

# **Women's Role in the Maintenance of Artisanal Fishing Communities Livelihoods of Patos Lagoon Estuary - Brazil: Contributions to the Management and Environmental Education**

## **Roles de la Mujer en el Mantenimiento de Medios de Vida de las Comunidades de Pesca Artesanal del Estuario de la Laguna de los Patos - Brasil: Contribuciones a la Gestión y Educación Ambiental**

## **Rôles des Femmes dans le Moyens d'Existence de Communautés de Pêche Artisanale de l'Estuaire de la Lagune de Patos - Brésil: Contribution à la Gestion et l'Education à l'Environnementale**

MELINA CHIBA GALVÃO<sup>1</sup>, FRANCISCO QUINTANILHA VERAS NETO<sup>1\*</sup>, and RODRIGO PEREIRA MEDEIROS<sup>2</sup>  
<sup>1</sup>*Federal University of Rio Grande, Post Graduation Program in Environmental Education, Av. Itália km 8, Carreiros, Rio Grande – Rio Grande do Sul, Brazil. [melinachiba@gmail.com](mailto:melinachiba@gmail.com). \*[quintaveras@yahoo.com.br](mailto:quintaveras@yahoo.com.br). <sup>2</sup>*Federal University of Paraná Centro de Estudos do Mar (CEM), Av. Beira Mar s/n, Pontal do Sul, 83255-000 - Pontal do Parana – Paraná, Brazil.**

### **ABSTRACT**

Women develop productive and reproductive roles of fundamental importance to sustain the livelihoods of fishing families. These roles can be important to face situations of uncertainty and the crisis for which fisheries has been going through. This paper aims to present the preliminary results of a master research along communities of Patos Lagoon estuary, that has the main goal of understanding which are the roles of women in families and fishing communities of Patos Lagoon estuary and how they contribute to the maintenance of the adaptive capacity face of the current fishing crisis. The methodology used was a gender analysis of secondary data and also from livelihoods interviews with fishermen and fisherwomen in four fishing localities, besides filming and photographs. The preliminary results show that there is a important gender division of work in these fisheries, and the roles of women focus on pre-and post-harvest activities; especially shrimp, crab and fish informal processing. This activity represents an important adaptive strategy for fishing livelihoods. There are gender asymmetries of power, property rights, access to resources and benefits, participation in representation and decision-making spaces. Fisheries management and policies have been shown to be incongruent with the characteristics and specificities of the gender relations in these communities. Gender-focused research has a important contribution to promote co-management processes toward a sustainable, equitable and fair management of natural resources, with fewer inequalities between men and women.

KEY WORDS: Artisanal fisheries, gender, livelihoods, management

### **INTRODUCTION**

Overfishing and depletion of resources threatens not only the coastal and marine ecosystems but also small-scale fisheries and livelihoods of people which depend on them. Fisheries are the source of income, livelihood, work, and culture for millions of people in the world. New approaches that focus on management of fisheries instead of typical management based on command and control, move from a perspective centered on resources and capture for looking “beyond the fishery” (McConney et al. 2010). According to Mahon et al. (2008), fisheries and in especial, small scale fisheries can be understood as complex adaptive fisheries. Fisheries systems (ecological and social) have many dimensions (natural, social, cultural, institutional, political and others) and self-organize in response to a lot of effects like for example, the variation of natural resources, climatic changes, governing system or market influences.

The modernity era, Cartesian mechanistic paradigm and science disciplinary separate people from nature and made our view of the world extremely anthropocentric (Capra 2006). There are arising new forms of making science and management of natural resources around the world, towards human-in-environment (Folke 2006), especially in natural sciences that seem to be more able to deal with the characteristics of the environments. They represent important conceptual shifts in ecology — toward a complex system view, that include humans in the systems, and management by participatory approaches (Berkes 2004). Understanding systems as complex adaptive systems in which the human societies are not apart from the environment but an integral part of it, based on the concept of social-ecological systems as a integrated concept (Berkes et al. 1998); promotes adaptive co-management, power-sharing arrangements and responsibility between the State and civil society, through the participation of various stakeholders combined with the dimension of interactive learning, learning in practice. This management also includes the traditional ecological knowledge of fishermen being as valid as the scientific (Armitage 2005).

Gender relations are one of the constraints that can mediate the relationships that exist inside social-ecological systems. Gender is a social construct, and refers to how societies define the social roles from biological differences as the female and male, and also between groups divided into age groups. Gender studies seek to understand how societies classify, divide, and reproduce models and standards between what is be man, woman, young, old. This work focuses on the gender ratio on fishing. The question of gender in fisheries directs the look at issues of division of labor by gender and age (Maneschy

2000), and how the natural, social spaces, and domains are classified and divided in society, between what is the role of man and woman.

Fishing, while the main activity of capture, has always been an activity considered a male domain, attributed to the man, because it is linked to the sea and space to be shipped (Woortmann 1991, Motta-maués, 1999).

According to FAO (2010), from the 44.9 million people estimated in 2008 that were directly engaged full-time, or more frequently part-time, in capture fisheries or in aquaculture, at least 12% of these were women. Women play an important role in fisheries and aquaculture, especially in the post-harvest activities (FAO 2010, Garcez et al. 2005). They represent half of the people who work in small-scale fisheries in primary and secondary sectors, and this number increases to more than 50% if we consider inland fisheries (FAO 2010). Research indicates that there is a strong sexual division of work in fishing communities (Woortmann 1991, Maneschky 2000, Garcez et al. 2005).

Despite the recognition of this importance of participation of women in fisheries, normally they remain invisible or marginal to researchers and policymakers, low-paid or unpaid workers with limited access to fisheries wealth (Bennett 2005, Maneschky 2000, Di Ciommo 2007). Bennett (2005) exposes the motives of this invisibility: national policy agendas focus on production goals and in solving 'over-exploitation' problems, directing research to the male dominated capture component rather than the processing and marketing, that is female dominated; also these researchers propose to be gender-neutral, and normally are 'gender-blind', because they are not able to see the whole livelihood that make up small-scale fisheries. The researchers also do not include women in interviews and discussions, assuming that men can speak for them. And the fisheries data have problems because they are normally aggregated with agriculture and do not comprise gender-segregated data (Bennett 2005).

There is recent movement in the development of research on gender-related issues in fisheries. Historically, this sector has often been categorized as predominantly male and adult, belittling the work carried out by women, youth, and the elderly to maintain fishing and artisanal fishing communities. Faced with this reality of social and environmental crisis, from a exploitations of fish stocks and marginalization and impoverishment of traditional peoples; when there are unequal power relations, the women may be considered even more vulnerable than the men, and ecological degradation can deepen women's marginalization (Neis 2004).

The traditional fishing activity is in crisis, reflecting a pattern of fishery development and unsustainability (Vasconcellos et al. 2007). This is a consensus of the scientific community and the fishers, reflected through the collapse of fish stocks and the impoverishment and marginalization of the fishing communities (Kalikoski et al. 2007). Given this situation, families develop adaptive

strategies — seasonal and cyclical fronts to this high degree of uncertainty and this downward trend in production. Some of these strategies are:

- i) Flexibility within the fisheries (change of target species and fisheries according to availability),
- ii) Migration and geographical mobility,
- iii) Diversification of livelihoods, and
- iv) Division of labour between men and women (capture and post-capture) (Allisson et al. 2001).

Women develop productive and reproductive roles of fundamental importance to sustain the livelihoods of fishing families. These roles can be important to face situations of uncertainty and the crisis for which fisheries has been going through. Adaptive capacity is related to the dynamic response strategies, collective or individual, used to handle changes and fluctuations, shocks, stresses, and uncertainties that are faced within complex environments (Allisson et al. 2001).

Resource management processes which have aimed at developing sustainable fishing activity must look at the issues in a systemic manner and through integrated fisheries, addressing the issue of gender. This invisibility of women in fisheries needs to be reversed to achieve shared management processes involving all users of the resource for a sustainable and equitable management which will be truly democratic and participatory, with less disparity of power and greater space for the community to build an adaptive co-management in an integrated manner with fishery science and the State.

This paper aims to present the preliminary results of research conducted within communities of Patos Lagoon estuary, that has the main goal of understanding the roles of women in the families and fishing communities of the Patos Lagoon estuary and how they contribute to the maintenance of the adaptive capacity that they face during this current fishing crisis.

### **Patos Lagoon Estuary's Artisanal Fisheries**

The Patos Lagoon is located in the Southern Brazilian Coastal Zone, in the State of Rio Grande do Sul. It is recognized as the world's largest enclosed lagoon, with an area of approximately 10,000 km<sup>2</sup>, stretching in direction NE-NW, from 30°30'S to 32°12'S. The study area is the estuarine region of Patos Lagoon, the region that is characterized by shallow and protected waters that are used as feeding, reproduction, and nursery for fishes, crustaceans, and molluscs. Estuarine dynamics are composed of the relationship between saltwater, that brings larvae inside estuary, and freshwater that provides nutrients for the development of plants and animals that contribute to the high productivity of this area.

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These biophysical conditions create the conditions for the development of an important human activity that is the artisanal fisheries. The artisanal fisheries in the region have existed since the 19th century, and their effort concentrates in six main species: pink shrimp (*Farfantepenaeus paulensis*), marine catfish (*Genidens barbatus*), croaker (*Micropogonias furnieri*), mullet (mainly represented by *Mugil platanus*), silverfish and blue crab. This is considered one of the main fishing areas of the state, comprising four main localities: São José do Norte (SJM), Rio Grande, Pelotas, and São Lourenço do Sul (SLS). The artisanal fishery operates in estuarine and shallow coastal waters. It is characterized by simple fishing technologies and, consequently, lower fishing effort compared with semi-industrial and industrial fisheries that operate in coastal waters (Haimovici et al. 2006). Artisanal fishers normally own their vessels and work together with their kin. The main types of fishing gear used by artisanal fishers are gillnets, stownets, and otter trawls (Kalikoski et al. 2012).

Landings of the main resources followed more or less the same pattern of decline after the mid-1970s, mainly as a result of overfishing (D'Incao and Reis 2002). Today, the main artisanal resources are fully exploited, overexploited, or depleted, and catches are close to subsistence levels. Of the six species that had a well-established fishing calendar, only two – mullet and shrimp – provides sporadic good economic returns during ideal environmental conditions (D'Incao and Reis 2002, Haimovici et al. 2006).

In this region, the ecosystem also is impacted by other economic activities in the urban centres of region, caused mainly by area of Port and harbor activities and industry areas. Also rural impacts caused by agricultural and plantations in the region impacts with the use of agrotoxics. Fisheries resources suffer impacts as pollution, contamination by organic matter, metals in the water and the estuarine sediments is due to urban and industrial drainage, contamination and activities linked to the fishing terminals and to port activity and loss of nursery habitats (Seeliger, Odebrecht and Castello, 1997).

Fisheries management in Brazil is traditionally a top-down process, done by IBAMA, that is normally composed of limitations on total catch and fishing effort, closed seasons, and restrictions on the type of gear used, and the size of fish landed (D'Incao and Reis 2002). It was created in 1996, the Forum of the Lagoa dos Patos, which is a local

initiative of co-managed management (Reis and D'Incao 2000, Kalikoski 2002). The forum is composed of 21 with the participation of representatives of fishermen, governmental, and non-governmental (private and civil society), who have an interest in fishing in the Patos Lagoon estuary. In that forum, which meets monthly rotating in the municipalities of Rio Grande, São José do Norte, São Lourenço and Pelotas, topics related to the activity was discussed and was an instrument that enabled the creation of decree No. 3 of 2004 (Kalikoski et al. 2006, D'Incao and Reis 2002, Reis and D'Incao 2000). However, as a consultative and deliberative process it still faces difficulties of legitimacy for greater participation in decision-making and in changes in fisheries management and planning, which also works in a fairly centralized way (Kalikoski and Satterfield 2004).

### METHODOLOGY

The research is being developed within two projects: the research project, "Integrated Co-management of Marine-Coastal Territories: Implications for Artisanal Fisheries and Biodiversity Conservation" and the outreach project, "Empowering to Transform: Territorial Co-management of Artisanal Fisheries in the Patos lagoon Estuary" inside the nucleus of Study and Training in Community based co-management fishing of University Federal of Rio Grande (FURG). The gender analysis started with exploratory research that involved a literature review (including gray literature) about the women in fisheries in the region and participant observation during meetings, surveys to the localities, and informal interviews with fishermen, fisherwomen, and leaderships.

One of these meetings was the workshop of the "Empowering to Transform" project, presented in various fishing locations in the region with the aim to discuss fisheries management rules, primarily the revision of the Decree MMA/SEAP No. 03/2004 instrument for fishing regulations in the estuary. Participation in workshops and discussions, along with fishers was a method of insertion in the communities, for a first understanding of gender issues in the region. Nine workshops have been held in each locality in the four main municipalities of the region. The participant observation included also the participation in Patos Lagoon Forum meetings. The participant observation incorporated some aspects of ethnographical perspective and is being used as a methodology to observe, participate and register this experience. Records are being made in a field diary, photographs and filming. Informal talks also were held about the situation of small-scale fishing in the region, focusing on understanding the gender relations in the use, access and management of fish stocks.

We also conducted a gender analysis of secondary data, the database of a FAO's research that used Census methodology (Kalikoski et al. 2012) on the case study of the technical, socio-economic, and environmental conditions of small-scale fisheries in the region. This analysis

focused on identifying the activities that women and men develop related to fishing, education levels, documentation possessed (RGP, IBAMA's environmental license, registration in the captaincy, lug of the producer), and benefits they receive (Unemployment Benefit "Seguro-defeso", retirement, social security contribution, and other), and the gender-related access to assets as boats and loans. The goal was to provide an overview of the gender situation throughout the communities of the estuary and also infer correlations between similarities and differences between communities.

Livelihoods interviews were made with 20 artisanal fishing families in four fishing localities of the municipality of Rio Grande. The interviews focused on three parts of the sustainable livelihoods framework: the vulnerability context, capitals and adaptive strategies. The goal is to have a dynamic understanding of how the livelihoods are responding to the changes in the vulnerability context, through adaptive strategies and their relationship with the capital owned by the family. The research also aimed to understand if there were important changes in roles played by women in the maintenance of the family livelihood and communities. Understanding capital possessed by women and families, involved the five capitals: natural, physical, financial, social and human, like for example: education, income, access to documents and benefits, fishing time, and more, trying to establish relationships between household strategies and conditions in terms of family capital.

The interviews also focused in understanding the adaptive strategies that families, and in particular, women are developing to maintain the adaptive capacity of the family and its way of life, and the changes of these adaptive strategies over time. The interviews also used the tools of "12:00 am clock" and the "annual calendar of activities disaggregated by gender" (Aguilar and Valencio 1999) to understand how activities are divided among men and women in families, the time spent in the male and female activities, and how they vary seasonality along the fishing calendars.

This text aims to present the preliminary results focusing on the results of exploratory research and the preliminary results of analysis of secondary data and interviews, since the research is still being developed and the data still being analyzed.

### PRELIMINARY RESULTS

The first result is that along with the social invisibility of women in the fisheries activity, there is also a scientific invisibility on the status of women in fisheries in the region. There are many studies on fisheries aspects mainly dominated by research focused on the fisheries resources, fishermen, and the technology of fishing. There is also a lack of gendered disaggregated data.

Brazilian data of Registry of Professional Fisher (RGP), reaches 122,442 fisherwomen and aquaculturists,

with a total of 503,266 records, the equivalent of about 24.3% of the total (SEAP, 2006). Garcez et al. (2005), estimated female participation in fishing activity in the State of Rio Grande do Sul is around 8 to 10% of the total number of fishers. Kalikoski et al. (2012) found 3,259 fishers in 153 localities enumerated in the nine municipalities that border the estuary. Another number analyzed was the number of fishery-dependent people, that includes fishers and family members who are not necessarily involved in capture activities but who perform other activities as fish processing, commercialization, gear maintenance, and cleaning. This number enumerated was of 4,089 people, with a ratio of fishery-dependent people and fishers at about 1.25 to 1 (Kalikoski et al. 2012).

Garcez et al. (2005) found that there is considerable involvement of women in fishing activity, including those professionally documented. Even when not professionalized, they play an important role in fisheries, together with their husbands on the vessels, making and/or fixing the fishing materials and preparing the fish for sale. In this region, the minority of women participate of capture activities, they are mostly involved in processing, gear maintenance and other activities (Fassarella 2007, Garcez et al. 2005, Kalikoski et al. 2012, Porto 2010). Kalikoski et al. (2012) analyzed the gender participation in fishery-related activities in the Patos Lagoon estuary and found that men are responsible for 85.5% of fish capture, 87.4% of commercialization, 51.8% of processing, 76.9% of gear maintenance, and 70.5% of other activities. Instead, women are responsible for 14.5% of fish capture, 12.6% of commercialization, 48.2% of processing, 23.1% of gear maintenance, and 29.5% of other activities. All activities in fisheries are men dominated, predominant in capture and commercialization activities. For women, the most important activity is processing, where almost half of total workforce is made of women; and the second, are other activities related to fisheries, followed by gear maintenance (Kalikoski et al. 2012).

The majority of fishers in the region do not process catches before commercialization; some of them process a part of the catch for added value and to increase household income. The processing activities is one of the main roles of women in the fisheries in the region. Shrimp and blue crab are the species most processed in the lower estuary, and the activities of peeling shrimp and shelling blue crab, that can be sold in packages; is commonly done in the household by the fishers' wives and other family members, or by women from the community. Women can process in the family their own production or work for other people, in local industries, outside the home. Fish are either gutted or filleted before commercialization. Flatfish, silverside, trahira, and freshwater catfish are other species that are processed (Kalikoski et al. 2012).

In the interviews, results show that the family develops several strategies to maintain their livelihoods in these vulnerability context, and many of them are directly

related to the roles of the women in the families. Those were related to identifying underexploited species, such as blue crab, adding value to the products they sell through processing, selling the processed catch directly to consumers, and finding temporary work outside fisheries.

One of the main strategies identified in the interviews and on the analysis of data was women's role in adding value to the production, by processing fisheries products. During the interviews, some fishermen mentioned that before they married, their parents had done some processing activity in the family, but normally they start doing some process activity after the marriage, done by the woman and helped by other members of family, such as daughters, mothers, mothers-in-law and other kinship.

The blue crab fisheries was the best example of this strategy. It is a species that we could summarize as "hated by men and loved by women"; this specie "cuts" the nets of the shrimp and are always synonymous with spending for the fishermen. Despite this, blue crab is one of the main processed resources along with shrimp, and it is a fishery that is dominated by and very important for women. Surprisingly, during the interviews, we discovered that the processing activity of shrimp and blue crab is more important for the family during good seasons than during bad seasons. In all these localities, the main form of commercialization is to the middlemen, and they determine the price of the products. In good seasons, when there is a high productivity, the prices go very low, and selling the processed product adds value and it is an important adaptive strategy to the capitalism law of market and the capabilities of distribution.

Another role of women found was diversification of income and work, inside and outside fisheries. Fishers often rely on other sources of income in addition to fishing as a strategy for subsistence, including both fisheries and nonfisheries-related activities. Gear maintenance, especially for industrial fisheries, agriculture in rural areas, and occasional jobs in urban areas are common alternatives for cash income for fishers. In some communities, the income obtained by women in activities outside the fishery plays an important role in the maintenance of fisher households, for example, some of them work occasionally clean houses, work on onions plantations, and work in local fisheries industries. Kalikoski et al. (2010) also found that several strategies are done by the fishers, to maintain their livelihoods related to unfavorable climatic conditions and poor harvests.

The importance of this source of family income becomes particularly important during failed fishing seasons (Kalikoski et al. 2012). The income level that is low in good seasons can drop into poverty in bad seasons, making the livelihoods of the families (Kalikoski et al. 2012) very vulnerable. During failed fishing seasons, strategies on fisheries and non-fisheries related activities can be very important for the survival strategies of the

families. So, this increases the importance of diversification to include other fisheries, for example, blue crab and silverside fisheries that are important auxiliary sources of income.

Another role of women was found on the women that do capture activities or participate in them with their husbands. A consequence of the crisis in fisheries is the exit of fishers and the difficulty of finding crew members, "proeiros". So some fishers are adapting some capture activities for fishing alone or with the help of the women, such as capture activities and some auxiliary activities, like navigating.

During the interviews, we found that most women engaged in fisheries activities have long work hours, from early morning around 6 a.m. until the men return from their capture activities. They wait for their husbands on the beach, with the material necessary for launching and beaching operations, separating production that will be sold and those that will be discarded. They pass the entire day engaged in processing activities of shrimp and blue crab. In the late evening, they help their husbands again with the trip to the "sea", and return home to continue processing activities that continue until late afternoon. In some localities, there is a migration during the shrimp season to different fishing areas, where the entire family migrates as well and camps or finds temporary housing. The time devoted to fishing varies according to the months of the year, increased yield and profitability, or that require more effort, mainly in the shrimp and blue crab fisheries, when they do processing activities, and decreasing in closed seasons. This diversity is not only related to the work and effort devoted, but also varies according to the characteristics of the communities and of their fishery in the estuary.

Another important role of women is related to a special benefit, or "seguro-defeso" on modality of unemployment benefit, that will be further explained in the *management conflicts* section. Kalikoski et al. (2012), found that for all localities, the unemployment benefit is one of the main sources of income of the family, being considered one of the main strategy of income, being highly dependent on this government benefit for securing their livelihoods. In a family that more members are involved in fishing activities and are properly documented, they would have access to this important government benefit for the family. The continuity of research is to correlate these strategies developed by the women to the adaptive capacity of the family to the context of vulnerability and to infer if they are working as coping or adaptive strategies.

So, the researchers found that in this region women are in majority involved in pre- and post-harvest activities and are considered as part of the fishing family in the household economy. This generalization has contributed to more visibility for women but also has brought some institutional problems. The interviews showed that behind

this status of women in fisheries in the Patos Lagoon, there is a diversity of work, participation, and roles of women in the fisheries. Participation in workshops and fieldwork in the community made this apparent. Some women fish with their husbands, fix fishing nets, process the capture, clean the fish, shrimp, and crab meat, paint boats, and take care of their husband's documentation. Some fisherwomen are retired, they are the wives and daughters and other kinships of fishermen, and are community leaders or members of associations or colonies. Most women are involved in some of these activities or several of them at the same time.

The women assume a double life during fishing seasons. Their social role brings the responsibility to assume the roles of homemakers, mothers, and doing "informal jobs" to increase income. They divide their time between housework, care for the children, and helping the husband in the fishing activities. Their reproductive roles, associated to domestic activities also were clearly demonstrated during the interviews. In almost all the families interviewed, the domestic work is all done by the women, including the care with the children. Guaranteeing that they go to school is part of their job, and in the majority of the families interviewed, fishers do not want their children to continue in the fishing activity, so they invest in their education in the hope they will achieve a better life. This pattern of education of the children is very different from their own education levels. Kalikoski et al. (2012), found that the illiteracy rate for women is 6.6% and 12.6% for men; 73.1% of women did not complete elementary school, and 76.2% for men. Together, more than 85% of the fishery-dependents are illiterate or have not completed elementary school. Women have a slightly higher education level compared to men, and in rural areas compared to urban.

Fassarella (2007) and Porto (2010) found that there is a clear sexual division of labor in fishing, being generalized as the "sea" territory for men and "home" territory for women. According to Fassarella (2007) and Garcia (2007), capture and commercialization activities, are performed mostly by men, and the work of women in this activity is a "help" to husbands. In contrast, domestic activities are performed by women, as well as the processing of the capture, and any activity of men in this area is "help" to women. This sexual division begins in most families usually in childhood; most of the fishermen and fisherwomen are sons or daughters of fishers, and the knowledge passes down from father to son and from mother to daughter, even in childhood. When they are little girls, they help their mother and the father, and after marriage, "help" their husband (Garcia, 2007).

How the activities are divided is shaped by gender relationships in society. Activities done by women in fisheries are related to domestic activities and the "home" territory, and activities done by men, are related to aspects culturally associated to male gender as strength and

courage (Garcia 2007). In the workshops, speeches of various fishermen showed these gender relationships: female activities are dominated by a reproduction of a fragile female stereotype and linked to household duties and caring for the children, while a "natural role" of female feature. This way, the capture activity would be male dominated, according to them because a woman would not have physical strength to do the activities developed by men and also have the household and care for children duties. The women that participate in capture activities are described as masculine in appearance and they do activities as if they were men.

This gender relationship is not conflictive and is part of the livelihood of the fishing families (Garcia 2007). Fassarella (2007) showed that there is a valorization domestically by husbands, due to the multi-activities done by women, while externally there is an undervaluation and invisibility of its role in fisheries. The conflictive relationship about the identity and roles of the women in the fisheries happens in the public space, including the management of fisheries. During a workshop in a community of Rio Grande, the fisherwomen reported that they were losing their identity: "So what are we? Are we fisherwomen, fisher wives or fishery workers?" All these terms are used because the woman who works in artisanal fisheries is not recognized as a fisherwoman, in a broader sense than the capture and embracing household economy. There's a whole social movement in fisheries that addresses this issue of gender and that requires this recognition, as documented in the resolutions of the 3rd National Conference on fisheries and aquaculture and the 1st national meeting of Workers of Fisheries and Aquaculture, for fishery workers (MPA, 2009). However, in practice this has not happened. The recognition that affords them the same rights as fishermen is still far from being achieved.

The status of being recognized as "fisherwomen", is a struggle that is part of a recent movement around recognition of artisanal fisher wives, mollusk collectors, and others as the same rights and status held by the artisanal fisher that are considered traditional culture. This external struggle conflicts with these household relationships that are well established inside the families for generations. They are not considered as fishers by many of the fishermen themselves in some localities visited, that did not have internalized this social "struggle" for recognition of "fisherwomen" in a broader category. In a workshop, a fisherman who counted the number of fishermen who were in the room, disregarded the women that were present. This fact was discussed after and was considered problematic to some fisherwomen. Some said, "If neither our husbands see us as fisherwomen, how are we going to fight for our rights against fishery government organizations?"

### Conflicts Between Gendered Roles of Women and Management in the Fisheries

It is important to understand how the institutions and fishery management has handled the gender issues related to access and use of the resources. Are women and men having the same property rights of access to resources and benefits?

Berkes & Folke (1998), define property rights as the rights, duties, and responsibilities in the use of resources, as well as claims of benefits or income. Some of the property rights, exemplified here by RGP, the Environmental License and Unemployment Benefit, are set forth incongruously with the diverse realities of women in fishing.

Artisanal fishers are required by law to have at least four types of documents (Kalikoski and Vasconcellos 2012):

- i) Registration in the Registry of Professional Fisher (RGP) issued by the Ministry of Fisheries and Aquaculture — This is the basic document required for any engaged in professional fishing.
- ii) Environmental license issued by IBAMA (Ministry of Environment) — This is a document specifically for the estuary that artisanal fishers are required to obtain annually for fishing in the estuary of Patos Lagoon. It was adopted as a means of limiting access to estuarine resources by artisanal fishers from the surrounding areas of the lagoon and impeding the access of outsiders. It was also viewed as a measure to set limits to fishing capacity inside the estuary.
- iii) Registration (*matrícula*) issued by the Navy — This is a requirement for any professional fisher working on board fishing vessels within national waters. Individuals owning fishing vessels are also required to have an additional Registration (*matrícula*) issued by the Port State Control for their fishing vessel.
- iv) Producer Receipt of Invoices document issued by the Secretary of Finance of the State of Rio Grande do Sul — This document is necessary for tax purposes and must be used in every commercial transaction. It also serves as proof of income

These documents are required to have access to the resources, and different benefits and rights such as unemployment benefits and pensions in the national social security system. The majority of the men interviewed possess these four documents individually, while the women more likely possess the Registry of Professional Fisher (RGP) and the Producer Receipt of Invoices, normally in the name of their husband. The other two documents: Environmental license and Registration (*matrícula*) by the Navy, are documents more related to the work on fishing vessels and capture activities that normally women do not have because they work on the land, in pre-

and post-harvest activities. Normally the benefits (social security, work benefits, unemployment benefits), for the other members of the household unit are claimed using the main documents of the fisherman, and their own RGP only.

But some frauds related to “false fishers” made the government require more documents and the liberation of others more difficult. The requirement of these two documents (Licence and *Matricula*) and specially the Environmental License is very hard for women to obtain. One example was the conflict surrounding the loss of access to unemployment benefit for women on Patos Lagoon Estuary. An agreement in the Patos Lagoon Forum was made in 2009, during a multi-organizational research against frauds related to this benefit, involved six governmental institutions involved with fisheries, the University of Rio Grande, and the Patos Lagoon Forum. This agreement resulted in a recognition of women’s rights to this benefit and recommended to the Ministry of Labour and Employment (MTE), through the Ministry of Labour and Employment (MPF), that to avoid unnecessary requests of Environmental License of the husbands to have Access to the benefit. This was done in 2009 and 2010, and in 2011, the situation changed. MTE required one more document, the Environmental License for the liberation of Unemployment Benefit, and many women that did not possess the document, did not receive the benefit last year. This caused a big conflict surrounding the subject, resulting in a intervention of Federal Public Prosecutor, diverse lawsuits against MTE, a new decree regulating and requiring environmental license, and a public civil action to guarantee the payment of the benefit in 2012. Next year nobody knows what is going to happen.

In interviews, women reported suffering prejudices also in attendance in government agencies, during the request for documents and benefits, where they are often questioned whether they really are fisherwomen, because their appearance of “beautiful and tidy”, with clean clothes, nails painted, hair combed and other attributes are inconsistent with the stereotype that public agencies perceive to be a fisherman or fisherwoman. They are always required to prove that they are not a fraud. This kind of abuse was also described by Manesch et al. (2004).

These problems related to property-rights are a concern of the fishers because government is not being effective in limiting access to resource and neither guarantee fisher’s rights and benefits (Kalikoski et al. 2012). Management was always concerned about dealing with the resources, and limiting access, focusing on capture activities. Management was synonymous with managed access to resource. In this complex reality, where fisheries are much more than fishing activities, management actions need to change and find solutions to dealing with other stakeholders in the fisheries.

Results showed that women play diverse roles that contribute to the maintenance of the artisanal fishers’ livelihoods, and they also are involved in capture activities,

but for a minority their main role is on pre- and post-harvest activities, processing and gear maintenance, and other complementary activities to the men's roles. Women are more vulnerable to these management problems, because management still works in the Fisheries-Fish-Resource logic. These other members of fishing families, that are not considered "fishers" but work in these other activities may be not so invisible anymore, but they definitely are not properly addressed. The women are also more vulnerable because all their documentation is related to the fishermen documentation, in the majority of the cases, and if something happens that forces the separation between these documents, it can be very problematic. For example, in a family that the fisherman have some disease that he is no longer able to work and receives health benefits, he is automatically retired and his wife cannot obtain her own documents and continue the fishing activities in the family, at least not formally. Again, the image remains of only being fishers' wives.

We problematize the issue of women's participation as users of the resource and as artisanal fisher in household economy in decision-making spheres and representativeness of their rights. Fassarella (2007) points out that the concentration of women in the domestic sphere, have restricted their participation in decision-making and representation spaces, as colonies, associations and the Patos Lagoon Forum.

The observations showed that in the vast majority of cases, collective meetings spaces there is a spatial segregation between men and women, women generally are placed in rooms so furthest from the mediator and the discussion, usually sitting on the ends of the rooms or in the back. On the other hand, in some communities, this pattern has changed, and in accordance with our first observations is due to some factors such as greater participation in fisheries catch activities; more frequent participation in discussion spaces such as the meetings of the Patos Lagoon Forum or meetings of research and outreach projects of FURG; and the presence of women leaders in the community. It denotes the importance of empowerment of women in participatory spaces to insert the woman and give visibility to her voice and work.

### CONCLUSIONS

It is clear that there are characteristics that distinguish the cultural and social roles of fishermen and fisherwomen in the use of resources and there are also clear power relations and uneven dependency between them in society, which leaves them more vulnerable in crisis situations. The fisheries management process in the estuary, by the Government, contains several inconsistencies with respect to the establishment of rules and property rights. Both science and management has neglected the role of women in small-scale fisheries, even more in a reality of developing country. Gender-focused research has a important contribution to promote co-management processes toward

a sustainable, equitable and fair management of natural resources, with fewer inequalities between men and women. This invisibility of women in fisheries needs to be reversed to achieve shared management processes involving all users of the resource for a more sustainable and equitable management truly democratic and participatory, with less disparity of power and greater space for the community to build an adaptive forest co-management in an integrated manner with science and the State.

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