-scale trappers work the entire fishing season (eight months, with a closed season from 1 March to 30 June), as 79.5 percent works over six months (Ehrhardt 2005). Small-scale fishers usually sell their product to intermediaries, who run businesses known as acopios. Most captains are also boat owners; few possess more than one boat. However, some acopio owners (i.e., intermediaries) will possess two boats, and sometimes even up to nine. In another case a captain will own four boats, which means that he will captain one and have the other three boats work for him.

Approximately 40 percent of the small-scale trappers are Miskito Indians, Creoles are the second largest group at 35 percent, while the remainder are mestizos and Garifuna (Ehrhardt 2006). Crew can be kin, but this is not necessarily the case. The captain works with

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109 After a storm or northerly winds, for example, fishers indicate more lobster will usually have entered their traps.
two to four crew members, depending on the size of the boat. When the captain is also boat owner, he will pay the crew around USD 1 per pound of lobster caught, or in some instances the crew might have their own string of pots whose revenue will go to them. Where the captain is not the boat owner, the captain will receive USD 2 per pound and sailors USD 1. Each year trappers have to renew their traps, which means a large investment, and they generally do this on credit, borrowing the funds from intermediaries.

Some fishers might sell directly to a processing plant if they don’t need the credit or other supplies that acopios also provide. Acopios are small business working as official intermediaries for fishers. Previously, processing plants would sometimes finance independent fishers, but as so many fishers were slow in paying off their debts, processing plants became reluctant to supply credit to fishers. The processing plants offer a higher price to the fishers than the acopios, but many fishers depend on their acopio for credit for fuel, bait, and traps, and are not in a position to sell directly to the plant. Fishers choose an acopio according to the vicinity of their house and boat, and relationship with the acopio owner.

Acopio owners make a profit from selling at a higher price to the processing plants (minus the deductions in operation costs), from the interest on the loans to fishers, and because they will sell items such as bait at a higher cost than the purchase price. Acopio owners usually make a profit of about USD 0.50 per pound, but they run the risk of unpaid debts. One acopio on Corn Island would sell cowhide bait for USD 3.20 per pound, while another sold the same for USD 2.80. One fisher argued “some acopios are choking the fishermen.”

The remuneration of small-scale fishers depends on a number of matters: gear type; whether the fisher is boat owner, captain, or crew member; whether the fisher works directly for the processing plant or through an acopio; and the amount of debt a fisher has. The amount of debt is partly dependent on the number of traps that can still be used from the previous year and the fisher’s savings. The cost of a regular trap is USD 12, a big trap USD 25. Investment in traps therefore could require an annual investment of around USD 3,000. Fishers often finance this large annual investment with credit from the acopios. Acopios, in turn, depend on processing plants to help them with the supplies, credit, and fuel. A fisher
with an investment of 250-400 small traps ends up spending between USD 3,000 and USD 4,800 per season. Interviews with captains indicated they had between USD 2,400 and USD 4,800 in debts to the acopios for trap investment.

The following illustration (Fig. 6.2) shows two receipts of payment to a fisher by one of the acopios in 2003 and 2008 (to the same fisher by the same acopio). The receipt from July 2003 (Fig. 6.2a) shows the debts the fisher has to the acopio. At the end of the season he has a debt of USD 449.66 to the acopio (loans are taken out in USD as inflation is high in Nicaragua). The loan was taken out to buy 20 traps on the 31 January 2003.

The second invoice from 2008 (Fig. 6.2b) shows the lobster was graded A and B. Grade B means imperfect lobster tails (damaged lobster tails). Five percent is deducted from the total amount by water weight, 25 percent in taxes, and there are further deductions for fuel and bait. This leaves the fisher with a total of nine pounds of lobster = USD 34.40. This is roughly USD 3.80 per pound. From this amount, however, he has not yet paid his crew, and his deductions towards his debt to the acopio are not included.

Fig 6.2a: Receipt payment and debts of a fisher by acopio Taylor on Corn Island between 1 January and 31st July 2003

Fig 6.2b: Payment receipt on 16 July 2008 of a fisher by acopio Taylor on Corn Island.

Source: Gilmore Gibson

Lobster prices have fluctuated over the past years. In 2007, when international lobster prices were at their highest, fishers could receive up to USD 13.50 per pound. By 2009 this figure had dropped to USD 10.50, while fuel prices were rising. Considering fishers have to pay off their debts they might only make a profit of between USD 2 and USD 7 per pound, depending on the catch, their debts, and fuel prices. Interviewees indicated that the large majority of small-scale fishers are indebted to either acopios or processing plants.
On Corn Island there is a Fishing Union for trappers with 40 members, who are mostly Creole, and a Miskito divers organization with 80 members (this covers around 30 percent of the total number of small-scale fishers). Their influence is very limited, however, due to the small percentage involved out of the total number of fishers (Monnereau 2004). In recent years, the Creoles and Miskito Indians have, however, attempted to cooperate more closely in order to stand together in their mission against the processing plants, especially after the economic recession. Yet cooperation between the divers and trap fishers at times can prove difficult.

On Corn Island in the summer of 2009, I witnessed a trap fisher coming in from sea who was instantly taken into custody by the police, as he had hit a diver with a spade out at sea that morning. The fisher had discovered the diver when he resurfaced after having illegally emptied the fisher’s traps. In an instant the fisher had grown furious and struck the diver with a wooden spade, rendering him unconscious. The captain of the diver’s boat became scared and had made off, so the trap fisher ended up taking the diver, who had regained consciousness in the meantime, back to shore.

Small-scale divers

Small-scale divers work out of Corn Island as well as the Miskito Keys. They usually work from wooden or fiberglass skiffs, and are day fishers who leave early in the morning and return in the afternoon. The divers will use scuba tanks which are filled by acopios. The boat will carry the captain, the diver, and his “bubbleman.” The bubbleman assists the diver and helps him select his materials before diving: deciding the number of scuba tanks, what type of mask etc. By following the bubbles of the diver, he can signal the captain how to track the diver, and will ensure they are in the right place when the diver surfaces with the lobster. The divers use between ten and sixteen scuba tanks a day, and dive to a depth of 75-150 feet (25-50 meters). Most divers work with only minimum equipment: mask, fins, tank, and a
regulator. Almost none of them have depth or tank pressure gauges and only a few have diving watches.

The divers dive around the coral reefs and hook the lobsters that are hiding in the rocks with a metal stick with curved point at the end, known locally as a *barria*, retrieving them from their hiding places. The lobster often dies as a result of the sharp hook, although some remain alive for a few hours longer. Divers will usually not bring ice to keep the product fresh. Intermediaries on the Keys, however, will use ice because they need to keep the product in good shape until the boat comes from Puerto Cabezas to retrieve the lobster.

The majority of small-scale divers work the entire season: 86 percent have indicated they work more than six months a year, while the fishing season is eight months a year (Ehrhardt, 2005). Interviews suggest small-scale divers generally work full-time because they go out six days a week if the weather permits. Eighty percent of the small-scale divers are Miskito Indian (Ehrhardt, 2006), the remaining twenty percent are mestizo, Creole, and Garifuna.

![Fig. 6.4a: Air compressor at an acopio on Corn Island, Nicaragua.](image)

*Fig. 6.4b: The diver is sitting next to his diving tanks.*

*Source: Author*

The divers’ profits depend on whether they own their own scuba tanks and/or boat. Most divers are not boat owners, so during a fishing expedition the boat owner, captain, diver, and bubbleman need to be paid. An owner (if not the captain) pays the captain USD 1.20 per pound, while the bubbleman gets USD 0.80. The owner and diver subsequently split the profits 50/50. If the captain is the boat owner, they first pay the costs of fuel and tanks, and then split the remainder 50/50. If the diver doesn’t own scuba tanks, filling the tanks and use of the tanks are also charged by the *acopio* and the costs will be added to the bill. *Acopio owners*, the owners of the small businesses who work as intermediaries between fishers and processing plants, state they will deduct 25 percent from the fishers profits. They will deduct
the 25 percent from the profits made by fishers towards their bill unless the catch falls below 20 pounds. Of this one particular mixed acopio on Corn Island, where both trap fishers and divers work, there are 20 divers and 23 boats. Of these 23 boats, in only 2 cases are divers the owners; there are 19 captains who are owners and 2 owners who do not go to sea but send people out.

In addition to the acopios and processing plants on Corn Island, as is also the case with the small-scale trappers, divers can sell their product to the “bucket ladies” on the island. These women have made no investments, and fishers are not indebted to them, so the price fishers receive will be higher. The women will, however, not be able to provide the fishers with credit for fuel, fill scuba tanks, or provide any other form of support. They do, however, provide a way to make some quick cash without fishers having to pay off their debts in the process.

In Puerto Cabezas and the Miskito Keys fishers can sell the lobster through a variety of channels: 1) official acopios (financed by processing plants); 2) unofficial intermediaries, financed by processing plants; and 3) self-financed unofficial intermediaries, often providing multiple services. The acopios were often originally officially part of the processing plants but are now independent entities (as the plants do not want to be held responsible in case of diving accidents). Yet when speaking about these intermediaries, processing plant owners do talk about “our acopio on the Keys” indicating a sense of ownership. The intermediaries are therefore directly linked to one of the processing plants; the supply boats come often to bring ice, fuel, and supplies, and pick up the lobster. On the Keys there are 14 official acopios (Kuninski 2004).

In the summer of 2008, I went out to the Miskito Keys with one of the supply boats of the processing plants. This boat, the “Blue Sun,” which in fact was painted green, took eight hours to get to the Keys. Faster boats can do it in 45 minutes. The “Blue Sun” was filled with large barrels of fuel, drinking water, food supplies, and a complete freezer hold full of ice. Dozens of men and women come on board for the journey, fishers and female traders who need a ride up to their little houses on stilts in the Keys.

In the middle of the sea, close to several wooden houses on stilts, we drop people off, and from everywhere boats appear with fishers and traders who want to get ice. When the sun is setting we get to one of the main houses on stilts on the Keys, which also serves as a shop. I get a nice meal of rice and turtle, the local delicacy. A huge turtle is actually flapping on his back right next to where we are sitting, waiting to be slaughtered when the time is right. He’s protected from the sun by plastic sheets carrying the logo of USAID. I have doubts USAID, probably having supplied the protection material after Hurricane Felix the year before, would be content knowing it was used help locals eat endangered species. Sitting next to the remains of the church of the Keys, four concrete poles sticking out the water, it is impossible not to talk about Hurricane Felix. Hurricane Felix is believed to have killed between 170 and 230 people on the 4th of September 2007. The fishers and women tell tales of tying themselves to trees or boats in an attempt to withstand the category-five hurricane.

The police claimed they had given warning but that the residents had chosen to ignore it. Some claimed they never got the message. As the warning had arrived in the late morning, many fishers had already gone out fishing and there was no way to contact them. Most of the victims, however, were women, as these traders and prostitutes had no way to get back to shore, as all boats had filled up quickly. Everywhere on the Keys you could see wooden sticks rising from the water where once people’s houses had stood.

The unofficial acopios are less capital intensive. These are, for example, female traders buying lobster from fishers, but in lesser quantities. They do not give out ice or fuel but do supply credit if needed. These women sometimes live on the Keys, while others only come to trade. These unofficial intermediaries are self-financed (not by processing plants).
Women also often work at the pier in Puerto Cabezas where the industrial lobster diving boats arrive. They are argued to also be involved in selling drugs to fishers or in providing sexual services (Kuninski 2004). The women supply the fishers with some cash advances prior to fishing, but force fishers to sell their catch to them afterwards.

Fig. 6.5a: Intermediaries on the Miskito Keys going to sleep (left).  
Fig. 6.5b: The “Blue Sun” delivering bags of ice to the fishers of the Miskito Keys (right).  
Source: Author

In RAAN in the north, Miskito divers are better organized in SIBURAAN with 700 members. There are several other organizations in RAAN; all organizations are under the umbrella of UNOPARAAN (Kuninski 2004). Their influence on management is considered to be limited, however.

**Industrial trap fishers**

There are over 50 industrial boats active on the coast of Nicaragua. These are based in Bluefields and Corn Island; according to Ehrhardt they employ 716 trap fishers (2009). The total number of traps is approximately 207,900 (Ehrhardt 2006), but making a proper estimate is often difficult as industrial trap boats often have more traps than the maximum allowed (2,500). One captain indicated he had 2,700 traps, for example, while another told me he used 3,500 traps. These industrial boats are at sea for 45 days, the longest time spent at sea of any fishing métier in Nicaragua. Lobsters are tailed and subsequently frozen in the freezer hold on board the ship. It is prohibited for industrial boats to enter within the first 25 nautical miles of Corn Island and the Miskito Keys, a zone reserved for the small-scale fishers. Small-scale fishers complain nevertheless that the industrial fleet also fishes in these waters.

Approximately eleven to twelve fishers work on board during this time: a captain, second captain, cook, *winchero* (the winchman, i.e., the fisher handling the winch), *catchero* (fisher who tails the lobster), and the rest is regular crew. The crew pulls 1,000-1,200 traps every day. The captain has a book with all locations on the GPS of all the strings of pots. There are 25 traps per rope, in strings of 125 traps.

In January 2007, I spent a few days on two trapping industrial vessels leaving Corn Island (one day on the industrial boat “The Pacific Wave” and three days on the “Lucky Star”). When I left Corn Island with “The
Pacific Wave” we had to travel fourteen hours to reach the fishing grounds as they were far and the winds fierce. I had been told there was a strong northerly wind, but I didn’t quite realize how severe it was until I was on board and we were on our way. The waves pounded the ship covered in darkness. As we could see nothing in the gloom while the ship pitched and rolled, I thought I had entered hell. There are few times in my life I have been more scared. Yet staying with the men and talking about fishing helped ease my nervousness. The comment “You are tens of kilometers out of the coast, in the night, on a large ship during a northerly storm, what did you expect?” was also enough to kill any complaints I might have expressed towards captain or crew.

Besides the regular crew we had one fisher, Ricardo, on board who used to own his own fishing boat. This boat had, however, recently broken down and he now needed to pull his traps. Another captain from the industrial boat “Nica 23” had agreed to help him pull his traps for a percentage of the catch. We therefore had to bring Ricardo to this captain known locally as “El Cubano.” El Cubano was famous for his success—with the highest catch rates for years any captain had achieved—but also for his rudeness, and aggressive and difficult behavior. He was also notorious for once having fallen asleep in the bar after he had returned to shore with 10,000 dollars in a paper bag on the table, which he had just earned from fishing. He had been too drunk to put it away and had gone to the bar with the paper bag filled with money. The captain of the “Wave” tried to bring the boat alongside El Cubano’s boat so Ricardo could cross. As we were facing some heavy winds, however, and very high waves, the captain tried for about an hour in the dark so Ricardo could cross but he just couldn’t. At one point, however, he had already thrown his backpack across to El Cubano’s boat with all the GPS locations of his traps. As he wasn’t able to cross during that night he kept swearing and worrying all night that El Cubano would go and pull all his traps; he would not only be able to steal the contents but the traps worth thousands of dollars as well. I never found out whether this happened or not, as I had already left when they came back weeks later. But I would never underestimate the value of the GPS bible.

The captain of the “Lucky Star” explained to me that all captains have their favorite spots and fishing grounds, and that you do not interfere with another man’s fishing spot. Everybody knows each other’s spots so you don’t interfere with their pots and “get them all tangled up.” Interviews with captains indicated they have informal territorial rights to certain fishing areas. A Honduran captain who works on one of Nicaragua’s industrial trapping boats explains:

The way the buoys are set, for example big-small-small, makes clear who the traps belong to. As the same boats always fish in the same area, you can tell who which traps belong to. So when you steal them or empty them, you pretty much know who you are stealing from. And while you are officially allowed to fish anywhere, you have to stay in your own area. Once I tried to fish in one of El Cubano’s areas and he got extremely angry with me. He laid his boat up alongside mine and told me “to fuck off,” which I did.

110 It would require more research in order to establish to what extent the captains really have established territories and to what extent they enforce these informal rules.

111 Interview E20: 13/06/2009
The industrial fishers are at sea for 45 days at a time, and are therefore employed full-time. They usually only spend two to four days on shore before returning to sea for their next trip. Ehrhardt concluded that 95 percent of the industrial trappers work over six months of the year (the fishing season is eight months). The fishers work as if on an assembly line in a factory rather than being at sea. The crew has divided the work into different jobs: helping the *winchero* retrieve the traps emptying the traps, cleaning the traps, repairing the traps, stacking the traps, baiting the traps, and so on. The types of jobs also depend on whether they are retrieving the traps from the water or putting them back in. The fishers work in a rotating system whereby each crew member will do one of the jobs for two days, and then change to the next job. On industrial trapping boats 47 percent is Miskito; the remaining fishers are either Creole or mestizo (Ehrhardt 2006).

The fishers get up at 1.30 AM, get a cup of hot tea or coffee and start working at 2 AM. They won’t get proper breakfast until around 5-6 AM, with lunch served at noon. Lunch will often consist of a rice dish with fish. The fishers also set six fish traps made from chicken wire that they only use to catch fish for dinner. The fishers will work until around 5-6 PM and have only an hour or so for leisure (which mostly consists of hanging around a bit on deck, smoking a cigarette, or trying to catch fish with a hand line) before going to sleep. They all sleep on thin mattresses in the kitchen area or steering hut. Only the captain has his own private quarters, as well as a private bathroom (which in the case of my trip he never used, because it would just clog up, he said). The fishers use a box at the rear end of the boat as a toilet. Even though the work is for 45 days straight, sometimes the sea would be so rough that the fishers had no chance of working, and then the boat would just anchor and everybody would just spend the whole day sleeping.
Rene Alvarez (1971) from Honduras is the captain on the “Lucky Star.” He has been a captain since he was nineteen, which is very early to be a captain, he says, but he started as a crew member when he was twelve. He did little jobs on board and helped where he could while growing stronger. His uncle was a captain and taught him how to be a captain. Where the best fishing grounds are, how to deal with the crew, and everything else, he explains. In 1990 he became a captain on a diving boat, but has now been working on a trap vessel boat as a captain for six years.

Officially all boats fly the Nicaraguan flag. Prior to the nationalization in 1994, many vessels were from Honduras and Colombia. Although these vessels now fly the Nicaraguan flag, they are still considered to be “foreign.” Even a processing plant owner I talked to stated he had “seven foreign boats and fifteen Nicaraguan boats” working for his plant. The differences between the two are obvious, and usually the foreign boats get a higher price per pound (otherwise they would go to Honduras). The average price per pound for industrial boats is USD 13 (USD 2 more than small-scale fishers receive). They are also better equipped and maintenance is better. Working on a “foreign” trapping vessel is therefore nicer for the crew than working on the run-down Nicaraguan boats.

![Fig. 6.7: Aboard the “Lucky Star.” Crew on the left is preparing slats to repair traps. Crew on right is waiting to reach a string of pots. Source: Author](image)

A captain can make up to USD 6,000 per 45-day trip, although USD 3,000 appears to be more common. I have heard many a story of captains spending all their money in just three days once they were back on shore, before heading back to sea. The processing plants own the majority of the industrial fleet. On industrial ships the captain is hired by the boat owner (there are only a very few boats that are captained by the actual owners). From my fieldwork I

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112 Because of the limited capacity of Nicaraguan boats and their run-down equipment, these boats only go out to sea for around 20 days. When I write about 45-day journeys, I am thus referring to the better equipped and larger boats.
have found the arrangements between the boat owner and captain, and between captain and crew to be as follows:

- The owner pays for fuel, traps, bait, buoys, rope, and all other expenses.
- The captain is paid 25 percent of the total turnover (pounds x USD 13-15). From his share he pays for food for the crew (which can be anywhere between USD 1500-3000 depending on the captain) and the salary of the crew. Usually the crew averages twelve men besides the captain: a first mate, a cook, a winchero, and nine other crew members.
- The second captain is paid USD 20 per 100 pounds.
- The cook is paid USD 12 per 100 pounds.
- The winchero (the sailor handling the winch to haul the traps) is paid USD 11 per 100 pounds. He is paid more than the other crew members because the work is very dangerous (the winchero can easily get entangled with the ropes and thrown overboard), the work is straining as you are basically wet all day while the winch is very hot, and the job requires precision.
- The crew receives USD 10 per 100 pounds.

With a catch of 2500 pounds (one that is not very high but not bad either) for an industrial ship, this works out as outlined in the following table. This was the catch of the industrial boat I was on in January 2007:

<table>
<thead>
<tr>
<th>Owner</th>
<th>75%</th>
<th>24,375</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captain</td>
<td>25%</td>
<td>8,125 (gross)</td>
</tr>
<tr>
<td>Food paid by captain</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td>Crew</td>
<td>250 x 9</td>
<td>2,250</td>
</tr>
<tr>
<td>Cook</td>
<td>25 x 12</td>
<td>300</td>
</tr>
<tr>
<td>Winchero</td>
<td>25 x 11</td>
<td>275</td>
</tr>
<tr>
<td>Second captain</td>
<td>25 x 20</td>
<td>500</td>
</tr>
<tr>
<td>Captain is left with</td>
<td></td>
<td>2,800</td>
</tr>
</tbody>
</table>

Table 6.1: Division of proceeds (in USD) on an industrial ship with a catch of 2500 lbs of lobster tails at a price of USD 13 per pound.

The captain obviously receives the biggest share of those on board, in this case USD 2,800, followed by the second captain, cook, and winchero. Ehrhardt finds trapping crew members make approximately USD 600 on average per month (Ehrhardt 2006). My findings suggest this is generally lower, with crew members receiving USD 250 for 45 days. This difference could be due to the fact the volume of catch was considerably higher in the years Ehrhardt compiled his data. Considering the crew work at least fourteen hours a day, and taking off two days for rough weather and two for coming and going, this leaves us with a total of 574 worked hours. Dividing the hard earned USD 250 by 574 hours you can see fishers actually do not make more than USD 0.44 per hour. However, because crew members are only at shore for two to three days at a time it might appear to be a lot of money.

Piracy, whereby industrial boats are entered by criminals on small-scale boats in order to steal their valuable cargo, takes place. This mostly happens during the last part of their 45-day trip when the freezer hold is full of lobster. As industrial boats need to give their location to the coast guard every day, criminals know exactly where to find each boat. During 2001-
2004 piracy\textsuperscript{113} appeared to be very commonplace, and affected around ten percent of the boats. Many captains I spoke to at that time (for my MA research) told stories of being hijacked and having to surrender the lobster catch. Another spoke of losing a crew member who was shot by pirates. According to government officials, processing plant managers, and fishers, piracy has decreased significantly since 2004, when undercover military were placed on board the boats for some time.

That piracy occurred made me—and, as I later discovered, also my captain Rene—slightly nervous on board the “Lucky Star.” I had been brought to the “Lucky Star” by the “Pacific Wave” which was heading out to sea. The “Lucky Star,” on the other hand, was in its last days at sea and the freezer hold was full. The captain communicated every day about my presence on board the ship to the processing plants, mostly reporting that “the marinera\textsuperscript{114} is laughing, writing, and eating so she must be OK.” The fact my presence was so noticeable by all of those involved in the industry made me slightly nervous. Having a young white gringa on board, in addition to a freezer full of red gold, might be an even greater temptation to the pirates. Although the captain denied he was worried about the pirates when we were at sea, once we were back on shore he said he had been anxious about a pirate attack.

The industrial vessel owners of the Atlantic coast of Nicaragua are better organized in the Camera De La Pesca (CAPENIC) (see also Chapter 3). This organization advises the government regarding management of the fishery. The APAN consists of the plant and vessel owners of Puerto Cabezas. The objective of APAN is to tend to the interests of the vessel and plant owners of the RAAN. Although the processing plant owners and industrial boat owners (often one and the same) are competitors, they generally agree on management issues. It is therefore easier for them to express a shared view on management decisions that should be taken by the government. In addition, due to their economic and political power it is easier for these members both to confer with government officials and to be taken seriously. CAPENIC thus has a large influence on the management of the fisheries in Nicaragua. Industrial vessel owners are therefore well organized and able to influence management (this also applies to the industrial diving fleet). Nevertheless, it’s only the owners who are well organized, not the actual fishers on the boats.

\textbf{Industrial divers}

The industrial divers work from large boats that are stationed in Puerto Cabezas. There are 26 diving boats, with an average of 57 people on board (this figure can be higher), which gives a total of some 1496 divers. The boats generally carry 30 divers, 30 bubblemen, nine crew, an engineman, captain, first mate, cook, and a cook’s mate, for a total of 74 people. Other interviewees have indicated it can be as many as 80, however, if a boat carries more crewmembers. Talking to one captain he said his boat had 68 people on board: 25 divers, 25 bubblemen, and eighteen other crew members (the captain, first mate, mechanic, compressor mechanic, cook, cook’s mate, the ice man, his assistant, the man who tails the lobster or catcherero, and so on).

\textsuperscript{113} As these criminal acts are actually committed within the EEZ of Nicaragua, it is not officially “piracy” as this needs to take place outside of a nations’ EEZ. Yet because all interviewees, reports and newspaper articles talk about “piracy” I also speak of piracy when referring to these criminal acts.

\textsuperscript{114} Spanish word for female sailor.
The boats leave for approximately three-week voyages. Losing a 21-day journey on a boat means not having work for nearly a month in a region where very little other employment is available. A diver who had arrived late and found another diver had already taken his space was really bummed out. He wasn’t there when the coast guard had called out his name on the list, and he told me he was sad, as he really needed the money.

One day on the pier of Puerto Cabezas in August 2008, I witnessed a diving boat going out to sea for a 20-day journey. The boat spent the whole day loading food, supplies, fuel, and ice. As more hours passed, the pier became increasingly busy with people. These were often the divers, the bubblemen, the crew, and family members waiting to say goodbye to their loved ones, hoping they would return safely. Other people at the pier were kids selling wooden rowing paddles and diving masks, and women selling cookies, as well as offering to give divers an advance if they would sell them their “last dive pickings.” The “pickings” are the catch of the divers on their last day on board (often between 3-7 pounds) and which they are allowed to keep. The female traders will buy it for around half to three-quarter of the price they will receive at the plant. The coast guard came to call the names for those who would board the vessel. The fishers were happy to have a second extra priest on board.

The divers are mostly Miskito Indians (91%), and the remaining fishers are Creoles or mestizos (Ehrhardt 2006). Most industrial divers (70%) work over six months of the year, while 15 percent only work five months, and 6 percent four months. In comparison to the labor participation of small-scale divers, small-scale trappers, or industrial trappers, this figure is low (Ehrhardt 2006). It implies large-scale underemployment of industrial lobster divers is common, and that divers are in strong competition for the jobs available. One can witness this in the chaotic and large crowds of divers trying to get a place aboard the next diving boat. The divers at the dock in Puerto Cabezas scream and shout and at times have to be held behind fences in order to keep the crowds from overrunning the boats in order to get a seat onboard.
The diving boats are the most productive in volume of the two industrial fleets (Barnutty 2006). A diver on an industrial boat earns on average USD 280 per month (Ehrhardt 2006), only half of what a small-scale diver makes.

As the resource has become increasingly difficult to catch in recent decades, due to overexploitation, divers have had to dive to ever-increasing depths. While in surveys carried out by Ehrhardt (2006) 95 percent of the divers were aware there is danger involved in how they make a living, only 20 percent have received any sort of training (Ehrhardt 2006: 3). Ehrhardt has shown (2006) that the average number of tanks used by divers increased from five in 1987 to nearly sixteen in 2005. Similarly, the depth dived to has increased from 24 feet (7.3 m) in 1987 to 140 feet (42.7 m) in 2005.

For eight months of the year, divers use between eight to sixteen scuba tanks a day while diving up to 150 feet (45.7 m) (Ehrhardt 2006: 3). A study on 229 decompression sickness (DCS) cases among the divers in Honduras and Nicaragua revealed that divers would dive up to depths of 192 feet (58.5 m) using up to eighteen tanks ((Barrett and Van Meter 2004: 351). Research on board the industrial diving vessels indicated that the incidence of “mild” DCS in the group on board a single trip was 75-100 percent. Divers reported fatigue, dizziness complicated by ear barotraumas, generalized pain, and back pain (Barratt and Van Meter 2004).

Although one might expect that fishing for sea turtle in dugout canoes in the 1600s—without outboard motors, lifejackets, GPS, or cell phones—fishers would be more prone to health hazards than current lobster fishers, it is contemporary lobster divers that bring priests on board to counter the ever-present danger. In order to ward off the constantly looming danger of paralysis and death, divers will bring their own priests on board. Fishers leave very
early in the morning from the boat with their canoe, bubbleman, and their first set of diving tanks. Before setting out to sea they all congregate and sing hymns and pray together to ward off the dangers associated with the diving industry, and the illnesses related to diving. One explanation by the Miskito Indians for the high accident rate is that the liwa mairin, a spiritual being who lives in the ocean and fresh water, guards her natural resources anxiously. As fishers are increasingly overharvesting the resource, she attacks the fishers by crippling them (Dennis 2003: 166). Some divers claim to have seen her, although the World Bank report (1999: 43) suggests this is likely due to nitrogen-induced hallucinations.

Belief that ritual practices (e.g., taboos) and/or supernatural beings can shield one from the effects of the dangers can function to reduce perceptions of relative risk or improve resultant stresses (Pollnac and Poggie 2008: 195). Malinowski is famous for implying that the more dangerous fishing becomes, the more rituals are practiced by the fishers. “It is most significant that in the lagoon fishing, where man can rely completely upon his knowledge and skill, magic does not exist, while in the open-sea fishing, full of danger and uncertainty, there is extensive magical ritual to secure safety and good results” (Malinowski 1948).

Fig. 6.10: Lobster fishers attempting to walk after suffering from the bends.
Source: Brad Allgood

At the large dock in Puerto Cabezas I have witnessed divers fervently speaking for an hour with the capitania (coast guard crew) to secure the presence of two priests on board to circumvent danger. The priests are paid every day by the divers to pray and sing songs with them before they leave to fish in the morning. While the sun is rising, the priests and divers pray to God and sing hymns asking Him to prevent any danger befalling them that day. Their presence has, however, not prevented tens of divers from dying and hundreds from suffering severely from DCS.

The divers lack such things as pressure gauges, timers, and depth meters, and the air in the tanks is often “dirty.” As they are unable to check the remaining pressure in the diving cylinder, when they feel their air supply is running out they will quickly ascend to the surface. In addition, making ten to sixteen ascents and descents a day is very hazardous for a diver’s

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115 The second priest was not on the list provided by the captain to the coast guard, and when the evening fell and all fishers were called out by the capitania to go on board, they were not eager to let the extra priest aboard. Finally, when the coast guard caved in, all the fishers cheered and the priest climbed on board.
health in general and makes him more prone to DCS. As divers are paid by the pound, they will often ignore minor decompression symptoms, and only raise concerns when they feel significant pain or when it is too late. While some victims only suffer minor injuries, but will constantly feel pain in their joints, others are less fortunate and left paralyzed or dead.

A report by the Association for the Integration of the Disabled in Puerto Cabezas stated there were 1,500 cases of injured divers up to the year 2002 (Dennis 2003). The US embassy’s 2007 Human Rights Report claims that in January-October 2007 no less than 34 divers died as a result of their work. The ILO states in a 2002 report that each year ten percent of divers suffer from decompression illness, and over 50 percent of divers have suffered from a diving accident (US Human Rights Report 2007).

Even those who are “only” paralyzed will often die in the end. They are often left incontinent and, as they are unable to feed their families, they are usually abandoned by them. Paralyzed divers therefore have no means to pay for antibiotics to treat infected bedsores, or do not have the luxury of keeping off the bedsores, as they need to beg in the streets for money. Yet the circumstances of the Nicaraguan lobster fishers are very disparate, and these conditions are not applicable to all fishers. One way the divers ward off danger is by snorting cocaine while diving at sea, which is supposed to be a common practice among divers (Dennis 2003: 166). Cocaine, however, creates a serious health risk, as it impairs judgment and affects the cardiovascular system (Dennis 2003).

In 2001, ten divers died on the coast as a direct result of diving accidents (Acosta et al. 2002). Currently this figure is believed to be significantly higher, but no hard data are available, although Dennis refers to a report that states 1,500 disabled divers are currently present on the coast due to the diving industry (2003: 166). The 2007 US Human Rights Report states that in January-October 2007 34 divers died on the Nicaraguan coast due to diving accidents. In addition, there are also incidents where the bubblemen lose sight of the diver and are not able to relocate him. As one fisher told me, “If you stare into space, or the

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116 Decompression sickness (DCS), commonly referred to as “the bends,” is a condition caused by exposure to excessive depths and pressures, remaining at depth too long, or ascending too rapidly.
waves are high, and you lose track of the bubbles, you don’t know where he is going to surface.” The rewards of this hazardous profession, with the ever-present danger looming above the fishers’ heads, were neatly expressed, however, by one fisher: “If you don’t die, you make a lot of money.”

The processing plant will usually pay for the use of a decompression chamber, or pay for the funeral; no social security for the longer term exists, however, if the divers survives. Social security is available for a number of people. Yet, very few fishers make use of it, not only because it costs money every month, but also because fishers need to produce documents (birth certificate, ID card, etc.) which they often do not have. Fishers are therefore reluctant to get social security as they don’t know how much their family or they themselves will benefit in the end.

Chances for survival are even more challenged because of the long time it often takes divers to reach a decompression chamber. In the US, divers suffering from the bends are advised to use a decompression chamber within five minutes of surfacing. The Nicaraguan divers are lucky if they reach shore within fourteen hours. More often, if the diving trip (normally lasting up to twelve days) has just started, injured divers will have to wait until the diving trip is over, severely limiting their chances of survival. The chances of survival for small-scale divers are therefore assumed to be higher than for industrial fishers.

In the streets of Puerto Cabezas and other coastal towns one will usually see crippled divers walking with crutches, or in wheelchairs. Some divers will use drugs, most commonly alcohol, marihuana, and cocaine (in the form of crack) to overcome their fear of going down. These also decrease the pain divers frequently suffer in their joints from diving, and stimulate fishers to go down again, despite the danger involved. Yet the use of these drugs also increases the chance of divers suffering from DCS, creating a vicious circle. Research by Ehrhardt (2006) indicates that for every fishing season (9 months at the time), 32.1 percent of the divers (both industrial and small-scale) have suffered from some type of decompression sickness. According to Ehrhardt (2006: 41) this only makes the crab fishery in the Bering Strait more dangerous than this occupation.

Ehrhardt has estimated that in the industrial diving industry a total of 3,680 scuba tanks are used. The MITRAB (Ministerio del Trabajo) has the authority to inspect and guarantee safety regulations in the workplace, while the Ministry of Health has a clear policy to prevent decompression syndrome, while the INSS (i.e., National Institute for Social Security) can oblige employers to pay for insurance to cover illness, injury, retirement, or death. Yet divers are often considered to be independent divers for whom no company feels responsible. They often do not pay INSS coverage themselves, while processing plants also fail to do so for the divers. They claim they are “independent divers” who are responsible for their own safety. The MITRAB has in fact argued that its failure to address the high accident rate of lobster divers is because it is an informal activity, and divers consume drugs and alcohol (Acosta 2005: 189). Divers live far away and face linguistic and cultural barriers and lack of awareness about laws, social security, and national institutions, making the enforcement of labor legislation pertaining to divers all the more difficult (Acosta 2005).

117 Interview E22: 14/06/2009  
118 Interview E18: 12/06/2009  
119 Ministry of Employment.
6.3 Economic alternatives: the white lobster

Lobster fishing is of great importance on the Caribbean coast of Nicaragua, as few economic alternatives exist in the region. Yet fishers also move in and out of fishing, and engage in other activities. The following box describes a lobster boat I fished with on a few occasions, whose fishers ended up in other professions at a later stage.

In 2004 I went fishing on a lobster fishing boat on Corn Island with the father of my guest family on the island, and his son, grandson, nephew, and neighbor (in the picture below from left to right: the son, neighbor, grandson, and nephew).

Fig. 6.12: Lobster fishing trip Corn Island.
Source: Author

Eight years later all had moved out of fishing. The captain is now a trader, trading shrimp and coal from Pearl Lagoon to Corn Island. He complained he didn’t have anybody to go fishing with him anymore, as all had moved out of fishing, and the lobster catch didn’t enable him to get outsiders to work for him. The son had become addicted to crack and was no longer to be trusted. He died in 2011, after he had become paralyzed after falling from a tree a year previously in an attempt to steal bananas. The grandson had been working on a cruise ship as a crew member for four years, making a decent living but only returning to the island a few months a year. Eddie, the nephew, moved to Pearl Lagoon where he is now a farmer. And Justin, the neighbor, turned to the drug trade and has spent the last few years in jail, as he was caught with drugs, cash, and guns at sea.

This example shows one of the other important economic activities on the coast: the cocaine trade. Locals are currently heavily involved in this illegal activity (Dennis 2003). The region is neatly located between the largest cocaine producers (in the Andes) and the largest outlet, the United States. Coastal areas might be especially prone to illicit activities. “The sea is bigger, emptier than the mountains and the forests” (Scott 2009: xiv).

Nicaragua’s isolated, impoverished Caribbean coast, unpopulated dense jungle areas, and numerous inland waterways make it a haven for drug traffickers. During the Sandinista period, from 1979 to 1990, drug use was strongly forbidden, and the entire coast was heavily controlled by the military and police (Dennis 2003). The military presence made drug smuggling nearly impossible. However, after the end of the civil war the military presence on
the coast was reduced and cocaine smuggling began to increase (Dennis 2003). Cocaine, better known locally as the “white lobster,” has been heavily traded along the coast since the beginning of the 1990s.

The socioeconomic circumstances make it even more ideal, as those living on the Caribbean coast in Nicaragua have learned from an early age to manage boats and navigate the sea. And as lobster fishing profits have been diminishing rapidly in the recent decade because of overexploitation, the drug trade has become a profitable economic alternative for many fishers. My research indicates that Nicaraguan lobster fishers take part in the cocaine trade in three different ways: a) finding drug packages along the coast or at sea, b) supplying fuel to drug traffickers running up and down the coast, and c) working as drug traffickers.

When I started conducting my research on the lobster fishery in Nicaragua in 2001 as an MA student, I was unaware of the involvement of fishers in the drug trade. Yet this quickly changed as fishers continuously talked to me about “being lucky.” I would ask them about the best fishing season, and they would then tell me about the best lobster season, as well as the best time to find packages of cocaine at sea. The drug runners throw the illegal product overboard when chased by Drug Enforcement Administration (DEA) planes or the occasional patrolling vessel from the US, or by the Nicaraguan coast guard. These packages of cocaine either wash ashore where they are found, or are found by fishers at sea. The fishers will sell them for around USD 3,000 to USD 3,500 per kilogram. The drugs are packaged in one-kilogram packets wrapped in waterproof plastic. These separate packets are bundled together in larger packages. The tides makes certain places more likely ones to encounter drugs, and although it is perceived as being “lucky” a certain level of skill is involved for those who actually attempt to find it in certain currents.

When there has been a DEA plane or boat chase, fishers will know about it, and they will discuss the currents and possible locations. Fishers would often talk about other fishers or themselves as being “lucky,” about how many kilograms they had found, and about the boats their fellow fishers were able to buy with this “salt money” or “white lobster.”

In January 2007 I spent three days on board an industrial trap boat. The captain, called Juan, had found drugs three times in his fishing career up until then (2 x 20 kg, 1 x 50 kg). He has sold it for USD 3,000 to USD 3,500 per kilogram, and told me he received 50 percent, while the crew divided the other 50 percent. He told me that he would be the one going to jail if they were to get caught, and so thinks that it is only fair he gets half. With the money he earned he bought an extra house in Honduras. Juan also explained that a few years ago industrial boats would refuel the drug traffickers running up and down the coast. During a 45-day trip an industrial boat would be able to refuel the drug traffickers five times. The captain would get USD 20,000, and the crew would each get USD 5,000 but the owner of the boat might get USD 300,000. They would get the fuel from Bluff. Juan also told me about another captain who is notorious for finding drugs. He would find it and then turn it into crack to make even more money.

Two years later I attempted to find the same captain again on Corn Island. I was told by the another captain that Juan “has now gone to work for the Colombians.” I asked a few more questions and it became obvious my former informant had now become a drug runner transporting drugs up and down between Colombia and Mexico.

References:

Juan 120

120 Not his real name.
121 Bluff is a refueling port with processing plant facilities close to Bluefields on the mainland.
122 Crack cocaine is the freebase form of cocaine that can be smoked and is the most addictive form of cocaine (http://en.wikipedia.org/wiki/Crack_cocaine, accessed 3-11-2011).
Fishers provide fuel for drug runners. Drug runners travel up and down from Colombia to Mexico and therefore need substantial amounts of fuel. Drug runners need to make pit stops along the coast. Fishing boats (both small-scale and industrial) are the ideal place to hide extra fuel, and many fishers make money this way. Fishers can become drug traffickers themselves, as they are very familiar with the coast, boats, and sea. In my research on the lobster fishery on Corn Island I have found a number of fishers that purposely entered the business.

Residents still talk about the “white Christmas” of 2003 when the entire community of Little Corn benefited from one of Santa’s cocaine droppings. The story was repeatedly told of a drugs boat that had been pursued by a DEA plane in broad daylight in December 2003, filled with nearly 1,000 kilograms of cocaine. The captain of the boat knew the area well, as it was a frequent refueling point, and he ran the boat ashore on Little Corn Island. The crew is quoted as saying, “Take what you want,” before running into the bush. By the time the police arrived a few hours later nothing of value was left in the boat. The locals had taken all of the drugs, the engines, and any other items of value.

The younger fishers on Corn Island and along the Miskito coast have been brought up in a time when finding packets of cocaine is seen as “a gift from God,” as one interviewee stated. Finding the white power is regarded by most as “being lucky.” A municipality council member told me “finding drugs is good for the economy of Corn Island.” Many fishers see it as a solution to increasing levels of poverty. This relates to the distinction by Abraham and Van (2005: 4) between “what states consider to be legitimate (‘legal’) and what people involved in transnational networks consider to be legitimate (‘licit’).”

Locals of Corn Island, fishers too, but not necessarily, are found on Facebook representing themselves as gangsters (see Fig. 6.13a and 6.13b). Presenting yourself as a “gangster” [drug dealer/pimp/criminal] holds a positive connotation rather than a negative one. The pictures below show off both the “white labsta,” as he calls it, as well as other items he might have bought from the profits. The picture on the right shows a former fisher, now employed as a cruise ship employee. He is not involved in the drug trade at all, but likes to pose as a gangster on Facebook.

Fig. 6.13a: Cocaine (called “white labsta” by the owner, and other valuable items he possesses.
Fig. 6.13b: Former lobster fisher (now employed on a cruise ship) showing off with a gun, silver chains, and mobile phone (Picture on left is not from him).
Source: Names known to author. Permission given.
The drug trade is also responsible for increasing levels of violence on the coast. In August 2008, when I was on Corn Island for a week, two drug traffickers got shot on Little Corn Island by Colombian drug traffickers when they ran into each other while refueling; one Corn Islander was shot in the knee by the police. He was arrested with 2,000 kilograms of cocaine. The house of a friend of mine on the island was burnt down, because a former employee was dissatisfied with his share of a recent drug find at sea. In August 2011, the police captured a boat close to Corn Island carrying USD 4 million on board, along with guns and other weapons. This indicates the danger that is associated with these types of illegal operations. Current events in the life of my “host mom” on the island are also illustrative. Her son died of the results of crack addiction in 2011, her nephew was cruelly tortured and killed by Colombian drug traffickers, with his body dumped on the airport runway for extra effect. Her granddaughter’s boyfriend was sentenced to two years in prison for smuggling and possession of various guns and thousands of dollars.

6.4 Job satisfaction of fishers

The last component of well-being relates to the subjective component; fishers’ job satisfaction. The survey was administered to fishers on Corn Island. The sample only includes one industrial fisher (a trapper) and no industrial divers. It is therefore not representative for all four métiers but mainly for the small-scale fleet.

Figure 6.14 shows the mean values for all scores of the five categories. The results all fall above the mid-point of 3, indicating general satisfaction with the five categories of items. Social Needs is the highest scoring category, followed by Nature, Basic Needs, Self-Actualization, and Management. Fishers score particularly high with regard to the category of Social Needs. Many of them are satisfied with the time they are able to spend with friends and family. This connects to the fact the respondents are small-scale fishers who return to their homes every day.

![fig614.png](fig614.png)

Fig. 6.14: Mean values and confidence intervals of job satisfaction categories in Nicaragua.
In the Nicaragua sample only one fisher was willing to change fishing type or leave the occupation. The majority also reacted positively with regard to advising a young person to enter the occupation. Due to the extremely small number of fishers giving a positive response to the first two general questions, I was only able to conduct statistical analyses on responses concerning advising a young person to fish. However, the low level of responses to willingness to change type of fishing or leave the occupation, and high numbers of those advising a young person to enter the occupation could relate to the fact that the surveys were undertaken in an area where there are hardly any options other than lobster fishing. The economy of Corn Island depends highly on fishing, and alternatives are few.

However, fishers held negative views on the viability of the fishery in the long run. Of the 35 fishers interviewed, 32 fishers saw the future of the fishery as “bad.” Only one gave a neutral answer, and two remained positive on the prospects of the fishery. Most responded with answers such as, “It sounds like the lobster don’t have much future if we don’t do something to improve it,” and “Bad, I don’t see much future,” or “The future looks very poor, I’m scared there will be no alternatives.” At the same time most fishers did not intend to leave the fishery, and in fact stated they were very satisfied with the occupation. In fact, only two stated they envisioned they would leave the fishery. Mostly they saw themselves staying in the fishery as owners. They often stated “I really love fishing and would like to fish for the rest of my life,” “My future is good, and I will be in the fisheries to the end,” or “I don’t see much future, but I’ll have to stay in the fishery because it’s the only opportunity there is.” Others said “I don’t see much future, but this is what I make a living from so I’ll stay in it as long as I can,” and “My future is not bright but I’ll stay on in the fishery”. These answers show few fishers expect to move out of fishing, despite diminishing catches and increasing costs, both because they like their job and because few alternatives exist in the region.

The Management category scored very low. From the surveys it became clear that although only nine out of the 34 fishers believed the government did a good job in managing the fishery, they generally held the opinion it was the government’s first responsibility to improve the fishery (30 out of 340). Fifteen fishers were very negative on the role of the

<table>
<thead>
<tr>
<th>Table 6.2: Mean value of job satisfaction categories by willingness to advise a young person to enter the occupation of fishing</th>
</tr>
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<tbody>
<tr>
<td>Advise young to fish</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>Basic Needs</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Social Needs</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Self-Actualization</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Management</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>Nature</td>
</tr>
<tr>
<td>No</td>
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<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

* = p < 0.05 (one-tailed test)
government: “The fishery is manipulated by the companies,” “The government doesn’t care for the fishers,” and “The government is not helping the fishers.” The fact the government granted excessive licenses to the industrial fleet was considered as proof that the government did not intend to help the small-scale fishers.

Conclusion

The fisheries governance system in Nicaragua is one with hierarchical governance characteristics. Market and state are both influential in fisheries governance. Since the initiation of the lobster fishery in Nicaragua, the large processing plants and industrial fleet owners (often one and the same) have historically been very influential in lobster fisheries management. The state has shown difficulties withstanding the pressure from interest groups, such as the industrial fleet owners and processing plant owners, as these parties are both politically and economically very powerful. A small powerful group is therefore able to influence decision making, leaving very little room for other pressure groups, such as fishing cooperatives or NGOs. Market party influence over decision making in the lobster fishery has been disproportionately large in comparison to civil society actors. Yet at the same time the Nicaraguan lobster fishery can also be characterized by a deficiency in governance. There is large-scale illegal fishing, rules and regulations are rarely followed, and the lack of material and financial capacity of the fisheries administration and fisheries inspectors, in particular, are striking.

This chapter has shown the diversity among lobster fishers in Nicaragua in achieving well-being. Some fishers are able to reap high benefits from the fishery in a region where few other economic alternatives exist. Yet they risk their supreme good—their health—in their search for the “red gold.” Many fishers are also highly dependent on traders, who can be official or unofficial intermediaries, and who sometimes are directly linked to processing plants. The system in general is characterized by hierarchical and asymmetrical relationships that reinforce patron-client relationships between fishers and traders.

We can conclude that small-scale trappers are day fishers who work with three to four other fishers. Working conditions are relatively safe, as they do not go out when the weather is bad. Investments in traps is very high. Fishers at times have to take out loans of up to USD 10,000 to invest in a traps for a new fishing season. They are therefore often highly indebted to acopios or processing plants, and poorly organized.

Small-scale divers are day fishers who leave early in the morning and return in the afternoon. Capital investments are only high for boat owners. Safety is a problem for divers as many fishers suffer from decompression sickness. Divers are the mostly highly dependent on acopios or processing plants. Despite this dependency, they are still independent workers, and are intentionally kept in that position, so that in case of accidents no party feels that they hold any responsibility. The remuneration for divers is high, which explains why divers engage in this dangerous occupation.

Trap fishers’ working conditions are hard, as they work long hours for limited pay and are away from home for a long periods of time. Their working conditions are dire, and compared to the number of hours worked unrewarding, yet it is much safer than diving. They are at sea for 45 days straight, which is the longest of all four fishing métiers. Capital investments are low, as crew do not have to invest anything. Only the boat owners, often large
commercial parties and processing plants, make investments. As crew are paid according to a clear share system, they are not in debt.

Working conditions for industrial divers are very challenging. They work under extreme circumstances, often suffering from pain, and in perpetual fear of an accident, and of dying as a consequence. Divers very often suffer from DCS, and many have died over the past decade. They are absent for three weeks at the time, having to leave their families behind for a long period of time. The remuneration is medium high, and few economic alternatives exist in the region. Capital investment for those who own the boats is high, but for all the divers in the industry is very low. Anyone can enter the industry with a fishing permit, snorkel, fins, and shorts. Divers are generally highly dependent in patron-client relations even though they are officially independent workers. In this case, independence is actually a disadvantage, as processing plants and boat owners claim fishers are independent and that they thus do not need to take responsibility for the divers in case of accidents. In line with the industrial trap fishers, industrial divers are poorly organized. Only the boat owners to are well organized in CAPENIC.

<table>
<thead>
<tr>
<th>Nicaragua</th>
<th>Small-scale trap fishers</th>
<th>Small-scale divers</th>
<th>Industrial trappers</th>
<th>Industrial divers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working conditions</td>
<td>Medium intensive</td>
<td>Medium intensive</td>
<td>High intensive</td>
<td>High intensive</td>
</tr>
<tr>
<td>Safety conditions</td>
<td>Safe</td>
<td>Very unsafe</td>
<td>Safe</td>
<td>Very unsafe</td>
</tr>
<tr>
<td>Remuneration of fishers</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Economic alternatives</td>
<td>Drug trafficking</td>
<td>Drug trafficking</td>
<td>Drug trafficking</td>
<td>Drug trafficking</td>
</tr>
<tr>
<td>Capital investment requirements</td>
<td>High</td>
<td>Low</td>
<td>Owners high, crew low</td>
<td>Owners high, divers low</td>
</tr>
<tr>
<td>Trade relations</td>
<td>High dependency</td>
<td>High dependency</td>
<td>Low dependency</td>
<td>High dependency</td>
</tr>
<tr>
<td>Participation in decision making</td>
<td>Low</td>
<td>Low</td>
<td>Low (except for owners)</td>
<td>Low (except for owners)</td>
</tr>
<tr>
<td>Job satisfaction</td>
<td>High (above mid-average)</td>
<td>High (above mid-average)</td>
<td>High (above mid-average)</td>
<td>High (above mid-average)</td>
</tr>
</tbody>
</table>

Table 6.3: Well-being of lobster fishers in Nicaragua

In this chapter I have also shown the variety of ways fishers are involved in drug trafficking in Nicaragua. Although I have not investigated drug trafficking among fishers as a separate subject or focus of research, in many of the interviews I conducted with fishers drugs smuggling did end up in the conversation, either introduced by them or at times by me, out of curiosity. Further research is necessary to investigate whether a particular fishing métier is more actively involved in drug trafficking than others, and the underlying reasons for this state of affairs. Further investigations are also necessary to establish whether the earnings made from drug trafficking are actually spent on the lobster fishery, or for exploring other economic alternatives. Fishers’ drug traffic earnings thus do not automatically translate into increased fishing effort. Although this enterprise appears to be socially accepted in this area, increasing levels of violence do take a toll on regular village life. These practices, as well as the highly dangerous diving activities, are enabled by the lack of state authority. Enforcement,
monitoring, and control are very limited along the coast. This results in high IUU levels by fishers (see also Chapters 3 and 7), frequent deaths due to decompression sickness and increasing violence because of drug trafficking. Fishers have a high level of autonomy, yet the fact they are not protected inhibits their ability to achieve well-being rather than improving it. In this case, autonomy—or the failure of intermediaries, processing plants or the state to take responsibility for the high rate of accidents in the diving industry—severely impacts fishers’ well-being.

Fishers are nevertheless generally satisfied with their job, despite the health hazards, and few see their taking up a job outside of fishing. This might also be partly due to the fact very few alternatives are available in the region, besides drug trafficking and fishing.
Chapter 7: The global chain of Caribbean lobsters’ tails

In June 2008, two hundred angry small-scale fishers using a megaphone shout out from the back of a truck. “Huelga, huelga! Strike, strike!” The protesters are driving around and around the only road on Corn Island, Nicaragua. This small Caribbean island of just 10 km² is home to 8,000 people. The lobster fishery is the main economic pillar of the island, but due to the economic crisis in North America, the lobster fishers are being confronted with declining international market prices accompanied by sky-high fuel prices. The fishers are calling for a strike and hijack the petite airport. They demand higher lobster prices and fuel subsidies from the government. Burning car tires have been placed on the airstrip to prevent any planes landing or taking off, and roads are blocked with large rocks.

The lobster fishing season has just opened and trap fishers have had to invest up to USD 5,000 in new traps, aggravating the problems of declining prices and high fuel prices. It’s not only the small-scale fishers who are affected, the industrial fleet is similarly affected, and in fact all those involved in the lobster chain from harvest to consumer as well. We have seen in Chapter 2 that lobster is considered a luxury product in Europe and North America, to be eaten on when dining out and on special occasions. It is exactly this characteristic of its consumption that proved fatal. As world stock markets declined and large financial institutions, like the Lehman Brothers, collapsed, governments in even the wealthiest nations had to come up with rescue packages to bail out their financial systems. A crash in housing and commodity prices took place after a major price rise in the 2000s. Due to the economic crisis consumers began to eat out much less often and took to buying less luxurious seafood (e.g., salmon or tilapia).

The financial crisis of 2007-2010 was regarded by some to be the worst financial crisis since the Great Depression in the 1930s. With the downturn in the stock markets, the downturn in the economy, and the collapse of the housing market, consumer wealth declined greatly. As consumer confidence in the United States decreased as the economic situation worsened, consumer demand for lobster—a luxury product with extremely high prices—fell rapidly. Lobster demand thus plunged and lobster prices rapidly deteriorated all the way down the chain. The problems the Corn Island fishers faced are thus more global in nature, as in the summer of 2008 a worldwide recession made itself felt. The fishers’ unrest lasted until the summer of 2009, when prices slowly began to rise again.

Fig. 7.1: Roadblock and protest on Corn Island, Nicaragua 2008.
Source: Marlies Stoddard

This story shows the close connection between local lobster fishers in remote areas of the Caribbean and the consumer end of the lobster chain in the United States. Whereas lobster fishers in the Caribbean region and end-market consumers might never meet face to face, there is no doubt their economic lives are intertwined. The lobster chain can be seen as the
route travelled by the lobster from harvest to consumer. One can distinguish lobster fishers, intermediaries, processing plants, importers, retailers/cruise ships/restaurants, and the final consumer. Yet value chain analysis of a product goes beyond purely looking into the input-output structure or geographical spread. As we have seen in Chapter 1, the global value chain (GVC) approach helps to address questions on the lack of correspondence between the geographical spread of economic activity and spreading the gains of participating in global production markets. The approach focuses on mapping the distribution of power and dependency relations along value chains, describing the entry barriers that characterize value chains, and investigating how the unequal distribution of rewards can be challenged in favor of developing countries.

This chapter explores the following elements of the lobster chains in the three countries:

1. the structure of the chain:
   a. input-output structure,
   b. chain actor involvement,
   c. geographical spread, and
   d. quality issues and export rules and practices; and
2. governance within the chain by means of:
   a. dependency,
   b. barriers to entry, and
   c. the dynamics of the chain due to the economic crisis.

The economic crisis and consequent drop in price and demand has offered additional research opportunities: (i) to examine how the three lobster chains coped with the economic shocks; (ii) to determine the mechanisms through which the effects spread throughout the chains; and (iii) to learn the extent to which differences in local embedding enabled actors, situated at different functional positions in the chain, to cope with the crisis.

In the previous three chapters, I have examined the well-being of fishers in the three countries involved. Fishers can be seen as the first actor, when considering the value chain from harvest to consumer. This chapter takes off from the level of fishers and continues from there, examining the actors beyond the level of fishers. This chapter focuses on the chain up from the fishers up to the international level—up to the United States. This chapter will therefore begin by comparing the role of intermediaries whom we have also discussed in the previous three chapters, followed by the processing plants, and the international traders. In addition, this chapter will discuss the international illegal lobster trade and the impact of the economic crisis.

7.1 From fishers to processing plants: the role of intermediaries
Intermediaries can be seen as actors in between the fishers and processing plants; varying types of intermediaries exist. Differences between intermediaries relate to professionalism and magnitude of the enterprise, level of investments, and the relationship between fishers and intermediary.
In Belize, the majority of fishers sell their catch to the cooperatives, either the two main cooperatives in Belize City, or through one of the three other allied cooperatives. Although officially no intermediaries operate in this system, in reality fishers often make use of a few intermediaries, as we have seen in Chapter 4. These intermediaries operate from the premises of the cooperatives. They support several boats with credit and supplies up front, and these fishers operate exclusively for them, while other fishers only occasionally make use of these intermediaries. Fishers will sell their catch through a middleman to get a larger payment in one go, rather than a smaller payment twice a year. The lobsters are measured, weighed and graded by the processing plants, not by the intermediaries; only the payments are made through the intermediaries. Fishers can also sell directly to the fishing cooperatives, or to hotels and restaurants.

In Jamaica, small-scale fishers usually sell their catch to beach vendors, intermediaries, or to packer boats (also a form of intermediaries found at the Pedro and Morant Banks, the most productive fishing grounds of Jamaica, located 140 km off the mainland). The majority is destined for the hotels and restaurants, while a small portion goes to smaller export facilities. It is believed 40 percent of the lobster production of Jamaica is destined for the processing plants (Venema 2004).

The fishers on the offshore atolls sell directly to intermediaries, who bring the catch back to the mainland to sell. These intermediaries stay on the key for around eight to ten days, until their ice starts to melt and their ice coolers no longer function properly. Fishers depend strongly on the intermediaries to buy their catch, who often also supply food and drinking water. Intermediaries will buy the lobster whole, and pack it in ice until they return to the mainland. As the lobster does not need to be processed at a high level, since it is sold to the local tourist market, you might expect fishers to carry out these tasks themselves. However, they often have “interlocking contracts,” whereby they depend on the intermediaries for
supplies and credit. Fishers therefore cannot sell to another buyer, or carry out these upgrading activities themselves. What is more complex for a fisher, however, is to build trusting relationships with the buyers (often hotel chains or exporters).

Intermediaries often have to store the product for a length of time in freezers, until the price is right or there is demand for the product. This can take weeks, and a middleman needs to have the resources to hold on to the product for such an extended period without having an income. Entry barriers for the intermediaries buying from the keys are not extremely high but often larger than what a fisher would be able to finance. They pay the fisher up front, but within a two-week period they will have sold their catch and made their profit. Intermediaries that run processing operations, however, have much larger investments. They need to build trusting relationships with buyers in the United States, have a large storage capacity, and therefore need large amounts of capital. Day fishers will also sell to small-scale, low-investment, short-term traders, such as the female traders on the beach.

The “bucket ladies” in Nicaragua only fill up a bucket of lobster which they buy from fishers. Once the bucket is full, they will go to the processing plant to sell the lobster at a slightly higher price. This is a small household enterprise for the women, which does not involve any large investment, and for which the entry barrier is low. These women have many forms of income and this might be just one of them. They might engage in buying lobster one week, and engage in other economic activities the next. Fishers usually do not have long-lasting relationships with these female traders. In the north of Nicaragua, however, some of these female traders do create long-lasting relationships with fishers and supply credit before fishing trips. These intermediaries do not, however, grade the lobster or give out invoices.

There are also the more institutionalized intermediaries—locally known as acopios—businessmen that have all the paperwork and documents necessary to be an official middleman. These men have large coolers full of ice, and often trucks to bring the fishing equipment, fuel, and ice to the office. They administer the debts and earnings of each fisher meticulously. The entry barrier for these intermediaries is therefore much higher than for the “bucket ladies.” Fishers are often highly indebted to these intermediaries, and at times will try to sell their catch to other intermediaries or “bucket ladies” in order not to have to pay off

Fig. 7.3: Middleman in Whitehouse, Jamaica.
Source: Author
their debts. The processing plants also have a number of fishers they give credit to, but this applies only to fishers who are not in any great debt; in short, fishers whose position is trustworthy. The acopios will grade lobster according to its quality (A, B, and sometimes C quality); prices differ according to the grading. Lobsters are also measured to make sure they comply with official regulations, and will be kept on ice until they have been transported and sold to the processing plants.

The type of relationship between processor and intermediaries also varies throughout the three countries. In Belize, the intermediaries work on the premises of the fishing cooperatives (or in the case of Caye Caulker for instance at the receiving station of the cooperative in the village). Although officially illegal, intermediaries can actually be board members of the fishing cooperatives. These intermediaries will skim the profits of the fishers and cooperatives (as fishers do not pay off their debts to the cooperatives but only to the intermediaries). As they are not official, relationships are not formal either and will change over time.

In Jamaica, fishers on Pedro Bank will often work with the same intermediaries. They receive ice and fuel from them, and they have a lasting relationship. Intermediaries also have a lasting relationship with the traders they work with. These intermediaries often sell to the same hotel or restaurant for a long period of time. However, if hotel stocks are at maximum level they will try and sell to other outlets. Intermediaries selling to the same processing plants will often always sell to the same processing plant.

In Nicaragua, the relationship between “bucket ladies” and large processing companies can be characterized as loose. There are no close dependency relationships, or interlocking relationships. Acopios on the other hand, work exclusively with one particular processing plant. This processing plant does not “own” them, but they do support the acocio with financial advances, ice and so on. On Corn Island for example, it is clear which acocio works with which processing plant.

7.2 The role of processing plants

Not all the lobsters will make the long journey north, as only the “best” are selected for export. To be chosen, lobster must be of legal size, well-shaped, firm, and free of cracks, scars, and blemishes. The lobster is sorted once it reaches the plant according to grade and
weight. Those working in the processing facilities are usually women. The lobsters are graded in A or B quality by a processing plant employee. Sometimes even a grade C is distinguished. Grade A is the best quality and commands the highest price. The B quality refers to lobster with discolorations, cracked shells, or soft shells. Each receiving point, whether it is an official or unofficial middleman, or processing plant or cooperative, has someone who checks for quality issues as well as for size. If the size is under the legal limit (whether by length or by weight), the fisher will not be able to sell the lobster.

The lobster tails are cleaned and weighed, and then placed in ten-pound boxes, each containing lobster tails of the same weight. There will be boxes filled with lobster tails ranging from 4-24 ounces. The tail weight is listed on the box: the related number is checked off on it. The plants receive the best prices for tails in the range of five to eight ounces. Both four-ounce (only available in Belize) and nine-ounce tails make less per pound than five to eight-ounce tails. The ten-pound boxes are placed in 40-pound ones (4 x10 boxes), also known as master boxes. These master boxes are put in the freezer until the next shipment is ready to be made. It depends on the season how often the shipments go out; when the season is at its peak (for either conch or lobster) the shipments will be made more often than when business is low.

This selecting, grading, and distribution is generally carried out in similar ways throughout the three countries. However, the number of processing plants differs greatly. In Belize, there are two certified processors who export lobster, both located in Belize City. These are fishing cooperatives that hold exclusive export licenses. One of the two cooperatives, Northern, has an exclusive deal with one importer in the United States. Northern sells exclusively to the company Dddi, better known as Darden (or home of the Red Lobster restaurant chain). Their business relationship stretches across several decades, and the cooperative sells hardly any product to other buyers. The other fishing cooperative, National, does not have such an exclusive deal, and therefore sells to various companies in the United States, but also to ones in Canada, Asia and Mexico. They change to importers in the United States more frequently, and also have more trading partners outside the United States. Their relationship with importers is less close than NFSC is.

The two exporting processing cooperatives are highly competitive. Fishers’ membership will directly influence the other cooperative and each tries to tie fishers to their cooperative. When I was at a meeting at one of the processing plants, they were reluctant to share the annual report with me or with the government official also present, as they were afraid it would be shared with the other cooperative.

In Jamaica, there are officially only three processing plants. However, the fisheries department believes that as many as twenty smaller processors, lacking official permits, are in operation in the country. The smaller exporters process the lobster themselves, and sell both to the national market and internationally. Fishers sell either directly to them, or through an intermediary. The major processing plant of Jamaica is owned by an entrepreneur who was the founder of the industrial lobster fleet in Jamaica. He is currently still in operation but with less capacity than before. This processing plant, however, is the largest owner of the relatively small industrial fleet (four vessels). These ships only fish for lobster, and all lobster is landed at the processing plant. The crew of these boats is mainly from Honduras. Fishers can sell
either directly to one of the smaller exporters, or sell their catch to intermediaries, who in turn sell it to the exporter.

In Nicaragua, the number of processing plants of lobsters fluctuates between eight and twelve. They are located on the east coast of Nicaragua, and on the Caribbean island called Corn Island. As a result of the economic crisis, three plants have gone out of business. This is also due to the fact that some processing plant owners own more than one processing plant. The processing plants are therefore not all competitors, and in some places, such as on Corn Island (a small island where 50% of the lobster catch of Nicaragua is processed), the two competing processors have made price deals with one another (Monnereau 2004) and discuss any rise or fall in prices. Processing plants are all owned by Nicaraguans and are commercial enterprises. Although some processing plants receive advances from importers they work with in the United States, the processing plant owners still remain the owners. However, the way some importers talk about the processing plants proves that at times they can have a very strong relationship. Plants are both competitive as well as cooperative. They deal with similar issues, yet remain competitors.

Cooperation between processing plants in all countries appears to be low. The fact they are engaged in a highly competitive business makes cooperation difficult and undesirable. Although at times in Nicaragua processors will cooperate and make price deals, they will try to keep many of their deals with brokers or importers in the United States secret from one another. Trading partners in the United States, prices, and volume of shipments are kept secret. The number of intermediaries they work with, the number of fishers, the number of industrial boats that work for them or they own—they had no desire at all to share this type of information with me. On one occasion the son of a processing plant owner responded to my questions with: “But how do I know you are not an American spy?”

At the same time, the processors seem to know a great deal about what is going on, and about things that go wrong at other processors. Processors and industrial fleet owners are organized in an organization called CAPENIC. This is an organization in which all processors are represented and where management issues regarding the fishery in Nicaragua are discussed (see Chapters 3 and 5). In Jamaica, cooperation appears to be even more difficult, as so many processors are illegal. They will therefore not cooperate or represent themselves as
a union to the outside. In Belize, the two cooperatives are represented in the Fishery Advisory Board (see Chapters 3 and 4). However, cooperation between the two processors is difficult. There are no public annual reports available from the fishing cooperatives, as there are in Belize. On the contrary, processing plants are often very reluctant to supply any information.

In general, the investment necessary to run a processing plant which is adapted to export seafood products to the US and or European Union (EU) is very high and involves millions of dollars. In Nicaragua, a very small fishing cooperative with only around 20 active members told me on several occasions how they wanted to start their own processing plant and become independent. These plans are hard to realize, as the further up the chain, the bigger the investments required, while technological knowhow and a good network are also needed.

7.3 From processing plant to importer

Nicaraguan processors trade with more trading partners in the United States, and with other ones, than the fishing cooperatives in Belize and Jamaica. Belize’s two fishing cooperatives with processing facilities had between five and nine different trading partners (depending on the year) in 2003-2010. The ten or so processing plants in Nicaragua had between eight and fifteen trading partners in 2003-2010, whereas Jamaica’s three processing plants only had one to five trading partners. Considering the scale of production in Nicaragua, this figure comes as no surprise. Jamaica’s trade in frozen lobster was virtually at a standstill in 2009 and 2010 both because of the crisis and due to the detection of salmonella. In addition, Jamaica is known to exports lobster via unofficial channels directly to the United States. These lobsters do not enter Jamaica, but are exported directly to the United States by sea, therefore blurring the official trade statistics and catch records of Jamaica.

The relationship between importer and processing plant in the Caribbean can be considered complex and dynamic. Relationships between producer and importer can be long-lasting and might have existed for over 20 years. However, once an importer becomes dissatisfied with either price or quality, relationships can be discontinued. An American importer who had had a successful five-year relationship with a Brazilian showered the producer with luxurious dinners to show his gratitude during the Boston seafood show in 2008. Upon my return to the seafood show in 2009, the importer and producer were no longer on speaking terms, as the producer had had several cases of salmonella during the last year. As the importer had stopped importing the product, the producer had turned to other importers, and their relationship had been terminated. The Brazilian exporter told me he was angry because the importer had told other importers about the salmonella. The importer responded by saying “It had been all over the UB site, it wasn’t like it was a secret.”

In another case, an importer stated the reason he only purchases lobster from one plant in Nicaragua as follows: “I can’t be all things to all people, so I try to be a more valued buyer for [the company in Nicaragua].” Some importers therefore build long-lasting relationships with the producers, while others focus on shorter-term contacts and only import a container here and there. Until the economic crisis, importers would often pay for part of the shipment in advance. Or they would pay a large sum at the beginning of the fishing season so the plants

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123 Interview A11: 15/03/2009
124 Email 14 August 2009.
would have enough cash to work with. However, transactions between importer and processing plant that take place only occasionally or a single time differ in this respect.

Generally, importers do not own any processing plants in the countries concerned. Several importers in the United States implied they used to own processing plants in the Bahamas and Brazil in the 1990s. Setting up processing plants and therefore receiving larger profits might have looked profitable at the end of the 1980s and 1990s, when the lobster catch was still rising. However, as lobster catches declined in the majority of countries in the Caribbean Basin due to overexploitation, profits dropped and plant ownership became less interesting. In addition, importers complained about “unsuccesful management” of the plants by local managers in the Bahamas and Brazil. They claimed it was too difficult to run plants from so far away, and that they were losing money, and ended up selling the processing plants.

Importers in the United States also can also act as brokers. They will buy the lobster from fixed processors in the Caribbean, and in turn sell it to other countries. The lobster does not necessarily pass through the United States, but the importer will make the deals. One Nicaraguan importer, for example, was extremely dependent on his American importer, as they once invested heavily in shrimp boats for his company. As the shrimp business went to pieces, and the processor had large debts to the importer, he could now only sell to this importer in the United States. However, this importer will help as a broker to sell the product in, for example, the EU.

Importers and producers negotiate on whether the price is Free on Board (FOB) or Cost Insurance and Freight (CIF). The outcome will depend on their type of relationship and is the result of trust and availability of credit. In the past, importers usually paid the transport costs, now producers increasingly have to pay for it, and they are not paid themselves until the product has been cleared by US customs.

7.4 Quality and food safety standards

With the increased economic integration of the world’s economies and the growing international seafood trade, product quality standards have become more and more important (Thorpe and Bennett 2001). As lobster has such a high unit price, and shipments therefore constitute such a large investment, food safety problems are of great concern to importers and processors. If problems occur, this could lead to great financial losses. For an importer various aspects of quality control are important. These include salmonella, high sodium content, product glazing, discolorations, and a foul odor. The Food and Drug Administration (FDA) in the United States carries out regular quality and safety checks on imports, checking for such things as salmonella, as well as for illegal produce. Salmonella has been detected since the beginning of the 1990s in many of the main lobster producing countries in the Caribbean Basin (see Table 7.1). These salmonella cases can have a disastrous effect on both the exporting company as well as the importing company, as well as influencing the overall confidence of importers regarding the lobster quality from this country as a whole.

<table>
<thead>
<tr>
<th>Country</th>
<th>Year of detection of salmonella in lobster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahamas</td>
<td>1993, 2003</td>
</tr>
<tr>
<td>Belize</td>
<td>2010</td>
</tr>
<tr>
<td>Location</td>
<td>Years</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>2006, 2010</td>
</tr>
<tr>
<td>Haiti</td>
<td>1999</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>1992</td>
</tr>
<tr>
<td>Panama</td>
<td>2004</td>
</tr>
</tbody>
</table>

Table 7.1: Detection of salmonella by the FDA in lobster imported into the United States.
Source: Author based on data from the FDA: http://www.accessdata.fda.gov/cms_ia/importalert_49.html

The FDA can hold the lobster up to 20 days for inspection. Importers and processors criticize the costs involved in having to store the lobster in freezers for this period of time. It needs to be kept frozen, and credit is locked and cannot be used for other purchases. Who is responsible for these costs depends on the agreement made between importer and processor (and on whether the product has already been paid in advance). As a consequence, importers often divide shipments on paper into smaller batches. This way, if one part of the shipment is inspected, the other batches in the same container will go through.

Once cleared by the FDA, the product is stored in big freezer warehouses until it is sold in smaller quantities to retailers. This storing is commonly known as “parking.” These freezer warehouses are public cold storages (operated by companies such as Preferred Freezer Services, US Cold Storage, Americold, and others), but some large importers will have their own freezers and do not need to rent space from freezer services. The importers will then distribute the product to various parties: retailers, the military, fish markets, cruise ships, club stores, and restaurant chains; but also to international destinations, such as Australia, Asia and France.

Regarding food safety, the most common global standard is the seven-point Hazard Analysis Critical Control Point (HACCP) program, which seeks to eliminate microbiological hazards at various points in the food processing chain (Thorpe and Bennet 2001). This is a type of quality assurance that focuses on food safety and a system to identify hazards, establish controls and their effectiveness (Wickins and Lee 2002: 40). It focuses primarily on prevention rather than cure, and aims to make seafood handlers, rather than government agencies, responsible for food safety (Wickins and Lee 2002: 40). It is therefore an attribute that relates to the process and not to the product outcome. The processing plants in the Caribbean have to comply with the HACCP program in order to be able to export to the United States. The program provides instructions for the inspection of importers to verify that the products they offer for entry are obtained from foreign processors that are in compliance with the requirements of the Seafood HACCP Regulation. Under the HACCP system of controls, the importer and the foreign processor share the responsibility for seafood safety. Foreign processors that ship fish or seafood products to the US must operate in compliance with the Seafood HACCP Regulation (FDA 2010). In addition, importers are required to take steps to verify that their imported products are obtained from foreign processors that comply with the Seafood HACCP Regulation.

HACCP was introduced at the end of the 1990s in the lobster industry. A lobster importer stated that initially the whole HACCP procedure was regarded as “just talk.” After a
few years, however, when pretending to comply became even more demanding for the processing plants than actually complying would be, companies started to set up the procedures and to comply in good faith. While HACCP does not eliminate all risks, it does brings safety and quality benefits to the food processor, since it reduces the chance that inferior product will be marketed. In most cases, third parties will inspect processing plants to judge whether the HACCP procedures are being followed, but larger importers that frequently import large quantities will come down to the processing plant themselves to inspect the plant and carry out laboratory tests. A large importer such as Darden, for example, will come down to Belize for every shipment to check the quality of the product.

Quality flaws occur but will go unnoticed by the importer until complaints are made by end receivers. These complaints relate to such things as odor, flavor, discoloration, excessive levels of sulfate or chlorine, excessive glazing (and therefore low net contents). Quality and trust are therefore of great importance to the importer. As it is impossible to detect quality flaws while the product is in transit, it can only be discovered after the product has entered the United States. If there are quality problems, it can take months before an importer will retrieve his money from the producer. One importer confessed he had once lost USD 500,000 from a Brazilian exporter, as the product contained excessive sulfate levels and could not be sold.

In another case, processors did not fill the boxes with the full ten pounds, but only with nine pound. and twelve ounces (falling four ounces short). If an importer has purchased 1,000 Mt, he will face a heavy financial loss. Processors occasionally soak the lobster in a saline solution in order for to increase its weight to make more profits, while lobster tails are sometimes excessively glazed to increase their weight. These are small ways for the producer to make extra profits. Importers, on the other hand, will not detect this fraud until customers complain months later.

Although officially all processing plants in the Wider Caribbean exporting into the United States need to follow the same HACCP procedures, the quality of the product is still diverse. In some cases the quality can be so dreadful HACCP is at times referred to as “Have a Cup of Coffee and Pray.” Although processors all follow the same guidelines, the implementation can be insufficient. The costs involved in implementation imply a major entry barrier for new processors. Jamaica’s smaller processors are therefore said to have lower quality standards, as the costs to comply with HACCP are too large for small-scale producers to make a profit. Importers also complain of tails with “tar spots” (black discoloration of the shell). Melanosis, or blackspot, is a dark discoloration, which is unattractive to consumers and reduces the market value of crustaceans. Importers can also be wary of lobster with cracked shells, soft shells (from molting lobsters), or an unpleasant smell indicating decomposing lobster meat. Lobsters may have been soaked too long in a saline solution in order to increase their weight.

Differences in quality between countries, and between companies within a country, are not only due to product handling at the processing plant itself, but also handling prior to arrival at the plant. Regarding the essentials for product quality, one importer said: “It’s all

125 Interview A5: 5/08/2008
126 Interview A10: 14/03/2009
about *time* and *temperature.*” Time here refers to the time *before* a lobster is frozen, whereas the temperature refers to the use of ice or freezers on board fishing vessels. The quality of Nicaraguan and Belizean lobster tails is believed to be much higher than of Jamaican tails. Nevertheless, Belizean divers going out to sea for nine days at a time will in 90 percent of the cases bring chicken or beef along to cook on the trip, greatly enhancing chances of salmonella contamination. The fishers will store their lobster in the same ice-box, a matter which has gone unnoticed by the importers. It was not until 2010, however, that a salmonella case was confirmed by a processor in Belize (see Table 7.1). Even if Darden, for example, consider themselves safe because they buy from the other processing plant, fishers will switch between the two processing plants regularly. They might be a member of one cooperative, but in order to forgo paying off their debts, they will at times sell to the other cooperative. This shows that despite all the attempts to ensure the highest quality of product within the premises of the processing plants, many problems occur *before* the lobster actually reaches the processing plant.

Poor product handling can lead to marked price differences between the countries. In recent years, Jamaican processors have suffered from several salmonella cases, and importers regard product handling to be poor. As a result, the product receives a 20 percent lower price than Nicaraguan or Belizean tails. One importer stated “Jamaican quality is on the low side of one to ten.” Nicaraguan tails are alleged to be of high quality. Lobsters rarely spend a lot of time without ice and are frozen quickly. Processing facilities are regarded to be of high quality.

In Jamaica, quality of the product is often low because it has been kept in ice too long. In addition, they make use of blocks of ice, which means lobster (and fish) cannot be fully covered, diminishing the quality. Chipped or flaked ice, such as used in Belize by the divers, is the best. Small-scale trappers in Belize and Nicaragua often do not bring ice, as they will only kill the lobster once approaching the shore. After a number of salmonella cases in Jamaica, a Nicaraguan producer told me a Jamaican processor tried to sell him Jamaican lobster for a low price, so he could repack it as “Nicaraguan lobster” and therefore fetch a higher price. The Nicaraguan exporter claims he didn’t take the bait, as if there would be anything wrong with his shipment, nobody would want to do business with him anymore.

Besides the actual differences in quality, what is deemed to be quality to a large degree also concerns image. Until the recent economic downturn, Brazilian warm-water tails were classified as the “best quality” and received a USD 0.50 higher price at the international market than other warm-water tails. Even though their quality, according to importers, is not any better than lobster tails from other countries, their image is more favorable. The bacteria count of Nicaragua’s lobster, for example, has shown a bacteria level nearly seventeen times lower than that of Brazil. Nevertheless, the latter are perceived to be “the Coca-Cola brand among colas.” It was not until the economic crisis and the resulting diminishing demand that the price range narrowed. At the height of the crisis, prices were equal across the board, whereas as soon as prices were climbing again, lobster prices in Brazil were once again higher, by USD 0.20 cents per pound.

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127 Email 23 November 2009
7.5 The mysterious circle of lobster importers

As the Caribbean lobster (*Panulirus argus*) lacks the famous claws of its American cousin (*Homarus Americanus*), it is commonly sold as frozen tails, with few processing requirements. There is only a small live market in Asia, as well as in Mexico and the United States. The main market for warm-water lobster in the Caribbean is the United States, Japan, and the EU.

Belize, Nicaragua, and Jamaica mainly export lobster to the United States, and only a small percentage to the EU and Asia. Other lobster-producing countries, with a larger export, such as Bahamas and Cuba, for instance, export a greater percentage of their catch to Europe and Asia. As the main market for Belize, Nicaragua, and Jamaica is the US one, and to limit the scope of this research, this chapter will focus only on lobster importers in the United States.

Currently lobster imports into the United States represent 2.7 percent of all seafood imports (in value, including fresh and frozen seafood, as well as canned seafood). Lobster imports into the United States mainly come from Australia, Brazil, Bahamas, the United Arab Emirates, Nicaragua, and Honduras. Chapter 2 revealed that if you combine the volume of production of all lobster-producing countries in the Wider Caribbean Basin region, the region is clearly the largest exporter, supplying approximately 75 percent of all lobster imports (NOAA 2008).

In the United States there are approximately eleven major importers of Caribbean lobster tails (see Table 7.2). They will also often import lobster from other regions (Brazil, Australia, Oman, South Africa, etc.), and other seafood products, such as shrimp and fish. The importers are the first large-scale buyers that distribute the lobster tails in smaller amounts to, for example, retailers, the military, fish markets, cruise ships, club stores, and restaurant chains. However, some large restaurant chains, such as Darden (owner of the Red Lobster seafood chain), will also buy directly from the processing plants in the Caribbean.

<table>
<thead>
<tr>
<th>Top importers <em>Panulirus argus</em></th>
<th>Location</th>
<th>Countries origin lobster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atalanta</td>
<td>Miami, FL</td>
<td>Nicaragua</td>
</tr>
<tr>
<td>Beaver Street Fisheries</td>
<td>Jacksonville, FL</td>
<td>Bahamas, China, Mexico, Jamaica</td>
</tr>
<tr>
<td>Carlos Seafood</td>
<td>Miami, FL</td>
<td>Nicaragua</td>
</tr>
<tr>
<td>Casile</td>
<td>New York, NY</td>
<td>Honduras, Venezuela</td>
</tr>
<tr>
<td>Darik</td>
<td>Lake Success, NY</td>
<td>Brazil, Nicaragua, Panama</td>
</tr>
<tr>
<td>Dddi (Red Lobster)</td>
<td>Orlando, FL</td>
<td>Bahamas, Belize, Honduras, Jamaica</td>
</tr>
<tr>
<td>Empress</td>
<td>New Hyde Park, NY</td>
<td>Brazil, Chili, Honduras, Nicaragua, Peru</td>
</tr>
<tr>
<td>Lawrence (Ark)</td>
<td>Los Angeles, CA</td>
<td>Australia, Brazil, Namibia, South Africa</td>
</tr>
<tr>
<td>Mark Foods</td>
<td>New York, NY</td>
<td>Australia, Brazil, New Zealand, South Africa</td>
</tr>
<tr>
<td>Mazetta</td>
<td>Highland Park, IL</td>
<td>Bahamas, Brazil, Canada, Honduras, Unites States</td>
</tr>
<tr>
<td>Meridian</td>
<td>Miami, FL</td>
<td>Australia, Brazil, Honduras, Indonesia</td>
</tr>
</tbody>
</table>


129 2007 data taken from NOAA foreign trade data.
The list in Table 7.2 is, however, by no means exclusive. The eleven importers in the table represent the main buyers in the United States at the beginning of 2011, as established after discussion with importers in the United States. Nevertheless, this list can and does change over time. In a few interviews, importers discussed a number of up to 20 main importers.  

Compiling an exact list of importers in the United States is complex, as I found that 46 percent of the top 25 imports (in volume) into the United States of spiny lobster cannot be traced back to any particular company. They were listed anonymously under the heading “Order.” In addition, importers will at times import product under their brokers’ names, and some of the major importers will also often import under another name then their own. One of the top producers, Mark Foods, for instance, also imports under the name of Wells Fargo and Corenav LTD, while Meridian also imports as MPI Fisheries, Dddi as Challenge, and Lawrence as Ark.

| Pescanova | Coral Gables, FL | Nicaragua, Belize, Brazil, Nicaragua |

Table 7.2: Main Caribbean lobster importers into the United States (in alphabetical order).
Source: Author; based on data from Urner Barry and interviews

Fig. 7.6a: Alba Specialty Seafood in New York City, one of the main importers of spiny lobster in the United States (left).
Fig. 7.6b: American Lobster importer showing the variety of lobster his company sells at the Boston Seafood Show in March 2008 (right).
Source: Author

130 Unfortunately the official Urner Barry’s (UB) statistics gave no accurate answer as to the main lobster importers into the US. UB publishes an Insider’s “Quarterly Lobster Report” supplying a list of the “Top 25 Importers” of lobster (all species from all regions). They state the top importers, the volume they import in pounds, and the number of shipments. I used these lists to make a top 25 of lobster importers into the US, as UB reports it is “accurate and unbiased.” Nevertheless, I discovered it provides a complete false sense of security and accuracy. In all ten documents available (2008-2010) the importer called “Order” was the top importer. In fact, between 2008 and 2010 “Order” was responsible for importing 46 percent of all lobster imports by the top 25 producers over this period. As I had never heard of this company in all the years investigating the lobster trade I asked some insiders who this company was. He replied, “This is a way to make an entry into the United States without others knowing who the importer is in the U.S.”
The underlying reasons for this level of imprecise reporting are varied. An importer stated there was no apparent reason, but that it was rather: “Just the way one person or another decided to have the bill of lading printed. So it makes it difficult to draw conclusions.”\textsuperscript{131} Another stated it was: “Just a matter how the documents were prepared and bill of lading issued.”\textsuperscript{132} However, importers also believe it is due to secrecy amongst the importers. Yet importers at the same time also indicate they can usually tell who is buying the shipment, as the location of company, port of entry in the United States, and origin of product is listed. Or as one importer said: “Basically it gives a person like myself a general but pretty good idea who the players are.”\textsuperscript{133} For someone less of an insider, however, it is difficult to understand which companies are importing from where.

The level of secrecy surrounding the shipments from the Caribbean depends on the country concerned. In Belize and Jamaica, no shipments are found under “Order” (the anonymous heading), whereas in Nicaragua in 2008 lobster shipments under “Order” amounted to 78 percent of the volume. In 2009, the figure totaled 68 percent, while in 2010 it had fallen to 29 percent. The drop in shipments under “Order” was due to a Nicaraguan company losing shipments to the United States as a result of the crisis, while exporting more to the EU.\textsuperscript{134}

Importers’ buyers and retailers prefer certain lobster sizes over others. The 40-pound master boxes are all categorized by weight. Each box holds lobster tails of the same tail weight (e.g., 4 ounces, 5 ounces, etc., up to 24 ounces). Some customers prefer smaller sizes to larger ones. The five to eight-ounce lobster tails are the most commonly traded and preferred lobster tails. Although most lobster is exported as frozen tails of the same ounce weight in the ten-pound boxes mentioned above, sometimes lobsters are individually sealed (when requested by a buyer). As one importer puts it: “You can have them with a ribbon on every one, if that’s what you are willing to pay for.”

The work of importers is highly unpredictable and dynamic as many developments can occur between time of purchase and sales. The issues concern quality of the shipment, currency developments, and price developments. In-depth knowledge of these developments, and good relationships with processing plants in the Caribbean and buyers in the United States, are all of great importance. In addition, importers often work with lobsters from one region worldwide, as well as dealing in other types of seafood. Most importers I interviewed have been working in the lobster industry for a long time, often up to two or three decades. Whereas one had actually previously been a lobster fisher himself in South Africa, in other cases importers had just ended up in the industry by coincidence.

Importers make up a very competitive group that exhibits little cooperation. They will work together at times, if an importer is requested a lobster size he does not have in stock, for

\textsuperscript{131} Email 26 January 2011.
\textsuperscript{132} Email 27 January 2011.
\textsuperscript{133} Email 27 January 2011.
\textsuperscript{134} Other countries exporting large quantities of lobster in the Caribbean Basin under the anonymous heading “Order” are Brazil and Honduras. The Bahamas exports only a very small amount under “Order,” as do the Turks and Caicos Islands and the Dominican Republic. Nevertheless, Jamaica is suspected of exporting via other unofficial channels into the US, shipping the lobster directly to the US, without it passing through mainland Jamaica.
instance. As a consequence, he will have to call another importer and buy the product from him. However, they will rarely meet, except, for example, during seafood shows, and are very secretive about whom they trade with. As a group they never meet unless an international lobster meeting is held, such as was the case in 2006 and 2007. In 2006 (Mexico) and 2007 (Dominican Republic), meetings were held with several American importers to discuss sustainability issues surrounding the Caribbean lobster. Often importers were very reluctant to grant me interviews and give me information, as they feared I would disclose this to their competitors. Even if I told them all information would be confidential, they would still be reluctant to talk to me.

One importer checked what I had written down at the end of the interview, to ensure I hadn’t written down what he had specifically told me not to. Their main fear involves revealing the prices they pay their producers, which producers they work with, and “theft of producers.” As one importer said: “Everyone is always trying to screw each other in this business by stealing producers, by undercutting prices, taking over other buyers and so on.”

Prices are a major concern for importers, and none will disclose their profit margins; insiders, however, indicate profit margins will range between USD 0.25 and USD 0.50 per pound. A big importer who imports around 1.4 million pounds of lobster will therefore make profits of approximately USD 350,000-700,000 annually.

Illegal lobster trade

One of the challenges involved in combating the international illegal lobster trade lies in the variety of legislation regarding legal size limits, weight limits, and closed seasons. According to the American Lacey Act, imports into the United States are illegal of those products that in the country of origin are illegal to harvest, sell, or export. Nevertheless, importers and exporters find clever ways to circumvent these types of legislation. One of the main ways used until 2009 was to export lobster from a country with a larger size limit to one with a smaller size limit, prior to exporting the lobster to the United States. In Nicaragua, for example, the size limit is five ounces, while in Panama it is only two ounces (which is extremely low). Panama did not have much of a spiny lobster (P. argus) fishery, but was suddenly exporting large amounts of spiny lobster. El Salvador was also exporting a great deal of spiny lobster, while not even harboring a Caribbean spiny lobster population, as the country has no Caribbean coast.

The Environmental Crime Division of the National Oceanic Atmospheric Administration (NOAA) in the United States has been successful over the past fifteen years in influencing both management and chain actor behavior. The Lacey Act provided the necessary legislation up to February 2009 to prohibit the import of illegal sized lobster and/or berried females into the United States. The new legislation in the United States bans all imports of spiny lobster that does not meet current minimum size (3-inch carapace length or 5½-inch tail length) or weight (5-ounce tail weight) regulations in the United States.

The main culprits of illegal exports in the region are, according to the NOAA, Brazil, Honduras, Nicaragua, and the Dominican Republic. Between 2000 and 2010 the NOAA has

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135 Interview A12: 16/03/2009
136 Five ounces implies imports of tail weight from 4.5 ounces upwards. Only Belize is allowed to export with sizes from 4.3 ounces upwards.
had a number of large cases where they have charged foreign exporters as well as national importers for large-scale illegal lobster imports into the United States. In some instances it is packed between cases of legal sizes or sold as “head meat,” that is flesh that comes from the lobster’s head. In recent years the Environmental Crime Division of the National Oceanic Atmospheric Administration (NOAA) in the United States has caught a number of importers and producers importing undersized lobster (Miami Herald 13 June 2009). In some cases importers and producers have been sentenced to over eight years in prison and made to pay fines worth millions of dollars. NOAA revealed that 86 lobster shipments by the defendant were made into the United States involving illegal lobster from Nicaragua (over the period 1996-2001). This amounted to 192,680 pounds of undersized spiny lobster tails imported into the United States. Nicaraguan inspectors were being bribed to allow the shipments to pass. In July 2003, a man pleaded guilty of importing more than USD 2.8 million worth of undersized spiny lobster from Nicaragua into the United States. He was convicted and fined USD 250,000 and faced over five years in prison.

Ehrhardt (2006) believes that in Nicaragua the industrial fleet transfers the lobster at sea to export them to the United States. Illegal sized lobster tails of Nicaragua also end up in Mexico, Puerto Rico, the Dominican Republic, and even as far afield as Venezuela, Curacao and Aruba.

**Fig. 7.7: Invoice with illegal shipments (xx, xxx and xxxx ounces)**
Source: NOAA

The figure above (Fig. 7.7) shows an invoice that has been sent from a Honduran processing plant. Although it is officially illegal to harvest and export lobster tails smaller than five ounces, the two, three and four-ounce tails are marked in the boxes as xx, xxx, and xxxx. Sometimes they are also passed off as eleven ounces. Only those knowledgeable in the fishery know that above ten ounces no single-size ounces are shipped, but only pairs of sizes (10-12, etc.). False labeling is a problem throughout the industry and affects the resource’s sustainability. A special agent from the NOAA explained:

Pack the undersized in falsely labeled boxes and put those boxes in the back of a container. Few inspectors want to dig that deep into a frozen 40,000 lbs container. Egg-bearers pose an additional problem because you really
have to handle each frozen tail, run them under water to loosen up the pleopods, and inspect for clipped. Not easy and time consuming for busy CBP inspectors who are focused on drugs and other high profile issues.

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Fig. 7.8: Seized lobster is sorted, measured, and inspected by US officials. 
Source: NOAA

Fig. 7.9: Illegal lobster shipments by a Nicaraguan company.
Source: NOAA

Figure 7.9 shows the illegal lobster imports from a Nicaraguan company as filed by the NOAA. It has listed all the sizes and volumes of the illegal shipment and the charges this company faces. In relation to my question on whether the lobster poaching had increased or decreased over the last few years (prior to 2011) the NOAA agent replied:

My perspective as an NOAA agent is that the lobster poaching for undersized and egg-bearers is status quo (i.e. harvesters take everything they catch… both divers and trappers). It’s just cash in hand. Stripped egg-bearers go undetected for the most part. There are always processing plants that will buy the illegal sized and clipped. It’s

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137 Pleopods are known as swimmerets and are primarily swimming legs, but also used for brooding the eggs, as well as catching food and sweeping it to the mouth.

138 Customs & Border Patrol

139 Email 14 November 2011
always a supply and demand issue. Ultimately, the lobster industry is going to have to put a stop to it and start funding poor countries to enforce their existing laws.  

The NOAA has special agents working on Environmental Crime who have been successful in intercepting some of the illegal shipments. However, they say they know that what they catch is only the tip of the iceberg. One such special agent wrote me the following message after I had written I had interviewed several lobster importers at a meeting.

A quick word of advice. The buyers you’re dealin [sic] with (X…and X…) are as dirty as scum regarding undersized lobster imports, changing the identity of fish, conspiracies, etc). Just be aware of that when you’re talking with them. Don’t fall for their shit. That is the side of the U.S. industry that drives developing countries to poach. Can’t put much blame on a shoeless lobster diver trying to feed his family (or drug habit), but I sure as hell can put the blame on the rich U.S. importers who pretend to claim they’re above it all (or worse yet claim they support conservation measures when in reality they are doing everything possible to circumvent the effort). When we get some time, we’re putting those 2 companies under the microscope and we’ll see how much hurtin [sic] we can cause.

Although the new legislation might make it easier to prosecute importers and processors it has also resulted in a re-routing of smaller lobster. All interviewees indicated smaller sizes previously illegally imported into the United States will now be exported to other countries, mostly to Mexico. Ehrhardt (2006) concludes that some countries have developed sophisticated markets (e.g., Chinese restaurants) to dispose the very large quantities of illegal sized lobsters landed throughout the region.

7.6 The effects of the economic crisis on the lobster value chain

The financial crisis of 2007-2009 has had a profound effect on the entire lobster value chain. The rapid decline in prices of lobster in the United States, accompanied by the drop in international demand, has affected relationships within the chain, between processors and importers in the United States as well as between fishers and domestic processors. However, the extent of these changes is quite different in Belize, Nicaragua, and Jamaica.

As the financial crisis hit North America, consumer demand for lobster dropped, as consumers opted for cheaper seafood products, or reduced their seafood consumption. The recession decimated American consumer spending, particularly at high-end restaurants where lobster commands premium prices. The restaurant performance index showed that restaurant have shown steeply declining rates since mid-2007, with very poor performances during all of 2008. The foodservice industry was particularly hard hit by the economic recession as it is the main user of higher-value seafood items like lobster tail, snow crab, cod, halibut, etc. Thus while the higher segment of the market suffered from decline in demand, the cheaper species such as pollock, tilapia, and salmon benefited from the trading down in seafood.

Restaurants sold fewer expensive meals, white tablecloth and casual dining restaurants reported declines in traffic, while quick-service restaurants were benefitting. Demand for

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140 Email 14 November 2011
141 Email 27 May 2008
lobster dropped dramatically. Prior to the economic crisis prices had become very high, but now they quickly dropped drastically.

Figure 7.10 shows price developments of different lobsters in the United States between 1998 and 2011. The large discrepancies in prices between the different lobsters is the result of the type of lobster, image, demand, and the way it is packed (whole clawed lobster from the United States versus tails from the Caribbean). The price differences between American lobster and lobster from the Caribbean, Brazil, Australia, and South Africa are striking. Cuba mostly exports whole lobsters, whereas Mexico and Bahamas also export part of their catch as live lobster; commonly only the tail is exported throughout the region. In Belize, Jamaica, and Nicaragua usually only the tail is exported. As the tail is pure flesh, the price per pound is higher than that of American whole lobster.\textsuperscript{143}

The graph shows the South African and Australian lobster prices per pound are the highest of all regions. In 2010, Australian lobster cost nearly USD 34 per pound, and therefore was the most expensive lobster per pound in the world. The data for South African lobster after 2008 and for Australian lobster after 2010 are missing because imports into the United States had become minimal; the market for these products has shifted to the Asia where consumers are willing to pay the high prices.

![Prices of lobster (imports) in the USA from various regions per lb. of lobster](#)

**Fig. 7.10:** Lobster prices of various regions in the United States at the importer level between 1998-2011. Source: Urner Barry, compiled by author.

According to Urner Barry’s *Seafood Price-Current* (19 November 2009), prices of Caribbean tails dropped from USD 21-22 per pound in 2007 to USD 13.50 in December 2008. In the United States, importers were facing severe difficulties buying lobsters, as their financial situation had worsened because of the crisis. Many importers working with

\textsuperscript{143} Removing the tail from the lobster’s body generally is carried out by twisting the tail off the lobster’s carapace. This is usually done with a knife, but also at times without one. The point of the knife is inserted at an angle under the carapace while the animal is being rotated to help make a clean separation of the tail from the rest of the body. One of the lobster’s antennae is in turn used to jam right through the anus with a jabbing motion that enables the fishers to take the lobster’s intestines out easily (King 1999).
Caribbean lobster also work with Maine lobster. Traditionally, around 70-80 percent of Maine lobsters are sold to Canadian processors. US lobster exports grew by 245 percent in terms of value during 1992-2005, due to increased sales to Canada and the European Union. Canada is the largest market for the US lobsters, accounting for 48 percent of export sales. Most US exports to Canada are processed and then sent back to the US market for domestic consumption or to be exported to other countries. Sales to the EU, the largest consumer market for US lobster, accounted for 43 percent of the exports.

However, many Canadian processors had to shut down and virtually stop buying, as they ran short on credit. This was the result of the collapse of the Icelandic bank which had previously financed the Canadian processors. Many importers in the United States were facing identical issues, as banks were reluctant to supply them with money to buy lobster. The fall of the Icelandic bank created financial difficulties for Canadian processors and thus created a domino effect for US lobster traders. In combination with declining demand from US customers for lobsters, Caribbean lobster prices dropped.

The high lobster prices prior to the crisis had resulted in restaurants taking lobster off the menu. Now that prices dropped it took some time before restaurants either put lobster back on the menu or incorporated the new prices. The price decline per plate was initially minimal, so restaurants patiently waited until the price difference was more substantial. If the lobster price per pound declined by USD 5, with tails weighing six ounces this meant a plate would only be USD 2 cheaper. Restaurants were at first reluctant to change their whole menus for such minor differences. After time, however, the steep downfall in prices led to the reintroduction of lobster on the menus (Tsekelis and McCarron). As demand was low, international buyers refrained from putting in large orders and inventory piled up in the seafood warehouses. By August 2008 a lobster importer in the United States confessed to me, “I don’t need any more lobster,” and “We are sick of lobster.”

The importers themselves appear to have exacerbated the situation by paying the lowest price possible combined with the abundant supply. One importer wrote to me: “[A]s soon as there is 1 lb. too many this market will decline. The quality of importers here in the U.S. are weak they are afraid to lose one sale for 5 cents. This will set a spiral down.” In another email an importer stated:

West Australian is a perfect example. Since last summer the prices have dropped from over 30.00 per lb to nearly 16.00. When the season opened in Nov the catch was good and the 1st thing several importer did was cut and run with no interest to maintain the market if an importer was able to make a purchase at a lower price he just sold lower. As a result 6-8 oz lobster were near 24.00 per lb in November and by Christmas down to 21.00 by Feb 1st prices were driven down to 16.50 with anticipation of going even lower….The demand for the restaurants never changed during this whole time nor did there menu price (…)

A few restaurant chains followed yet another strategy, promoting inexpensive lobster during the summer of 2009, some introducing the item to their menu for the first time (Seafood News, 14 August 2009). Some chains, such as Panera, Pizzeria Uno, Outback, Bugaboo Creek Steak House, and D’Angelo’s added lobster to their menus. They took

144 Email 4 March 2010.
145 Email 11 May 2009.
advantage of the low lobster prices and promoted inexpensive lobster during the summer of 2009.

In fact, history repeated itself as lobster became so abundant and so cheap that a trade website reported: “Lobster is so cheap these days it costs less per pound than hot dogs” (seafoodnews 14 August 2009). The retail sector took advantage of the lower prices and promoted sales of cheap lobster. The unrest of the fishers lasted until the summer of 2009 when prices slowly began to rise again.

Prior to the crisis, producers in the Caribbean Basin were in a strong position vis-à-vis US importers, as high demand for lobster strengthened their negotiating power. Previously importers needed “to tie” suppliers otherwise they might turn to another importer. Importers therefore provided substantial advance credit for shipments at the beginning of the lobster season and at face-to-face meetings in order for processors to be able to invest in a large amount of traps. It was easier for producers to change importers than it was for importers to find producers that would supply them with lobster. At seafood trade meetings, importers would shower their producers with expensive dinners and meetings. This dependency, however, also reduced producers’ ability to switch to other importers.

After prices declined, importers stopped supplying cash advances and only paid after the product had been cleared by US customs. Processors who had had more of an arm’s length relationship with importers were no longer able to obtain advances to buy equipment at the start of the season. Both processors and importers suffered cash flow problems as freezer warehouses in the United States remained full. Having three to five containers of lobster tails “parked” in a freezer warehouse meant having USD 4 million tied up, which could not be used to fish or to trade lobster. In some instances producers had to stop buying lobster or dock their industrial fleet. Whereas the closed season had been used by importers to unload their inventory in order to start buying “fresh” product when the next season opened, in 2009 one importer commented: “Just waiting for the season to open there is still last season’s inventory for sale from just about every Caribbean country.”

Producers became desperate to sell their product, even at the lowest of prices. In Nicaragua alone, in the summer of 2008, lobster stock worth USD 5 million was sitting unsold in the domestic warehouses of processing plants. Their dominant position quickly evaporated and smaller importers who had previously been unable to buy lobster directly because producers were tied by “advances” could now more easily buy from a variety of producers. As the US market collapsed, some processors tried to diversify to European or Asian countries. Entry barriers to EU markets are considerable, however, and access is difficult to achieve. The high investments necessary to meet the strict EU standards proved onerous for processing plants suffering cash flow problems. Moreover, the long distance and costly transportation to Europe placed them at a disadvantage. Container ships to the United States take ten to fourteen days at most to get there, while shipping to the EU can take up to five weeks. For these extra three weeks, producers will have to pay more for keeping the product frozen, as well as shelling out extra costs for the longer freight periods.

147 Email 11 May 2009.
The Asian market, which may be more accessible, is mainly interested in live lobster, which requires high investments and technological expertise. Cuba is one of the largest Caribbean live lobster producers, and a major part of their catch goes to the Asian market. As their fishery is tightly controlled and the quality high, it is difficult for other producers to compete with Cuba. The export of live lobster is very difficult and requires high investments due to the difficulty of keeping the lobster stored after capture and during travel over land and sea. Upgrading lobster is also complicated as upgrading frozen tails is hard to do.

Before the economic crisis, only one of the twelve existing Nicaraguan processing plants was able to export to the EU market. Meeting EU standards requires high investments, as procedure compliance goes beyond the HACCP program necessary to have product enter the EU. Producers with a large unsold inventory have little capital to invest in such programs. As the quality of Jamaican lobster is so low, access to EU markets is very complicated. In Belize, one of the processing plants attempted to export to the EU, but prices were too low to overcome the high costs of sea shipping.

The crisis put three processors out of business in Nicaragua, giving the remaining ones some breathing space. They have been able to process more lobster, but even they have had to dock a large part of their industrial fleet and sometimes had to close their plants for a few months. They also had to limit the industrial fleet. This because the processors often own the industrial fleets and their cash flow was too limited. The plants would have to invest in paying for the fuel up front, supplying the crew with food, and investing in new traps and buoys. In addition, at times some producers have had to close down their plants for a month or two as they did not have the capital to buy more lobster with all their capital tied up. Nevertheless, by 2010 one Nicaraguan importer had improved his quality standards to such an extent that he is now able to export 90 percent of his product to the EU. As he had sold to the EU in previous years, but lost his license due to some quality and safety issues, he did not have to invest heavily. He does export, however, via his importer in the United States.

Fishers in Belize, Nicaragua, and Jamaica all suffered from declining prices due to the economic crisis, as fishers received USD 3-5 less per pound. As lobster prices dropped while those for fuel increased, fishing became made no profit at times. The economic crisis has decreased the availability of credit for fishers, as everyone’s margin has diminished. Furthermore, while small-scale fishers increasingly turned to intermediaries to get credit, they often sold their catch to other vendors in order not to have to pay their outstanding debts. Intermediaries therefore raised their margins, paying lower prices to the fishers. In Nicaragua, low prices have caused strikes among the fishers, though they were unsuccessful in negotiating better prices. On the contrary, at times processors were financially unable to buy lobster at all. In some places the closed season was extended, preventing fishers from making money. One importer wrote to me after a visit to a processing plant in Brazil: “I just returned from Brazil they are closing season down 1 month early due to poor exchange and low prices. Hoping to see market improve in 2010.” A processor confessed he was happy the fishers were striking because this way he didn’t have to buy their lobster.

\[148\text{ Email 2 November 2010.}\]
\[149\text{ Email 15 December 2009}\]
The impacts of the crisis on the two exporting fishing cooperatives in Belize are diverse. One cooperative which had a long-term contractual relationship with a US importer whose prices were linked to Urner Barry’s index suffered less from the price collapse, and its second payment was accordingly higher. The other cooperative’s second payment, however, was very low as it had “looser” relationships with several importers. This cooperative was unable to sell a large part of its inventory, with the remainder sold only at very low prices. Fishers therefore moved en masse from the latter cooperative to the former. Contrary to what might be expected, more people turned to fishing in Belize rather than fewer. The number of fishers increased by 20 percent between 2008 and 2009.

In Jamaica, prices dropped even more than in Belize and Nicaragua. Prices received by processing plants are around USD 2.50 to USD 2.75 lower there than in Nicaragua and Belize. In Jamaica, too, more people have entered the fishery to escape declining economic opportunities in other sectors. The industrial fishery has dwindled since 2008, and exports have diminished, but no processing plants have had to dock their boats.

The Nicaraguan government provided no support in the form of concessionary finance for processors or income support to small-scale fishers. As the foreign exchange generated by the lobster fishery has diminished because of decreasing export and prices, while financial aid has been cut short because of charges of misuse of donor money by the Minister of Fisheries (INPESCA), the government does not have the financial means to support either the fishers or processing plants.

Neither has the Belize government come to the rescue of fishers or cooperatives, despite the decline in prices. The “second payment” which the cooperatives pay to the fishers was much lower than in previous years due to the crisis, resulting in lower reserves for fishers. Fishers or cooperatives did not receive any subsidies or benefits before the economic crisis and the state has not changed this. As one state official said: “They [fishers and cooperatives] are on their own.” As stated above, contrary to what might be expected, more people turned to fishing in Belize rather than fewer, and in 2009 3,100 fishers were registered compared to 2,600 in 2008. No strikes were reported and the fishery can be regarded as an escape valve for people losing jobs in other economic areas.

New regulations in Jamaica prohibited intermediaries from storing lobster in freezers during the closed season, affecting demand, and as prices declined fishers had access to even...
smaller amounts of credit for fuel and equipment. While in the past the Jamaican government awarded fishers and processors an exemption from the general consumption tax on fishing equipment and a small subsidy on marine outboard fuel, these fiscal privileges were withdrawn as of 1 December 2009.\(^\text{150}\)

**Conclusions**

This chapter has analyzed the structure and market governance of the lobster chain from intermediary level to importer level in the United States. First, I conclude that the three countries’ lobster chains have a number of common features. Producing lobsters for world markets, the Caribbean fishers, intermediaries, and processing plants are inserted in global value chains that connect them upwards to foreign buyers.

Within one country the type of intermediary can vary: in terms professionalism and magnitude of the enterprise, level of investments, and in the relationship between fishers and intermediary. In Belize, the intermediaries are by definition illegal, but found everywhere nonetheless. In Jamaica, fishers always make use of intermediaries. These are less formal intermediaries than the *acopios* in Nicaragua, but mostly above the level of “bucket ladies,” although similar female traders also exist in Jamaica. In Nicaragua, the majority of fishers make use of intermediaries. There are low-entry barrier “bucket ladies” but a large part of the lobster is sold through more legalized forms of intermediaries, such as *acopios*. Although one could argue that most fishers are encapsulated by their relation with intermediary, this is not always the case. Fishers also benefit from this relationship, as they depend on the intermediaries for credit for fuel, food, and gear.

In Belize, only two processing plants—organized as fishing cooperatives—exist. In Jamaica, there are many, smaller processing plants, which are often illegal, although a number of legal processing plants also exist. As the quality of the product is lower, the entry barrier is lower than in Nicaragua. In Nicaragua, the entry barrier for processing plants is very high due to the high levels of capital and technological investments required.

Jamaica is the only country of the three where there is a large domestic tourist market for lobster. A large part of the lobster harvest thus ends up in the hospitality sector. In Belize and Nicaragua, the majority is sold to the international lobster market, such as the United States. The frozen lobster tails arrive in similar fashion in the United States. Processing plants exporting to the United States all have to meet similar food safety standards which require adhering to strict handling procedures. As quality is not easily observable, trust plays an important role in producers’ relationships with importers, while it is also reinforced through credit advances. Investments in processing plants as a result of the mandatory compliance with HACCP are very high for all companies concerned, and the technical expertise needed is crucial in creating high entry barriers for processing firms. HACCP regulation requirements set by the international importers dictate the processing requirements for local processors. Yet, the strictness through which these regulations are followed and the handling of the product, prior to the lobsters’ arrival at the processing plant, differs greatly between the three countries. Significant quality differences can be observed between the three countries.

The quality of Belizean lobster is generally good, although recently, in 2010 a salmonella case was detected. Although the handling of the product at the fishing cooperative

\(^{150}\) Interview C16: 13/12/2009
level is good, prior to its arrival, salmonella contamination is possible on the diving boat because chicken and lobster are mixed in the ice-hold. The quality of the Jamaican product is extremely poor in comparison to the other two countries, and frequent salmonella cases are reported. The product is not properly cooled or frozen, and its journey is often long prior to its arrival at the processing plant. Nicaragua’s lobster tails are of high quality due to good handling procedures both at the processing plant as well as prior to arrival there.

Many differences in quality of the product are thus due to the issues related to “time and temperature” of the product before processing. Most quality inspection takes place at the level of processing plants, while the lower levels are mostly forgotten or ignored. The recent numerous cases of salmonella in Jamaica and other countries, as well as in Belize, show that it is more likely that quality problems arise at the level of fishers or intermediaries than through lack of control. In Jamaica, the gap between requirements for the domestic market and the international market is wide. Quality improvements would require a much higher degree of monitoring and control by intermediaries.

<table>
<thead>
<tr>
<th>Structure</th>
<th>BELIZE</th>
<th>JAMAICA</th>
<th>NICARAGUA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input/output structure</td>
<td>Mostly destined for the export market, although a part also destined for tourist market</td>
<td>Only part is destined for national export (exact extent unknown but believed to be 40%); large part designated for national tourist industry</td>
<td>Nearly all exported</td>
</tr>
<tr>
<td>Chain actors</td>
<td>Intermediaries: entry barrier medium; acting as such is illegal so you cannot set up a formal organization to act as a middleman; processors: entry barrier is high; there are only two exporting processors allowed (the fishing cooperatives)</td>
<td>Intermediaries: relatively high entry barrier; you need capital to bind fishers and stock up on lobster; processors: capital-intensive yet still often small-scale processing so medium level entry barrier</td>
<td>Intermediaries: varies greatly between “bucket ladies” and official intermediaries; most lobster considered to go through the more formal intermediaries channels, requiring medium-high investments; processors: entry barrier extremely high (large capital investments, know-how)</td>
</tr>
<tr>
<td>Export rules and practices</td>
<td>Processing in hands of fishing cooperatives</td>
<td>Processing in hands of many small (some illegal) exporters; only few larger official exporters</td>
<td>Approximately ten large processing plants; perhaps even less as some are owned by same owner</td>
</tr>
<tr>
<td>Quality standards and practices</td>
<td>Quality is good although one case of salmonella has recently been detected; divers mixing chicken with lobster onboard in ice-hold potential hazard</td>
<td>Quality is poor</td>
<td>Quality is excellent</td>
</tr>
</tbody>
</table>

| Market governance | | | |

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Table 7.3: Lobster chain features of Belize, Jamaica, and Nicaragua summarized.

<table>
<thead>
<tr>
<th>Dependency</th>
<th>Intermediaries mostly independent; one cooperative has strong ties with international importers; other cooperative has weak and constantly changing ties</th>
<th>Fishers highly dependent on intermediaries; processing plants are small with weak ties</th>
<th>Unofficial intermediaries weak ties; official intermediaries strong ties; processing plant strong ties with importers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact economic crisis</td>
<td>Low impact of crisis on the cooperative with strong ties with importers; high impact for the cooperative with weak ties with importers</td>
<td>Medium impact (less ties to global market)</td>
<td>High impact; riots by fishers and three processors went out of business</td>
</tr>
<tr>
<td>Support of the government during economic crisis</td>
<td>None</td>
<td>None, even limiting previous support by government</td>
<td>None</td>
</tr>
</tbody>
</table>

When we look at the distribution of benefits throughout the chain, these cannot be observed by merely looking at what value is added along the chain from harvest to consumers. A fisher might end up with USD 5 per pound. After all deductions have been made—a middleman USD 0.50, a processing plant in Nicaragua USD 3, and the American importer USD 0.25 to USD 0.50 per pound—this doesn’t mean the fisher makes the largest profit, as this depends on the volume. A fisher might sell 70 pounds per week (USD 350), an acopio owner 300 pounds a day, making USD 150 a day gross, while a processing plant might sell 300,000 pounds per month during the eight-month season, and make USD 900,000 gross. An importer, on the other hand, might import USD 750,000 per year (based on an import volume of 1.5 million pounds and profit of USD 0.50 per pound) in the products he trades in.

Illegal harvesting of lobster and fish products is high in all three countries, but particularly so in Jamaica and Nicaragua. Legal and illegal lobster trade is intertwined throughout the region and takes place at the national and international level. This is carried out by both small-scale fishers and industrial fishers (in the case of Jamaica and Nicaragua). In Nicaragua, large-scale involvement of large processing companies in illegal lobster shipments has been observed. The scale of illegal catchments and shipments of undersized lobsters in Nicaragua is enormous. Although several cases have been prosecuted by the NOAA in the United States, illegal shipments are still expected to take place on a large scale.

Prior to the crisis, the lobster chain showed more characteristics of a producer-driven chain, yet at the height of the crisis as well as during its aftermath, the chain appeared to be a trader-driven chain. Although the American importers are of major importance, local producers also hold a very important position. Yet this does not imply that small-scale local producers exert major influence over the chain. This only occurs at the level of the processing plants, as these are large and usually technologically very advanced industries, with high capital investments.

To call it a “producer-driven” chain might be too broad a claim in this particular case, but the chain tends more towards “producer-driven” than “buyer-driven.” Nevertheless, we have to keep in mind that we are talking of processing plants in the South, with very high levels of capital investment, extensive technological expertise, and often a broad international
network. If times are good, these processing plants’ representatives will visit seafood shows in Boston and dine luxuriously with their importers. The whole definition of “Southern producers” therefore needs to be redefined in this context. We are not talking about “producers” who are fishers or intermediaries, but rather highly sophisticated processing plants, located in developing countries, and owned by local nationals. Only in Belize, where the processing facilities are in the hands of fishing cooperatives, do fishers as a result wield power in the chain. Importers do not hold complete control over the spatially dispersed value chains, such as is observed in other types of value chains.

The economic crisis of recent years has led to significant changes. It can be concluded that significant changes have taken place in the relationships between the producers and importers in all countries. Producers with less stringent ties to importers have a harder time surviving than those who have strong and stable ties with suppliers. In Nicaragua, the producers appear to be hit the hardest, as three out twelve producers went out of business, whereas in Belize as well as in Jamaica exporters are still in operation. In Belize, this might be due to the fact that it’s a multi-species fishery, whereby the processing plant does not only process lobster, but also fish and conch. These two products have been less hard-hit by the crisis and can therefore allow the plant to survive. In Jamaica, the producers are still in operation but to a lesser extent. Fewer industrial licenses have been issued in 2009 and 2010 due to the economic crisis. The crisis revealed the major dynamics in the lobster chain. Dependency relationships between the various actors involved have changed, yet the impacts differed substantially between the three countries.
Chapter 8 Conclusions

Introduction

Globalization has strongly affected seafood markets throughout the world. This is particularly true for the lobster fisheries of the Wider Caribbean region, which are the topic of this thesis. Commercial harvest of lobster in this region was very limited until the 1950s and 1960s, when international demand from the United States stimulated commercial lobster fisheries. Fishers have greatly increased lobster harvest in the region and have become more and more connected with world markets. This thesis has demonstrated that lobster fisheries currently provide extensive livelihood opportunities and generate massive foreign exchange and tax income for national governments in the Caribbean.

However, the extent to which the fish trade actually provides potential for developing countries to reduce poverty and stimulate local development remains is still being hotly debated (Béné et al. 2010, Wade 2004; Edwards 2006; Kalb et al. 2004; Basu 2006; Thorpe and Bennett 2004). This thesis centers on this topic and analyzes the relationship between the development of lobster fisheries and the well-being of lobster fishers. It has been investigated through three contrasting country case studies, in Belize, Jamaica, and Nicaragua. For this research I have made use of three concepts and theoretical angles: governance, global value chain analysis, and well-being.

Although the three countries are located in the same region, their political, social, and economic development show substantial variation. As a result, the fisheries governance style (Kooiman et al. 2005) was also expected to vary. These governance styles will impact the lobster chain and the ability of fishers to achieve well-being. Following suggestions in the literature, certain governance styles could favor the achievement of well-being, whereas others might hamper fishers’ ability to achieve high levels of well-being.

The functioning of Global Value Chains (GVC) is also expected to influence producers’ ability to achieve well-being (Gereffi et al. 2005). Many GVC analyses have been carried out on agricultural primary food products such as cocoa, coffee, tea, and fruit. Yet these studies have often focused on one particular chain (e.g., the Nile perch from Lake Victoria; Henson and Mitullah 2004; Thorpe and Bennet 2004). This is the first study in the field of fisheries that aims to compare three fisheries of a similar product in a single geographical region.

And finally, I have also made use of the well-being approach. Well-being is a concept common to the social sciences, and has become popular over the last decade in academia, as well as in policy circles (Gough et al. 2007, White and Ellison 2007, Coulthard et al. 2011). Although the concept is frequently tied to financial status, the term is broader than just economic or material well-being on their own, and includes relational and subjective elements that indicate how conditions are perceived by participants. This final chapter aims to answer the three subquestions and the central research question posed at the beginning of this dissertation. I will start with the three subquestions and then move to the central question.
8.1 Governance styles

Subquestion 1: What are the differences and similarities between the current governance arrangements in the three research locations?

Governance has become an important buzzword over the last decades. It refers generally to the development of governing styles in which boundaries between and within public, market, and civil society sectors have become blurred. The interaction between the state, market and civil society at multiple levels can be expected to vary as a result of socioeconomic and political trajectories; in other words, different historical developments will result in distinct governance styles. In Chapter 3, I have examined the different governance styles present in the three countries, largely leaving aspects of market governance to the chapter on value chains (Chapter 7). I follow the same procedure here, touching on market governance below, but discussing it more fully in the following section.

The debate in the fisheries literature on the governance styles that are most beneficial for both fishers and the ecosystem has grown in recent decades (Bavinck et al. 2005; Jentoft 2004; Hersoug 2004; Pomeroy, 2011). Kooiman et al. (2005) distinguish between three ideal typical governance styles: hierarchical, self-governance, and co-governance. The present research began with the premise that co-governance—which involves cooperation between state, civil society, and/or market parties—is the most beneficial style for improving the well-being of fishers (Hersoug 2004).

Figure 3.5 in Chapter 3 presents an overview of my conclusions with regard to governance styles in Belize, Jamaica, and Nicaragua. These are summarized again below. I have examined the lobster fisheries governance styles in the three countries by considering the development orientation of national states, the dominant domestic groups, and the orientation of the state towards the fishing sector. In addition, the state institutions, laws, and policies in place in each country and the stakeholder representation are discussed.

Before considering national differences in governance style, I investigated the international governance of lobster fisheries in the region. Lobster is a transboundary resource which faces severe challenges regarding overexploitation throughout the region. This calls for international cooperation, and several Regional Fisheries Organizations (RFOs) have become involved in lobster fisheries governance. However, none of these RFOs wield decision-making power. Therefore, in this research, national governance arrangements are considered to be most influential when considering differences in lobster fisheries governance.

Belize, Jamaica, and Nicaragua face a similar set of challenges with regard to lobster fisheries: an open-access situation, high levels of IUU fishing, and declining resources. To counter these problems all three governments have implemented a similar set of regulations: a closed season of at least three months, a minimum size for lobster to be harvested, and a prohibition on landing berried females and molting lobster. In Belize and Jamaica, Marine Protected Areas (MPAs) have been instituted as well to enhance sustainability of marine resources. Despite these similarities, the three country cases show important differences in lobster fisheries governance style.

There is no doubt that the Belizean lobster fishery is the most harmonious of the three, and closest to the ideal type of co-governance. In Belize, the central involvement of fishing cooperatives since the 1960s goes undisputed. The state has been pro-developmental and
supportive of the initiative by small-scale fishers in the 1960s to organize into cooperatives. These cooperatives act as intermediaries in the relationship between fishers and government.

Most importantly, the cooperatives were given exclusive rights over lobster export (and all other seafood) in the early 1960s. Only two fishing cooperatives are allowed export seafood products, and as the collectives of fishers are owners, all benefits derived from the fishery flow back to the fishers. The high export earnings have strengthened the cooperatives economically, translating into political strength and the determination to protect the privilege of export monopoly that they enjoy.

Examining the governance style of Jamaica’s lobster fishery, I concluded that the governance style is a combination of—defective—co-governance and hierarchical state governance. Although the government attempted to create and support strong fishing cooperatives from the start of the lobster fishery in the 1950s, many of these cooperatives are weak and lack market or decision-making power. The government has exercised important influence on the structure of the fishing fleet, however, licensing only a few industrial boats and maintaining a special focus on the small-scale fleet. Historically, lobster fishers have been supported by the state through subsidies on fuel, mesh wire, engines, and boats. In recent years these measures have, however, been curtailed. Government regulations on closed season, weight and size limits are relatively unsuccessful, as Illegal, Unreported and Unregulated (IUU) fishing is high and data collection poor. The lobster fishery is currently regarded to be overexploited (FAO 2007).

The interests of small-scale fishers are poorly represented in decision making in Jamaica. The government is the most influential factor in the policy process and the role of other actors is limited. A Fishery Advisory Board (FAB) has recently been established in order to aid decision making by the government. This FAB fails to involve all stakeholders and fishing cooperatives are not formally represented (although leaders of cooperatives are consulted informally by the government). Market organizations such as processing plants are also not represented in the FAB and have no official channel for influencing decision making. In recent years, NGOs have become more involved in fisheries governance and relations between state and NGOs have been formalized for management and enforcement of MPAs. Current lobster fisheries governance is thus one of hierarchical state governance although attempts have been made in recent years to move towards more inclusive co-governance.

The state governance style in Nicaragua is hierarchical; this does not, however, result in a very strong and forceful state. In fact, in many ways the state has a limited steering capacity in the lobster fishery, and market parties have filled this gap. Nicaragua is by far the poorest country of the three. Although the lobster fishery in Nicaragua has developed rapidly since the 1950s, it was negatively affected by the political turmoil that took place in the country. After 1990 the fishery once again gained prominence and export to the United States rapidly took off again. Large processing plants and industrial fleets owners have been very influential since the initiation of the lobster fishery in Nicaragua and the state has experienced difficulties withstanding pressure from these powerful interest groups. A small group of market actors is therefore able to influence decision making, leaving very little room for other stakeholders, such as fishing cooperatives and NGOs.

The Nicaraguan lobster fishery is severely overexploited, with extremely high levels of IUU fishing and illegal trade. International market parties and NGOs are currently
initiating cooperation with the Nicaraguan state and lobster industry to improve the sustainability of the resource, but to date these initiatives are still limited.

In sum, the three countries have experienced varied historical development trajectories that have left them with three distinct lobster fisheries governance styles. I have categorized the three governance styles as co-governance, a mixture between co-governance and hierarchical governance, and hierarchical governance. A self-governing governance style was not found in the three fisheries except at a very local level in Belize.

Although co-governance and hierarchical governance therefore characterize all three case study countries, there are many nuances. In Belize, several NGOs have played a clear role both in management and enforcement of MPAs for at least a decade. In Jamaica, only in recent years has a single NGO been supporting the government in the establishment and enforcement of an MPA. This thesis has clearly shown that the involvement of civil society actors such as fishing cooperatives clearly differs between the countries. In Belize, their involvement is highly formalized, with exclusive marketing powers and the ability to influence decision making, while in Jamaica leaders of fishing cooperatives (which only represent a very small portion of total number of fishers) are consulted but relationships are not formalized. The nuances are even more explicit in hierarchical governance. Although Jamaica and Nicaragua’s governance styles are both hierarchical, they are also very diverse. When considering the two styles in detail, one can see many differences with regard to the role of the state, NGOs, and market parties. For one, market parties in Jamaica are more or less absent from the decision-making process, whereas in Nicaragua they are very much involved in fisheries governance. In Nicaragua, NGOs are virtually absent in the decision-making process, whereas in Jamaica they are becoming increasingly important. Although Nicaragua’s hierarchical governance style involves cooperation between the state and powerful market parties, we have also seen that the state has limited powers. The state in Nicaragua has had particular difficulty in establishing and maintaining its authority over market parties.

In Jamaica, the state has not been able to exercise strong influence over the fishery, yet there are no large market parties to fill this gap. This has left a governance vacuum with a lot of room for illegal processors and high levels of illegal fishing. These processors are, however, not highly influential in decision making. The state in Jamaica has acknowledged its limited ability to steer lobster fisheries governance and has therefore been seeking a closer alliance with market parties and civil society.

All in all, it is clear that the centers of gravity in the interaction between state, market parties, and civil society vary significantly. One can observe differences with regards to the state’s steering ability in lobster fisheries governance, varying from nearly absent to highly influential. State objectives for the lobster fisheries in the three countries are different too (see Béné et al. 2010). The Nicaraguan state has clearly focused on creating a “wealth-based fishery” (World Bank 2008), while the Belizean state has a “welfare-based” fishery approach aimed at stimulating development and decreasing poverty. The Jamaican state had a “welfare-based” approach at the onset of the fishery, but it has developed into an intermediate stage which is neither a “welfare-based fishery,” nor a “wealth-based fishery.”
8.2 Value chains

Subquestion 2: What are the differences and similarities in the structure and dynamics of the lobster chain from the local to the international level in the three research locations?

Market governance has been presented in Chapter 7 by means of Global Value Chain (GVC) analysis. The GVC approach is useful for understanding how international fish trade provides benefits for fishers in developing countries. The approach addresses questions on the distribution of benefits and can provide direction for policy makers on participation of producers in the value chain. It can also help to diminish the gap between producers in developing countries and those further up the chain. We have noted that value chains may be driven by the producers or the buyers (Gerrefi 1994), the traders (Gibbon 2001), or by other types of inter-firm coordination (see Hendersen et al. 2002). These different modes are assumed to have a different impact on the distribution of benefits and the power relationships between those in the chain, and therefore play a role in what I have termed “market governance.” Market governance refers to governance within the value chain. (see Section 8.2 above).

In order to operationalize the concept of value chains, I have examined the structure and market governance of the lobster chains of the three countries from the local to the international levels. More specifically I have looked into the input-output structure, the chain actors, and quality standards and practices. Market governance of the chain was investigated by examining dependency relations, barriers to entry, and the impacts of the economic crisis. See Figure 7.3 in Chapter 7 for an overview of the results with regard to the three country studies.

My analysis has shown that the lobster chains in the three countries have a number of common features. They all produce lobsters for world markets (mainly for the United States, but also partly for the European market). As a result, Caribbean fishers, intermediaries, and processing plants are all inserted in global value chains that connect them “upwards” with foreign buyers. Regarding chain actors, one can conclude that in all three countries intermediaries, processing plants, and international importers play roles. Strict handling procedures and food safety standards are in place for all countries at the level of the processing plants. However, within any one country the fishers, intermediaries, and processing plants vary in professionalism, magnitude of the enterprises, levels of investment, as well as interrelationships.

In Belize, the principal chain actors are fishers and fishing cooperatives. Fishing cooperatives are the only agents able to export seafood, and fishers are formally not allowed to sell through intermediaries. Although intermediaries are officially illegal in Belize, sale of lobsters through intermediaries does occur. In Jamaica, the chain is characterized by a multitude of actors between fishers and the end consumer. The latter can be located in another country (served via intermediaries, processing plants, and international importers), or in the local tourist industry. Lobster fishers in this country frequently make use of intermediaries, as they are often based very far from the market and require help in obtaining fuel, credit, food, and even drinking water. In the Nicaraguan lobster fishery, the fishers generally make use of intermediaries who transfer the product to processing plants. These intermediaries differ in entry-level barriers, and scale of operation. Although one could argue that most fishers are
exploited by intermediaries, this relation is not necessarily one-sided. Fishers also benefit from the relationship in terms of credit for procuring fuel, food, and gear.

In Belize, there are only two processing plants, which are run by fishing cooperatives. In Jamaica, there are many smaller processing plants, which are frequently illegal. As the quality of the lobster in this country is inferior, the barrier to entry into processing is lower than in Nicaragua. This is also the case because they are smaller-scale and thus requires less capital and technological know-how, although they do export directly to the United States. In Nicaragua, the entry barrier for processing plants is very high due to the high level of capital and technological investment required.

Jamaica is the only country of the three where there is also a large tourist market for lobster at the national level; in Belize and Nicaragua the bulk is sold to the international lobster market. The frozen lobster tails from all three countries are exported in a similar fashion. Processing plants exporting to the United States all have to meet similar food safety standards which require strict handling and procedures. As quality is not easily discernible, trust plays an important role in exporters’ relationships with lobster importers. These relationships are reinforced by credit advances.

Although all processing plants require high investments as a result of the mandatory compliance with HACCP (Hazard Analysis and Critical Control Points) guidelines, there are significant quality differences between the three countries. These result from variations in the handling of the product before processing. Quality is highest in Nicaragua, followed by Belize, with Jamaica coming last. Illegal harvesting of lobster is high in all three countries, but particularly so in Jamaica and Nicaragua. The legal and illegal lobster trade are intertwined throughout the region, while various actors—national and international—are involved.

Prior to the financial crisis of 2008, the lobster chains in the region were largely producer-driven, with the local processing plants playing a dominant role. Yet at the height of the crisis, as well as during its aftermath, the chain appears to have reversed into a trader-driven chain in which importers have gained importance. The economic crisis that has taken place since 2008 has induced significant changes in lobster chains, particularly in the relationship between the processing plants and importers in all countries. Processing plants with feeble ties to importers have a harder time surviving than those with strong and stable ties. In Nicaragua, the processing plants appear to be hit the hardest, as three out twelve plants have gone out of business, whereas in both Belize and Jamaica processing plants are all still in operation. In Belize, this might be due to the fact that lobster fishers and processors also target fish and conch. These two products have been less hard-hit by the crisis and therefore enable the two processing plants to survive. In Jamaica, the processing plants are still in operation, but their operations have declined as a result of decreasing demand. The government has also issued fewer industrial licenses due to the economic crisis.

Most significantly, this research has shown that the dichotomy as described by Gereffi on buyer and producer-driven chains (1994), and later by Gibbon (2001) on trader-driven chains, is less useful in times of dynamic global change. It has also demonstrated that chains of an identical product to a similar end market can possess a remarkable diversity in actors and market governance modes. The GVC approach has rightly been criticized (Laven 2010) for neglecting heterogeneity of small-scale producers in the chain. My empirical data has
shown the large variety of fishing métiers present in the lobster chain, within countries, as well as between countries. My research suggest that, in order to improve the well-being of fishers participating in lobster value chains, more attention indeed has to be given to the variations that occur between the fishing métiers.

In spite of this criticism, the research has shown the GVC approach to be a very valuable tool in linking the different fishing métiers, intermediaries, processing plants, and final market actors in the United States and Europe. It has aided in understanding the structure and market governance of the chain. In addition, we have noted that differences in geographical and ecological circumstances in the three countries to a certain extent explain the variety in structure and market governance. Whether fishing grounds are located far offshore or in shallow inshore areas is a factor that helps shape value chains, as does the “richness” of lobster stocks.

I have concluded, however, that the GVC approach is only partially able to explain the differences that occur in chain structure. Examining the three lobster value chains with an identical product for a similar end market shows that differences in these chains need to be examined from a broader governance perspective, such as described in section 8.1 above. Dependency relationships between fishers and actors further up the chain, ownership of processing plants, either collectively by fishers or by large commercial parties, the presence of an industrial fleet, or the use of scuba gear, are all examples of chain differences that cannot be explained purely by value chain analysis.

For this research I have turned to a broader fisheries governance perspective to explain differences, as this provides room for a broader embedding of the fisheries sector within the interactions between state, market, and civil society. This context shapes the structure and market governance dimension of the chain. Although it is important to recognize that due to globalization such embedding is not immutable, it is also important to recognize that value chains will carry the societal embedding of the nation in which they operate. The GVC approach thus needs to take a broader governance perspective in which value chains are embedded. The interactive governance approach as described by Kooiman et al. (2005) can gain through the insights of the value chain approach as well. In Fish for Life by Kooiman et al. (2005), the fish chain is considered outside of the scope of governance. In addition, fish chains are described statically, with little attention for the dynamics of the chain, both in structure and in relation to market governance. This research has clearly shown the structure and market governance of value chains to be highly diverse and dynamic. Market governance should thus gain more attention within the fisheries governance approach.

8.3 Well-being

Subquestion 3: What are the differences and similarities in well-being of fishers in the three research locations?

In this research I have followed a three-dimensional view on well-being, distinguishing material well-being, relational well-being, and subjective well-being (McGregor 2008). Lobster fishers within and between countries can score differently across these dimensions. Figure 4.5 in Chapter 4, Figure 5.1 in Chapter 5, and Figure 6.3 in Chapter 6 present an overview of results on well-being with regard to the three case study countries.
The empirical data points to a large diversity of lobster fishers throughout the region. This heterogeneity is present within the three countries, but more extreme between the three countries. This heterogeneity has to do with differences in: working conditions; safety; single-species/multiple-species fishery; economic alternatives; trade relations and participation in decision-making; and job satisfaction.

In Belize, there is an important divide between divers and trap fishers, with trap fishers clearly possessing higher levels of well-being. The working conditions of trap fishers are relatively good; they leave early in the morning and return in the afternoon, thus making their absence away from home short. In addition, they often do not go out every day. Their working conditions are safe, as fishing grounds are all very shallow and close to shore. Although the capital investment is very high for the owners of boats and traps, crew members have no investment threshold. Trap fishers in this country are single-species fishers who only catch lobster, and as a consequence during the closed season they do not engage in fishing. They do have other economic alternatives during the closed season. Divers in Belize, on the other hand, leave for nine to ten-day fishing trips and are full-time fishers. They do not possess economic alternatives to fishing, but are multi-species fishers that also catch conch and finfish, and consequently continue fishing during the closed season for lobster. Divers work only as free-divers and they operate under safe working conditions. The shallow reefs and numerous keys and atolls also help fishers to work in a safe environment.

Both trap fishers and divers are generally satisfied with their jobs, as all scores fall above the midpoint. Fishers are generally positive towards the future of the fishery and most would advise a young person to enter the fishery. No industrial lobster fishing is allowed in Belize, making the fishery especially profitable for small-scale trappers and divers. Both categories of fishers sell their lobster in a cooperative system whereby fishers are actually owners of the cooperative and receive a second payment at the end of the fiscal year. As many fishers are members of the cooperatives, the remuneration can be high. In addition, fishers are able to receive extras through the cooperatives, a bonus for Christmas, and insurance in case of accidents or death. Fishers in this country usually work independently, yet from a marketing and political viewpoint they are well organized.

The Jamaican fishing sector, too, is largely made up of small-scale fishers. They are multi-species fishers working in both inshore and offshore areas. Fishers use one of the multiple types of gear present in the lobster fishery of Jamaica, involving trap fishers and divers (scuba, hookah, and free-diving). Some fishers operate close to shore and are day fishers, but most fishers will also fish in the offshore Pedro Bank and leave for five to six days at a time. The day fishers will sell their catch to different intermediaries. These fishers are not highly dependent on the intermediaries for credit and material.

The Pedro Bank fishers, on the other hand, are highly dependent on intermediaries. Intermediaries are crucial in the Jamaican lobster fishery. Fishers on the Pedro Key are not able to sell to anyone except for the traders that visit the area, and depend on them to bring them food supplies, drinking water, fuel, and ice. Yet intermediaries also depend on the fishers’ catch and need to procure as much fish and lobster as they can before their ice starts to melt. Fishers indicate they have long-term relationships with intermediaries, often lasting for many years. Fishers also have relationships with different intermediaries, with some for a longer period, and others for a much shorter period of time. Part of the lobster catch is sold to
the hospitality industry and part is sold to small processing plants that export lobster to the international market.

Fishers in Jamaica are multi-species fishers and are able to engage partly in economic activities. The remuneration is clearly higher in comparison to the minimum wage on the mainland, yet lower than the remuneration of lobster fishers in Belize, where all profits flow back to the fishers at the end of the fiscal year. Working conditions for the offshore fishers on the Pedro Keys are particularly bad. These fishers are generally absent for a large part of the year. The working conditions for fishers are low in comparison to the other two countries, as the occupation is dangerous due to the fishing grounds being so far from shore; they are also absent for a large part of the year. In addition, fishers on Pedro Bank have to live in very basic conditions. They often live separated from their family for years. Fishers live in very small, corrugated-iron dwellings, with no running water, electricity, or toilets. Fishers fishing at the Pedro Bank take high risks, as they hardly take any safety precautions and the fishing grounds are very distant.

However, fishers on the keys are able to make high profits from the fishery, and even though they may live in basic shed all year round, their wife and children might be living in a very nice, large concrete house on the mainland. Although historically the government in Jamaica has attempted to support fishing cooperatives, most of these initiatives have failed. Only six percent of the fishers are members of a fishing cooperative, and these cooperatives serve more as shops than as powerful economic groups that are able to influence the politics of fisheries governance. Yet representatives are asked by the government to give advice on the fishery. In general, however, it can be concluded fishers are poorly organized from a market perspective, with a poor bargaining position and little political strength.

The well-being among lobster fishers in Nicaragua varies significantly between the industrial fleet and small-scale fishers. It also varies between trap fishers and divers (both industrial and small-scale). Whereas some fishers are able to reap high benefits from the fishery in a region where few other economic alternatives exist, they also may face very unsafe working conditions. Small-scale trappers in Nicaragua are day fishers. Trap fishers often have taken out big loans for boat and traps. Trap fishers are often highly indebted to acopios or processing plants.

Trap fishers working on industrial ships engage in extremely hard work. Their remuneration from the fishery appears high, but not when considering the number of hours worked. The main differences between trap fishers and divers is the difference in safety. Although fishing is always considered to be a dangerous activity, diving for lobster in Nicaragua is extremely dangerous. The divers, small-scale and industrial, often have diving accidents and suffer from decompression sickness. This leads to hundreds of accidents and approximately 30 deaths per year. In addition, many divers are left paralyzed. Yet the remuneration for divers is high, which explains why divers engage in this dangerous occupation. Divers are generally highly dependent in patron-client relationships even though officially they are independent workers.

Many fishers in Nicaragua depend strongly on intermediaries, and sometimes directly on processing plants. The fact that intermediaries and processing plants do not take responsibility for divers who suffer diving accidents is particularly distressing. The
independence of fishers is abused by intermediaries and processing plants in this regard, using it as an excuse not to take any responsibility.

There are few economic alternatives for fishers in the Nicaraguan region except for drug trafficking. This trade, as well as the high occurrence of illegal lobster fishing in Nicaragua, is characteristic for the fishery. All fishers are poorly organized.

The empirical data shows that objective well-being is quite diverse across the different lobster fisheries in the three countries. I have concluded that the well-being of Belizean fishers is higher than that of Jamaican and Nicaraguan fishers. They are independent, enjoy safe working conditions, and have great market and political power by means of the fishing cooperatives. The Jamaican fishers generally score higher in comparison to their Nicaraguan counterparts.

Subjective well-being was studied by means of an assessment of job satisfaction. Job satisfaction of lobster fishers in the region proved to be generally high, with average scores per category above 2.8 points. In most cases, this compares favorably with job satisfaction scores in other developing country fisheries (see Pollnac et al. 2012). The data (see Fig. 4.9 in Chapter 4, Fig 5.20 in Chapter 5, and Fig. 6.14 in Chapter 6) shows that the categories Basic Needs, Social Needs and Self-Actualization score high (especially in Nicaragua and Belize). In line with the analysis of Pollnac et al. (2012), I suggest that if one wishes to provide alternative occupations for these fishers, it will need to be attractive to them in these respects.

More difficult to explain are the scores on satisfaction with lobster fisheries management. Most confusing is the fact that the co-governance style that prevails in Belize, which has created obvious benefits for lobster fishers, is apparently not well appreciated. In fact, the lobster fishers in Jamaica and Nicaragua, who have been less involved in the governance process, appear to be more satisfied with management as it occurs there. Rather than taking these results at face value, I suggest that they follow from a research method that is insufficiently precise and requires additional refinement. Other aspects of well-being—such as factual remuneration, trade relations, safety, and participation in decision making—need to be examined as well. These insights can help place fishers’ job satisfaction scores in a broader perspective and provide insight into the causes of very low scores. When aiming to improve these elements, the information on the other aspects of well-being can guide policy decisions. The job satisfaction methodology can therefore be concluded to have given a partial—and perhaps imperfect—impression of the subjective well-being of lobster fishers in the three countries. It was supplemented by an ethnographic research style that yielded valuable indications of subjective well-being.

The well-being approach employed in this research has generated a holistic view of the condition of lobster fishers as an occupational group in the Caribbean region. Heterogeneity emerged as a key feature—thus the well-being of lobster fishers differs significantly according to métier and geographical location.

This large heterogeneity found among fishers is in line with the conclusions reached by Coulthard et al. (2011: 8) that a well-being approach to fisheries provides a framework to identify the “winners” and “losers” from proposed policy interventions. Importantly, my

151 As explained in Ch 1, the job satisfaction survey was recently expanded to include a few questions on management. In light of the experiences of this research, this category in particular requires reconsideration.
research demonstrates that a fisher can score well on one element, such as material well-being, yet score very low on another, such as relational well-being.

The heterogeneity amongst fishers indicates that there are likely to be different responses amongst fishers in relation to fisheries policies, and that this thus is of importance to take into consideration when considering new policy measures. A policy can have a positive impact on one aspect of well-being, but a negative impact on another. In addition, as we have seen from the large heterogeneity within the fishery, a policy measure can impact one fishing métier positively but impact another fishing métier negatively. By placing well-being at the forefront of governance actions, one can consider the impacts a policy measure will have for each fishing métier and/or each element of well-being of the different fishing métiers. However, this research has also shown that not all aspects of well-being can be influenced by policy. Certain aspects, such as whether a fishery is a single-species or multiple-species fishery, and the distance to fishing grounds, are highly important but difficult to influence through policy measures. In other words, policy makers in the field of lobster fisheries may encounter limitations to their governance efforts (Jentoft 2007).

8.4 Central question and leads for improvement

Central research question: What is the impact of varying governance arrangements and lobster chains on the well-being of lobster fishers in the Wider Caribbean?

This research has demonstrated the large heterogeneity among lobster fisheries in the region. Even though the spiny lobster is identical throughout the Wider Caribbean and the end market is similar, many differences exist among these fisheries. I established the diversity of well-being between fishers in three case study countries, coinciding with various fishing métiers and geographical locations (in Chapters 4, 5, and 6). I demonstrated that these métiers and locations are embedded in global value chains that channel lobster products mainly to international markets (Chapter 7). The structure of these value chains and the market governance patterns that prevail from the local to the international levels exert strong influence on the distribution and levels of well-being. Global value chain analysis does not provide a full explanation, however, and requires further contextualization. Variations in governance trajectories and styles at the national level constituted the final causal element (Chapter 3). Taken together, I argue that these governance trajectories and styles, and value chain characteristics, provide a strong explanation for the variations in well-being that were determined.

Policy recommendations

- This research has shown that in line with other work (see Pomeroy and Andrew 2011; Jentoft 2005) co-governance appears to be the most advantageous for fishers to achieve well-being. At the same time, this research has shown co-governance to be the result of long historical trajectories and thus not easily achievable. Co-governance, once implemented, is by no means an easy process. Powerful stakeholders might circumvent participatory processes when it serves their interest to do so. It might
involve redistribution of power and thus be unwanted by those currently in power (McConney 2003).

- The government in Nicaragua should focus on the small-scale fleet rather than on the industrial fleet. A small-scale fishery would provide livelihood and employment to more fishers than an industrial fleet. Small-scale fisheries can provide more livelihood and employment opportunities to more people at the harvesting level as well as higher up the chain, and deserve to be protected and supported.

- The use of scuba gear should be prohibited throughout the Wider Caribbean. The case of Nicaragua has shown divers suffer horrifying diving accidents on a large scale. All actors involved in the fishery, from local to international level actors, should take responsibility and prohibit these inhumane working circumstances.

- Illegal, Unreported and Unregulated (IUU) fishing is a grave problem throughout the region and needs to be controlled. Although IUU fishing might aid the remuneration of fishers in the short term, in the long term it decreases their well-being, and the well-being of others in the chain, as in the long run it decreases lobster yields and thus profits. In addition, it jeopardizes the sustainability of the ecosystem and thus has a much wider impact. This research has shown IUU fishing is more intense in some countries than in others, supporting the argument that IUU fishing can be curtailed. Awareness programs are necessary amongst fishers and others in lower segments as well as higher segments of the chain. Processing plants and international importers need to take more responsibility in curtailing imports of undersized lobsters and berried females. Governments need to exert more pressure, and spend more time and money on decreasing IUU fishing.

- International cooperation is necessary to combat IUU fishing in the region as well as diminish the overexploitation of lobster stocks. Spiny lobster is a transboundary resource and thus requires international cooperation. Habitat destruction in one country can profoundly impact harvesting levels in another. Close cooperation is thus necessary to ensure sustainable harvests throughout the region.

- This research has shown the impacts of the economic crisis on the lobster chain. Yet processing plants in the region could potentially “upgrade” their positions by securing long-lasting relationships with international importers and ensuring high-quality products. This will benefit lobster fishers if the upgrading profits do indeed flow back to the fishers. As we have seen, however, this also depends on market governance of the lobster chain. Fishery cooperatives that hold exclusive market power whereby all profits flow back to the fishers will result in highest potential benefits for fishers.

- My research has shown that fisheries policies entail trade-offs between the well-being of different groups and the different dimensions of well-being. The well-being approach to fisheries helps governing bodies consider the impacts of policy interventions for the various fishing groups and the heterogeneity that exists. Understanding the (intended or unintended) consequences of policy interventions for the impoverished and vulnerable groups can thus guide future decision making that aims to improve their lives.
Globalisering heeft de mondiale visserij sterk beïnvloed sinds het midden van de vorige eeuw. De kreeftenvisserij in het Caraïbisch gebied, het onderwerp van dit proefschrift, is daar een goed voorbeeld van. Tot aan de jaren ’50 en ’60 was er weinig commerciële kreeftenvangst in deze regio. Met het ontstaan van de Amerikaanse vraag naar kreeft, welke gepaard ging met hoge prijzen en technologische innovaties, kwam de commerciële kreeftenvisserij op gang. Grote koelschepen die de bevroren kreeftstaarten kwamen ophalen verbonden de Caraïbische visser met Amerikaanse consumenten.

Dit proefschrift beschrijft het belang van de kreeftenvisserij in het Caraïbisch gebied, zowel als bron van bestaansverwerving voor lokale vissers als bron van aanzienlijke valuta- en belastinginkomsten voor de nationale regeringen. De kreeftenvisserij kan dus in potentie een belangrijke rol spelen in armoedebestrijding en in het verbeteren van het welzijn van vissers in de regio. Echter, hoe dit potentieel uitpakt in verschillende landen in het Caraïbisch gebied kan zeer verschillen. De uitkomst op lokaal en nationaal niveau van de internationale kreeftenhandel is gerelateerd aan het bredere debat dat handelt over de mate waarin internationale handel een positieve uitwerking heeft op het terugdringen van armoede en het stimuleren van lokale ontwikkeling in ontwikkelingslanden (Béné et al. 2010, Wade 2004; Kalb et al. 2004; Basu 2006; Thorpe and Bennett, 2001). Deze vraag is uitermate relevant voor visserij aangezien; vis het meest verhandelde primaire product in de wereld is; vis met name gevangen wordt in ontwikkelingslanden voor markten in ontwikkelde landen; en de verwachting is dat de mondiale vraag naar vis zal stijgen.

Dit proefschrift onderzoekt hoe de ontwikkeling van de kreeftenvisserij zich verhoudt tot het welzijn van kreeftenvissers in het Caraïbisch gebied. Daarbij worden drie landen met elkaar vergeleken; Belize, Jamaica en Nicaragua. De kreeftenvisserij in deze regio is een geschikte case omdat zij, vanaf het begin van het ontstaan van de visserij in de jaren 50, bijna uitsluitend gericht is op de exportmarkt, het om dezelfde soort kreeft gaat welke en een vergelijkbare afzetmarkt in de Verenigde Staten (VS). In het proefschrift wordt gebruik gemaakt van een ketenbenadering (Global Value Chain). Gebleken is dat de verschillende kreeftenketens in de drie landen, die lopen van vangst door vissers in het Caraïbisch gebied tot aan consumenten in de VS, veel met elkaar gemeen hebben. De ketenbenadering helpt de dynamiek van de economische globalisering, internationale handel, en de verdeling van de winst over de gehele keten beter te begrijpen. Het verschil in welzijn van vissers op lokaal niveau laat zien dat alleen de ketenbenadering echter niet voldoende is. Hoewel de drie landen zich in dezelfde regio bevinden toont hun politieke, sociale en economische ontwikkeling aanzienlijke variatie. Als resultaat zal het visserijbeheer naar verwachting ook variëren. Om deze kant te bestuderen heb ik de verschillende beheerssystemen [governance stijlen] op nationaal niveau onderzocht. De verschillende beheerssystemen zullen invloed hebben op de kreeftenketen en het welzijn van vissers. Op basis van de theorie mag verwacht worden (o.a. Jacinto and Pomeroy 2011) dat bepaalde beheerssystemen, zoals participatief beheer, gunstiger zijn voor het bereiken van welzijn dan andere, zoals meer hiërarchische stijlen van beheer. Governance heeft betrekking op de interactie tussen marktpartijen, maatschappelijke
organisaties en de overheid op lokaal, nationaal en internationaal niveau. Dit proefschrift heeft laten zien dat op internationaal niveau samenwerking tussen de verschillende partijen weliswaar plaatsvindt maar dat dit een ondergeschikte rol speelt in het algehele beheer van de kreeftenvisserij op nationaal niveau. Om die reden staat de invloed van de nationale beheersstijlen op de kreeftenketen en het welzijn van vissers, centraal. Voor dit onderzoek heb ik gebruik gemaakt van drie concepten en theoretische invalshoeken: beheers(stijlen), een ketenbenadering en welzijn.

Methoden:

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Visserijbeheer
Belize, Jamaica en Nicaragua kennen dezelfde problemen in relatie tot de kreeftenvisserij: een open-access visserij, veel illegale visvangst, overbevissing en beperkte capaciteit van de overheid om deze problemen op te lossen. Ook de beleidsinstrumenten om deze problemen op te lossen komen overeen; een gesloten seizoen van ten minste drie maanden, een minimum aanlandingsmaat voor kreeft, en een verbod op het vissen van eidragende kreeften. Belize en Jamaica hebben ook beschermde gebieden (Marine Protected Areas) ingesteld. Ondanks deze overeenkomsten vertonen de drie landen belangrijke verschillen in kreeftenvisserijbeheer.
Het beheer van de kreeftenvisserij in Belize is verreweg de meest harmonieuze van de drie, en staat het dichtst bij het ideale type van participatief beheer. Vanaf het begin van de ontwikkeling van de visserij heeft de staat kleinschalige vissers ondersteund onder andere door de ontwikkeling van visserij coöperaties. De export van kreeft is volledig in handen van twee visserij coöperaties, en omdat de vissers gezamenlijk eigenaar zijn van de coöperaties, vloeit alle winst terug naar de vissers. Externe commerciële partijen worden zo buiten de deur gehouden en kunnen geen winst onttrekken aan de keten. De hoge exportopbrengsten hebben de coöperaties versterkt, ook op politiek vlak. Daarnaast spelen Niet-Governmentele Organisaties (NGO’s) een belangrijke rol in het beheer van de visserij. Met als belangrijkste actoren de vissers en visserij coöperaties en de NGOs, naast de overheid, ligt deze beheer-stijl dicht bij het ideaalt-type van participatief beheer.

De Jamaïcaanse kreeften visserij beheer-stijl is een combinatie van onvolkomen participatief beheer en een hiërarchische beheer-stijl. Sinds het begin van de kreeftenvisserij in de jaren ‘50 heeft de regering geprobeerd visserij coöperaties te creëren en te ondersteunen visserij, maar dit is niet goed van de grond gekomen. De coöperaties die er zijn, hebben weinig financiële of politieke macht. De Jamaïcaanse kreeftenketen kent veel kleine tussenhandelaren tussen vissers en de eindgebruiker. De markt voor Jamaïcaanse kreeft ligt zowel in eigen land in de toeristen industrie, als in de VS en Europa. Kreeftenvissers maken veelal gebruik van tussenhandelaren voor brandstof-, krediet-, voedsel, en zelfs drinkwater op de verafgelegen visgronden. Er zijn veel kleinere verwerkingsbedrijven, die vaak illegaal zijn en niet gezamenlijk georganiseerd. Mede daarom hebben ze weinig invloed op nationaal visserijbeleid. Recentelijk is de overheid gestart monitoring in beschermd gebieden uit te voeren samen met NGOs. De overheid is de meest invloedrijke acteur in het beheer en de rol van andere actoren zoals NGOs, vissers en verwerkingsbedrijven is beperkt. Het beheer van de kreeftenvisserij in Jamaica kent een hiërarchische stijl maar de laatste jaren worden pogingen ondernomen om het beheer van de kreeftenvisserij meer participatief te maken.

De beheer-stijl in Nicaragua is hiërarchisch, desondanks heeft de overheid niet veel macht. Vanaf het begin van de visserij in de jaren ‘50 zijn grote verwerkingsbedrijven en scheepseigenaren van de industriële vloot zeer invloedrijk geweest. Naast deze kleine maar invloedrijke groep van actoren, is er weinig ruimte voor andere belanghebbenden, zoals visserij coöperaties en NGO’s. Vissers zijn slecht georganiseerd en niet in staat om de besluitvorming adequaat te beïnvloeden. De laatste jaren worden wel initiatieven genomen door internationale marktpartijen en NGO’s om in samenwerking met de Nicaraguanaanse overheid en de kreeften industrie de duurzaamheid van de visserij te verbeteren, maar tot op heden zijn deze initiatieven nog weinig succesvol in het tot stand komen van daadwerkelijke veranderingen.

Kortom, de drie landen kennen verschillende ontwikkelingstrajecten, die hebben geresulteerd in zeer verschillende beheersstijlen. Deze kunnen worden gecategoriseerd als participatief beheer, een hiërarchische beheersstijl, en een mix daartussen. Hoewel het visserijbeheer in zowel Jamaica als Nicaragua gekenmerkt wordt door een hierarchische beheersstijl, zijn ze ook zeer divers, met name wat betreft de rol van de andere belanghebbenden. Zo zijn
marktpartijen in Jamaica min of meer afwezig bij de besluitvorming, terwijl ze in Nicaragua zeer betrokken zijn. In Nicaragua zijn de NGO's weer vrijwel afwezig in de besluitvorming, terwijl ze in Jamaica steeds belangrijker worden. Dit proefschrift heeft daarom, onder andere, laten zien dat bij de analyse van visserijbeheer de verschillende tussen governance stijlen goed belicht moet worden om te kijken hoe de verschillende beheersssystemen van invloed zijn op de waardeketen en het welzijn van vissers.

Ketenbenadering


Dit onderzoek heeft aangetoond dat de ketens van een identiek product met een soortgelijke afzetmarkt toch een opmerkelijke diversiteit in actoren en relaties in de keten laten zien. Het heeft ook laten zien dat de in de theorie geschetste tegenstelling tussen koper- of producent-aangedreven waardeketens zoals beschreven door Gereffi (1994) en later inclusief handelaars-aangedreven keten beschreven door Gibbon (2001) minder verklarend is in tijden van dynamische mondiale veranderingen en weinig ruimte biedt voor deze dynamiek. De ketenbenadering is terecht bekritiseerd voor het verwaarlozen van heterogeniteit van kleinschalige producenten in de keten. Mijn empirische gegevens laten zien dat er een grote verscheidenheid is van visserij métiers, zowel in, als ook tussen de landen. De ketenbenadering is analytisch zeer bruikbaar gebleken in dit onderzoek om een koppeling te maken tussen de verschillende vissers, tussenpersonen, verwerkingsbedrijven, en importeurs in de VS en de EU. Mijn onderzoek laat zien dat als het echter gaat om het verbeteren van het welzijn van de vissers in de kreeftenketens er meer aandacht moet worden besteed aan de
verschillen die zich voordoen tussen de verschillende groepen en de koppeling tussen de visserij metiers en hun positionering in de keten.

Wellbeing

In dit proefschrift heb ik ook de invloed van de verschillende beheersstijlen op het welzijn van vissers in de keten onderzocht. De welzijnsbenadering gaat verder dan de puur materiële of economische kant van welzijn en kijkt ook naar de subjectieve kant van welzijn (Smith and Clay 2010: 158; Gough et al. 2007; White and Allison 2006; Coulthard et al. 2007). Hierbij heb ik een driedimensionale benadering gebruikt (IDS 2009; Gough et al. 2007) waarbij ik onderscheid heb gemaakt tussen materieel welzijn, relationeel welzijn, en subjectief welzijn. Op basis van de welzijnsliteratuur over welzijn en de visserijliteratuur heb ik deze drie dimensies vertaald naar verschillende indicatoren: de arbeidsomstandigheden van vissers; veiligheid inkomstensystemen per métier alsmede de verschillen per land, visserij op één soort of meerdere soorten , economische alternatieven, handels relaties, samenwerking, deelname aan de besluitvorming en voldoening in het werk van vissers.

In Belize is er een belangrijke verschil tussen vissers die duiken naar kreeft en vissers die gebruik maken van fuiken, waarin de laatste duidelijk een hoger welzijnsniveau hebben. De arbeidsomstandigheden van deze vissers zijn relatief goed; hun afwezigheid van huis is kort, de frequentie van vissen is laag ( ongeveer drie keer per week), en de arbeidsomstandigheden zijn veilig, met name doordat de visgronden dicht bij de kust liggen in ondiep water. Deze vissers vangen alleen kreeft met als gevolg dat ze tijdens het gesloten seizoen niet kunnen vissen. Ze hebben dan echter wel economische alternatieven, bijvoorbeeld in de toerisme industrie. Wel is er een verschil tussen booteigenaren en bemanningsleden. De booteigenaren moeten grote investeringen doen, daar waar er voor de bemanningsleden geen investeringsdrempel is. Duikers in Belize zijn full-time vissers en zijn per visreis negen tot tien dagen op zee . Ze beschikken niet over economische alternatieven buiten de visserij maar omdat ze ook schelpdieren en vissen vangen hebben ze tijdens het gesloten kreeftenvisserijseizoen wel andere bestaansmiddelen. Duikers mogen volgens de wet geen gebruik maken van duikmaterieel zoals duikflessen en duiken puur op hun longen. Dit maakt hun werk ook relatief veilig, geholpen door de ondiepe riffen en talrijke eilandjes en atol len. Er is ook geen industriële kreeftenvisserij toegestaan in Belize, wat de visserij dus bijzonder winstgevend maakt voor de kleinschalige vissers. De vissers verkopen hun kreeft in een coöperatief systeem waarbij vissers eigenaren van de coöperatie zijn en ontvangen daardoor aan het einde van het boekjaar een tweede betaling. Omdat veel vissers lid zijn van de coöperaties, kunnen deze extra inkomsten hoog zijn. Daarnaast kunnen vissers nog extra’s ontvangen via de coöperaties, bijvoorbeeld een bonus voor kerst en uitkering van de verzekerings in geval van ongelukken of overlijden. Vissers in Belize werken dus meestal zelfstandig, en zonder tussenkomst van tussenpersonen. Ze zijn zeer goed georganiseerd, met goede markt-perspectieven en politieke invloed.

Ook in Jamaica zijn het vooral kleinschalige vissers die actief zijn in de kreeftenvisserij. De vissers werken zowel in de kustwaternen als daarbuiten en maken gebruik van verschillende technieken wat betreft fuiken en duiken (met lucht uit flessen of luchtslang vanaf een schip of
op eigen longinhoud). Sommige vissers werken dicht bij de kust en zijn dagvissers, maar de meeste vissers, vissen op de Pedro Bank, waar de rijkste visgronden van Jamaica liggen en zijn per keer 5-6 dagen per week weg. De vissers die alleen één dag werken verkopen hun vangst aan verschillende tussenpersonen en zijn in mindere mate afhankelijk van handelaren voor krediet- en materiaal. De Pedro Bank vissers, aan de andere kant, zijn sterk afhankelijk van tussenpersonen voor vishandel naar de kust, voedselvoorziening, drinkwater, brandstof en ijs. Vissers in Jamaica vissen op meer soorten dan kreeft (ook schelpdieren en vis) en de beloning is duidelijk hoger in vergelijking met het minimumloon op het vasteland in Jamaica, maar lager dan de inkomsten die kreeftenvissers in Belize krijgen, waar alle winst terugvloeit naar de vissers. Arbeidsomstandigheden voor de vissers op het Pedro Keys zijn bijzonder hard, ze zijn afwezig voor een groot deel van het jaar; leven in zeer rudimentaire leefomstandigheden en de overtocht is erg gevaren. Maar, vissers verdienen hier wel veel en ook al leven ze op de Pedro Keys in een eenvoudige schuurtje, op het vasteland wonen hun vrouw en kinderen soms in een zeer mooi, betonnen huis. Hoewel de regering in Jamaica geregeld heeft geprobeerd om de visserij coöperaties te ondersteunen, de meeste van deze initiatieven zijn mislukt. Slechts zeer weinig van de vissers zijn lid van een visserij coöperatie, en deze coöperaties dienen meer als winkels dan als machtige economische groepen die in staat zijn om de politiek van visserijbeheer te beïnvloeden. In het algemeen kan worden geconcludeerd dat vissers in Jamaica slecht zijn georganiseerd, hetgeen resulteert in een slechte onderhandelingspositie op de markt en weinig politieke invloed.

Het welzijn van vissers in Nicaragua varieert enorm tussen de industriële vloot en kleinschalige vissers en tussen vissers die duiken en zij die fuiken gebruiken. Alhoewel de visserij een grote bestaansbron vormt in een regio waar weinig andere mogelijkheden zijn, is het ook een erg gevaarlijke beroep. Kleinschalige fuikenvissers zijn dagvissers, ze vertrekken ’s morgens om 5 uur en komen ’s middags rond 2 uur weer terug. Ze moeten grote investeringen doen voor de boot en fuiken en hebben vaak hoge schulden bij de tussenhandelaren. Industriële fuikenvissers maken hele lange dagen en zijn 45 dagen aaneengesloten op zee. Hun inkomsten na 45 dagen lijkt veel maar niet als je het vergelijkt met de hoeveelheid uren die de vissers ervoor hebben moeten werken. Ook tussen fuikenvissers en duikers zijn verschillen, met name wat betreft de veiligheid. Hoewel visserij wereldwijd in het algemeen beschouwd wordt als een gevaarlijke activiteit, is duiken voor kreeft in Nicaragua extreem gevaarlijk. De duikers, kleinschalige en industriële, hebben vaak duikongevallen en lijden aan decompressieziekte. Dit leidt tot honderden ongelukken, met ongeveer 30 doden per jaar maar ook veel verlammingen tot gevolg. Toch is het inkomen voor duikers hoog, hetgeen ook verklaart waarom duikers toch deelnemen aan deze gevaarlijke bezigheid, zeker voor de regio waar weinig andere opties zijn. Duikers zitten klem in de patroon-cliënt relaties, ook al zijn ze officieel zelfstandigen. Bovendien nemen tussenpersonen en verwerkingsbedrijven geen verantwoordelijkheid voor duikers die het slachtoffer zijn van duikongevallen, gebruikmakend van de retoriek dat vissers onafhankelijke ondernemers zijn. De vissers in Nicaragua zijn slecht georganiseerd en weinigen zijn lid van een visserij coöperatie, bovendien hebben de coöperaties die er zijn weinig politieke of markt invloed.
Dit onderzoek heeft aangetoond dat er een grote heterogeniteit is binnen de kreeftenvisserij in de regio. Hoewel de kreeftensoort (langoest) in Caraïbisch gebied identiek is en de afzetmarkt vergelijkbaar, zijn er heel veel verschillen waar te nemen binnen deze visserij. Ik heb deze diversiteit, in geografische locaties, in organisatie en het effect op welbevinden langs de drie dimensies van het welzijn van vissers (materieel, relationeel en subjectief) in de drie landen beschreven (in de hoofdstukken 4, 5 en 6). Ik beschreven hoe de métiers op de verschillende locaties zijn ingebed in mondiale waardeketens (Hoofdstuk 7). De structuur van deze waardeketens en relaties tussen de verschillende actoren in de keten op lokaal en internationaal niveau hebben sterke invloed op het welzijn van vissers. De ketenbenadering biedt echter geen volledige verklaringsgrond voor de verschillen in welzijn, waardoor een verdere maatschappelijke contextualisering nodig is. Variaties in beheersstijlen op nationaal niveau vormden de basis voor de verklaringsgrond van de verschillen in waardeketen en welzijn van vissers (hoofdstuk 3). Dit leidt tot de conclusie dat de verschillen in beheersstijl, in combinatie met de verschillende kenmerken van de waardeketen, van bepalende invloed zijn op het welzijn van vissers, en zo de verschillen tussen de landen verklaart.
Globalization has strongly affected seafood markets throughout the world, particularly since the 1950s to present. This is particularly true for the lobster fisheries of the Wider Caribbean region, which are the topic of this thesis. Commercial harvest of lobster in this region took off when international demand from the United States stimulated commercial lobster fisheries. No large-scale commercial lobster fishery existed prior to this time but the increasing demand and high unit price for lobster on the international market, combined with new technological possibilities, resulted in lobster fishery development throughout the region. Fishers increasingly built wooden lobster traps, used scuba gear or engaged in free diving to benefit from these new economic opportunities. Large freezer ships went down to the Wider Caribbean to collect lobster tails, connecting local fishers with American consumers.

Fishers have greatly increased lobster harvest throughout the region over the past 50 years and have become more and more connected with world markets. This thesis has demonstrated that lobster fisheries currently provide extensive livelihood opportunities and generate massive foreign exchange and tax income for national governments in the Caribbean. Considering the benefits both at the national and local level for livelihood and employment and foreign exchange, lobster fisheries can be expected to provide opportunities for countries in the region to alleviate poverty and achieve well-being for fishers. Yet, the extent to which the lobster trade actually provides potential for developing countries to reduce poverty and stimulate local development remains debatable. This relates to a larger debate about the actual opportunities for reducing poverty and stimulating local development that international trade provides for developing countries, and whether the gains in fact benefit local communities and national economies (Béné et al. 2010, Wade 2004; Kalb et al. 2004; Basu 2006; Thorpe and Bennett, 2001). This question is particularly relevant for fisheries as the majority of fishers live in the developing world, which produces more than half of the fish traded globally. Though fish trade itself is not a new phenomenon, the size of the current fish trade is unprecedented. Fish, in fact, has now become earth’s most traded primary food product. As overall fish consumption is expected to rise in all major markets it provides an opportunity to increase the economic potential for fish-exporting countries in the developing world. This thesis has therefore shown that the lobster fisheries development and potential for the region should be seen in the light of these global phenomena.

This thesis analyzes the relationship between the development of lobster fisheries and the well-being of lobster fishers and the contextual conditions that facilitate this. I have investigated this state of affairs through three contrasting country case studies, in Belize, Jamaica, and Nicaragua. The lobster fishery in the region provides an interesting case as it has, from its onset, focused nearly exclusively on the export market. The lobster species harvested is identical throughout the region and the end market where the lobster is finally consumed(mainly the US) relatively similar for the exporting countries. Lobster chains, running from the harvest by fishers in the Wider Caribbean to consumers in the US, thus might share many commonalities. Yet, as attainment of well-being across the region is highly diverse, one might expect lobster chains to show differences in chain structure and governance, resulting in differences in the insertion of fishers in the lobster chain. The Global Value Chain (GVC) approach attempts to enhance our understanding of the dynamics of
economic globalization, international trade, and the distribution of benefits throughout the chain. It describes the range of activities that are required to bring a product from its conception to its end use and beyond. Market governance of chains is also usually considered to be predominantly top-down: either Northern buyers, or manufacturing firms or traders, have decisive influence on the position of producers in the South. This is, however, a rather narrow approach to understand local economic development, as little attention is paid to local and national conditions. In this research I investigated the lobster chain from a GVC perspective examining the following elements: structure of the chain; market governance of the chain; and dynamics of the chain. Yet, exactly because the lobster species is identical and the end-market relatively similar the international lobster trade cannot solely explain the existing differences in well-being of fishers. I have therefore turned to the societal embedding of lobster fisheries at the national level to analyze and explain this discrepancy. For this research I have thus made use of three concepts and theoretical angles: governance, global value chain analysis, and well-being.

Methods
During my fieldwork in the three countries, I conducted informal interviews, unstructured and semi-structured in-depth interviews, administered questionnaires, carried out participant observation, and participated in state and non-state policy meetings. I spent a total of seven months in the field: ten weeks in Belize, nine weeks in Jamaica, and twelve weeks in Nicaragua. Belize and Jamaica I visited twice, Nicaragua three times. In addition, I carried out interviews with importers in the US and EU. The number of semi-structured and unstructured interviews with the various stakeholders are as follows: importers in the US and EU (16); exports (16); state representatives (17); state representatives of other countries in the region (10); fishers (23); cooperative representatives (13); intermediaries (12); scientists and NGOs (11). In addition, I conducted 88 wellbeing surveys and 83 job satisfaction surveys.

All fieldwork was conducted between 2006 and 2009. I conducted participant observations at landing beaches, processing plants, middlemen and during fishing trips at sea. In total I spent 23 days at sea: three times for three days, and once for five consecutive days. The remaining days were day trips with fishers.

Governance
Although the three countries are located in the same region, their political, social, and economic development shows substantial variation. As a result, fisheries governance was also expected to vary. These governance styles will impact the lobster chain and the ability of fishers to achieve well-being. Following suggestions in the literature (e.g. Jacinto and Pomeroy 2011), certain governance styles could favor the achievement of well-being, such as co-governance, whereas others, such as ‘hierarchical style governance’ might hamper fishers’ ability to achieve high levels of well-being. Governance refers to the interaction between market parties, civil society and the state at the local, national and international level. Lobster is a transboundary resource which faces severe challenges regarding overexploitation throughout the region. This calls for international cooperation, and several Regional Fisheries Organizations (RFOs) have become involved in lobster fisheries governance. However, this thesis has shown none of the these RFOs wield decision-making power. This thesis thus...
argues national governance arrangements to be the most influential when considering differences in lobster fisheries governance. For this purpose I investigated the; development orientation of the state; stakeholder representation; state institutions, laws, and policies; state-market relations; and NGO-state market relations in MPA management. Belize, Jamaica, and Nicaragua face a similar set of challenges with regard to lobster fisheries: an open-access situation, high levels of IUU fishing, and declining resources. To counter these problems all three governments have implemented a similar set of regulations: a closed season of at least three months, a minimum size for lobster to be harvested, and a prohibition on landing berried females and molting lobster. In Belize and Jamaica, Marine Protected Areas (MPAs) have been instituted as well to enhance sustainability of marine resources. Despite these similarities, the three country cases show important differences in lobster fisheries governance style and lobster chain.

There is no doubt that the Belizean lobster fishery is the most harmonious of the three, and closest to the ideal type of co-governance. Development orientation of the state has from the onset of the fishery been leaning towards small-scale fishers and fishing cooperatives. Only two fishing cooperatives are allowed to export seafood products, and as these cooperatives are collectively owned by the fishers, all benefits derived from the fishery flow back to the them. Although intermediaries are officially illegal in Belize, sale of lobsters through intermediaries does occur. No outside commercial parties are, however, able to extract profits from the fishery. The high export earnings have strengthened the cooperatives economically, translating into political strength and the determination to protect the privilege of export monopoly that they enjoy. NGOs also hold a prominent place in fisheries governance. The principal chain actors thus are the state, fishers and fishing cooperatives and NGOs .

Examining the governance style of Jamaica’s lobster fishery, I concluded that the governance style is a combination of—defective—co-governance and hierarchical state governance. Although the government attempted to create and support strong fishing cooperatives from the start of the lobster fishery in the 1950s, many of these cooperatives are weak and lack market or decision-making power. In Jamaica, the lobster chain is characterized by a multitude of actors between fishers and the end consumer. The latter can be located in another country (served via intermediaries, processing plants, and international importers), or in the local tourist industry. Lobster fishers in this country frequently make use of intermediaries, as they are often based very far from the market and require help in obtaining fuel, credit, food, and even drinking water. There are many smaller processing plants, which are frequently illegal, and their influence in decision-making is limited. The interests of small-scale fishers are also poorly represented in decision making in Jamaica. The government is the most influential institution in the policy process and the role of other actors is limited. In recent years, NGOs have become more involved in fisheries governance and relations between state and NGOs have been formalized for management and enforcement of MPAs. Current lobster fisheries governance is thus one of hierarchical state governance although attempts have been made in recent years to move towards more inclusive co-governance.

The state governance style in Nicaragua is hierarchical; this does not, however, imply a very strong and forceful state. In fact, in many ways the state has a limited steering capacity
in the lobster fishery. Large processing plants and industrial fleets owners have been very influential since the initiation of the lobster fishery in Nicaragua and the state has experienced difficulties withstanding pressure from these powerful interest groups. A small group of industrial market actors is therefore able to influence decision making via official and unofficial routes, leaving very little room for other stakeholders, such as fishing cooperatives and NGOs. Fishers are poorly organized and are not able to adequately influence decision-making. Fishers make use of a variety of intermediaries which differ in entry-level barriers, and scale of operation. Although one could argue that most fishers are exploited by intermediaries, this relation is not necessarily one-sided and at times can also provide fishers fuel, credit and supplies. International market parties and NGOs are currently initiating cooperation with the Nicaraguan state and lobster industry to improve the sustainability of the resource, but to date these initiatives are still limited.

In sum, the three countries have experienced varied historical development trajectories that have left them with three distinct lobster fisheries governance styles. I have categorized the three governance styles as co-governance, a mixture between co-governance and hierarchical governance, and hierarchical governance. Yet, although Jamaica and Nicaragua’s governance styles are both hierarchical, they are also very diverse. When considering the two styles in detail, one can see many differences with regard to the role of the state, NGOs, and market parties. For one, market parties in Jamaica are more or less absent from the decision-making process, whereas in Nicaragua they are involved in fisheries governance. In Nicaragua, NGOs are virtually absent in the decision-making process, whereas in Jamaica they are becoming increasingly important. Although Nicaragua’s hierarchical governance style involves cooperation between the state and powerful market parties, we have also seen that the state has limited powers. This thesis has therefore shown that when analysing governance approaches to fisheries in a national context these types of nuances should therefore be taken into consideration.

Global Value Chain Analysis

My analysis has shown that the lobster chains in the three countries have a number of common features. They all produce lobsters for world markets (mainly for the United States, but also partly for the European market). As a result, Caribbean fishers, intermediaries, and processing plants are all inserted in global value chains that connect them “upwards” with foreign buyers. Regarding chain actors, one can conclude that in all three countries intermediaries, processing plants, and international importers play roles. Strict handling procedures and food safety standards are in place for all countries at the level of the processing plants. However, within any one country the fishers, intermediaries, and processing plants vary in professionalism, magnitude of the enterprises, levels of investment, as well as interrelationships. Prior to the financial crisis of 2008, the lobster chains in the region were largely producer-driven, with the local processing plants playing a dominant role. Yet at the height of the crisis, as well as during its aftermath, the chain appears to have reversed into a trader-driven chain in which importers have gained importance. The economic crisis that has taken place since 2008 has induced significant changes in lobster chains, particularly in the relationship between the processing plants and importers in all countries. Processing plants with feeble ties to importers have a harder time surviving than those with
strong and stable ties. In Nicaragua, the processing plants appear to be hit the hardest, as three out twelve plants have gone out of business, whereas in both Belize and Jamaica processing plants are all still in operation. In Belize, this might be due to the fact that lobster fishers and processors also target fish and conch. These two products have been less hard-hit by the crisis and therefore enable the two processing plants to survive. In Jamaica, the processing plants are still in operation, but their operations have declined as a result of decreasing demand. The government has also issued fewer industrial licenses due to the economic crisis. In this context, this research has shown that the dichotomy as described by Gereffi on buyer and producer-driven chains (1994), and later by Gibbon (2001) on trader-driven chains, is less useful in times of dynamic global change. It has also demonstrated that chains of an identical product to a similar end market can possess a remarkable diversity in actors and market governance modes. The GVC approach has rightly been criticized for neglecting heterogeneity of small-scale producers in the chain. My empirical data has shown the large variety of fishing métiers present in the lobster chain, within countries, as well as between countries. My research suggests that, in order to improve the well-being of fishers participating in lobster value chains, more attention indeed has to be given to the variations that occur between the fishing métiers. In spite of this criticism, the research has shown the GVC approach to be a very valuable tool in linking the different fishing métiers, intermediaries, processing plants, and final market actors in the United States and Europe. In addition, we have noted that differences in geographical and ecological circumstances in the three countries to a certain extent explain the variety in structure and market governance. Whether fishing grounds are located far offshore or in shallow inshore areas is a factor that helps shape value chains, as does the “richness” of lobster stocks.

This thesis argues that the differences in governance styles greatly influence the differences in lobster chains as well as the wellbeing of fishers. The interaction between state, market parties and civil society will greatly influence the ability of fishers to achieve wellbeing. In order to investigate this state of affairs I have departed from a three-dimensional approach of well-being, distinguishing material well-being, relational well-being, and subjective well-being (IDS 2009; Gough et al. 2007). Lobster fishers within and between the three countries can relate differently across these dimensions. Based on the wellbeing literature and literature from the roam of fisheries literature, I have examined these three dimensions by looking into: working conditions; safety; remuneration; single-/multi-species fishery; economic alternatives; trade relationships; cooperation; participation in decision making; and job satisfaction of fishers.

Wellbeing

In Belize, there is an important division between divers and trap fishers, with trap fishers clearly possessing higher levels of well-being. The working conditions of trap fishers are relatively good; their absence away from home is short; their working conditions are safe, as fishing grounds are all very shallow and close to the shore. Although the capital investment is very high for the owners of boats and traps, crew members have no investment threshold. Trap fishers in this country are single-species fishers who only catch lobster, and as a consequence during the closed season they do not engage in fishing. They do have economic alternatives during the closed season. Divers in Belize leave for nine to ten-day fishing trips
and are full-time fishers. They do not possess economic alternatives to fishing, but are on the other hand multi-species fishers that also catch conch and finfish, and consequently continue fishing during the closed season for lobster. Divers work only as free-divers and operate under safe working conditions enabled by the prohibition of SCUBA gear use, the shallow reefs and numerous keys and atolls. Both trap fishers and divers are generally satisfied with their jobs, as all scores fall above the midpoint. No industrial lobster fishing is allowed in Belize, making the fishery especially profitable for small-scale trappers and divers. Both categories of fishers sell their lobster in a cooperative system whereby fishers are actually owners of the cooperative and receive a second payment at the end of the fiscal year. As many fishers are members of the cooperatives, the remuneration can be high. In addition, fishers are able to receive extras through the cooperatives, a bonus for Christmas, and insurance in case of accidents or death. Fishers in in Belize usually work independently and thus depend on intermediaries only to a very limited extent in comparison to the other two countries, and from a marketing and political viewpoint they are well organized.

The Jamaican fishing sector, too, is largely made up of small-scale fishers. They are multi-species fishers working in both inshore and offshore areas and make use of multiple gears; involving trap fishers and divers (scuba, hookah, and free-diving). Some fishers operate close to shore and are day fishers, but most fishers will also fish in the offshore Pedro Bank and leave for five to six days at a time. The day fishers will sell their catch to different intermediaries. These fishers are not highly dependent on the intermediaries for credit and material. The Pedro Bank fishers, on the other hand, are highly dependent on intermediaries for fish trade to the coast, food supplies, drinking water, fuel, and ice. Yet intermediaries also depend on the fishers’ catch and need to procure as much fish and lobster as they can before their ice starts to melt. Fishers in Jamaica are multi-species fishers and are able to engage partly in other economic activities. The remuneration is clearly higher in comparison to the minimum wage on the mainland, yet lower than the remuneration of lobster fishers in Belize, where all profits flow back to the fishers at the end of the fiscal year. Working conditions for the offshore fishers on the Pedro Keys are particularly harsh they are also absent for a large part of the year; life in very basic conditions and often unsafe working conditions. However, fishers on the keys are able to make high profits from the fishery, and even though they may live in a basic shed all year round, some indicated their wife’s and children live in a very nice, large concrete house on the mainland. Although historically the government in Jamaica has attempted to support fishing cooperatives, most of these initiatives have failed. Only six percent of the fishers are member of a fishing cooperative, and these cooperatives serve more as shops than as powerful economic groups that are able to influence the politics of fisheries governance. Yet representatives are asked by the government to give advice on the fishery. In general, however, it can be concluded that fishers are poorly organized from a market perspective, with a poor bargaining position and little political strength.

Well-being among lobster fishers in Nicaragua varies significantly between the industrial fleet and small-scale fishers. It also varies between trap fishers and divers (both industrial and small-scale). Whereas some fishers are able to reap high benefits from the fishery in a region where few other economic alternatives exist, they may also face very unsafe working conditions. Small-scale trappers in Nicaragua are day fishers. Trap fishers often have taken out big loans for boat and traps, and are often highly indebted to the
middlemen or processing plants. Trap fishers working on industrial ships engage in extremely hard work. Their remuneration from the fishery appears high, but not when considering the number of hours worked. The main differences between trap fishers and divers are the difference in safety. Although fishing is always considered to be a dangerous activity, diving for lobster in Nicaragua is extremely dangerous. The divers, small-scale and industrial, often have diving accidents and suffer from decompression sickness. This leads to hundreds of accidents and approximately 30 deaths per year. In addition, many divers are left paralyzed. Yet the remuneration for divers is high, which explains why divers engage in this dangerous occupation. Divers are generally highly dependent in patron-client relationships even though officially they are independent workers. The fact that intermediaries and processing plants do not take responsibility for divers who suffer diving accidents is particularly distressing. The independence of fishers is abused by intermediaries and processing plants in this regard, using it as an excuse not to take any responsibility. There are few economic alternatives for fishers in the Nicaraguan region except for drug trafficking. All fishers are poorly organized and few are member of a fishing cooperative. The cooperatives that do exist have little influence over fisheries governance.

This research has demonstrated the large heterogeneity among lobster fisheries in the region. Even though the spiny lobster is identical throughout the Wider Caribbean and the end market is similar, many differences exist among these fisheries. I established the diversity of well-being between fishers in three case study countries, coinciding with various fishing métiers and geographical locations (in Chapters 4, 5, and 6). I demonstrated that these métiers and locations are embedded in global value chains that channel lobster products mainly to international markets. (Chapter 7). The structure of these value chains and the market governance patterns that prevail from the local to the international levels exert strong influence on the distribution and levels of well-being. Global value chain analysis does not provide a full explanation, however, and requires further contextualization. Variations in governance trajectories and styles at the national level constituted the final causal element (Chapter 3). Taken together, I argue that these governance trajectories and styles, and value chain characteristics, provide a strong explanation for the variations in well-being that were determined.
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### Appendix A: Interview dates per category

<table>
<thead>
<tr>
<th>Nr interview</th>
<th>A: Importers</th>
<th>B: Exporters</th>
<th>C: State representatives Belize, Jamaica and Nicaragua</th>
<th>D: Interviews state representatives WECAFC</th>
<th>E: Fishers (besides: informal interviews; surveys; fishing trips; and participant observation)</th>
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Appendix B: Job Satisfaction Questionnaire

0. Information on the respondent:
   1. Métier:
   2. Village/port:
   3. Age:
   4. Marital status:
   5. Education level:
   6. Number of years of fishing experience:
   7. Number of dependents:
   8. Position in the fishing unit:

1. Basic needs
   1. How do you feel about your physical safety in fishing? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5].
   2. How do you feel about the predictability of your earnings? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5].
   3. How do you feel about the level of your earnings? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5].
   4. How do you feel about the mental pressure in your job? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5].
   5. How do you feel about the cleanliness of your working environment? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5].
   6. How do you feel about the number of hours you spend working every day? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5].
   7. How do you feel about the healthfulness of your job? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5].
   8. How do you feel about the physical fatigue that is caused by your work? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5].
   9. How do you feel about the time needed to get to the fishing ground? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5].
  10. How do you feel about your ability to feed your family? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5].
  11. How do you feel about the level of your catches in the past year? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5].

2. Social needs
   12. How do you feel about being out at sea? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5].
13. How do you feel about **the time you spend away from home**? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

14. How do you feel about **the opportunity to be your own master**? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

15. How do you feel about the **community** in which you live? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

16. How do you feel about the **time available to recreate with family and friends**? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

3. **Self-realization**

17. How do you feel about the **challenge** offered by your job? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

18. How do you feel about the **adventure** offered by your job? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

19. How do you feel about the **worth** of your job? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

4. **Management**

20. How do you feel about the **level of conflict** in your fishery? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

21. How do you feel about the way in which **conflicts are resolved** in your fishery? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

22. How do you feel about the **management** of your fishery? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

23. How do you feel about the **performance of government officials** in your fishery? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

24. How do you feel about the **rules and regulations** available in your fishery? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

25. How do you feel about the **influence you have on the management** of your fishery? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

5. **Valuation of nature**

26. How do you feel about the **condition of your landing place or port**? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied? Scores 1-5]

27. How do you feel about the **condition of the fish stocks** on your fishing grounds? [If satisfied: very satisfied or a little satisfied. If dissatisfied, very dissatisfied or a little dissatisfied.? Scores 1-5]

**General questions:**

1. If you would have the opportunity, would you shift to another fishing métier?
2. If you would have the opportunity, would you shift to a job outside fishing?
3. Would you advise a young person to enter your fishing métier?
Appendix C: Well-Being Questionnaire

A. Biographical Information
1. name?
2. Age? ................. years.
3. gender □ Male □ Female
4. Marital Status □ Married □ Single □ Divorced □ Widow

5. How many dependents do you have?
6. How many years have you been fishing? Answer: ............ years
7. where are you born?
8. Where do you live?
9. was/is your dad a fisherman?

B. Educational Training
10. until what age did you attend school?
11. any other type of training?

C. Fishing Metier
12. postion in the fishery
13. target species
14. gear type (traps, diving (free lung or air compressor, nets?)
15. absence from home, days x per week, month?
16. average catch of lobster per week?
17. catch of last week?
18. value of catch? How much per pound? (is that whole or tailed)
19. how many times per week do you go out and for how long?
20. does this differ per season (or the same thoughout the year?)

Income and trade relations
21. what species do you catch most in value of income? (lobster, fish or conch)
22. income from lobsters on average per week?
23. average income per week totally? (after expenses)
24. difference per season? What months are really good/ what months are really bad? Why so?

25. in case of traps: how many traps do you have?

26. investment in USD per trap

27. did you need to take out a loan to invest in the traps?

28. are you indebted to anyone (vendor, middlemen, cooperative)

29. has a family member invested in your traps (wife, sister auntie etc)?

30. diver: how is the payment? (how much for diver-s, helper and owner? In percentage)

31. what are the average fishing costs for you per trip? (gasoline, seafood, etc)

32. who do you sell your lobster to? (vendor, middlemen etc.)

33. do you always sell to the same vendor? For how long have you been selling to this person?

34. do you get paid right away or does payment come later?

35. who do you sell your fish to? (vendor, middlemen etc.) always the same person? 

36. is that family of yours?

37. do you get paid right away or does payment come later?

38. other sources of income?

39. other sources of income in the household?

40. what do you like better to eat? Lobster or fish or conch?

**Territoriality and safety**

41. where do you go fishing? (bank/inshore)

42. do you always fish in the same area/

43. Are there conflicts between different fishing groups? (e.g divers-trappers, trappers-trappers (emptying of traps), or with big boats)?

44. what do you think should be done about this?

45. how many hours do you spend to get to the fishing ground?

46. bring life jackets, GPS or radio?
Management and cooperatives
47. what do you think of the role of the government (fisheries administration)?
48. what could be better?
49. are you member of a fishing cooperative? Why yes, why not?
50. for how long? (in case of yes)?

Resource sustainability and IUU fishing
51. do you think the lobster fishery is doing well?
52. what should be done to improve the fishery?
53. who should play a role in improving the fishery (the gm, the fishers, the cooperatives, the vendors etc)
54. of 10 fishers how many catch berried lobsters?
55. of 10 fishers how many do you think will bring in undersized lobster?
56. of 10 fishers how many do you think still bring in lobster during the closed season?
57. how do you see the future of the lobster fishery?
58. how do you see your future? Where do you want to go? (owner of boat/out of fishing etc)

These major transformations of world fisheries are part of a larger development from traditional to industrial society, a process that started in Europe around 1780 (Smith, 2004). Major technological innovations affected fisheries in the late nineteenth century, such as the invention of steam-powered vessels, refrigeration, the auction system, fast and efficient rail and road transportation facilities (Smith 2000 in Bavinck, 2011: 2). The increase in fisheries production worldwide since the 1950s can therefore be traced back to these new technological possibilities, freezer facilities, the expansion of seafood markets, and increasing consumer demand for seafood products (Bavinck, 2011). The growth in global fish production and trade was fed by huge increases in effort, notably in industrialized fisheries (Kooiman et al., 2005: 27).

In the 1980s, attention further shifted from the market to the community level, and concepts of participation, citizenship, and mobilization became important elements in the discussion (Nuijten 2004: 104). The
development of the role of the state and its consequent influence in the governance process is still being debated. Governments have often failed to live up to expectations, which has resulted in analysis of weak, unstable, collapsing, or failed states (Kooiman et al. 2005). As the government failed to carry out its functions, other actors moved into prominent positions and now claim to be integral to the policy framework (Marinetto 2003; Kooiman et al. 2005). Governance is therefore associated with a decline in the central government’s ability to steer society, according to a number of scholars (Jordan et al. 2005). Pierre and Peters (2000: 83-91) contend that the state is losing its steering ability as control is displaced: upwards to regional and international organizations; downwards to regional and decentralized localities; and outwards to international corporations, non-governmental organizations, and other private or quasi-private bodies (Jordan et al. 2005). Those who argue for minimal or limited state involvement therefore claim, according to Kooiman et al. (2005), the “often-quoted phrase ‘less government and more governance.’”

Evans (1995) has written extensively on different state regimes. He claims that in some nations, like Zaire, the state is predatory, while in others, like Korea, it is promoting industrial transformation. In Brazil and India, it is in between, sometimes helping, and sometimes hindering (Evans 1995).

World systems theory developed out of dependency theory that developed in the 1970s. From a dependency perspective, the spread of European “civilization” to the rest of the world was accompanied by the extraction of raw materials, the draining of social resources, and a loss of control over the basic institutions of society (hence the notion of “dependency”) (Peet and Hartwick 2009: 16). They claimed that instead of underdeveloped regions being developed by their connections to the center of the global capitalist order, the peripheral societies were actually underdeveloped as a result of their connection (ibid.). The poverty and backwardness of developing countries is thus caused by their peripheral position. The Wider Caribbean is a good example of such a situation, as it has since the “discovery” of the New World been connected to Europe through its trade. The trade between the two continents has historically not been viewed as serving the countries of origin, and its development model has been characterized by peripheral capitalism and external dependence (Grugel 1995). The economies in the region are generally small, economically vulnerable, their location is on the periphery of the international system, accompanied by an excessive influence of external agents, and often there is a tendency towards extreme concentration of power internally (Grugel 1995). The benefits derived from exports have been concentrated in the hands of a restricted elite, or benefits have flowed back to the Northern trade partners. These types of inequalities in the world’s economies have provoked the development of dependency theory. The theory was holistic in the sense that it attempted to place a nation in a larger global system and stressed the structural causes of underdevelopment rather than causes that are internal to a peripheral society. Thus, contrary to the view of modernization theory, dependency theorists have argued that development in Europe and the US was essentially the result of underdevelopment in the non-European world (Peet and Hartwick 2009). World system theory has developed out of dependency theory, but rather than using the bipolar model with only periphery and central nations, world system theory argues there are in fact three classifications. It argues that “the skewed power relations between the wealthy and industrialized ‘North’ and the poor and underdeveloped ‘South’ have resulted in a world-economy with core, semi-peripheral, and peripheral areas” (Wallerstein 1979 in Van Helvoirt 2009: 33). Core countries have complex production systems, high levels of capital accumulation, are administratively well organized, and are militarily powerful, while peripheral countries show the opposite characteristics.

1 In 1995, the oldest lobster fossil, believed to be the ancestor of the genus Palinurus currently living off the coast of Africa, was found in Mexico dating back to 110 million years ago. And even when the Tyrannosaurs were wiped out after the Cretaceous period around 65 million years ago, lobsters survived.
2 http://www.lobsters.org/Idoc/Idocpage.php?did=432
3 A cookbook by the Roman Apicius (1st-4th century AD) included recipes for broiled lobster, boiled lobster with cumin sauce, a lobster dish of minced balls of the tail meat, and lobster with wine.
4 For instance Andries de Coninck, Still Life with Lobster and Fruit (1640s), Jan Davizd de Heem, A Still-life with Fruit and Lobster (1650), Willem Kalff Still Life with Lobster, Drinking Horn and Glasses (c. 1653), and Abraham van Beyerden Banquet Still-life (c. 1660).
6 The story of the indentured servants taking their owners to court and winning a judgment that they didn’t have to eat lobster more than thrice a week (Woodard, 2004: 170) has also been told in other versions; e.g., the law protecting prisoners from having to eat lobsters more than once a week (Wallace, 2005: 237-238).
7 San Andrés is a Caribbean island close to Corn Island, belonging to Colombia.
8 Although Queen Elizabeth II is officially the chief of state, she appoints a governor general to represent her as the head of state. The governor general’s role, however, is largely ceremonial, as the real executive power is vested in the cabinet, led by the prime minister.
I presume there are female lobster importers, but I have yet to meet one, which is why I refer to “he.”

Sodium sulfate is used during processing.

However, after the economic crisis Nicaragua started exporting more to the EU.

The Bahamas does not have to pay import duties as they are a member of the British Commonwealth. With a few exceptions there is normally a 5% import tariff to access the EU market. Cuba exports lobster to the EU and Asia, as they hold a leading and unique position in the Caribbean in the live lobster trade.