CARCINICULTURE IN THE MUNICIPALITY OF BREJO GRANDE/SE:
ENVIRONMENTAL LICENSING AS A SUSTAINABILITY INSTRUMENT

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ABSTRACT

Objective: Analyze the shrimp farming activity in the municipality of Brejo Grande/SE based on the survey of environmental licenses from the State Environmental Administration (ADEMA) granted in the year of the sanction and after the sanction of the state law, between January 2017 and September 2018.

Method: This is a study with a quantitative-qualitative approach. The data were collected in the lower São Francisco region of Sergipe, in the city of Brejo Grande/SE and the method used was the Survey using questionnaires.

Results and conclusion: According to the data obtained, it was possible to observe the growth of legalized enterprises after the sanction. In 2018 there were 39 licenses, 4 more than in 2017 (35 licenses). It was also possible to conclude that the size of enterprises in the Brejo Grande region is micro (less than 5 hectares) or small (greater than 5, but less than 10 hectares), with the Simplified License (LS) type prevailing. It is concluded that compliance with legislation is important to make shrimp farming sustainable in the region, guaranteeing the predictions of shrimp farming as a substitute activity in the lower São Francisco regions.

Implications of the research: It highlights the importance of monitoring in the adaptation of ponds for shrimp farming in the lower São Francisco region of Sergipe and the growth of its importance for the economic development of the state of Sergipe.

Originality: Contributes to the discussion of shrimp farming in the lower São Francisco region of Sergipe and the growth of its importance for the economic development of the state of Sergipe.

Keywords: Environmental Legislation, Socio-environmental Sustainability, Shrimp farming.

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CARCINICULTURA NO MUNICÍPIO DE BREJO GRANDE/SE: O LICENCIAMENTO AMBIENTAL COMO INSTRUMENTO DE SUSTENTABILIDADE

RESUMO

Objetivo: analisar a atividade de carcinicultura no município de Brejo Grande/SE a partir do levantamento das licenças ambientais junto a Administração Estadual do Meio Ambiente (ADEMA) concedidas no ano da sanção e após a sanção da lei estadual, entre janeiro de 2017 à setembro de 2018.

Método: Trata-se de um estudo com abordagem quantitativo-qualitativa. Os dados foram coletados no baixo São Francisco sergipano, na cidade de Brejo Grande/SE e o método utilizado foi o Survey por meio de questionários.

Resultados e conclusão: De acordo com os dados coletados, foi possível observar o crescimento de empreendimentos legalizados após a sanção. No ano de 2018 havia 39 licenças, 4 a mais que o ano de 2017 (35 licenças). Foi possível concluir também que o porte de empreendimentos na região de Brejo Grande é micro (inferior a 05 hectares) ou de pequeno porte (superior a 05, mas inferior a 10 hectares), prevalecendo o tipo de Licença Simplificada (LS). Conclui-se que é importante a observância à legislação para tornar a atividade do camarão sustentável na região, garantindo a viabilidade da carcinicultura como atividade substitutiva em regiões do baixo São Francisco.

Implicações da pesquisa: Evidencia a importância do monitoramento na adaptação de viveiros para criação de camarão no baixo São Francisco sergipano e o crescimento da sua importância para o desenvolvimento econômico do estado de Sergipe.

Originalidade: Contribui para a discussão da atividade do cultivo de camarão no baixo são Francisco, sendo um estudo primordial para entender a dinâmica entre a rizicultura e a carcinicultura no baixo São Francisco sergipano.

Palavras-chave: Legislação Ambiental, Sustentabilidade Socioambiental, Criação de camarão.

1 INTRODUCTION

The Lower São Francisco, a geographical region that extends from Paulo Afonso to the mouth of the river, in the Atlantic Ocean, is a holder of wide social, cultural and, principally, economic importance for the state of Sergipe and for the municipality of Brejo Grande, is no different. Currently, aquaculture activity, for that municipality, has been responsible for fostering that economy.

From an old island, belonging to the municipality of Vila Nova (today Neópolis), the City of Brejo Grande, had as its initial activity the planting of sugarcane, but with the decay of sugarcane and the favorable morphology of the lagoons in the floodplain of the São Francisco River, as well as periodic flooding, made the rice plantation become the crop grown in the region in the twentieth century (ALVES et. al., 2017).

According to the same authors, since the construction of the Xingó dam, changes have taken place in the social, economic and environmental spheres of the coastal municipalities of Lower São Francisco. There were problems such as the reduction of the flow of the São Francisco river and the consequent salinization of the fresh water, which occurs when the river loses its force and the seawater invades its bed, which altered what was the traditional reality of the rice producers in this region. "Where rice was planted, you can now see hatcheries for shrimp breeding."
Carciniculture is a branch of aquaculture for breeding aquatic organisms and is defined as the cultivation of crustaceans. According to Araújo (p. 29, 2003):

The historical origin of shrimp farming has been found in South-West Asia, where artisanal fishermen have raised dikes in coastal areas to trap wild post-larvae inhabiting estuarine waters and their subsequent growth in the prevailing natural conditions. The tidal regime was responsible for supplying and renewing the water of the surface reservoirs. In some countries, such as Taiwan, the Philippines and Indonesia, shrimp was cultivated as a by-product of fish farming (ARAÚJO, 2003, p. 29).

In Brazil, the shrimp breeding culture had its cradle in Rio Grande do Norte. In the 1970s, the government of this state created the "Shrimp Project" as an alternative to salt extraction - a traditional activity, which was in crisis of price and market with the consequent widespread unemployment in the saline areas of the state (ABCC, 2011).

The only species cultivated on Brazilian soil is *Litopenaeus vannamei*, a shrimp typical of the Pacific Ocean and exotic to Brazil, but which has demonstrated great capacity for adaptation to the ecosystems of different parts of the Western Hemisphere, besides cultivation in Ecuador and Panama (ABCC, 2011).

Known popularly as Western gray shrimp, this has as its main characteristics a uniform growth rate and easy adaptability to different environmental conditions (ARAUJO, 2003). In addition, according to FAO (2009), among the world's most produced aquatic species, captive cultivation of shrimp of the species *Litopenaeus vannamei* generated higher income in relation to other crops such as salmon and carp.

This enormous economic value, the high rate of growth and the capacity to withstand large saline amplitude (MUHLERT, p. 13, 2014), contributed to the fact that between 1999 and 2003, the activity in Brazil produced more than 14 thousand tons/year (VIDAL; XIMENES, 2016).

According to these authors, "in spite of this growth, like all activity on the rise, from 2004 onwards, shrimp breeding started to face some problems, amongst them the best known, which was the viral disease Infectious Myonecrosis".

After overcoming a long period of crisis because of this disease, albeit timidly, carciniculture started growing again in the Northeast. According to studies by Vidal and Ximenes (2016), this region of Brazil has 88.6% of the total farms and 90.6% of the country's shrimp production. And this growth includes the state of Sergipe. The Brazilian Association of Shrimp Breeders (2011), points out that the breeding of shrimp in tanks in the state of Sergipe has grown from 60 enterprises in 2004 to 224 units in 2011, being the city of Brejo Grande considered the largest producer of shrimp in captivity in the state.

There are more than 300 family farming families involved in shrimp breeding. This consolidation has boosted the São Francisco and Parnaíba Valleys Development Company - CODEVASF (2015) to carry out actions to expand the production of marine shrimp breeding in freshwater nurseries in other units.

In view of this growth, Sergipe's legislation has gone on to deal with shrimp farming. In December 2017, State Law No. 8327 was sanctioned and instituted the state policy of carciniculture, providing on the promotion, protection and regulation of the activity (GOVERNO DE SERGIPE, 2018).

This law, in its Article 2, brought some important definitions about carciniculture, enabling civil society to understand and understand the activity that is consolidated in the region. As the definition of a carcinogen:
Person professionally engaged à creating çffecting any of the stages of life of crustaceans, whether for economic, social or scientific purposes specifically, in an independent manner or linked to associations, cooperatives, or research institutions (SERGIPE, 2017).

In addition to state law, codes of conduct and biosafety programs help to provide information about the carrying out of this activity. As in the case of site choice; handling operation; food, animal health and biosafety; use of therapeutic agents; expenditure, packaging and transport; effluents and solid waste and employees and social relations (ABCC, 2005).

For example, the management process for maturing, breeding and larviculture of shrimp is governed by a code of conduct and good cultivation practices, which has been drawn up with the recommendations of international documents: FAO Technical Paper 450 (FAO Fisheries Technical Paper 450), the GAA (Codes of Practice for Responsible Shrimp Hatcheries) Code of Conduct and the Codex Alimentarius Codes of Practices (ABCC, 2005).

According to the Brazilian Association of Shrimp Breeders (2005), the main objectives of this Code are:

Ensure the development of the activities inherent in laboratories for maturation and/or larvae of marine shrimps under safe and harmonious conditions in relation to society and the environment with a view to the production of good quality nauplii and post-larvae, taking into account relevant biological, technological, ethical and commercial aspects (ABCC, 2005).

By means of these codes of conduct and management, sustainability has been inserted into the production process of shrimp, which has come to be called the "Economic efficiency of the production system". According to Vidal and Ximenes (2016),

Sustainable production, besides contemplating profitability and profitability, also involves the physiological limit of the animal, considering that the physiological stress caused by the high densities in the nurseries may have been the trigger for the fall of immunity in the animals and, consequently, the occurrence of opportunistic diseases (VIDAL, XIMENES, 2016, p. 4).

In spite of this legal support, an instrument that is indispensable for every activity with a potential polluter and that is a tool for guaranteeing this sustainability, is one of the difficulties that involve raising shrimps in tanks. In 2011, according to ABCC data, only 21% of Carciniculture establishments in the Northeast had environmental permits (VIDAL; XIMENES, 2016). This fact is a reflection of the withdrawal of many producers from the enterprise (mainly small ones) and of the carrying out of the activity outside the law.

Environmental licensing is an instrument that allows the public administration to exercise the power of control over human activities directed towards the environment. From this, it seeks to reconcile economic development with the use of natural resources, so as to ensure the sustainability of ecosystems in their physical, biotic, socio-cultural and economic variabilities (IBAMA, 2017).

The main guidelines for the implementation of environmental licensing are expressed in Law 6.938/81 and in resolutions CONAMA nº 001/86 and nº 237/97. The latter brings in its Article 1, I, the following forecast about environmental licensing:

Administrative procedure by which the órgãos about o ambiental competentes, a local, a, ampliç ç ç o õ, and a operathereof) of undertakings and activities using environmental resources, which are regarded as actually or potentially polluting
or which, in whatever form, are liable to cause degradation of the environment, taking into account the provisions laid down by law and regulation and the standards tending to apply in this case (CONAMA, 1997).

In the activity of shrimp breeding, the Order n° 24/2018, in its Article 1, lists the requirements that the entrepreneur must meet to have his activity licensed:

For the licensing of the carciniculture activity of the State of Sergipe, the entrepreneur must comply with the requirements of the following guidelines: I - Environmental Control Plan and Minimum Parameters for Carciniculture Enterprises; II - Environmental Monitoring Plan (Minimum Parameters); III - Enterprise Characterization Roadmap - CER; IV - Prior Analysis - Simplified Licensing (LS); and V - Prior Analysis - Operation Regularization License (LRO) - (SERGIPE, 2018)

It is worth highlighting that the Plan of Environmental Control and Minimum Parameters presents important requirements that guarantee social, economic and environmental security to this activity, like items such as the characterization of the enterprise; the environmental diagnosis; the evaluation of environmental impacts and mitigating measures.

In the context of the environmental licensing procedure, we have the so-called environmental permits, which give the interested party the right to undertake or carry out his activity. But different from the doctrinal concept of a license, which attributes it to a nature of a linked and definitive administrative act, the environmental license is an authorization with a period of validity, in which during this period the monitoring and monitoring of the environmental impacts takes place. And if the agreed is not being observed, the license will be revoked (STRUCEL, 2016, p. 58).

CONAMA Resolution No. 237/97 in its Article 1, II, defines it as an administrative act by which the competent environmental body establishes the conditions, restrictions and environmental control measures that must be complied with by the entrepreneur, natural or legal person, to locate, install, extend and operate enterprises or activities that use the environmental resources considered effective or potentially polluting or those that, in any form, may cause environmental degradation (CONAMA, 1997).

Also according to this same legal instrument, the Public Power, in the exercise of its control competence, will issue the following licenses: Prior License (LP), Installation License (LI) - and Operation License (LO).

In addition to these subspecies of permits provided for, CONAMA Resolution 237/97, Art. 12, §1 allows environmental bodies to grant the simplified license (LS). This license is intended for works, activities and enterprises of less complexity or less impact. The procedure for granting such a license is usually quick and with a lesser degree of requirements.

In the activity of Carciniculture, this license is regulated in Article 2 of Ordinance No. 24/2018 issued by the State Administration of the Environment (ADEMA), which provides that "for micro and small enterprises will be required the Simplified License (LS)". And "for medium and large enterprises, the ordinary licensing (LP, LI and LO) will be required" (art. 3 of Ordinance No. 24/2018).

This Ordinance in its Article 4th brought also the provision of another classification of license for areas prior to the legislation, which already had nurseries installed: "to the activities and enterprises of carciniculture and salt pans whose occupation and implantation took place before July 22, 2008, provided that the entrepreneur proves their location in apicum and/or salt, the Operation Regularization License (LRO) will be required".
Article 3 of State Law No. 8,327/2017, governs the following classification à the enterprises and activities of carciniculture:

I - micro-scale: áfreshwater, brackish or saltwater environment, using nurseries excavated or built i ó i â â natural terrain, the sum of which is less than or equal to 5 (five) hectares;

II - small: áfreshwater, brackish or saltwater environment, using nurseries excavated or built i ó i â â natural terrain, the sum of which is greater than 5 (five) hectares and less than or equal to 10 (ten) hectares;

III - medium-sized: for shrimp farming carried out in fresh, brackish or saltwater environments using nurseries excavated or built on natural land, the sum of the surface areas of the water slide being greater than 10 hectares and less than or equal to 50 hectares;

IV - large scale: Carcinology carried out in fresh, brackish or saltwater environments, using nurseries excavated or built on natural terrain, the sum of surface area of the water blade is greater than 50 (fifty) hectares (SERGIPE, 2017).

In the state of Sergipe, the body responsible for environmental licensing and licensing é the State Administration of the Environment (ADEMA), which has the responsibility for evaluating and subsequently granting permits for the enterprises, when they comply with the norm.

Despite this obligation, the importance of licensing goes beyond legality. In addition to making it possible to reconcile economic development with sustainable development, environmental licensing has an educational character, as studies carried out during its structuring process allow to explain to those involved and also to society the impacts of anthropic intervention on the natural, cultural and urban environment (STRUCHEL, 2016).

Because of this environmental educational character, the present study aimed to analyze the activity of carciniculture in the municipality of Brejo Grande/SE from the survey of environmental permits with the State Administration of the Environment (ADEMA) granted in the year of the sanction and after the sanction of the state law, namely, from January 2017 to September 2018. In order to demonstrate that this type of cultivation can be seen as a cost-effective and ecologically sustainable substitute activity as it complies with standards and licensing.

The present study aimed to analyze the activity of shrimp breeding in the municipality of Brejo Grande/SE from the survey of environmental permits with the State Environment Administration (ADEMA) granted in the year of the sanction and after the sanction of the state law, i.e. from January 2017 to September 2018.

2 METHODOLOGY

The spatial cutout of the research comprises the nurseries of carciniculture, located in the municipality of Brejo Grande (figure 1) in the extreme northeast of the state of Sergipe, in zone of coastal plain, near the mouth of the São Francisco River, between the geographical coordinates of latitude 10°25'38'' S and Longitude 36°28'12'' W, bordering to the north with the state of Alagoas, to the west with the municipality of Ilha das Flores, and to the southwest and south with Pacatuba (GOVERNMENT OF SERGIPE, 2000000114). It has an estimated population of 8,322 inhabitants in 2017, distributed over an area of 149.2 km², with a population density of 52 inhabitants per km² (IBGE, 2018).

The climate of Brejo Grande is the dry and semi-humid megathermic, with average annual temperature of 26Cº, and average rainfall in the year of 1,200mm (CPRM, 2002).
The methodology used for the development of this study followed a following sequence: in the first moment, the research was directed to the socio-environmental constraints of the municipality of Brejo Grande/SE. To do so, both a bibliographical survey was carried out, in various sources of direct and indirect public administration, as well as a search in the Brazilian Digital Library of Theses and Dissertations - BDTD, in periodicals and books, looking at the theoretical basis as well as the mapping of the research.

Subsequently, in the field study, in which according to Gil (p.57, 2008) "one studies a single group or community in terms of its social structure, that is, emphasizing the interaction of its components", it was made use of techniques of observation cão nano-participant, in loco, of the main questions raised for the consolidation of this study. According to Barros and Lehfeld (2000), to make use of this technique means to apply the meaning attentively to an object in order to acquire from it a clear and precise knowledge.

A survey was carried out with ADEMA, which made it possible to quantify the environmental permits in their modalities, shipped after the sanction of the state law of carciniculture, as well as to point out what the size of the enterprises was. This survey, together with the observation carried out, allowed us to have some important information about carciniculture, which helped to answer the main question in relation to compliance with legislation, with Good Management Practices and with the implementation of environmental licensing.

The Survey research method was used by means of questionnaires to obtain data or information cão cão characteristics, a o i cão o dés or opinions from a sample of the target population (carcinogens) (FREITAS, 2000).

As a approach, the research was characterized as quantitative-qualitative. Therefore, using both approaches allows subjectivity to be minimized, allowing the researcher to approach the object studied, thus ensuring greater credibility for the research (SAMPIERI; COLLADO; LUCIO, 2013).
3 RESULTS AND DISCUSSION

The growth in the activity of shrimp farming is a reality. In the territory of Sergipe, shrimp breeding in nurseries is distributed in the municipalities of Brejo Grande, Ilha das Flores, Pacatuba, Nossa Senhora do Socorro, São Cristóvão, Itaporanga d’Ajuda, Estância, Santa Luzia do Itanhy, Indianoba, Barra dos Coqueiros, Santo Amaro, Pirambu, Laranjeiras, Própriá, Neópolis and Santana do São Francisco (GOVERNMENT OF SERGIPE, 2018).

With the theoretical survey, one can arrive at data that point to the municipality of Brejo Grande as the largest producer of shrimp in captivity. There are more than 300 family farming families involved in shrimp breeding.

However, for the activity of shrimp breeding to be in conformity with the law, the farms must have the instrument of environmental licensing. And this was the main obstacle for the inhabitants of the region.

This difficulty resulted in the State Law No. 8327/2017 and later in the ADEMA ordinance No. 24/2018, which made possible the simplified licensing for the nurseries considered micro and small. As a result of this, we have the following data collected with the State Environment Administration (ADEMA) that shows the amount of permits issued before (as of January 2017) and after the state law is sanctioned (as of September 2018):

From January 2017 to December 2017 (the month that State Law 8327/2017 was sanctioned) 37 environmental permits were issued, 35 (thirty-five) simplified permits, which characterizes the enterprises as micro or small. The month with the highest number of licenses granted was January, with a total of seven (07) single licenses.

In addition, an operating license was issued on 02/06/2017 and an operating regularization license on 11/08/2017 (Figure 2).

For environmental permits issued after the sanction of State Law No. 8327/2017, from 06/03/2018 to 21/09/2018, 39 (thirty nine) permits were issued. Thirty-five (35) licenses being simplified during the period from 06/03/2018 to 21/09/2018.

In which the month of May was the one with the most simple licenses shipped: a total of thirteen (13) licenses. All of these 35 (thirty-five) enterprises fall into the category of micro
or small. In addition, a pre-license was issued on 19/06/2018, which characterizes this venture as medium or large.

An installation permit was already issued on 09/08/18. An operating license was granted on 25/06/2018. And prior to that date, on 20/06/2018, an operation regularization license was granted (Figure 3).

Figure 3: Environmental permits issued after Law 8327/2017. 
Source: Prepared by the authors (2018).

Although data for 2018 is partial, it is notable that there has been a growth in the number of legal ventures aimed at shrimp breeding in the municipality of Brejo Grande/SE. This increase highlights the importance of sanctioning state legislation and requiring environmental licensing for this activity. Since the requirements of the licensing procedure are necessary for the sustainable development that is sought and maintained.

From this survey with ADEMA, later, during fieldwork, observation and mapping of two nurseries took place on July 07 and 08, 2018, which made it possible to arrive at some results.

Analyzing the area occupied, it was found that the space covered by the carcinogens is diversified. There are countless nurseries, of the most varied dimensions, which are located in their majority close to the São Francisco River, which demonstrates a tendency to try to install the location of the activity close to the water.

Detailing the information about the profile of the shrimp farmers, it was analyzed that these are configured in two perceptible types of classes: those who migrated from the rice plantation to the shrimp breeding and entrepreneurs who invested in shrimp breeding.

From this information, one can also understand the destination of this activity. Those who migrated from cultivation have shown that they make use of shrimp breeding to maintain family income. While businessmen, they envision shrimp farming as trade.

On July 07, 2018, at 11 am, in the municipality of Brejo Grande/SE, community Carapitanga, the observation occurred in the nursery 01. It was possible to perceive that there were shrimps, but the precise quantity cannot be quantified. The farm had environmental licensing, but it was not possible to observe which licensing modality had already been shipped (Figures 4 a and b).
Another important point about shrimps was their growth. It can be noted that development is less than ideal. This led us to conclude that there was no care with the handling of the larvae, nor any attention directed towards the cleaning of the nurseries or the correct discarding of the water, the latter, which could bring about impacts on the fauna and flora of the surroundings of the nurseries.

These elements that should be observed and care at each stage are part of Good Management Practices (BPMs). These are a set of methods and procedures that ensure the responsible use of natural resources, prevent or minimize negative social and environmental impacts, prevent and control diseases of farmed shrimp, and protect food safety. And for this they make use of a quality system known as PFCA - Plan, Do, Check and Act (ABCC, 2017).

This lack of care has shown that the deficiency of a policy intended to assist in carrying out this activity in accordance with the law has harmed the carcinogens, who are not able to hire technical companies, the riverside population and the environment.

At the end of that day, no mortality of shrimps was observed.

On July 8, 2018, at the same time of the previous day, another observation took place at the 01 nursery of the Carapitanga community. The above data was repeated, with the exception of one of them: shrimp mortality.

On July 07, 2018, it had not been found, but on July 08 it was observed that the absence of necessary and fundamental care with the hatcheries, causes shrimps to die and cause damage in three spheres: social, economic and environmental.

Also on July 07, 2018, in the municipality of Penedo/AL, 02 shrimp nursery was observed located in the village Marizeiro, in the rural area (Figures 5 a and b). This place of observation, different from the area of study of this work, was chosen to make possible a comparative and later model criterion.
The same look, used for the farm in Brejo Grande/SE, was aimed at this farm in Alagoas. However, the perceived results were totally inverse. To begin with the care with the handling of shrimps. It was noted that the farm has a quality control and quantity of all larvae of the nursery. In addition, the cleaning and disposal of the water has been shown to be carried out in accordance with the code of conduct. All these observances mean that shrimp mortality is 0%. With regard to licensing, we can see that this farm already has all the environmental permits.

On July 8, 2018, during the same hour and nursery 02, the observations were repeated and the same results were obtained: respect for legislation, low risk to local biodiversity and to the inhabitants of the surroundings. This is an example of a farm that not only complies with the standard and has all the licenses, but also follows the procedures of the BPM.

Finally, after the two days of observation, it was possible to draw up a table (Table 01) with the data from the two nurseries.

Table 1. Observation table of nurseries of shrimp farms in the Lower São Francisco Sergipano area

<table>
<thead>
<tr>
<th>07/06/2018</th>
<th>08/06/2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Viv. 01</strong></td>
<td><strong>Viv. 02</strong></td>
</tr>
<tr>
<td>Presence of Cameroon</td>
<td>X</td>
</tr>
<tr>
<td>Proper growth of Cameroon</td>
<td>X</td>
</tr>
<tr>
<td>Environmental Licensing</td>
<td>X</td>
</tr>
<tr>
<td>Applicability of the BPM</td>
<td>X</td>
</tr>
<tr>
<td>Beware of handling larvae</td>
<td>X</td>
</tr>
<tr>
<td>Cleaning of nurseries</td>
<td>X</td>
</tr>
<tr>
<td>Correct disposal of water from nurseries</td>
<td>X</td>
</tr>
<tr>
<td>Mortality</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend: Y = Yes  
N = no  
Viv = nursery  
BPM = Good Management Practices  
Source: Authors (2018).
4 FINAL CONSIDERATIONS

The growth of this activity, with great potential for impact, is a reality not only of the Lower São Francisco as can be observed. From a partial analysis of the data about environmental licensing for the activity of shrimp breeding and the conditions observed in the two nurseries in the Lower São Francisco, it can be said that respecting the legislation (federal and state) makes shrimp breeding in a nursery an ecologically sustainable activity.

It can be pointed out that, when being followed, besides being in accordance with the legislation, the stages of environmental licensing, potentialize the breeding, the sale of shrimps, and maintain the healthy environment, a situation that helps the carcinogens who have migrated from growing rice crops to caraciniculture, besides helping other workers in the region like the shellfish trees who will not need to abandon their work, since the nurseries will not be built near the mangrove swamps and the environment, which will not suffer from the discarding of water contaminated with medicines or with the flight of shrimps from the nurseries.

A policy of improvement and inspection must be aimed at this region, not aiming at the losses to the carcinogens, but at the quest for sustainability, where there is a guarantee of sustenance, but one must respect and think about the generations of the now that are suffering with practices without commitment and the forgetfulness of the notion of belonging to nature.

In this sense, work that aims to collect data about the shrimp farms and to point out the profile of the entrepreneur in the municipality with the highest shrimp breeding rate is of paramount importance for the understanding of the sustainability and impacts of the activity.

Therefore, it is concluded that in addition to making it possible to plan and carry out the activity of the caraciniculture, in order to respect the peculiarities, the tradition of the community and nature in the lower São Francisco, the environmental licensing always seeks the sustainable harmony between man and the environment.

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