

## **FISHING FOR THE REVOLUTION: Transformations and Adaptations in Cuban Fisheries**

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*Abstract* The purpose of this paper is to understand the development and transformation of Cuban fisheries, so far the object of a limited number of studies from a social perspective. It presents how national fisheries have been managed since the 1959 revolution and in the wake of the 1990s' social, economic and political crisis with its resulting processes of decentralisation. Using a case study from the province of Pinar del Río, I examine how large-scale fisheries have been reorganised, both ideologically and practically, as a consequence of these events. I also explore how large-scale fisheries in the region are connected to an emerging small-scale fishery. Cuban fisheries demonstrate the complexities that arise from both the local context and its links to regional, national and international processes.

### **Introduction**

One of the main goals of the Cuban revolution was to transform the environment in order to serve the nation's economic development agenda. Cuba's leaders sought to extricate the country from its underdeveloped status, which was characterised by a blend of the local subsistence economy and foreign (mainly US) domination of Cuba's main productive sectors and exports. The socialist State 'toolbox' – including collectivisation, centralisation and gigantism – was used, with a Cuban twist, to achieve the country's new objectives through natural resource extraction (Díaz-Briquets and Perez-Lopez 2000).

Although not as important as agriculture in the government's development plans, fisheries served two major but different objectives. First, fisheries were to be part of the government's development strategy, most notably via industrialisation. They therefore had to shed their small-scale, artisanal characteristics and be turned into a single large-scale, well-

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equipped fleet better suited to deep-sea fishing. As Castro said: 'We will no longer be speaking of small fishers with a dugout canoe or sail boat; we will be speaking of fish harvesters with increasingly modern means of production and larger boats; they will not be fishing only on the continental shelf but will be going out into the oceans' (author's translation, Fidel Castro, 1962 in Morales, 1972, 29). The many small fisher organisations and unions were to be united into one large centralised State organisation. This first approach to fisheries led directly to the second: not only would the fisheries be the object of development, they would represent Cuba's high level of development. Fisheries embodied the revolutionary project; they were another vessel for revolutionary values and ideologies both on the island and abroad.

Since the beginnings of the revolution in 1959, the socialist ideal has remained a central element of the government's ideology and discourse. There is often a gap, however, between the socialist ideal and people's everyday practices, as well as government policy, because of the economic challenges the country has faced (Doyon and Brotherton, forthcoming). Indeed, the island nation has faced major crises and setbacks throughout the years, particularly in the early 1990s with the collapse of the socialist block, leading to what has been named the 'special period in time of peace' (hereafter referred to as 'special period'). Using various techniques – including discursive manipulations and statistical fetishism (Brotherton 2005) – the State has maintained its ideological stance, despite the many profound transformations in the organisation of power and in the daily lives of the people (Doyon and Brotherton, forthcoming). The State began decentralising, leaving more responsibilities to provincial, regional, and local entities, as well as government-owned enterprises and newly-created cooperatives. In order to survive this decentralisation process, the population has had to develop new social practices. Citizens have also had to subtly interpret some revolutionary principles while negotiating their way through the changing system and State institutions, thereby reinventing the revolution on their own terms (Doyon 2005).

These changes have affected the fishing sector and coastal populations. As we will see, the fisheries expanded rapidly then experienced a dramatic decline in the 1990s from which they are now slowly recovering. In the process, Cuban fisheries went from a centrally organised large-scale, deep-sea, industrial fishing fleet to a small-scale, low-tech, coastal, and regionally-organised fishery. The State, however, has never discursively acknowledged these transformations, playing with semantics as it has in other sectors. In doing so, it has downplayed the downscaling of its fisheries and attempted to create the 'effect of truth' via discourse (Escobar 1995).

In this article I examine the changes that have affected the fisheries in Cuba since the revolution, using an anthropological and ethnographic approach. More specifically, I aim to analyse, from a qualitative perspective, what is at stake in the changes in the fisheries following the 'special period.' This will lead us to consider the case of the reorganisation of the fisheries in the formal and informal sectors. This paper contributes to the understanding of Cuban fisheries, which have received very little research attention, particularly from a social science perspective. I will explore these issues first by studying how the government fisheries were developed in the wake of the 1959 revolution and how they changed during the 'special period' in the 1990s as the State decentralised. I will then examine how large-scale fisheries (also named industrial deep-sea fisheries by the state) have been organised in La Coloma, in the province of Pinar del Río. This coastal town (population 5,000) is where one of island's most important fishing ports is located. It is known mainly for lobster fishing, and it experienced major transformations in production and in labour organisation during the crisis of the 'special period.' Finally, I will explore how the fishing industry of la Coloma is related to the newly emerging small-scale subsistence informal and illegal fishing activity in the neighbouring village of Las Canas.

This paper is based on fourteen months of fieldwork in Cuba over 2001-2002, and annual trips since. While in Cuba, I completed documentary research in La Havana and in the town of Pinar del Río, capital of the province of the same name. I lived for one year with an extended family in the village of Las Canas, where I did genealogical work, participant observation, and informal and semi-directed interviews. These interviews involved members of Las Canas and La Coloma. They focused, among other things, on how people spoke about their environmental practices, such as fishing; on their perceptions of the environment and its management; and on sustainable development projects put in place by outside aid agencies and the State. In the course of these interviews, I became acquainted with over fifty fishermen working in the *Combinado pesquero de la Coloma* (the fishing plant and port, hereafter referred to as the *Combinado*) as well as subsistence artisanal fishermen. Some participant observation and interviews were also conducted with professors and researchers working in the University of Pinar del Río philosophy and forestry departments; they were participating in a community-based sustainable development project of the mangroves in the region of La Coloma-Las Canas during the same period.<sup>1</sup> Finally, interviews were also conducted with government representatives working in the provincial Ministry of Science, Technology,

and Environment (CITMA) and some related agencies. Ninety formal semi-directed interviews were conducted in the field.

## **Cuban Fisheries and the Revolution**

The Cuban revolution resulted in significant changes to technical organisation in the fisheries and to the volume of production. Before 1959, the sector consisted mainly of subsistence activities with a small commercial sector. Conducted in the coastal and continental zones, the Cuban fisheries barely met domestic and tourist needs. The revolutionary government promoted industrialisation throughout the Cuban economy, including fisheries. A deep-sea fleet was launched, which would eventually reach into international waters from the Atlantic to the Pacific. The government's objectives were to supply the local population with more sources of protein, to increase the influx of foreign currency, to better protect the national territory and to establish bilateral agreements with other Latin American countries (Adams 1998).

During the 1960-70s, a modernisation program led to the construction of harbours, fish plants and new ships. At the time, with the strong support of the Soviet Union through preferential rates for fuel and mechanical parts, the Cuban fisheries were making some of the largest catches in Latin America and the Caribbean. Production went from 20,000 metric tons in 1959 to over 100,000 at the beginning of the 1970s, reaching 200,000 in 1976 (Adams *et al.* 2000). The new fleet included four divisions. The *Flota Cubana de Pesca* (FCP) worked mainly in deep-sea waters with seiners and trawlers, and targeted low-value species for the domestic market (mackerel, herring and hake). Another division, the *Flota atunera* fished in the Gulf of Mexico and the mid-Atlantic region, while the *Flota del Golfo* looked for demersal species in the coral reef zones. Finally, the *Flota de Plataforma* fished for high-value species such as lobster, shrimp, sponge, and crab using many different techniques. In the latter three cases, catches were for export.

For over thirty years this expanded fishery was managed within a socialist economy framework (Verdery 1991). Management activities were centralised and the sixty-three government fishing enterprises reported directly to the Ministry of Fishing Industry. All administrative decisions related to production quotas and the adoption or prohibition of fishing techniques were made directly by the Ministry; fishing enterprises had to conform to these decisions or risk facing sanctions.

The centralisation and accumulation of the means of production, typical of socialist regimes, stimulated the construction of several fish plants and ship yards. For instance, the redistribution of low-value species

was centralised to such an extent that all the fish in the country were shipped out of La Havana and not from the fish plants near the coastal communities. Since this low-value fish came from a deep-sea fleet, people did not have access to species available in their immediate area. The collectivisation of the means of production also resulted in the formation of several fishing cooperatives and State enterprises (similar to State farms). Workers were paid not according to their volume of production, but in set monthly wages determined by the government through a common national policy. This often had a negative impact on production and conservation since – as in the agricultural sector – employees tended to have little sense of responsibility as the State ultimately made all decisions (Doyon, 2005a).

The management style and change in scale conferred a strong political-governmental dimension to fisheries. They were held up as a model of Cuba's progress, modernism and development, which could no longer be compared to other Latin American countries but rather to Western standards. Castro's speech quoted in the introduction is a good illustration of this. Technologies were developed, larger marine zones were fished, and a greater number of species were caught, all of which aimed to lift the country out of its Third World condition (Eckstein 1993).

As might be imagined, these accomplishments and their associated processes also influenced relations between fish harvesters and the government. Fish harvesters became representatives of Cuban modernity as well as primary protectors of Cuban sovereignty.<sup>2</sup> They were seen as innovative producers, having abandoned outmoded local practices and subsistence activities that had kept them in poverty, and adopted modern well-equipped boats. The collectivisation of the means of production, the new wage labour system, the socialist moral model according to which each worker was encouraged to constantly improve him or herself, the stabilisation of working conditions and the overall socialist orientation; all changed how fishing was practiced in Cuba. These transformations also influenced fish harvesters' relations to space, their social organisation, and their revolutionary subjectivities, as will be presented in the following sections.

Industrial fishing was a profitable sector until the end of the 1970s when various countries, such as Mexico (1976), the US (1977), and Haiti (1977), established their EEZs, thus depriving Cuba of access to rich and relatively close fishing zones. Thereafter, the Cuban fleet turned to more distant international waters as well as to Soviet fishing zones, and thus became more dependent on the USSR. In this re-orientation of Cuban fisheries, new species were fished in quite different conditions than those prevailing in the Caribbean. The new situation required new equipment and entailed higher costs for travelling to more distant waters and for

extra maintenance, which was supported by financial and technical assistance from the former USSR. The situation for Cuban fisheries deteriorated with the economic crisis of 1990, following the collapse of the Soviet Union and the Eastern Block. The Cuban government became unable to maintain its fleet due to high costs and had to drastically reduce its fishing activities. The FCP fleet was condemned (it was eventually used for maritime transportation), while the other fleets were considerably reduced with many employees losing their jobs. Catches of 232,000 metric tonnes in 1988 dropped to 88,000 tonnes in 1994, and have stabilised at around 60,000 since 2002. Fisheries formerly based on large catches of low-value pelagic species were reoriented towards high-value species from the island's coastal zones, mainly for external markets (Japan, France, Spain, Italy and Canada). This has generated about 100 million US dollar per year, sixty percent of in which is from the lobster (*Panulirus argus*) industry. Throughout this upscaling and downscaling, the government has argued that its fleet has maintained an industrial status, although the fishermen and researchers I spoke with during my research were well aware of the true nature of the transformations.

As a consequence of these changes, Cuban fisheries have almost returned to their pre-revolutionary characteristics<sup>3</sup> for instance in terms of equipment and scope. Through this period, important changes have taken place in economic organisation and socialist ideologies. Castro declared: 'capitalism, yes; capitalists, no!' and the country proceeded to 'dollarise' its economy. It opened up to foreign trade, promoted joint ventures and concentrated its investments in high-value production for export,<sup>4</sup> all of which have had an impact on fisheries. After many fish harvesters were laid off, efforts were made to redirect the industry. First, changes were made to management (Joyce 1999): in 1996, (through decree-law 164 for the management of fisheries) the government proposed a decentralised approach, establishing a licence system and protection zones for certain species at risk. In this new context, the daily management of fishing operations and production is not in the hands of the Ministry but is entrusted to producer associations (one for each province) that manage fisheries and fish plants with a pre-established budget and quota system. When an association exceeds its quota, the fish harvesters and the enterprises they run receive a monthly bonus. Paradoxically, however, these associations are also responsible for protecting the environment. Observations suggest, however, that protection efforts are generally limited to a ban on fishing within ten meters of submerged coral reefs, as identified by the CITMA. Such a narrow definition of environmental protection raises doubts about the effectiveness of these measures since the country's priority is to secure

hard currency and fish harvesters are now paid in dollars according to their level of production.

Structural modifications in the Ministry of Fisheries Industry have also affected the internal division of labour among the associations. First, each association divided its fishing territory into production zones where different groups fish (Joyce 1997). Officially, this decision was made for conservation purposes. In principle, it decreases competition for the resource since each group must remain in a specific zone and is subject to fines if they do not comply. In addition, boat and equipment repairs as well as the crews' supplies (which were all paid for by the government prior to 1996) are the captains' responsibility. Since they have access to US dollars, fishers have higher incomes than most Cubans, but they also have to be more entrepreneurial, which entails the risk of appearing to engage in 'individualist' behaviours that were formerly – and often still are – discouraged and criticised by the State. Nonetheless, most of the fish harvesters I met prefer this system. Although they have more responsibilities and are at greater economic risk, they also have access to higher incomes.

Several economic and political national and international drivers have affected the development of Cuban fisheries in recent years. The United States, for example, is currently taking an interest in the sector and is concerned with how Cuban fisheries might affect its own foreign trade, a situation that generates speculation about the post-Castro period (Adams 1998). These government-driven economic and political changes were justified by economic necessities and the government's desire to maintain a 'renewed' socialism with a stronger accent on decentralisation. The transition from an open-sea large-scale industrial fishing sector to a focus on more restricted small-scale coastal zone production is motivated by the need for hard currency, making it a 'new industrial' fishing sector. Through the process of decentralisation fish harvesters have become 'responsible' workers, and a 'responsible citizen' is seen as a 'good comrade' in this late socialist period (Doyon 2003; see Premat 2004). The next section will take a closer look at the situation in the region of La Coloma and Las Canas, and look specifically at how this process unfolded in the *Combinado* – the fish plant and sea port of La Coloma.

### ***La Pesca Profesional: Industrial Large-Scale Fishing in La Coloma***

*The region of La Coloma – Las Canas*

La Coloma and Las Canas, with respective populations of 5,000 and 250<sup>5</sup>, are located on the southern coast of the island in the western province of

Pinar del Río. As one of the province's fourteen *municipios*, the area is important to the economic development of Pinar del Río, as well as to Cuba generally; this importance derives from its contribution to lobster production for export, namely through the *Combinado*<sup>6</sup>. The *Combinado* is a state enterprise founded in 1966, which was twice reorganised in subsequent years during processes of technological modernisation. The *Combinado* is a government fishing centre with a port, a workshop for boat building and repair, and a fish processing plant for the catches made by member boats. The *Combinado* is not a cooperative. Fishermen and other employees of the *Combinado*, such as fish processors and technicians, are not involved in decision-making processes, which are the sole responsibility of managers. These latter are chosen and assigned by the provincial and national governments. Although the industry is thriving, its benefits are not directly visible in the area since all revenue goes to the central government. With their bitter sense of humour, the inhabitants call themselves 'modern-day Cinderellas' waiting for a Prince to change their economic fate, and thus their daily lives. In 2000, the province's population was 737,342, representing 6.6 percent of the country. The 18-59 age group made up 59.7 percent of the overall population (Rodríguez 2003).<sup>7</sup> It is hard to determine the employment rate of the active population with any degree of certainty, but my estimates suggest that about eighty percent of employed persons work for government enterprises while the rest are involved in legal 'independent' activities, such as farm cooperatives and crafts.

In the immediate study area, unemployment<sup>8</sup> from government jobs has been an important problem since the 'special period' began.<sup>9</sup> Fishing and national tourism (for Cubans) are the main activities. Before 1990, they were far more developed and generated significant revenues for the region's inhabitants. Agriculture is not very developed in the area because of poor soil quality, and farming is not widespread. Twenty-five employees work in the small tourist center of Las Canas (a dozen of whom are from the community) and twenty-three work for the *Combinado*.

Many local economic activities are in the informal sector beyond state control. This is also referred to as the 'second economy' because many authors consider that it plays a crucial role in the smooth functioning of the country's first economy. The second economy relies to a large extent on personal networks, called *sociolismo*, and has become a generalised situation on the island as it has in other socialist countries (Burawoy and Verdery 1998; León 1997; Perez Lopez 1997; Rosendhal 1997). Despite a high unemployment rate in the official sector and the fact that most people under thirty-five never had the chance to work for a government enterprise following the economic crisis of the 1990s, many people

remain economically active in the informal sector. Thus, although they may not be employed, many people earn an income through various illegal economic activities. For instance, many commodities (mainly food products) are available outside the State production system while others are illegally acquired from government enterprises and sold on the black market. Some people offer services such as transportation and tourist lodging. These activities are tolerated by the state. In fact, they provide services that were traditionally government responsibility. Since the beginning of the 'special period', however, the state no longer has had the resources to maintain such services to the population. By turning a blind eye to these illegal activities, the state ensures the material conditions for Cuba's survival while maintaining its own legitimacy in the eyes of a population living with numerous daily constraints and difficulties (Verdery 1996).

#### *Fishing in the Combinado Pesquero La Coloma*

The case of the *Combinado pesquero de la Coloma* is an interesting example of the evolution and transformation of Cuban fisheries, particularly since the 1990s. It also illustrates how a process of downscaling occurred in La Coloma. The *Combinado's* operations are now based on small crews with relatively low-technology equipment, yet the central government continues to classify it as an organisation engaged in industrial large-scale fishing.

The small town of La Coloma was founded in 1830 and its economy was closely linked to maritime trade. After roads were built, fishing became an important activity. The first two fish plants (lobster, squid and tuna) were established in 1933 and supplied the Havana market. Afterwards, with the arrival of additional companies, competition increased and gave rise to larger-scale initiatives such as shipbuilding, leading to an expansion of trade nationally and internationally (mainly with the US). The population also expanded, mainly through national immigration, with many individuals seeking jobs in the fishing industry. The population went from 257 in 1919 to 1,231 in 1943. The increased number of employees coincided with the consolidation of labour unions at the national level, such as the fishworkers' union in the 1930s.<sup>10</sup> Although La Coloma benefited from the economic boom, it was the investors whose profits were the greatest, while most people's living conditions were determined by the low wages they received from entrepreneurs. Aside from a few privileged people, local residents did not have access to electricity, sewage or running water. Water was transported from the town of Pinar del Río and sold by the barrel to residents and boat owners. New immigrants lived in houses built rapidly and with low quality materials in the wetlands and flood-prone areas surrounding the

village. These poor living conditions were worsened by the absence of medical and education services.

This situation had a direct impact on the strong local support for Castro's revolutionary movement in the 1950s. The revolution led to several positive changes in the town between 1960-63 (for example, electricity, an aqueduct, schools and a medical clinic). In 1960 the Maritime Federal Union was created. It sought to promote the rights of fish harvesters and fish plant workers. In the meantime, boat owners could join government cooperatives which gave them access to privileges for purchasing equipment, fishing gear and fuel, for repair costs, and for selling their catches. All the fishermen based at La Coloma who stayed after the revolution joined the association and collectivised their goods. The fishers we met who had participated in the new organisation stated that, at the time, they had been very enthusiastic about joining the association. Although it is impossible to determine the degree of their enthusiasm, there was a certain pressure to join, because if they did not, they could not benefit from any government support or services (such as boat repairs, fuel purchase, equipment purchases, marketing, etc.) and they were left to their own fate.

The *Combinado* is a place that has served to facilitate meetings and exchanges between workers of the region. It has been a central nucleus in the defense of workers' rights and has served as a fertile ground for establishing and disseminating revolutionary ideals.<sup>11</sup> The transformations linked to the revolutionary movement were more rapid in this region of the country and major changes took place quickly during the early years. The fishing and port infrastructures already in place at the time of the revolution were expanded with nationalisation, concentrating all the fishing activities of the south coast of the province. In 1966, the government began building the new sea port with all the modern facilities, which was to be at the heart of the *Combinado*; to do so, however, it expropriated the poorest sector of La Coloma – that of La Puntilla, which had been established by immigrants over the two preceding decades. The inhabitants were transferred to Las Canas, formerly a tourist center for rich businessmen from La Coloma and the town of Pinar del Río whose inhabitants had built summer houses near the artificial beach carved out of the mangroves. The summer houses were given to the people transferred from La Puntilla, who fiercely opposed re-location. In 1966, after destroying the houses in La Puntilla, the government began constructing the new sea port. After living in Las Canas for forty years, only a few families went back to La Coloma in the 1980s, although the government promised to move them all back to la Coloma within six months. The newly repaired *Combinado* became fully operational in 1976, and in 1988 it added new plants for processing

lobster and tuna as well as for shipbuilding and repair. These developments had a deep impact on the lives of local fishers and their families.

One hundred boats berth at the port of the *Combinado* (15-20 metres in length made of ferro-cement and fibreglass), thirty of which work in the lobster industry and are equipped with 100 traps each (*jaulones*). In addition to 400 fish harvesters, there are 1,088 people employed in other sectors. All the products derived from the *Combinado* are sold in pesos to a government enterprise (Caribex S.A. the only fish and seafood exporter since 1967), which sells them for hard currency and low-value fish products for domestic consumption. In 2000, the *Combinado* generated sixty-six percent of the province's fishing revenues, valued at fifteen million US dollars (Rodriguez 2003). The *Combinado* now has ISO certification and sales contracts with companies from Japan, France, Spain and Italy. In accordance with the logic of a socialist economy, the revenue made by the *Combinado* is used first to cover basic expenses, then all of the profits are transferred to the central government. If the *Combinado* requires additional funds or investments, it must apply for them from the national government which reacts according to its capacities and priorities.

Work in the *Combinado* has always been highly valued, prestigious, and sought-after. It requires personal qualities as well as ecological and technical knowledge. For instance, fish harvesters must be able to deal with difficult conditions such as isolation, hard physical labour, mental fatigue, etc. The captains often participate in municipal meetings and they are consulted for important local decisions. In addition, they give five percent of their income to the local government to finance community initiatives (student activities, medical clinics, etc). There are many kin relations among the captains and crews, although the State does not promote or value them; on the contrary, family ties at work are considered to maintain pre-revolutionary paternalistic connections that are detrimental to the values and ideologies of social justice and equity promoted by the State. With the decline in investments in the *Combinado* and the many layoffs over the past decade due to the 'special period,' the government has tried to de-emphasise the importance of these connections, setting up an 'apprentice program' in order to replace the former family-based dynamics whereby sons were recruited to crews and later became captains. The recruitment process now includes hiring apprentices with over twelve months training in La Havana in fisheries and captains courses. But in spite of these measures, the hiring of fish harvesters remains a subjective process as captains can apply pressure to have an individual selected from their social network, whether among family or friends.

Older fish harvesters (over forty years old) all report that in the beginning of the revolution *Combinado* fishers were more committed to fishing. They liked to work at sea and it was often the only work they knew. Some explain this by saying: 'I have always been a fish harvester for the *Combinado* and I like it, and even if I didn't like it, I have to like it, don't I?'; 'I am a fish harvester because I always liked it, a son of a fish harvester becomes a fish harvester, and this is what I want to keep on doing, it's a family tradition'; 'I love fishing because, I don't know, I like fishing. When you go out to sea, you don't have the pressure of someone bossing you around, at sea, one knows what to do'; 'I did other type of work, I worked in tobacco and didn't like it. I like lobster, I like the sea. I don't know if it's because I was born next to the sea, but it's in me, I have it in my blood.' These older fish harvesters have a strong attachment to their fishing livelihood and to the sea.

The situation is changing, however, and the prestige now associated with a job in the *Combinado* is mainly related to the higher income. During my interviews and meetings with younger men, all stated that fishing for the *Combinado* was, or seemed like, very hard work and that they would rather do something different; some disliked the heavy work, some the long stays out at sea and others the self-discipline required. This thirty-five year old man's words summarise what many others said: 'I got involved in various types of work on the mainland but I now work on the sea for economic reasons, not because I like the sea but the salary I earned as a bricklayer was not sufficient for my family.' Conversations on the subject with both individuals and families during the course of research confirms that the majority of young people and adults are attracted to the fisheries by the money, although they do not have all the experience, knowledge, skills and 'respect for the sea' expressed by the older fish harvesters. This changing situation will no doubt influence their vision of socio-environmental issues associated with fishing activities and livelihoods.

Catches of tuna and other finfish species have decreased considerably since the 1990s due to the economic constraints in the country. By contrast, lobster catches have increased. During the peak production period – from October to February (called the *corrida*) – fish harvesters can make up to 500 US dollar a month.<sup>12</sup> During the *corrida* they use fish traps, whereas the rest of the year they rely on a simple but more tiring technique that consists of capturing the lobsters one by one with two sticks, often spending days in the boats looking through the shallow waters. Compared to the fishing gear used in other parts of the world, Cuban technologies are still very rudimentary. Lobster fishing crews generally include six people and they commonly make eight- to ten-day fishing trips (other types of fishing crews may be smaller and the number

of crew members may vary depending on the period and the circumstances). At the end of each day, they join a floating platform (*centro de acopio*) located near their fishing zone. There the lobsters are classified by size and a company boat collects them every three to four days. Introduced at the end of the 1960s, these platforms are managed by a team of six people who remain at sea for an eight-day period.

The La Coloma fishing zone is divided into six sectors. No trespassing is allowed between sectors and the whole crew can be laid off by the *Combinado* if they are caught doing so. Within a given zone, each crew takes great care to protect information on productive sites, although the captains are allowed to go anywhere within their zone according to their knowledge and planning skills. In addition, the size and productivity of the fishing zones vary. They support an unequal number of boats and fish harvesters, a situation that generates some inequalities and conflicts since the salary is proportional to the volume of catches. Currently there is a ban on fishing in some protected areas (for example, coral reef, estuary) where fish harvesters formerly caught certain species for their own consumption.<sup>13</sup>

This fishing zone management structure is intended to reduce competition between the fish harvesters and to encourage them to protect 'their' zone. The argument is that the fishers will be interested in protecting the resources on which they rely (Joyce 1997). The dollar-payment system is promoted so as to restrict exchanges on the black market and to stimulate production. Fish harvesters confessed, however, that competition is greater than before the system was put into place and that they do not necessarily try to protect resources, but rather try to increase production, regardless of the consequences for stock recruitment. Some do not even respect the fishing prohibition periods (*veda*). The administration of the *Combinado* also encourages overproduction with bonuses and rewards (of high-valued foods such as chicken or beef, for example), which are given to the crews that reach or exceed their quotas. These practices are anchored in the new decentralisation process and the ambiguities it leads to in terms of sustainable environmental management. Let us now turn to the organisation of the fisheries in the community of Las Canas.

### ***La Pesca Furtiva: Informal Small-Scale Fishing in Las Canas***

The small village of Las Canas consists of a single street with about 100 wooden houses scattered along it. Half of the houses were built in the 1930-40s and about eighty are inhabited on a permanent basis.<sup>14</sup> On the north side of the road there are mangroves and wetlands, while the south

shore is bordered by the sea. At first glance, the village appears to be largely deserted and its buildings falling down, but a more careful look might reveal a variety of activities: a man busy taking care of his charcoal oven near the mangroves; a couple sailing in a small boat; and children returning from school. About half of the inhabitants of Las Canas are officially unemployed and engage in parallel, non-governmental natural resource extraction in order to survive. In the westernmost section of the village is a small tourist centre which was very busy before 1990. Before the economic crisis, it provided between fifty and seventy-five local jobs, depending on the season. During my field work in 2001-2002, and since that time, only a dozen inhabitants were working there, on a contractual and temporary basis. Similarly, prior to the 'special period,' more than 100 people worked in the *Combinado* while today only twenty-three men are involved in fishing and three women work in the fish plant. Thus, several households can count on a reasonable income from the *Combinado*. The material benefit from this income is not, however, obvious and the overall impression the community gives is one of poverty, with problems related to the lack of transportation, food supplies, and environmental degradation.

During the wealthy years of the revolution, the Las Canas population was totally employed by the government and had abandoned natural resource activities such as small-scale farming, charcoal production and subsistence fishing. Most people found the new post-revolutionary way of life very appealing and quickly embraced modernisation, putting aside their previous difficult, 'less civilised' subsistence activities. Wage labour corresponded well to their new view of life, salaries were sufficient, and the State supply system functioned relatively well. Basic necessities were provided and the inhabitants had access to amenities such as a white sand beach, a cabaret, a restaurant and a discotheque. In this context, the environment was no longer the main source of subsistence for families but rather a transformed and pleasant space; the former small farm plots were replaced by flower beds around the houses. Although their everyday lives were not problem-free, the hard years of dependence upon extractive activities seemed to be behind them.

With the advent of the 'special period,' however, the inhabitants had to go back to using natural resources in order to survive. There were shortages in various sectors, including electricity, fuel, hygienic products, basic foodstuffs and so on. One of the renewed subsistence activities was fishing. Environmental practices and knowledge related to fishing, which had been put aside for many decades by ninety-five percent of the population, had to be re-invested and re-invented (see Doyon 2005). Every family in the village now goes fishing and, although men tend to go out more often, many women also go to sea in small boats.

There are two types of small-scale fishing, called '*particular*' or 'private' fishing. The first involves fish harvesters registered in a sport fishing cooperative, called *Desportistas*. These fish harvesters have their fishing license and interact with the fisheries offices of the Ministry of the Interior. Before going to sea they must report to the officers. When they obtain permission (which is not always the case, such as when rumours of illegal emigration circulate), they are allowed to spend no more than seventy-two hours at sea. After that, they are considered 'missing' and are accused of illegal departure. Currently, forty-six boats are registered in the cooperative, but over thirty had already left the country at the beginning of the 1990s. Each year, various crews attempt to do the same, some successfully. Most of the boats are owned by people from the town of Pinar del Río, who inherited them before the revolution. Several of them are now obsolete and since repairs are expensive, many are not used anymore. The boats still in use serve mainly for recreational purposes and small fishing trips in nearby areas. Also found in the sport fishing cooperative are small wooden boats (two metres by one metre) used for accessing the mangroves and the Coloma River estuary where sardines are caught and sold for one peso<sup>15</sup> a litre to the tuna fish harvesters of the *Combinado*. As we can see, the term 'sport fishing,' which is from the pre-revolutionary period, does not refer to the generally-accepted definition. In Cuba, sport fishing refers to non-governmental, but legal, fishing, since those who practice it have official permits for their boats, are registered in a cooperative, and report to border guards when they go out to sea.

In principle, anyone who fishes must have a license and be a member of the sport fishing cooperative. This is the case, however, of only two people in Las Canas; the main reasons for not registering are the high costs of licenses and the travel for meetings with fisheries officers. In addition, the interactions with the officers during each trip imply some unwanted monitoring of their fishing gear and catches by government representatives.

The other form of small-scale fishing is practiced by people without licenses. Named *pescas furtiva*, it is considered illegal, but is tolerated by the State. Indeed, all non-registered activities, including environmental use, are considered illegal since they are associated with capitalist practices and values. Among other things, they lead to accumulation outside of the central State system and contribute to personal enrichment and individualism, which are clearly counter-revolutionary. There are other reasons, however, for prohibiting fishing without a license: strategic reasons and national security. Because of the difficult economic situation on the island, as well as the lack of human resources for controlling the

fish harvesters' activities, there is, however, a certain tolerance on the part of government authorities.

This *pesca furtiva* is of major importance for the community. At least one member of each family (male or female) fishes in neighbouring coastal areas, for a total of almost one hundred people. These fish harvesters, however, do not venture far from shore for safety reasons and due to their very rudimentary equipment. Las Canas fishers are allowed to be at sea within fifty metres of the shore, in sight of the lighthouses which guide the La Coloma boats into the small maritime canal when they return to shore. Beyond that point, they are systematically arrested by the coast guard. Fish harvesters therefore spread east and west of the village within the permitted limits. Given their flimsy wooden or plastic handmade boats, they cannot in any case go very far for very long periods of time.

Subsistence fishing was not common before the 1990s. During the first thirty years of the revolution, only a few people of Las Canas engaged in fishing for recreation and they would give their catches to family and friends. With the 'special period' people's basic needs were no longer met and the number of fish harvesters increased considerably. According to a dozen informants, the fishing resource has been affected by this increase in the numbers of fish harvesters; they state that fish are now scarcer and smaller than at the beginning of the 1990s. As one fisher explained: '...before, there was not so much fishing; you could throw your line anywhere and you caught a lot of fish. Now it's different, too many people are fishing.' Other informants further explained:

...before, everything was easier, life was less difficult because there were plenty of fish. Before there was no special period, no economic blockade [by the USA] that created this situation. There are less fish because there are more fish harvesters and there are more needs. Before, just two or three of us went fishing, now everybody must fish to survive. However, people put too much pressure [on the resource]; they go with *chinchorro* [small mesh nets], take twenty, thirty pounds of very small fish of no matter what species and let them die, that's why there is a decrease [of fish].

Needless to say, this new activity has been affected by changes in the economic and social organisation of the community.

Since the beginning of the 'special period' the inhabitants of Las Canas have witnessed the emergence of certain sub-groups within the community. Before that period, people were rather individualistic in the way they defined themselves. The overall economic context was such that each family could fulfill its basic needs and did not depend much on its

neighbours. But with the 1990 crisis, people had to develop new strategies and set up new and stronger social networks. Households, whose membership varied (see Doyon 2005 for more details), are at the root of these changes and of the environmental practices that accompany them. During my fieldwork, I identified five household networks based primarily on friendship rather than on the fictive kinship system found in other parts of Latin America (Breton and Doyon 1999). In general, these groups are formed by neighbouring households sharing a common space and its resources. Exchanges that take place in the network cover a wide variety of items and activities, ranging from babysitting to sharing space in a refrigerator, to various types of loans (food, fuel, fishing gear and more) and political contacts. Most people consider these household networks to be a necessity in today's difficult economic context. Their members say that they are better off than the people in the few households that remain more independent.<sup>16</sup> Ecological fishing knowledge and the capital needed for using the resource (such as boats and fishing gear) are passed on primarily within the household. The formation of fishing work groups is also influenced by household membership and networks.

Small-scale fishing in Las Canas depends heavily on the ecological and technical knowledge of fish harvesters working in the *Combinado*. Experienced fish harvesters have taught their families (wives, children and other family members living under the same roof) how to fish efficiently. These new fishers have therefore learned many details about fishing (for example, landmarks, phases of the moon, rainfall, salinity, etc.) and are now able to fish with some regularity and success. Moreover, this knowledge gives those who possess it economic and political power in the community, since (as they themselves say) they are fishing 'as it should be done.'

Households and families with a professional fish harvester from the *Combinado* under their roof were the first to begin fishing intensively and were able to generate a significant income from it. Another element that helped them is that, in general, they could easily access the necessary means of production. The fish harvesters from the *Combinado* could more easily get their hands on fishing gear such as fish traps, castnets and gillnets (or the raw material to make them by hand) from the fish plant – often by theft. Five people have a dozen fish traps, six others own castnets, ten have gillnets and fifteen people have small boats. However, taking this equipment from the *Combinado* is illegal and fisheries officers often intervene and hand out fines. Still, the equipment circulates among households. Whenever fishing equipment is exchanged, the borrowers give something back in kind, for example a portion of the catch or some of the money from sales. The conditions of the loans vary according to the

participants, their trustworthiness, their discretion, as well as to their relative social distance from the household network giving the loan.

As we can see, small-scale fishing in the community contributes to the informal economy of the region. Catches are used primarily for domestic consumption, but some may be sold. Each two and a half kilogram fish pack is sold for about twenty-five pesos, following the fluctuations in the value of the dollar. The sales may take place either within the community,<sup>17</sup> with people from La Coloma, or with residents of Pinar del Río. The money is used to buy basic goods (for example, soap, oil, eggs or coffee) or some extras (like rum, clothes or perfume) that can be purchased in the 'dollar stores.'<sup>18</sup> The fish pack can also be exchanged directly for various types of food, cigarettes or other items. My calculations, based on an average catch of one fish pack a day, show that this activity can be quite lucrative compared to government employment. In some cases, small-scale fishing allows individuals to earn up to 750 pesos or more per month, which compares favourably to the average national salary of about 270 pesos, according to the official government website ([www.cubagob.cu](http://www.cubagob.cu)). Therefore, households with productive fish harvesters who have good ecological and technical knowledge and access to means of production have greater economic power and status within the community, a situation which is directly related to the connections some members of Las Canas maintain with the 'industrial' fisheries of the *Combinado*.

Clearly, some fish harvesters are less successful than others. The main reason for this is that the less successful fishers have no fish harvesters from the *Combinado* among their relatives or any close personal contacts who could teach them how to fish better. As a result, they have no access to ecological knowledge and have not learned the many different fishing techniques. As in the *Combinado*, fishing in the community is not communal and is therefore not based on a general sharing of environmental knowledge, techniques and gear. Everyone in the community protects his or her own interests, regardless of the revolutionary principles of equity. This young fish harvester's comment is characteristic of the opinion of Las Canas inhabitants: '...the sea gives itself to those who know how to use it.' This comment explains fishing as a game between the sea and the fish harvester where the better fish harvester 'wins.' Those less knowledgeable must earn their living by imitating more experienced fishermen. Since they earn less, they have to diversify their activities by producing charcoal or providing tourist services. They have a lower status within the community and are often accused of destroying the environment with their fishing. The paradox is that the more experienced fish harvesters are reluctant to share their knowledge with them.

Some individuals in the region have developed a different (and more marginal) economic strategy related to fishing: lobster exchanges. They use one of their contacts (generally a friend or a member of their extended family) who works on a *Combinado* boat that brings the lobster from the floating storage platform (*centro de acopio*) back to the plant. They set up a place and time to meet (always at night) where they can buy a certain quantity of washed and cleaned lobster tails for about 10 pesos a tail. Back on land, the tails are immediately frozen and hidden. Obviously this activity is illegal and can be punished severely (fines of up to 5,000 pesos, job loss for the *Combinado* worker, sometimes incarceration, etc.). This practice is seldom openly referred to in daily conversations but everyone knows that it exists, and it continues in spite of the high risks because of the money that can be earned. Lobsters are sold to outside middlemen for twelve to fifteen pesos each depending on their size. The middlemen re-sell them to private restaurants or households offering tourist services in Pinar del Río, Viñales or La Havana, where a lobster meal costs a tourist between ten and twenty US dollar. This practice is yet another example of the links between 'industrial' fisheries and local communities.

Las Canas inhabitants are ambivalent about *la pesca furtiva*, or subsistence fishing. They do not consider it to be a real economic activity, although it attracts a lot of people for the food and money it provides. It is indeed viewed as furtive in all senses of the term and Las Canas residents have a paradoxical view of it. On the one hand, it is widely practiced and morally defended in the community as a way of surviving. It has become a way of life in the absence of other viable economic alternatives and people complain loudly when the government watchmen are too zealous in their efforts to stop it. They claim the right to fish, although it is illegal. On the other hand, people of Las Canas also state that it is not 'real' work, like that associated with the *Combinado*, the tourist sector, farming or an office position. Almost everyone said they would prefer to be working in the *Combinado* because of the salary. Subsistence fishing is described as temporary and everyone practicing it stated that any other economic opportunity would be better, and that they would quit fishing anytime if they could.

The case of Las Canas helps us to reconsider some of the more conventional views of small-scale fish harvesters, as described by several authors (see among others Berkes *et al.* 2001; Goedefroit *et al.* 2002) who have studied fisheries classification (see also Johnson 2006 for a critical examination of such categories). Their writings help underline the fact that in the case of Las Canas, the knowledge used by small-scale fishers has not been handed down for generations, nor is it equally distributed within the community in a spirit of equality. To the contrary, ecological

knowledge has been passed on, or 'invented,' only recently and is not equally distributed or shared within the community. Moreover, knowledge-sharing is not valued in the community, whose members prefer to bank on an individualistic strategy. Fish harvesters do not say they intend to 'share' information and knowledge in the name of social justice or even in the name of the socialist values of equity. Gear and income distribution emphasise this, as well as the fact that *la pesca furtiva* is conceived as a temporary, fall-back activity.

## Conclusion

The Cuban case presented here exposes the complex process of fisheries transformations in relation to changing national and international economic and political pressures. Based on ethnographic research, this article documents the case of fisheries since the revolution, pointing out recent changes in the sector, in particular since the 'special period.' The fisheries model promoted in the first thirty years of the revolution was based on an industrial model, which was intended as proof of the modernist, progressive and scientific trends of the Cuban revolution.

Following the economic crisis of the 1990s, Cuban fisheries underwent major changes. In a context where the government no longer had the resources to provide for even the most basic needs of its population, the industrial regime that prevailed during the revolution's years of plenty could no longer be maintained. Investments in the fisheries sector were abandoned and production had to be reoriented. The large scale, deep sea focus of fisheries shifted, thus changing the fishing practices of the *Combinado* fish harvesters. The new model that was adopted includes: processed products sold to mass international markets; a high division and specialisation of labour; wage labour; strong reliance on and identification with science and modernisation; rudimentary equipment; low technological sophistication; small crafts with small engines; locally handmade gear with medium catch capacity that is highly diversified to adapt to the fishing season; and an organisation based on close family and friendship ties. These changes were supported by state discourse. In spite of the extent of the transformations, the government continues to assert that the gains and principles of the revolution remain intact in its fisheries, which it continues to characterise as industrial. On the other hand, it asks that workers adopt new practices and attitudes, such as entrepreneurship, which contrast with socialist ideology, but which enable the government to deal with its economic challenges while preserving the revolution.

These changes in the fisheries highlight certain connections between large- and small-scale sectors, specifically through the many family ties between large- and small-scale fishers. As a result, informal fishing practices in Las Canas are nourished and maintained to some extent by the fishing activities of the *Combinado*. Equipment, techniques and ecological knowledge are exchanged through various connections rooted in family ties and local markets. It is suggested that the links between the different types of fisheries may sometimes be overlooked. This paper suggests the importance of focusing attention on them, as they provide information on important ecological and political knowledge (Butler 2005), on how *savoir-faire* and techniques are handed down from one generation to another, but also between individuals within a single generation; in Las Canas, ecological and technical knowledge that was neglected for over thirty years has been passed on in only one generation. Additionally, in Cuba the distinctions and boundaries between the formal and informal sectors, between what is prohibited and tolerated, between the margins and the mainstream are variable, sometimes blurred and subject to changes and different interpretations. These nuances are crucial, however, for natural resource management. In light of the examples presented here, it can be said that taking them systematically into account can contribute to a better understanding of some of the more hidden, but no less influential dimensions of the dynamics that play out within and between different types of fisheries.

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## Notes

- <sup>1</sup> This project was funded by the International Development Research Centre of Canada (IDRC), and managed locally by the Cuban team.
- <sup>2</sup> Indeed, questions of territoriality and border spaces are very delicate in Cuba. Potential counter-revolutionary threats coming from the sea and fomented in the mangrove zones are still very present and occupy the collective imagination. Hence, fish harvesters are to watch the national space and inform the Ministry of the Interior of any irregularities. On the other hand, all Cubans out at sea are potential deserters and are highly controlled by the State.
- <sup>3</sup> This was the case for all Cuban economic activities, from agriculture, to energy, to health care and mining. This period had dramatic repercussions for the population who lived long and unprecedented periods of shortages.
- <sup>4</sup> In addition to these, joint-ventures also took place in organic farming enterprises, medicine production and international tourism, among other sectors.
- <sup>5</sup> Those figures are approximate. Indeed, some temporary and permanent migratory movements take place (mostly of young men seeking work) which changes the number of inhabitants. However, those variations are not reported in national statistics. For more details, see Doyon 2003.
- <sup>6</sup> There are also other important types of production, such as tobacco (this is where the famous Cohiba cigars come from), citrus, and logging.
- <sup>7</sup> Statistical data are scattered and hard to obtain in Cuba. Before 2002, the last census took place in the 1980s. Hence, the data that we have, while they allow us to highlight some characteristics, are partial.
- <sup>8</sup> For political reasons, there are no statistics on this subject. However, state representatives informally told us that around fifty percent of the population is unemployed.
- <sup>9</sup> This is the name that the government gave to the economic crisis, underlying the harshness and the sacrifices everyone had to endure, similar to those required in wartime.
- <sup>10</sup> The working conditions of fish harvesters and plant workers were terrible and they were highly exploited by the owners. Moreover, many workers were children under fifteen years of age.
- <sup>11</sup> The region has been the locus of various important revolutionary cells, and la Coloma was initially selected by Castro for its Granma attack. Intense arms trafficking also took place in those years to sustain the revolutionary movement.
- <sup>12</sup> The average monthly income of a Combinado fish harvester is around 200 US dollars. It varies depending on the seasons, species and fishing zones. This is

extremely high for Cuba. Comparatively, a physician may earn between thirty and forty US dollars a month.

<sup>13</sup> It is interesting to note that the wildlife agents in charge of environmental protection are employed by the Ministry of the Interior, as are the guards inspecting the boats coming in from sea. This points again to the political stakes connected to coastal and maritime spaces.

<sup>14</sup> The other houses are used as summer houses by their owners. They were given the residences of their deceased relatives who owned the houses before 1959. For more details, see Doyon 2003.

<sup>15</sup> One US dollar equals twenty-five pesos.

<sup>16</sup> However, it is important to note that the households and families who receive remittances from relatives living abroad are in general far more independent from those social networks and the State subsidy system than the families who have no relatives off the island. This is the case here of the half dozen households who are not part of the major households networks. The other households of Las Canas do not have relatives living in a foreign country. In 2000, the remittances sent to Cuba reached 750 million US dollars, ninety percent of it from Cubans living in the US (Orozco 2002 in Brotherton 2005).

<sup>17</sup> The individuals who buy fish in the village are either older people who can't fish anymore or people offering illicit tourist services to foreigners visiting the village who want to eat something 'typically Cuban'. The households practicing these activities always need to have some fish in store in case such an opportunity arises. For more details, see Doyon 2003.

<sup>18</sup> The 'dollar stores', named Choppy (for shopping) sell a variety of consumer goods (food, clothing, electronics, etc.) in US dollars. They are the alternative to the bodegas—government stores selling similar merchandise, but with much less frequency, quality and predictability. Goods in the government stores are much cheaper and can be bought with ration coupons, but they are also much scarcer.

## References

Adams, C.

1998 An Overview of the Cuban Fishing Industry and Implications to the Florida Seafood Industry if Renewed Trade, International Working Paper IW93-3, Institute of Food and Agricultural Sciences, University of Florida, Gainesville.

Adams, C *et al.*

2000 An Overview of the Cuban Commercial Fishing Industry and Recent Changes in Management Structure and Objectives, edis

- document FE218, International Working Paper IW93-3, Institute of Food and Agricultural Sciences, University of Florida, Gainesville.
- Berkes, F. *et al.*
- 2001 *Managing Small-Scale Fisheries: Alternative Directions and Methods.* Ottawa: International Development Research Centre.
- Breton, Y. , Brown, D., Davy, B., Haughton, M. and Ovares, L. (Eds).  
2006 *Coastal Management in the Wider Caribbean: Resilience, Adaptation and Community Diversity.* IAN Randle Publishers and Ottawa, International Development Research Centre.
- Breton, Y. and S. Doyon  
1999 'La noción de 'familia' en la antropología marítima : del parentesco al manejo costero'. *Perspectivas Rurales* 6, Numero especial : Sostenibilidad ambiental y economica de las poblaciones costeras, 3 (2): 37-45.
- Brotherton, P.S.  
2005 Macroeconomic Change and the Biopolitics of Health in Cuba's Special Period. *Journal of Latin American Anthropology*, 10 (2): 339-369.
- Burawoy, M. and K. Verdery (Eds).  
1998 *Uncertain Transition: Ethnographies of Change in the Postsocialist World.* Lanham, MD: Rowman and Littlefield.
- Butler, C.  
2005 Understanding the Coho Crisis: political knowledge in a fractured salmon industry. Proceedings of the Mare conference, Amsterdam, July 7-9.
- Colburn, L.L.  
2006 Research and Resource Management in North American Fisheries. Special Issue *Human Organization*, 65 (3)
- Davis, A and J. Wagner  
2006 A right to Fish for a Living? The Case for Coastal Fishing People's Determination of Access and Participation. *Ocean and Coastal Management*, 49: 476-497.
- Decoster, J.  
2001 *Challenges facing Artisanal fisheries in the 21st Century*, Bruxelles, ICSF
- Díaz-Briquets S. and J. Perez Lopez J  
2000 *Conquering Nature: The Environmental Legacy of Socialism in Cuba.* Pittsburgh, University of Pittsburgh Press.
- Doyon, S. and P.S. Brotherton
- Forthcoming Capitaliser la révolution cubaine. Pratiques et politiques dans les secteurs de la santé et de l'environnement. *Anthropologie et sociétés* 32 (1)

- Doyon, S.  
2005 Une révolution à sa mesure : Diversité des pratiques environnementales communautaires à Cuba. *Anthropologie et Sociétés* 29 (1): 121-144.
- 2005a Savoir environnemental local et scientifique : entre la révolution, la gouvernance nationale et le développement durable à Cuba. *Vertigo* 6 (2): 4-11.
- 2003 L'environnement 'révolutionnaire' : pratiques, discours et dynamique socio-environnementale de la gestion des ressources côtières à Cuba. Doctoral Dissertation. Montréal. Department of Anthropology, McGill University.
- Eckstein, S.  
1993 *Back From the Future: Cuba Under Castro*. New Jersey: Princetown University Press.
- Escobar, A.  
1995 *Encountering Development. The Making and Unmaking of the Third World*. Princeton: Princeton University Press.
- Goedefroit, S, Chaboud, C, Breton, Y.  
2002 *La ruée vers l'or rose: regards croisés sur la pêche crevettière traditionnelle à Madagascar*. Editions IRD, Paris
- Johnson, D.  
2006 Category, Narrative, and Value in the Governance of Small-Scale Fisheries. *Marine Policy* 30: 747-756.
- Johnson, D. *et al.*  
2005 Fish Capture. In: J. Kooiman *et al.* (Eds.) *Fish for Life. Interactive governance for fisheries*. Amsterdam: Amsterdam University Press: 71-92.
- Joyce, I.T.  
1999 Socialism and the fishery: a case study of the Cuban shrimp fishery. *The Canadian Geographer* 43 (1): 53-69.  
1997 The spiny-lobster fishery in Cuba. *The Geographical Review* 87 (4): 484-503.
- Kooiman J., Bavinck, M., Jentoft S. and Pullin R. (Eds)  
2005 *Fish for life: Interactive governance for fisheries*. Amsterdam: Amsterdam University Press.
- Kooiman J. and M. Bavinck,  
2005 The Governance Perspective. In: J. Kooiman *et al.* (Eds.) *Fish for Life. Interactive governance for fisheries*. Amsterdam: Amsterdam University Press: 11-25.

- León, F.  
1997 Socialism and Socialismo: Social Actors and Economic Change in 1990s Cuba. In: Miguel A. Centeno and Mauricio Font (Eds.) *Toward a New Cuba? Legacies of a Revolution*. London: Boulder: 39-52.
- Morales, P  
1972 Cinco años de Cuba en el mundo pesquero. *Mar y Pesca*, abril: 26-35.
- Pérez-López, J.F.  
1997 Cuba's Second Economy and the Market Transition. In: Miguel A. Centeno & Mauricio Font (Eds.) *Toward a New Cuba? Legacies of a Revolution*. London: Boulder: 171-186.
- Premat, A.  
2004 Cuban Counterpoint of the Public and the Private: Reflections on the Making of Urban Agriculture Sites in Havana, Cuba. Doctoral Dissertation. North York. Graduate program in social anthropology, York University.
- Rodríguez G.,  
2003 Base para el Manejo Sostenible de un Bosque de Manglar en Estado de Deterioro. Tesis para el grado de Doctor en Ciencias, Universidad de Pinar del Río, Cuba, Universidad Alicante, España.
- Rosendahl, M.  
1997 *Inside the Revolution: Everyday Life in Socialist Cuba*. Ithaca: Cornell University Press.
- Verdery, K.  
1996 *What Was Socialism and What Comes Next?* Princeton, Princeton University Press.  
1991 Theorizing Socialism. *American Ethnologist* 18 (3): 419-439.