

# Women in Amazon fisheries (capture and post-harvest activities)

**Elsy Perucho Gómez**

*National Project Coordinator INFOPECSA, Colombia*

## **Abstract**

In the Amazon fisheries in Colombia, women play an active role in fishing activities. With the help of their husbands' fishing gear, they are involved in gutting and selling of the products in landing sites, municipal markets, and along the public road. Similarly, women of the communities of Lago de Yahuaraca are involved in fishing and fish marketing. In addition, they are implicated in the control and data collection on fisheries outputs in the lake, thus contributing to the sustainability of fishing resources based on community agreements. Existing regulations establish licenses for fishing and marketing, fishing methods, gears, minimum catch sizes, and closed seasons. Despite the existence of the Rural Women Program and the commitment by FAO Colombia to disseminate the voluntary guidelines on tenure, there is a problem of low institutional commitment to the fishing sector and to tenure in fisheries, especially for the female participants in this sector. Co-management is working well in the commercial fisheries of the Amazon River in Colombia, but shared stocks with other communities in Peru and Brazil are creating problems. Collaboration between fishing communities establishing fishing days for one community and other days for the other community work well. Control of illegal gear and illegal fishing activities is essential, and can only be pursued by the local fishermen. Education of fishermen on issues of sustainable fisheries is key to success.

## **1. INTRODUCTION**

### **1.1 Description of the fishery**

The National Authority of Aquaculture and Fisheries (AUNAP)<sup>1</sup> have 55 000 fishermen registered in inland fisheries, including men and women; 200 of them are in the Amazon area (Figure 1), of whom 20 are women. The role of women in the fisheries sector is multifold, including preparation of food for fishermen, cleaning gears and equipment, participation in capture, handling of fish upon landing, processing and commercialization. The fishing activity is classified as commercial and subsistence along the 116 km on the margin of the Amazon River (Colombian territory).

Commercial fishing in the Colombian Amazon is artisanal. Small wooden boats are used with low power engines and sometimes with rowing propulsion. They do not have a compartment for product storage. This activity is carried out by indigenous fishermen and colonizers and targets species of high economic value with great demand and preference in the market.

Subsistence fishing, as the main source of food for the population, is a daily activity carried out by natives and colonizers in streams and lakes near the communities, with finfish as the preferred target for cultural reasons. Women are involved in the value chain at the post-harvest level. They sell fish on the road to Leticia, department capital of Amazonas, or near the waterfront, close to hospitals and municipality market places.

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<sup>1</sup> AUNAP: Autoridad Nacional de Acuicultura y Pesca



**Figure 1. Fishing areas in Amazonas – Colombia.**

Source: Elsy Perucho Gómez, 2018.

The daily commercial fishing is carried out by the riparian communities, with an average of four hours of work in the areas of La Milagrosa, Fantasía, Santa Rosa (shared zone with Peruvian fishermen), San José and Puerto Alegría. Large catfish is the most important fish, marketed towards Bogotá, capital of Colombia, and from there onto other parts of the country. With such high demand, the species experiences great fishing pressure and is now considered at risk of being overfished. Other species with high demand and landings throughout the year include the spotted tiger shovelnose catfish (*Pseudoplatystoma punctifer*) and Gilded Catfish (*Brachyplatystoma rousseauxii*) (on IUCN Red List), followed by Laulao catfish (*Brachyplatystoma vaillantii*) with catches from March to August and Jau catfish (*Zungaro zungaro*) from August to November.

The lagoon area of Yahuaraca is located at 4 ° 11'48 "LS and 69 ° 57'19" LW, at an altitude of about 82 m.s., and two (2) kilometres west of Leticia. Subsistence fishing is carried out by indigenous communities of La Playa, San Antonio, San Juan de los Parentes, San Pedro, San Sebastian, El Castañal and La Milagrosa, who are authorized to extract 6 kilos of fish per family (4 for sale and 2 for consumption), according to regulation of the AUNAP. Fisheries focuses on Black Prochilodus (*Prochilodus nigricans*) and Black Cachama (*Colossoma macropomum*) from July to November in the lakes Shuyo, Boa Anaconda, Pozo Hondo 2, Carlos and Isla de Ronda, an area shared with Peruvians.

Products are landed in the civil port (waterfront), old port and port of Maí. According to official statistics, landings show declines in catches and in sizes, however, there is no recovery of the resource because there is no stock control in the Colombian sector.

The majority of the fishermen work individually in the small scale commercial fishing sector, nevertheless, catfish catches with gillnets require 2 or 3 people. The fishing equipment consists of a wooden boat of 9 to 10 meters in length, 1.5 meters wide and 0.6 meters high. The most popular engine is a small engine called the "pequepeque" with 5-10 hp of power; it is a slow but very economical engine compared to the outboard motor. In subsistence fishing, the wooden boat has a small engine "pequepeque" (5.5 hp), or rowing propulsion.



**Figure 2. Lake Yahuarcaca**

*Source:* Elsy Perucho Gómez, 2018.

Gears are varied, and the elaboration and use depends on the species to be captured, the hydrological cycles of the water bodies, the economic availability and the raw material, as well as the ability to elaborate them. Gillnets are made with monofilament and braided multifilament thread. In the boat, there is no compartment for storing products nor for using ice. This activity is carried out by indigenous fishermen and settlers and targets species of high economic value with great inland demand and preference in the market.

### 1.2 Economic contribution and social implications of the fishing activity



**Figure 3. Fishing in action.**

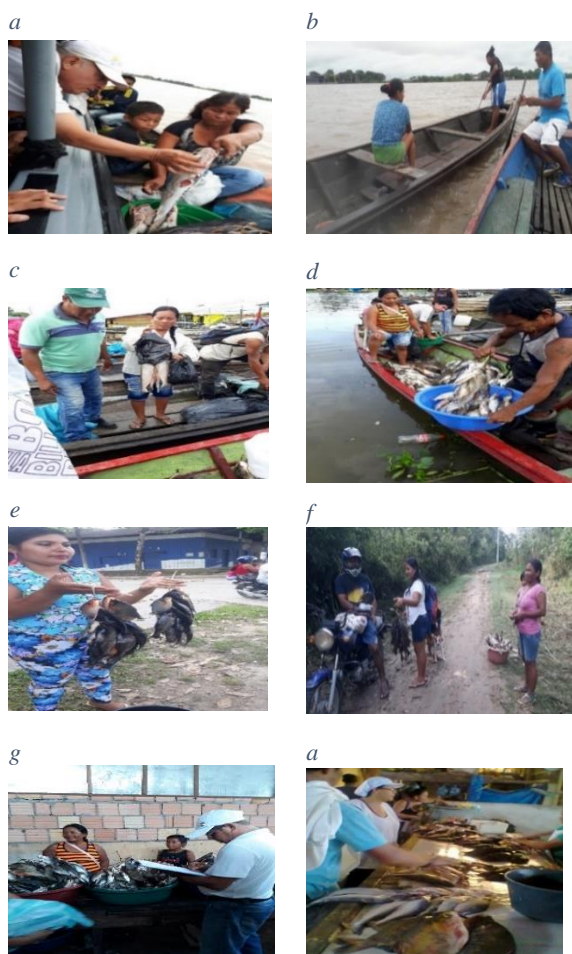
*Source:* Elsy Perucho Gómez, 2018.

The economic contribution of artisanal fishing in the Amazon River and Lake Yahuarcaca are different, as the latter merely includes subsistence fisheries while the former is 90 percent commercial fisheries. The subsistence fishing in Lake Yahuarcaca is regulated by AUNAP, which allows each family to catch a maximum of eight strings of fish each day (a string includes eight to 12 fish of one or several species, linked together with a thread or a rope). This quota includes two strings for self-consumption and up to 6 strings per family per day for sale. In addition to the fish, handicrafts from fish scales and leather products from fish skins are sold locally in the marketplace or on the public road mainly by women, particularly fishermen wives. The species of greatest commercial value are sold to wholesalers or middlemen, who keep them in

cold storage rooms and then transport them by air to Bogotá and from there to the inland of the country. Fishery products are a source of nutrition for the family and economic activity for the population.

Women have little participation in fishing but play an important role in the organization of gears and other supplies for fishing, as well as the washing and handling of the products in the local markets. They generally purchase fish directly from the fishermen at the dock and bring it to the market. (Figure 4).

## 2. MANAGEMENT OF THE FISHERY AND RIGHTS-BASED APPROACH



**Figure 4. Participation of women in the fishing chain.** a. Transportation; b. Processing; c. Landing; d. Buying; e. Selling in the village; f. selling at the street; g. Selling in retail; h. Selling in wholesale

Source: Elsy Perucho Gómez, 2018.

### 2.1 Fishery management

Fisheries regulations are based on Law 13 of 1990, Regulatory Decree 2256 of 1991, Decree Law 4181 of 2011 and Decree 1071 of 2015, which define the regulatory framework for the rational exploitation of fishery resources. This framework seeks to ensure the sustainable use of fisheries in order to improve the socio-economic conditions of fishermen and raise the living standards of the population, in accordance with the National Policy on Food and Nutrition Security PSAN and the Comprehensive Policy for the Development of Sustainable Fisheries in Colombia.

Based on the above framework, AUNAP is in charge of exercising the fishing and aquaculture authority in Colombia. It is responsible for planning, research, promotion, regulation, registration, inspection and monitoring and control of fishing activities and aquaculture. It can also apply sanctions within the policy of promotion and sustainable development of resources. This authority acknowledges that fisheries management should include citizen participation, and therefore calls upon the fishing community to debate and establish the best criteria for the sustainable use of fishery resources.

Based on the action plan of the integral policy for the development of sustainable fishing, AUNAP issued the measures in Lake Yahuaraca for subsistence fishing. This is according to the strategic axes "sustainability of fishery resources" and "participatory governance", which contemplate co-responsibility agreements with local actors for the responsible use of species of commercial interest and develop the capacities of organizations to exercise social control and self-regulatory measures to improve fisheries management. It is also important to highlight the participation of the environmental police and fishing associations in campaigns aimed at raising awareness of the responsible use and exploitation of fishery resources.

On the other hand, for the control and surveillance of capture and marketing of fishery resources that do not match the minimum sizes, use of legal gear and the seasonal closure, AUNAP and the police have inspection and surveillance patrols, most of the time ending with the seizure of gear and products that are forbidden or below catch sizes. The confiscated fishery products are donated to charities for food security. The fishing permit is revoked, and the fishermen or marketers are prosecuted for having committed a crime against natural resources.

Illegal fishing and marketing have led to the deterioration of the working environment and have engendered a number of conflicts. This has reduced the number of inspections due to the difficulty to coordinate the patrols, the lack of budget and the few personnel assigned to these activities. On the other hand, and in order to mediate the internal conflicts, AUNAP conducts awareness workshops to convince fishermen about the necessity to comply with the regulations.

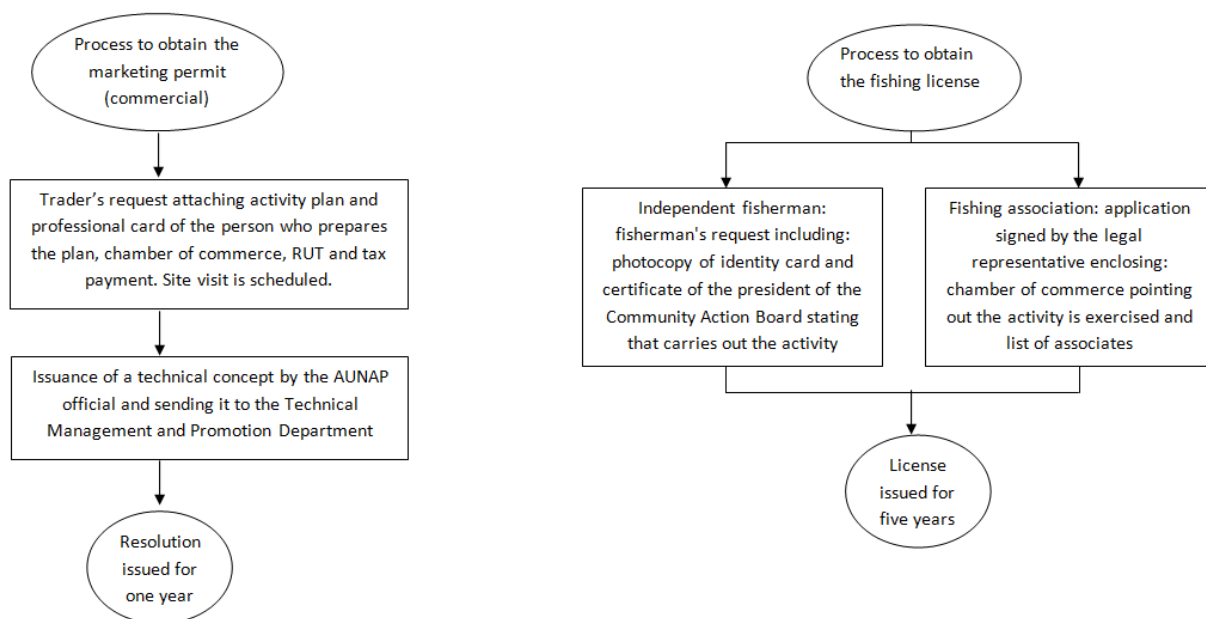
## **2.2 Brief history of former rights-based approaches used in the fishery**

The institutionalism of fishing in Colombia began in the 1960s, with the establishment of the Hunting and Fishing office, a branch of the Ministry of Agriculture. It was followed by the creation of the National Institute of Renewable Natural Resources INDERENA, an entity responsible of the administration of fishing (among other functions). Then, with the agreement 0015 of 1987 and resolution 089 of May 1987, the Pirarucú species underwent regulations including a fishing prohibition (from 1 October to 15 March) and a minimum size of capture (1.50 m of standard length). Agreement 0018 of 1996 established the closure for Arawana from 1 September to 15 March.

Subsequently, with Law 13 of 1990 and Regulatory Decree 2256 of 1991, the functions of the National Institute of Aquaculture and Fisheries INPA were established: "To manage, promote and control the fishing and aquaculture activity, to issue the norms for exercise and establish the procedures and requirements for the granting of authorizations, permits, patents and safe conduct". "Set and collect the number of fees and duties that must be collected for the exercise of fishing activity". Currently, AUNAP is the government entity in charge of regulating fishing activity in Colombia. One of the shortcomings for management and administration refers to the minimum sizes of capture because they are still based on initial data that was collected a long time ago. There lacks a new study that could better reflect the present situation. This is one of the demands made by fishermen.

### 2.3 Rights-based approach: allocation and characteristics

Artisanal fisheries is an open-access fishery. The fishing authority, however, issues the license for five years to the artisanal fishermen (Figure 5). With this, they can exercise the activity indicating area of action, gear and species to be captured. This document has no cost for them. Fishermen say that the document helps them to access projects developed by the Colombian state. Fish marketers have to make a written request for a permit, attaching the plan of activities to be executed and the expected volume of traded fish and the species, signed by a competent professional in the fishing area. The permit is valid for one year, must be carried by the transporter or marketer and is not transferable.



**Figure 5. Process of obtaining permits to catch or market fish.**

For fishing in the Amazon River, the fishermen agreed freely and in consensus to delimit five fishing zones where they develop the work. In the same way, they established day and night shifts to rotate weekly and alternate with Peruvian fishermen. In Lake Yahuaraca, the situation is different because of the training provided by the National University of Colombia, Amazon headquarters, within the framework of the project "Community management of fishing resources in Lake Yahuaraca". The community showed interest to form the association of artisanal fishermen with the seven (7) communities of the aquatic system of the lake in order to have representation and also to use, manage and conserve resources based on traditional knowledge and the application of the agreements of fishing. Their aim was also to form a monitoring and control committee. Because of the agreements, a decrease in the use of gill nets has been observed, which has led to a recovery of paco and gamitana species.



**Figure 6. Fisherman with a net.**

*Source:* Elsy Perucho Gómez (2018).

### **3. CONTRIBUTION OF THE RIGHTS-BASED APPROACH TO ACHIEVING SUSTAINABILITY**

#### **3.1 Sustainable use of the resources**

The greatest difficulty the fishing sector faces in the Amazon River sector of Colombia is the lack of clear guidelines to manage small scale fishing despite having a comprehensive policy for the development of sustainable fisheries. In the capture and post-capture stages, measures are used to regulate the minimum sizes of capture, gear and seasonal bans. Measures have not been effective for multiple reasons. First, fishermen, traders and consumers have not shown much interest in understanding the importance of following regulations to ensure that resources are sustainable and of good quality. Second, there is a lack of public policies that provide fishermen with alternatives for integral development, which makes them the most vulnerable stakeholder against supply and demand action and, consequently, the reduction of products in the landing ports that affect the food security of the native population of Leticia and the adjacent communities.

From the perspective of women participating in the fishing process, there is no training to develop and improve their skills and understanding of good food practices and good fish handling, conservation and commercial practices at the sale point. Therefore, a regulation that seeks to promote the sustainability of the resource should combine environmental, social and economic aspects.

#### **3.2 Economic viability of the fishery**

Since fishing takes place throughout the year, fishermen experience periods of abundance and scarcity according to the water levels. Fishery statistics show a constant decrease in landings in Leticia and continuous exploitation of the fishing stock.

The table below shows statistics of volume and prices of products caught over a period of 15 days in a good fishing season (year 2018).

**Table 1. Volume of catches.**

| Species    | volume (kg) |
|------------|-------------|
| Pirabutón  | 680         |
| Bocachico  | 596         |
| Pintadillo | 300         |
| Amarillo   | 280         |
| Dorado     | 150         |
| Cachama    | 130         |

**Table 2. Price of commercialization by species.**

| Species        | Fisher price COP (kg) | Sales price COP (kg) |
|----------------|-----------------------|----------------------|
| Pirabutón seco | 10.000                | 14.000               |
| Bocachico      | 10.000                | 15.000               |
| Pintadillo     | 8.000                 | 9.000                |
| Amarillo       | 6.000                 | 7.000                |
| Dorado         | 9.000                 | 16.000               |
| Cachama        | 8.000                 | 15.000               |

Fisheries are the main source of livelihood for riverine communities and settlers, both for consumption and sale. They contribute to the wellbeing of the population by providing a source of protein and covering their basic needs thanks to surpluses generated by marketing. There is also a trend in the inland of the country to get Amazonian fish as an alternative to improve consumption habits. As a result, greater pressure has been exerted on the resources, with unfavourable consequences for sustainability.

With fishing as a pillar of the Amazonian economy, many fishermen have been forced to move to more remote places and stay longer at sea in order to capture the species that are most desired by the local and national consumers, and generate higher income. In addition, they have been forced to become directly involved in the sale, which has partially disenfranchised the women who were involved at this stage.

### 3.3 Social Equality

Limits established on artisanal fishing in a concerted manner between the communities, without the need to exclude others, have played a key role in the performance of fishing agreements in the Amazon River and Lake Yahuarcaca. Rights to limit the volume of capture and days of fishing have made it possible to build efficient and equitable processes. As the communities themselves established the measures, they have strengthened as a group and are able to discuss and analyze the importance of following the rules on responsible fishing without the control of authorities. Agreements are examples of self-management and social responsibility. However, some members have reported isolated cases of discontent and non-compliance.

Another obstacle is the distrust of a few groups as a result of the decisions taken by some to lease shifts to people outside the community. This has generated conflicts among fishermen. These impasses are



discussed within the organization. They resolve them and arrive at concrete commitments in order to avoid further conflicts generated by the lack of communication.

The exploitation of fishery resources in the Amazon River sector of Colombia is shared with fishermen from Brazil and Peru, which generates conflicts despite the fisheries agreements. For this reason, it is important to make good use of the local fishing associations, in order to provide the opportunity to discuss the criteria of use and management of resources.

#### **4. MAIN CHALLENGES AND WAY FORWARD**

##### **4.1 Challenges for the fishery**

Fisheries management in the Amazon is a difficult task to carry out due to the geographical extension, the complex access and socio-economic situation of the communities. One of the challenges is to improve the supervision of standards in artisanal fisheries. It is necessary to encourage fishers and marketers to register and obtain permits to carry out the activity, as well as to sensitize them to issues of sustainable fisheries, provide them with tools to focus on conservation and develop lines of credit.

Another action is to strengthen the fishing associations so that it works as a scenario to set community fishing quotas, taking into account the difficulty to regulate the fishery through individual quotas. It is important to incorporate proposals into municipal and departmental government plans to achieve the government's objectives of sustainable and inclusive growth.

In addition, encouraging investment in education is expected to provide opportunities and perspectives for alternative livelihoods to fishing and post-harvest with a gender approach, in order to facilitate other activities that reduce the pressure on the resource.

##### **4.2 Improving fishery sustainability in the future**

It is important to visualize and professionalize artisanal fishing in an educational training program directed by the National Service of Learning SENA. It is essential to include fishermen and informal marketers in the social security program of the Colombian state.

It is necessary to improve the efforts to control the fishing. For this, it is important to count on the fishery census and to work in coordination with the local authorities, in order to join technical and administrative efforts to carry out the inspection outputs.

##### **4.3 Lessons learned**

Co-management is working well in the commercial fisheries of the Amazon River in Colombia, but shared stocks with other communities in Peru and Brazil are creating problems. Collaboration between fishing communities, which establish fishing days for one community and other days for the other community work well. Control of illegal gear and illegal fishing activities is essential, and can only be pursued by the local fishermen. Educating the fishermen on issues of sustainable fisheries is key to success. Women play a traditional role in the marketing and the processing of fishery products. However, there is a tendency to marginalize them. Alternative livelihoods should be found for them.

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