

Work practices and knowledge production in fisherwomen's daily life

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ABSTRACT:

This paper aims to discuss the production of so-called traditional knowledge derived from life and work experience in interaction with natural ecosystems in the field of artisan fishing. Data provided in this paper were gathered through collective interviews conducted to a group of women working in the fish-processing sector, mostly involved in activities linked to the extraction of crab meat and therefore known as crab peelers.

The group members come from artisan fishing families, from a community located near São Gonçalo in the State of Rio de Janeiro.

This research followed an ethnographic approach and involved twenty women and seven families. Only part of this research is described in this paper.

KEY WORDS:

Knowledge construction, Work experience, Credits for life experience, Fishing, Women.

THE PLACE: SUBJECT'S LIVING AND WORKING TERRITORY

The first inhabitants of Baía de Guanabara (Guanabara Bay) were the Tamoyo Indians, who named the bay as “the bosom of the sea”. The Portuguese have probably mistaken the bay for a river (rio, in Portuguese) or canal (Martins, 2005), hence the name Rio de Janeiro. “Its water” and “Guanabara lights” were immortalized by composers and musicians². The individuals involved in present research depend on the bay waters and mango-growing ecosystems for subsistence and on its water they rest their evening look when they sail back home everyday. As is the case of Mrs. Semirami, the oldest of our fisherwomen, some of these women started their fishing activity ninety-two years ago. She is the only one who can recall a time of fish abundance in the Bay, when nobody could complain about lack of work.

The population of Itaoca is merely composed of households living off fishery activities, which allowed them to establish proximity relations no longer possible in present context of accelerated and disordered urban growth accompanied by a significant extension of private property even in designated preservation areas, such as mango plantations³. According to the inhabitants of Itaoca Island the Guanabara Bay provides the opportunities for income, leisure, and transport, since it is the only way available to get to the island. Moreover, this is also the only way the so-called “outsiders” can take to come to the island.

Before, everybody was a known relative to anybody else. Nowadays, there are lots of people I’ve never met. Except for those who shout my name... Hey Semirami!

This research involved a group of twenty women and seven families, traditionally connected with artisan fishing (with ages ranging from twenty-eight to seventy, with the exception of the above mentioned Semirami who is ninety-two years old).

The statements quoted in this paper were transcribed from fieldwork diaries reporting collective interviews conducted to crab peelers in their context of work: *crab circles*. This group of women works in the fish processing sector, namely in crab peeling and are therefore known as “*descarnadeiras*” which means people who extract crab meat, that is crab peelers, a designation adopted hereafter when referring to this group. In other regions of Brazil and of the State of Rio de Janeiro other designations can also be heard, such as “*catadeiras*”, “*desfiadeiras*” or “*marisqueiras*”. This research was carried out in the municipality of São Gonçalo, in a borough named Itaoca, the farthest island in the Guanabara Bay, linked by a bridge to the famous Island of Paquetá and with a population of about 4 000 inhabitants (source: Municipality of São Gonçalo, 2004).

Women’s work in the fish-processing sector takes place in their own residence or in the residence of a neighbour but it is always performed in a collective way. As they organize themselves in a circle, this activity is known as “*roda de siri*” which means *crab circle*.

They get paid according to their individual production; each woman receives the correspondent to the weight of meat she could extract, which is collected by a fisherman or a middleman called “*atravessador*” or “*pombeiro*”. Crab peelers get from R\$ 1,80 to R\$ 2,00 per kilo (data from 2004/2005) although it takes about four hours on average for an experienced worker to extract one kilo of crab meat. However, retail price reaches from R\$ 5,00 to R\$10,00.

Men do the fishing. Their catch comes from Guanabara Bay, around Itaoca. When needed, they sail farther away and sometimes even outside the State of Rio.

Crab peeling consists of extracting crabmeat from previously cooked crabs, using a small sharp knife, which these women handle as a slice to remove the meat from crab claws and shell. Then meat extracted is kept in containers, either plastic boxes or other domestic containers. This process can cause severe injuries, which can even lead to digital amputation. In periods of intensive work their hands swell and bleed. At stake here is an activity poorly remunerated and with no labour bond because of its connection with artisan fishing. Merely 40% of the interviewed women were registered as shellfish workers to the local Fishing Colony and Association. Besides, female artisan fishing is depreciated in Brazil either because of gender prejudice or for structural reasons related to female work protection, financing policies and promotion of employment and income (on this respect see Lima, 2003; Martins, 2005).

Every crab fisherman works with a group of crab peelers recruited by himself or by a middleman from his own family or neighbourhood. Intermediation networks can involve a variable number of people. In some cases fishermen also do the cooking, others just deliver their catch to a middleman who deals with the cooking and commercialization. Crab cooking is usually carried out in home yards using small improvised fires, cans and pans. At times of crab abundance, *crab circles* widen to include other family members, neighbours, children and adolescents. All help available is welcome so that they can get the job done. Even in these circumstances, crab peeling is mostly carried out by women not only here but also in other regions of the State.

At times of fish shortage, for accident reasons or in periods between harvests, households’ main source

of income is the work related to crab processing, which congregates almost all female work available in the island. As a whole, only 160 women are registered as crab peelers in Itaoca. Whether it is true this is a low-income job it is also true it is a low-cost activity, since it does not require boat conservation, fuel, fishing equipment, etc., as other activities do in the same fishery sector. In fact, crabs are caught close to the seaside and crab peeling takes place in domestic environments, where women can also carry out other profitable tasks such as selling services, cakes and snacks, hygiene and beauty products or even sewing.

Daily existence or shortage of fishery production affects daily routines and even the way the landscape looks like. No wonder any environmental accident affecting the bay also impacts on Itaoca population, their daily life and income. Fish production determines their network of relations, both in private and public sectors. “*Povo malocado*”, meaning people at home, is the expression these women use to refer to such times of income breakdown. Whenever fish “returns” and work and subsistence expectations grow again, streets and local bars also revive with voices, meetings and celebrations.

Nowadays, people living around the Bay (not only in Itaoca) are suffering the consequences of a process of accelerated and excluding urbanization, which, among other problems, also contributes to raise the pollution and degradation rates of local ecosystems. Itaoca is inserted in one of the most important Environmental Protection Areas (APA, after the Portuguese designation “Área de Protecção Ambiental”) in Guapimirim, mainly because of the relevance of its mango-growing area. The environmental disasters that have occurred in the Guanabara Bay for the last few years affected these ecosystems in a very significant way and consequently Itaoca population as well. Our research showed that one of the most striking disasters affecting this population was a chemical effluent spill from Petrobrás enterprises, which occurred in 2000. In ninety percent of the interviews and field reports this disaster has been recurrently mentioned in a very vivid way. The expression used is: “When there was this oil spill”. This is the way Chana and Telma tell us about the consequences this accident brought to fishery production and to life in the island.

When there was this oil spill... er... anyone had to get odd jobs, something to do. Crab processing wouldn't do.

(...) this is the truth, I swear upon my children's happiness... The catfish he used to catch was this size. Heads were this size... After oil spill never again could we see catfish like that.

For crab peelers this meant not only the loss of one of their sources of income — household work in the fishery sector — but also a breakdown in family relationships. Plenty of fishermen lost their fishing vessels and equipment, their work and their income. They started to face health problems, namely alcoholism, which frequently lead to domestic violence. Women began to look for work and income outside the island as full time or part time maids. Since traditionally it is due to women to take care of children and housework, this situation caused a rupture in family securing environment, which consequently affected children's behaviour towards school because women had to stay away from home all day long and sometimes for a whole week.

In the fishing world social representation of women's work requires further analysis since it is associated with a romantic and stereotyped image of feminine nature which defines housework as inherent to females. In our research case, division of tasks is well defined both in sea and on earth. Men do the fishing in the Guanabara Bay and women take care of fish cleaning and processing in addition to local commercialization. In mango-growing areas, both men and women do the wood-cutting and crab-catching either in groups or individually. However, it will not be possible to provide here an in-depth analysis of issues related to gender, labour and environment as can be found in other studies (such as Castro & Abramovay, 2005; Cruz, 2005; Scott & Cordeiro, 2006).

Back to the oil spill incident, we tried to deal with this situation as an environmental accident which brought about affective losses with impact on these women's and families' work and life territories.

In this context and following Santos (2004), the word territory means a range of social objects and nature data intentionally modified by human beings through their successive engineering systems. The

word space is not univocal as well, since it can mean place, territory or landscape. Therefore, according to Santos (2004), the use of this word would also require special attention because of its ambiguous nature and technical contents.

Space is produced and it is a product of material processes and human different structures of meaning. In fact, human beings either build or destroy the objects, according to their interests and needs. Even if we cannot say such a product is a direct result of human activity, the fact is human activity is an important part of the whole activity. However, the preservation of natural environments depends both on systems of objects and on systems of actions, since the introduction of countless disposable artifacts in natural environment feeds the production of new artificial objects. In the same sense, processes of space degradation and urbanization lead to space restructuring activities. On the other hand, these activities are planned and implemented by social actors. Therefore, since social actors move around the space they act as action leaders. Their activity changes the environment and conditions the production process. According to Santos (2004), imposing formal and technical ways of acting dequalifies symbolic and cultural ways of acting. Meanwhile, multiple aggression forms overlap in daily space. Triumph of one over the other is only apparent and none of them can supersede human capacity of transformation. On producing their existence, building and rebuilding their history, human beings are constantly producing space, which they endow with a concrete and changeable dimension. In this space, social practice updates and informs the new generations. However, space cannot be merely considered as an abstract concept circumscribed to a territory. It is rather a metropolis dynamic (Santos 2003). This way, the use of space not only causes changes in the geographic pattern, but also imposes new roles to subjects and places. According to Carlos (1994, p. 323),

Constant renewal — changes in the urban space caused by changes in town patterns — produces changes in daily urban times, in vicinity relationships and in the modes and times of appropriation or use of public spaces, as for instance the street.

In quite a different direction though with converging elements, some studies emerge from the seventies onwards which give account of environmental perceptions, representations and human attitudes and values. Yi-Fu Tuan, one of the representatives of this kind of studies, contributed with the concept of topophilia (Tuan, 1980), which deals with human perceptions and values in their relation with their environment, the place they interact with. According to this author, the range of meanings human beings attribute to places is one of the distinguishing features of mankind in relation to other animals. Spaces and objects are symbols of belonging to a group, a professional activity, a human gender. They are marks of home, community, culture or group spaces. Therefore, the impact of artisan fishing populations on home and work spaces does not only produce an economic effect on local income, but it also affects the forms of sociability and the relationships of belonging and vicinity. Each object used in daily fishing or fish-processing is not a mere object, since workers build affective relations with them. In some circumstances, a boat is also their own home. A fishing network means a financial effort or the result of their mates' technical ability in thread weaving. According to Chana, who has been working as a crab peeler for twenty years, the small knife crab peelers use in the extraction of crab meat is held as a precious object that helps them in their work and is consequently kept in a prominent place in their homes.

(...) they are adapted to the hand. We get used to extract crab meat with that small knife and any other bother.

ENVIRONMENTAL KNOWLEDGE AND WORK EXPERIENCE

Aggressions to the ecosystem and groups linked to artisan fishing are issues always present in this research in relation to the discussion of some categories not previously defined as priorities for this study, such as place and traditional knowledge.

Legal measures set out as compensatory policies in the Law no. 9605/98 (Law of environmental crimes) and targeted to minimize environmental

and material damages, although applied in Itaoca, did not take the population's affective losses into account nor did it generate a collective project for this region. The very intervention over the physical space deserved severe criticism from these women who considered it was intrusive and regardless of local culture. One of the examples mentioned by the interviewed women was the construction of a leisure area imposing an architectonic pattern imported from other regions in Brazil which resulted in the so-called "calçada da praia azul", meaning a wide sidewalk close to the blue beach. In addition to a cultural imposition, this intervention also caused the destruction of local historic legacy and the loss of income alternatives for the local population, since their small huts were demolished, where they ran small businesses selling fish and drinks. According to the respondents' testimonies, even Capela da Luz was wrongly repaired, a church built by the Portuguese in the 17th century, its façade having been changed with no respect for its architectonic features.

The oil spill incident ended up being an opportunity for environmental awareness and for the organization of local population and fisherwomen around environment issues, this way qualifying the voice of the most ancient and experienced dwellers because they are the ones who should be heard about issues related to the physical and social environment. Crab peelers played an outstanding role in the organization of fishing populations both at the local level and externally. Arguing in favour of this segment's professional definition and joining nationwide artisan fishing struggles lead them to discussions with technicians from different public and private institutions concerned with environmental preservation, which allowed for a confrontation between practical knowledge and scientific knowledge. On rescuing such moments, this research updated their stories and discussions which are still present in this group's daily life.

This discussion is well illustrated in the testimonies below, transcribed from the dialogues held during the interviews. These dialogues occurred in group in the house-yards where crab peeler do their work. We selected the texts from informants considered as local leaders — Fishermen's Association and Women's Movement (Selma and Valentina)

and one fisherman (Paulinho). The others belong to the crab peeler group. Among other data, these dialogues also tell us about oil clean-up and mango areas' cleaning.

People were no longer interested in fish. They were afraid. They said fish, crabs, smelled of oil.

(Paulinho)

One month later, quality analyses to fish and water liberated fish commercialisation but unfortunately this technical liberation issued by Petrobrás was not enough to re-establish credibility. Women also pointed out some other problems which, they say, have been affecting the island for many years. According to Valentina and Selma:

— Nowadays there's the risk of fish shortage, the risk of loosing it all.

— There are also other problems, Valentina. It's not only the problem of Petrobrás oil spill at that time. There is also the sewer (...) there's a factory... of pharmaceutical products, I think... It throws everything into a river that flows out near here.

— Besides, this is the place where fish spawn, isn't it?

Telma, one of the interviewed crab peelers, and the fisherman Paulinho are also aware of the problems caused by the closure of one of the canals of this region. During their dialogue they mention their commitment to a fight for better environmental conditions. For Telma, as she and her husband live exclusively off fishing, improvement of environmental conditions and abundance of fish mean improvement of household income, children's schooling and new opportunities for the family.

Do you remember the canal? Because of it I was in that meeting. To talk about the canal, about fish spawning... The plan was to urge the government in Brasilia to get the whole canal reopened — The canal reopened? If we managed to get the canal reopened fishery would grow again.

Knowledge thus produced in relationship with work and nature, though socially dequalified, is a matter of pride for this group. It is presented as a subject which informs daily life and local culture.

Moreover, research tasks also incorporate this kind of information derived from practical knowledge:

Tomorrow you will not come... there's no crab...
When the wind is strong crabs go away...

Knowledge about natural ecosystems circulated in the *crab circle* and contributed to feed long talks, to bring along neighbours and fishermen who also expressed their worries about the ecosystems and labour conditions. According to Valentina, it led to the diffusion of technical reports and correspondent interpretations:

(...) mango growing areas strain everything, you know? That is... all the pollution that comes goes to the mango areas. There's bottles, shoes, sofas, fridges... everything to the bottom of the bay... then, everything comes this way, you know? That's why we have been left in this terrible situation.

Then, a study was carried out to measure the pollution rate. Then, its outcome shows mango growing is over...

For the women working in the crab peeling sector, uncertainty became even worse, not only because of the nature of artisan fishing but also because of the peculiarity and domestic character of their work, with no place for labour bonds. As afore-mentioned, some women could not even prove their professional activity through any kind of registration or professional certification with a fishing association or colony. They were not even registered with the Social Welfare National Institute (INSS). This situation also restricted the possibility to make a full inventory of the universe of people living on fishery which was supposed to be carried out with the help of fishing associations or communities and whose purpose was to compensate all those who had been affected by the oil spill. Of all the women interviewed, only three received a small amount of money.

Uncertainties related to pollution-driven damage inflicted to the local ecosystem and to species that assure their own subsistence caused a lot of concern, inclusively affecting the health of some and leading to what they call "nervous breakdown". After all, several households lost their fishing equipment from night to day. Doubts increased about the

possibility of living on fishing-related activities. The interview respondents speak of a sense of impotence as felt by the members of this community, who saw their life and place drastically affected by the technological progress and by a lousy management of environmental protection systems.

However, sadness and loss gave birth to mobilization and search for new pathways, and discussion on possibilities and projects.

Although they do not master the theoretical and technical concepts of scientific knowledge on environmental issues, they do understand the political meaning of such a knowledge and how this impacts on their lives. Local schools stimulated discussions among children and adolescents and implemented projects on environmental issues. Some initiatives and projects gained roots, others did not. However, they are all recalled and mentioned as positive moments for community members.

This way knowledge production and suggestions related to environmental preservation, environmental education, and the construction of life-protection values assumed a more concrete dynamics for these people. It gave rise to arguing and disagreement between the official reports and the observations of the people. Petrobrás' payment of part of the indemnities due to the affected fisherman materialized the implementation of the compensatory policies set out in Law n° 9605/1998 (Brazil, Ministério do Ambiente, 2000a) and contributed to unveil structural problems in the fishery sector, mainly concerning statistical information and workers profile, when such payment had to be interrupted for lack of trustworthy data (the fishery census had not been completed yet).

In the following table we have listed some of the activities and projects that occurred during this period with the participation of crab peelers:

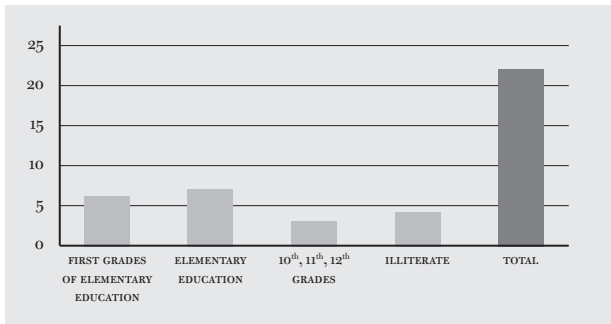
PROJECTS	ACTIVITIES
Sea Guardians Project	Job and income creation and environmental education for crab peelers
Project for the urbanization of Praia da Luz	Construction of a leisure area and restoration of historic patrimony (Capela da Luz)
Workers cooperative	Discussion and organization of a team for the creation of a crab peeler cooperative (ITACOUPER/SIRILUX ⁴)
Manguezarte cooperative	Environmental education and handicrafts using recycled material (nowadays it has local headquarters)
Mango growing recovery "re-plantation project"	Cleaning and re-plantation of mango area vegetation
Patrimony signalisation	Placing signs to promote eco-tourism and historic tourism
Activities targeted to environmental preservation	("Abraço à Praia da Luz!") ("Passeio do peixe gigante" built with material collected in the region and transported by caique to the Guanabara Bay)

SOURCE: Informants and dwellers' report (2004/2005).

The need to face the problems related to environmental and educational policies is a historical mark of fishing labour groups in Brazil. The plead is for activities investing in critical and inclusive knowledge, capable of articulating society, nature, mankind and culture. Which does not mean to work under an ingenuous and romantic idea about fishermen's way of living and their relation with nature. Even because these groups do not live in an idyllic world where science-driven formal knowledge could be abandoned. In this context, what matters is to discuss the qualification of the environmental knowledge produced by these popula-

tions and to criticize the denial of such knowledge inclusively in the school institution that shelters male and female students who work in the fishing sector. Interview respondents regard school and formal knowledge as a life project for their children. Most interviewed women are poorly qualified; therefore, the value they attribute to school has to do with the overcoming of their negative legacy. However, they are not wrong when they say "their knowledge is not of much use when it comes to earn their living outside the sea world". In the following page you can find data collected on school attainment and income:

Chart 1
RESPONDENTS' SCHOOL ATTAINMENT RATES



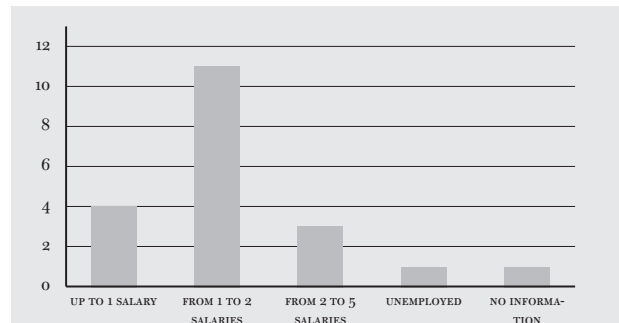
SOURCE: Data gathered from interview reports in 2003/2005.

The older women reported their difficulty to access school, not only for local reasons which had to do with lack of schools in the region, but also because fishing time was not compatible with school time. Gender issues also emerge as difficulties in the interview reports. Early marriage was also mentioned because it interrupted study projects even for those willing to study. Younger women do not face similar problems. They do not have to choose between school and marriage.

The stigma of low school attainment was perceived as shameful, something to hide even from the researcher. Some of the informations they provided on their school attainment did not match their proficiency in writing. When there was the need to obtain their agreement on the use of their statements, two of them, who had not declared themselves illiterate, could not sign the declaration. In this case, we chose to stick to the information provided in the interview. We must understand them in the Brazilian educational context and in the context of the difficulty they have in assuming the social stigma of illiteracy. A brief and irregular school attendance did neither allow these women to complete their studies nor was it enough for them to learn how to read and write. Some of them, such as Mrs Semirami, who was ninety-two years old, declared she could read but not write. According to her, on her daily life only reading was required, not writing. She used to read letters, birth registration documents or fish selling notes at her husband's or her neighbours' request. The social use of writing was more restricted within this group, besides, for several years there were no public schools in the island and its population was alphabetised by other members of the community who had completed elementary education.

Similarly, their constraint to inform us about the income they used to get lead us to do and redo the following chart for several times. Information about their income meant exposition of a situation of poverty and professional depreciation which did not please these women. Only long time interaction with this group made it possible for us to get this kind of information.

Chart 2
RESPONDENTS' INCOME LEVEL



SOURCE: Data gathered from interview reports in 2003/2005.

TRADITIONAL KNOWLEDGE — SOME FINAL CONSIDERATIONS

Work in the sea confers a unique identity to a fishing worker which is quite different from the identity of people who stick to the land. Their objective working conditions express their ways of thinking and representing life and knowledge about maritime territories which are not grounded on fishing gear, sonars, computers, but rather on life experience, observation and beliefs.

Nowadays the fishing activity relies on technological tools and economic processes of large-scale-production. Technological development allowed for an improved control over fishing catch and industrialization processes. However, there is always a dimension of unpredictability technology does not account for.

Artisan fishermen, who constitute a large proportion of the labour force, are used to face unpredictability daily. They do not profit from technological development; on the contrary, they work under very poor conditions. Their fishing vessels, equipment, storing and commercialisation processes do not fit the quality pattern required for such a perishable

product. At the same time, in another branch of fish production — industrial fishing — fishing catch is supported by leading edge technology where technological artefacts and environmentally predatory and aggressive methods are used and abused with the aim to increase fish production though at the cost of natural resources.

This structural reality in Brazilian fishing world places in social and political disadvantage an immense mass of women and men who live off fishing and who contribute to increase the rates of illiterate, poorly educated and poorly qualified labour force. This social and political reality is partly responsible for the dequalification of their practical knowledge, also known as traditional knowledge, which they have been accumulating for centuries. In this respect, discussions on the role of work, school and knowledge in capitalist societies should not be despised (see Enguita, 1989; Frigotto & Ciavatta, 2001).

Sea workers learn from experience and from the use of working tools how to deal with subsistence strategies and environmental preservation. The prevalence of technological knowledge, which dequalifies traditional practices and life experience knowledge, should be analysed in the context of the issues related to science paradigms and reproduction of power structures in society. In permanent contact with natural ecosystems, these groups accumulate knowledge about the regions, their natural cycles and species' reproduction and migration. Such knowledge should be embodied in the technical definitions of environmental policies and in the action plans of protected areas. Recognizing the importance of such a kind of knowledge is indeed recognizing their authors as historic subjects, as the holders of relevant knowledge and management power (Diegues, 2002).

The way of thinking of so-called traditional populations, namely artisan fishermen, is not alien to the presence of the urban world, where misleading and depreciating visions about them often circulate. A fisherman is regarded as indolent and lazy with out-of-date non-urban knowledge. Fishermen also reproduce this same image on describing themselves or referring to their male or female mates.

On the other hand, school education conveys a different image which is based on idyllic and romantic perception also present in didactic books

and in curriculum projects related to discussions on professions.

The forms of knowledge and knowledge transmission of people who live off the sea are not perceived as re-significant learning in these groups' historic flow. Tradition is not regarded as dynamic, in movement from generation to generation, it is rather viewed as something frozen along their history. This is the way some authors deal with issues like these, as in Lúcia Cunha (2003):

(...) besides viewing artisan fishermen as devoid of their human condition, external looks also ignore that such a social actor possesses a form of time and space organization, which is dissonant with the urban-industrial context. They also possess a range of patrimonial knowledge stemming from a secular interaction with nature, which modernity cannot do without for its own continuity. All this with total disregard for the social changes that have been occurring within the fishing communities for the last decades, thus decharacterized in function of expansion, tourism and real estate speculation in their territories.

According to Diegues (2002), both traditional populations and traditional cultures mean behaviour patterns socially transmitted. They correspond to mental models used to perceive, report and understand the world; they correspond to symbols and meanings socially shared in addition to their material products.

Some further relations can be established in a broader discussion on knowledge and culture of traditional populations and in new debates on memory and patrimony.

A new concept of Cultural Patrimony is now emerging, brought about by some segments of civil society and by some intellectuals interested in issues related to traditional knowledge and places. According to some authors (Gonçalves, 2003), this new concept overcomes a strict association with the built legacy, where only "stone and lime" heritage counted, and enlarges its scope to human condition and their cultural expressions (Abreu & Chagas, 2003, p. 13). This new notion of patrimony includes language, celebrations, rituals, dances, legends and myths, and even different

ways of acting, thus shaping an intangible cultural heritage. According to Gonçalves (2003, p. 104):

The emphasis is not put on material aspects but rather on ideal and valuable aspects of a certain form of life (...) the aim is to record practices and representations and analyse their evolution so that we can understand what is permanent and what changes.

According to the authors quoted, new developments on intangible cultural heritage outline a new scenario, which is different from previous notion of patrimony linked to the preservation or demolition of material and tangible goods.

This definition also takes the field of genetic “biopatrimony” into account and suggests new perspectives on the relation between nature and culture, therefore promoting an understanding of natural heritage as a social construction of intangibles (Gonçalves, 2003, p. 12).

This new conceptualisation is connected to the notion of culture as including habits, customs, traditions, beliefs, and finally, a range of material and intellectual manifestations of life in society, which evokes the idea of diversity and plurality (Gonçalves, 2003). The contributions of anthropological and ethnographic research are also fundamental to enrich the discussions on intangible heritage.

The nineties marked a time of intensive discussions related to the “Convention on biological diversity”. Therefore, this decade also signalises the emergence of new policies and guidelines for the so-called traditional populations about the use of genetic resources, recognizing a tight relationship between such resources and these populations’ knowledge, livelihood, customs and traditions.

According to the Convention on biological diversity, traditional populations interact with natural environment, with a deep knowledge about it and concern with its preservation, since their attitudes have little or no impact at all on the ecosystems (Abreu & Chagas, 2003).

At stake here is a focus on cultural diversity and on the collective use of material goods, which is in counter-tide with any juridical definition of state or private propriety over such resources. Nowadays, the plead is for regulations capable of protecting

traditional knowledge — know how —, not in the sense of patent but in the sense of respecting its roots and collective use.

This is for example the case of Resex fishing resources (extractive reserves), whose demand is rooted in fishermen movements and which amount to 14 in the whole Brazilian territory. Resex resources (Decree-Law n° 98897 from 1990) are regarded as important tools for the preservation and reproduction of the culture and socio-economic practices of a great part of the traditional communities living in marine, coastal, estuary or marginal areas (IBAMA/MMA-CNPT⁵).

Reflection on the production and qualification of such knowledge leads to a better understanding about the relationships established among men, nature and urban space in a sustainable perspective. This reflection should also inform both town management plans and environmental policies.

Technological modernity worked out a model of science and expertise which withdraw from ancestral knowledge, imposing western paradigms of knowledge and truth. As far as science is concerned, this is a reductionist legacy since it is characterized by the supremacy of technology over the natural world (Souza, 2007). Such perspective on science is in tune with a civilizational model presuming inexhaustible resources. According to authors like E. Morin (2000), this predatory model of relationship with nature is fated to extinction.

Witnessing the exhaustion of fishery resources that have fed families for centuries made fishing populations aware of the need to preserve local ecosystems and made them understand the concept of sustainability, and technological and ideological discourses. However, this awareness is not enough to solve environmental problems nor does it create an ecologic conscience on itself. As aforementioned, fishermen live in a real world and as such they also desire progress and its consumption icons.

The loss of what is known as biophysical and cultural diversity (Souza, 2007) is something real for traditional populations living by the sea. The only way to overcome this in ideal terms is through a change in environmental policies based on respect and appreciation of local knowledge about the preservation of ecosystems’ diversity. According to Souza (2007, p. 103):

In this context, several Southern countries have been outlining a new theory about environmental preservation for a few years. This theory values local knowledge and know-how associated with scientific knowledge.

Diegues is another author who also argues in the same sense, defending integration of both trends. In his words,

Scientists can profit from this at two levels: at a most global level, the use of electronic geographic systems and databases; at a local level, he accumulates knowledge on ecosystems and their variations. Therefore, there is great need for the integration of both contributions, not only into planning initiatives but also into traditional activities (Diegues, 2001, p. 42).

Back to our study, crab peelers' work involves a network of cultural meanings and knowledge about local ecosystems, such as species reproduction, harvest seasons and wind direction, all of them related to fishing conditions. It also involves group practices transmitted from generation to generation among women who update local stories in *crab circles*. The first generation, as characterized in our study, consists grandmothers who have been working in *crab circles* for about thirty to fifty years. The second generation comprises daughters, granddaughters and daughters-in-law who have been working for twenty to thirty years. The third generation involves grand granddaughters and younger daughters-in-law at work for ten to fifteen years. The work patterns, physical posture and work tools have hardly changed for the last fifty years, which is the period studied.

Crab circles also aggregated neighbours and children. This way they also served as learning spaces about local ecosystems and fishing practices. Besides, fifty years ago, there was no school in the island and to be able to study one had to go to another town-centre usually by boat or horseback. Therefore, the working practices children learnt in crab circles were then incorporated into their games and tasks. In fact, children, mostly girls, were responsible for the reparation of smaller nets, hand nets and they were also responsible for collecting wood in mango-growing areas and sheltering the animals. Nowadays, children participate in *crab circles* to do their homeworks with the support of their mother,

grandmother or aunt. When it is necessary they also help in the extraction of crab meat. The youngest children usually play or remain in any woman's lap. Mothers and grandmothers regard schooling as a priority for their children since it is supposed to lead them to a better future and provide them with socially qualified knowledge.

And school, of course! At three children must go to school, mustn't they? When they are eighteen they will matter among the people. What about work? School is school.

(Serami)

As can be seen, youths' work in the fishery sector is no longer valued as meaningful learning in relation to their families' living projects. This shift can probably be explained by reasons that cannot be developed in this text, which have to do with the social role of school and with the schooling boom mostly affecting the youngest populations in Brazil, but it surely has to do with present work conditions in the artisan fishing sector. Learning related to the fishing culture is still regarded as relevant and identity-defining knowledge; however, its value is restricted to a certain group and space. Besides, as far as women are concerned this kind of work is not socially accepted as a professional task.

Although the school educational project defines as a target the incorporation of fishing families' specific knowledge in daily curriculum development, our field work carried out in the school revealed this guideline turned to be a device to be implemented as folk celebration. The same fisherwoman who is invited to role play or simply tell school children and parents about her experience in school celebrations where her work emerges as something positive and full of virtues, at night, when attending the same school as a student, she is dissuaded from establishing relationship between her practice and biology or history contents under the argument that these matters are not considered in their respective syllabi.

Charlot (2000) distinguishes between two concepts: relationship with knowledge and knowledge relationships. This distinction helps us to reflect on the legitimacy of knowledge for individuals inserted in a certain social group. Social positions and practices unveil different perspectives on learning

and knowledge, according to the status an individual occupies in society. As the author puts it, this is not a deterministic statement. For certain groups their specific knowledge is validated in certain environments but not in others. There are patterns of knowledge construction that become invalid within the school dynamics. As far as youths are concerned, knowledge acquired from life experience can contribute to define a cultural and professional identity and raise their self-esteem. However, this is not independent of the type of profession or the power conferred by position, either through remuneration or social status. Working in the artisan fishing sector in Brazil is still associated with poverty situations, marginalization and professional dequalification, which is obviously not enticing to young people, even if they come from families traditionally living off fishing and with reasonable comfort patterns. No wonder, then, their patterns of knowledge construction are not regarded as important for the group's environmental survival. Whether it is true a political investment in the traditional knowledge of fishing populations could lead to important gains for these populations and for environmental preservation, it is also true that by itself it will not be able to cause a drastic change in the social structures of power and knowledge production. On the other hand, this measure would not deny the importance of the scientific and technological knowledge required for the development of artisan fishing and improvement of fishermen's and fisherwomen's living and working conditions.

At stake here is a reflection on the need to overcome a false dichotomy between local or traditional knowledge and scientific knowledge, as if distinction would be able to settle where the truth lies and

the environments where knowledge production can take place, in absolute terms.

Interview respondents regarded Itaoca school as a space for knowledge sistematization, held as important for their children and for the group. However, in practical terms, school does not actually recognize life-driven knowledge production and therefore does not contribute to the qualification of such knowledge in the local space. By local we mean a space where a certain group lives and works conveying specific knowledge, values, beliefs and perspectives which interact with the global structure (Santos, 2004).

School processes continue to validate and support a kind of knowledge that has little to do with local groups and their social and cultural reality. Public school should be able to encourage the implementation of learning opportunities capable of valuing local forms of living and working and capable of producing critical and inclusive knowledge and integrating society, nature, mankind and culture. Itaoca school needs not only pedagogic projects but also human and material resources to fully achieve this purpose. Knowledge produced by these fisherwomen, mainly on environmental preservation, should be confronted in the discussions about curriculum, knowledge and power. Knowledge and know-how produced by traditional populations should have a place at school, where they could play an outstanding role in projects and debates about sustainability, education and environment, in a humanistic perspective, and not capitalist, therefore changing the bases for the implementation of economic systems. This investment requires persistence and political power. However, as Mia Couto puts it through the words of one of his characters, "The moon moves slowly but crosses the world".

ENDNOTES

1. PhD professor in the Department of Education of the Federal University of Sergipe. Member of the research team Education and Contemporaneity — EDUCON, and of the Study and Research Team on Exclusion, Citizenship and Human Rights — GEPEC. The original research was carried out under the guidance of Professor Vera Maria Ramos de Vasconcellos (Doctoral Thesis — UFF. RJ/2005, referenced in the bibliography).

2. Reference to music by Aldir Blanc and João Bosco (“Mestre sala dos mares”) and Caetano Veloso (“O Estrangeiro”).

3. Data related to the socio-environmental situation of Guanabara Bay may be found in *Dossiê sócio-ambiental da Baía de Guanabara* (Zee, 2000).

4. Itaoca Fishing Cooperative and Fishermen’s Association of Praia da Luz.

5. Brazilian Institute for the Environment / Ministry of Environment / National Centre for the Sustainable Development of Traditional Populations.

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Translated by Filomena Matos

