10.21544/2359-3075.v29n1.f

ENVIRONMENTAL CONFLICTS INVOLVING FISHING COMMUNITIES IN THE APA OF GUAPIMIRIM/ESEC GUANABARA–GUANABARA BAY/ RIO DE JANEIRO/BRAZIL

Yana dos Santos Moysés[1]
Rodrigo Nuñez Viégas[2]

SUMMARY

This work analyzes the environmental conflicts involving fishing communities in Guanabara Bay, with a special look at the areas of jurisdiction of the Environmental Preservation Area (APA) of Guapimirim and ecological station (ESEC) of Guanabara. There is a need for studies that seek to make a more systematic analysis of the conflicts between environmental public agencies and fishermen and, with this, data that can help in the proposal of democratic and sustainable public policies. From this, the research is based on two research plans - documentary analysis and interviews - with centrality in the analysis and treatment of infraction notices issued by ICMBio supervisory agents in the period from 2010 to 2022. This work thus seeks to contribute to the public authorities in expanding and updating an information base that seeks to subsidize both public agencies and fishermen in the diagnosis of conflict situations and in the creation of practical strategies to deal with environmental inequality through the creation/improvement of control, licensing and inspection mechanisms.

Keywords:Environmental conflicts; fishermen; Guanabara Bay.

1 Federal Fluminense University (UFF), Niterói, Rio de Janeiro — RJ, Brazil. Email: yanasmoyses@hotmail.com - ORCID http://orcid.org/ 0000-0002-8150-5304.

2 Rio de Janeiro State Fisheries Institute Foundation (FIPERJ), Niterói — RJ, Brazil. Email: rodrigo.fiperj@gmail.com - ORCID http://orcid.org/0000-0003-0789-0424.

Introduction

Located in the state of Rio de Janeiro, Guanabara Bay is an estuarine environment that has an area of 377 km2-excluding 52 km2 of islands and islets[3]- and a perimeter of 131 linear kilometers. It has an average depth of 7.6 meters with about 3 m of depth in the region of the "bottom of the Bay", 8.3 m in the region between Ilha do Governador and an imaginary line between the tips of Calabouço and Gragoatá, and 16.9 m in the outer portion of the Bay (AMADOR, 2012). It is located in the Metropolitan Region of the state, having in its surroundings the municipalities of Rio de Janeiro, Duque de Caxias, Magé, Guapimirim, Itaboraí, São Gonçalo and Niterói. The Bay presents a diverse set of ecosystems, ranging from the Atlantic Forest on the slopes to the mangroves that extend on its shores. Water exchanges with the ocean are 1.7 x 106 L s -1, being the residence time of its waters estimated at 20 days (BARROCAS and WASSERMAN, 1995). It also receives the contribution of 35 rivers, distributed in 24 hydrographic basins that, together, form the Hydrographic region of Guanabara Bay[4]. This region has a high demographic density, with an estimated population of about 13 million inhabitants (Guanabara Bay Observatory, 2019)[5], which corresponds to 74% of the resident population in the state of Rio de Janeiro (CIDE, 2003).

The Guanabara Bay Hydrographic region has not only the highest concentration of population but also of capital, infrastructure and workforce in the state. In it, a large part of the urban and social equipment is installed, as well as the second largest industrial park in the country, with about 18,300 industries (COIMBRA, 2021), comprising, for the most part, small and medium-sized companies, of which 52 are responsible for 80% of the pollution released into the Bay (BVRIO/FUNBIO, 2013).

According to SEA/INEA (2011), population growth and industrial development in the region have brought, in addition to pollution,

3 Several island systems are located in Guanabara Bay, such as Ilha do Fundão, Ilha do Governador, Ilha d'água, Ilha do Boqueirão, Ilha de Brocoió and Ilha de Paquetá.

4 The Guanabara Bay Hydrographic region (RHBG) is composed of 17 municipalities. Niterói, São Gonçalo, Itaboraí, Tanguá, Guapimirim, Nilópolis, Duque de Caxias, Belford Roxo, Mesquita, São João de Meriti and Magé are fully inserted, and Maricá, Rio Bonito, Cachoeiras De Macacu, Petrópolis, Nova Iguaçu and Rio de Janeiro are partially inserted (COIMBRA, 2021).

5 See: https://storymaps.arcgis.com/stories/ae5de262391d418fa07e9bcdb624222f.

physical environmental issues. The main impacts on the Bay are due to siltation, landfills, modification of the drainage of its rivers, deforestation of mangroves from their banks and releases of domestic and industrial effluents (heavy metals, hydrocarbons, oils and greases) and solid waste (floating garbage and slurry, originating from dumps). The Bay receives about 17 m3/s of domestic sewage, and of these 17 m3/s, 13.2 m3/s receive some type of treatment - mostly primary treatment only, which does not prevent pollution of the natural resource.

Guanabara Bay has an overlap of different economic and social practices, providing water for industrial use and being used for recreation, navigation and fishing. According to Coelho (2007), we can divide the activities developed in the Bay into primary, secondary and tertiary.

The primaries are represented by fishing commercial sector in the interior of the bay, especially shrimp. The secondary ones are constituted by the industries of the region, many of them located on the edge of the bay, using its waters for refrigeration purposes, industrial processes and other purposes. Tertiary activities include not only the provision of services – ports, commercial shipping and passenger transport – but also leisure and tourism.

Thus, there are several economic activities in the water mirror of Guanabara Bay. In addition to shipyards, ports, airports, passenger transport via boats, tourism, leisure, the expressive occupation of the oil and gas industry, also the significant presence of fishing, including artisanal fishing (COIMBRA, 2021).

The overlapping of these diverse spatial practices by different social actors in Guanabara Bay with different modes of appropriation, use and meaning of the territory culminates in a space of material and symbolic dispute between such actors, which characterizes the conflictive dimension of this territory.

This work is part of a research project of the Rio de Janeiro State Fisheries Institute Foundation (FIPERJ) with the support of the Rio de Janeiro State Research Foundation (FAPERJ) that seeks to record an overview of environmental conflicts in the Guanabara Bay region by mapping their areas of occurrence, their origins, effects and participating social actors, focusing on conflicts involving fishing communities (fishermen, shellfish gatherers, crab pickers, crab meat pickers, etc.).

It is verified in the survey and analysis of different scientific works and research projects related to environmental conflicts involving

artisanal fishermen in Guanabara Bay an effort among certain groups and researchers to systematize data and even map environmental conflicts, between artisanal fishermen and enterprises and infrastructures, mainly related to the oil and gas industry (CHAVES, 2011; MOYSÉS, 2010; SOARES; 2012; MOYSÉS, 2016; FIOCRUZ/FASE, 2022; MARESS-FURG laboratory, 2022).

However, on the other hand, there is a need for work that seeks to make a more systematic analysis of the conflicts existing between public environmental agencies and fishermen in Guanabara Bay and an available information base capable of guiding the diagnosis of conflict situations and the fight against environmental inequalities that, to a significant extent, motivate such situations.

With the premise of contributing to the expansion of these data, the present work, in this sense, aims to identify and analyze environmental conflicts based primarily on the infringement notices issued by Chico Mendes Institute for Biodiversity Conservation – ICMBio in the period from 2010 to 2022 that specifically involved fishermen/fishing in the Environmental Preservation Area (APA) of Guapimirim and in the ecological station (ESEC) of Guanabara.

The infraction notices are documents that, based on Fuks (2001), represent conflicts considered more "mature", that is, that have already become public and are processed within the legal-institutional system. In this sense, from the systematization of these documents, we can identify the recurrence of certain conflicts and diagnose the situations that motivate them.

The information produced from the notices can also serve as a basis for the analysis of environmental policies themselves and how they can also generate inequalities and environmental conflicts. And, with this, assist in the improvement and/or creation of policies and/or control and inspection mechanisms that ensure the fight against environmental inequalities. To this end, this article was organized into three sections. In the first, we will discuss in a general way about the conflictive dimension of the territory of Guanabara Bay. From this, we will continue with a special look at the environmental conflicts between fishermen and managers of the GUAPIMIRIM APA/ESEC Guanabara. Finally, we will present the analyzed and produced data that involve the environmental conflicts between these two groups.

1 - THE CONFLICTIVE DIMENSION OF THE TERRITORY OF GUANABARA BAY

The social modes of appropriation of the material world articulate technical forms, defined by their spatiality and temporality, social forms, which express the patterns of inequality of power over environmental resources, and cultural forms, which contain the distinct values and rationalities that guide socio-technical practices.

Acselrad (2004) discriminates between two spaces where power relations in societies are defined, and relevant to the ways in which the material base of society is appropriated. The first is the space of distribution, which would be configured in the differential capacity of social groups to have access to "capital" or to what is assigned in the environmental issue of "material capital". The inequality of power of the subjects results in the ability they have to influence the legal-political regulatory frameworks of the environment or economic mechanisms and, when not, to exercise the use of direct force. The second is the space in which the representations are confronted, which legitimize this distribution of power among the different subjects according to a differentiated allocation of material capital. They legitimize, with this, the unequal distribution of power over environmental resources, and consequently, the environmental impacts themselves.

Following the thought of the author, the object that is called "environmental conflicts" must be apprehensible, then, simultaneously in these two spaces: of material and symbolic appropriation of the resources of the territory. These are disputes over the mode of distribution of power. Struggles for both material/territorial and symbolic appropriation by categories that legitimize or delegitimize the distribution of power over the different types of capital (ACSELRAD, 2004). In other words, they are struggles *epistemological-political* (PORTO-GONÇALVES, 2006).

As in the case of Guanabara Bay, there are, for example, disputes over the territorial appropriation of the sea between artisanal fishermen and enterprises and infrastructures, mainly related to the oil and gas industry (CHAVES, 2011; MOYSÉS, 2010; SOARES; 2012; MOYSÉS, 2016; FIOCRUZ / FASE, 2022;

MARESS-FURG LABORATORY, 2022). In the space of representations, on the other hand, disputes for environmental discourses unfold that are constructed and activated both as strategies of domination

and resistance. As examples of categories triggered in this dispute process for Guanabara Bay, we can highlight the category of *sustainable development*, driven by managers in the oil and gas industry, and the categories of *territory, identity and memory*, triggered by the artisanal fishermen of Guanabara Bay (MOYSÉS, 2016).

In turn, when we highlight the policies in force in the environmental field, it is verified that either due to economic activities or by the action of the state, the material and symbolic reproduction of population practices, such as those of the fishermen of Guanabara Bay, is threatened. If, on the one hand, the state can sometimes appear alongside the affected populations, on the other, it appears as an implementer of autocratic conservationist environmental policies that exacerbate environmental conflicts (ZHOURI, LASCHEFSKI, 2010). The formation of environmental conflicts is also intensified in situations involving environmental preservation areas (LEAL, 2013).

It is thus conceptualized as environmental conflicts those involving social groups with differentiated modes of appropriation, use and significance of the territory, originating when at least one of the groups has the continuity of the social forms of appropriation of the environment that they undertake threatened by the undesirable impacts resulting from the spatial practices of other groups (ACSELRAD, 2004, p.26). The territorial or spatial issue is thus " at the heart of many environmental conflicts involving the relations between power and the environment" (ZHOURI, LASCHEFSKI, 2010, p.18). As evidenced, special emphasis can be given to the overlaps of spatial practices in Guanabara Bay by different social actors that end up triggering conflicts around the appropriation, use and significance of the territory. Regarding the conflicts in Guanabara Bay involving fishing activity, we can highlight: *Go inside fishermen, between fishermen and enterprises and between fishermen and the state.*

1.1 - Conflicts Between Fishermen

The real and symbolic appropriation of the resources of the territory is defined from the material and cultural organization that, in turn, establishes systems of social, political, economic and ecological relations. Through such relationships, territories are protected and controlled, collectively or individually, through agreements, coercion and other instruments (BERKES, 1996).

An integral part of the conflictive dimension of the maritime territory is characterized by the dispute over the appropriation of the fishery resource base by fishermen. The territory in which this dispute is embodied is considered a "fishery" - an appropriate microenvironmental unit (tenure) for fishing where there is some rule of use or conflict (CORDELL, 1989; BEGOSSI, 2004). According to Begossi (2004), the competition for resources and the degree of appropriation of a given area are variables that can influence on the use of space by fishermen. The scarcer the resource, the higher the density of fishermen and the less mobile a fishing technology is, the more likely it is to encounter rules of use and conflicts in the territory. Furtado (2004) lists the following possible effects of conflicts between fishermen: breaking traditional ties of family, companionship and mutual aid; formation of antagonistic groups; internal fissures; breaking solidarity and principles of reciprocity; mobilization of the community; creation of legislation based on native knowledge and experience.

Regarding conflicts between artisanal fishermen, a significant portion of the latter arises due to disagreements over local rules for the appropriation of marine territory. Begossi (2004) states that a common rule of appropriation of a fishery, for a certain time interval, is the rule of "who arrives first". This rule was observed by the author in fishing with line and hook on the island of Búzios, Rio de Janeiro, as well as by Seixas (1997) in fishing with waiting net in Aventureiro, Ilha Grande, Rio de Janeiro. In the same line of observation, Adomilli (2007) portrays the case of "remolho", a conflict that occurs in the Lagoa dos Patos, in Rio Grande do Sul, when some boats/canoes dispute the same space where fish were found due to the order of arrival at the place, generating clashes between fishermen, who threaten each other.

About conflicts between artisanal and industrial fishermen, authors such as Diegues (1973), Duarte (1999) and Pessanha (2003) show in their research the socioeconomic impacts on artisanal fishing resulting from the competition established with the boats of capitalist companies, as well as highlight the forms of manipulation constituted by capital on the traditional way of working in fishing, highlighting the subordinate position of fishermen in the game of social relations.

Martins and Cazella (2014), in their study on right whale APA, located on the south-central coast of the state of Santa Catarina, highlight that conflicts between artisanal and industrial fishing materialize in some

areas and over some types of resources, organizing around some fishing modalities. In the analyzed case, the modalities were: trawl fishing; the capture of live bait for tuna fishing; and mullet fishing. According to the authors, such conflicts are correlated to two distinct problems: the economic growth of industrial fishing and the fragility of the spatial planning of fishing activity.

Specifically in the case of Guanabara Bay, it presents itself as a space with a wide range of fishing resources[6] where different fishing modalities are developed, becoming an environment conducive to the development of conflicts between fishermen. According to a survey of the fishing activity of Guanabara Bay, conducted by Ibama between April 2001 and March 2002, at least six different fishing "systems" coexist in the Bay: (i) Fishing for sardines Boca-torta and savelha, with industrial destination; (ii) different artisanal fisheries, focused on mullet, croaker, catfish, sword, parati and other fish, involving most of the contingent of boats and fishermen and all of the corrals; (iii) fishing for shrimp, with well-marked seasonality, between September and January; (IV) crab collection in the mangroves; (v) fishing for siri, with the help of puçás, aiming at processing by the "Skinners"; (vi) collection of mussels on the rocky shores of the oceanic Bay, also directed to processing.

According to Chaves (2011), in the Guanabara Bay Area some conflicts occur between fishermen who practice trawling modalities[7] and the corral[8]. As the author points out, artisanal fishermen who fish with trawl nets and are not owners of pens complain that these fixed traps damage and tear their nets, impairing the practice of their fishing activity.

Due to the decrease in the number of fish in the Bay[9], conflicts

6 The fish production recorded by IBAMA (2002) during the 12-month period at 32 landing points in Guanabara Bay was more than 19 thousand tons, corresponding to a first sale value of about R$ 14.3 million. Of this total, the Boca-torta sardine accounted for 12,500 tons, equivalent to an approximate value of R$ 3 million.

7 Trawl fishing uses conical shaped nets with a bagger at the end where the fish is confined. The Nets are kept open and on the seabed through "doors", and can be towed by one or two vessels (single, double and paired bottom trawl). This modality captures prawns, hake, hake, pink Conger, hake, croaker, flounder, trail, rays, among other demersal species.

8 According To Piorski et. al. (2009), pens are fixed traps built with rods and wires, strategically deployed on the sea floor. In these traps, fish are trapped in an enclosure and removed at low tide.

9 It is worth mentioning that this phenomenon that occurs in Guanabara Bay, as observed by Giffoni Pinto(2013), Soares (2012) and Giuliani et. al. (2005) in an interview with fishermen

involving theft among fishermen also grow. This is the case, for example, of the robberies of the corrals, which have been causing their owners hire vigilance to avoid the action of the" lambanceiros", nickname given by the curraleiros to those who invade the corral to steal fish. The study conducted by Ibama (2002) counted 3651 fishermen developing their professional activities in the Bay region. This number of fishermen, however, contrasted with other studies conducted on Guanabara Bay in similar periods. According to Coelho (2007), the number of fishermen in the Bay would be inaccurate, considering that there would be surveys, such as the one carried out by Cantarino and Souza (2000), which estimated at 5 thousand fishermen, as well as the registration of Petrobras, carried out after the oil[10], which he estimated at just over 12,000.

After a decade, this inaccuracy remains. Herculano (2012) pointed out that for the Federation of fishermen of the state of Rio de Janeiro (FEPERJ) there would be 20,517 fishermen in Guanabara Bay and that for the NGO Instituto Baía de Guanabara (IBG), the estimates would range from 5 to 18 thousand. In turn, Moysés (2016) also pointed out that for the Associação de Homens e Mulheres do Mar (AHOMAR) there would be 15 thousand families that would survive from fishing in Guanabara Bay.

In addition to methodological discrepancies between these various surveys, the variety in this quantitative also seems to reflect the scenario of symbolic dispute existing in the Bay territory between the various social actors, since it can represent different political strategies of certain specific groups.

These data, both on conflicts between fishermen and the number of artisanal fishermen in Guanabara Bay, also reflect the lack of more systematic and updated studies on artisanal fishing in Guanabara Bay,

---

in the region, reflects an enlarged phenomenon of decrease in the amount of fish in the state of Rio de Janeiro. The 2010 Statistical Bulletin of the Ministry of Fisheries and Aquaculture recorded an 8% decline in National Marine extractive Fisheries between 2010 and 2009. For the state of Rio de Janeiro, this study recorded a drop in marine extractive fisheries from 57 thousand tons (in 2009) to 54 thousand tons (in 2010).

10 On January 18, 2000, a rupture in a REDUC pipeline caused the leakage of about 1.292 million liters of oil in Guanabara Bay, which is equivalent to
8,000 barrels (BERTOLI and RIBEIRO, 2006, p.125). The accident caused a great mortality of Fish and birds and brought serious impacts on the mangroves of the Guapimirim Environmental Protection Area, the last stronghold of mangroves still conserved in the Bay. The spill mainly affected fishermen, crab pickers, shellfish gatherers and those who had Tourism as their main source of income. Petrobras was fined R$ 51 million by the Brazilian Institute of the environment and Renewable Natural Resources (IBAMA).

which result in a lack of knowledge about the true conditions of artisanal fishing in the region.

In terms of social and political organization of fishermen, according to Rosa and Mattos (2010), there are five colonies in Guanabara Bay, being located in traditional fishing and landing sites: Z-08 (Niterói and São Gonçalo), Z-09 (Magé), Z-10 (Ilha do Governador), Z-11 (Ramos), Z - 12 (Caju). On the other hand, we also highlight the AHOMAR, created after the REDUC oil spill in 2000, and the installation of the PE-3 oil venture[11] and the consequent impacts on fishing activity, and also due to the lack of representation and a combative posture of the colonies (Technical Report No. 50/2009 of the MPF; MATHIAS, JÚNIA and TAVARES, 2012; IDEIAS, 2013; PESSOA DIAS et al.., 2013). Another element that highlights the disputes in / for the territory of Guanabara Bay among the fishermen themselves.

1.2 - Conflicts Between Fishermen And Enterprises

There are also conflicts involving fishermen and various types of enterprises located and/or developing their activities in the Guanabara Bay Area. According to Chaves (2011), most of these conflicts occur due to the territorial dispute over the bay areas with a depth above 5 meters. This is because in such areas are located the fish species valued in the trade, but which are also ideal for the installation of terminals, circulation of vessels, anchoring of ships, among others.

Guanabara Bay has a number of enterprises in the field of naval transport, port activity and petrochemical activity, with an expressive occupation of the oil and gas industry, which dispute space of the Bay withfishing. Examples of such projects are: the Port of Rio de Janeiro, CCR Barcas, the Petrobrás complex (Reduc, Petroflex and Nitriflex), the Manguinhos refinery, the large shipyards Ishikawajima, Verolme, Eisa Estaleiro Ilha S. A. (AMADOR, 1997), the petrochemical complex of Rio de Janeiro (COMPERJ[12]), the flexible liquefied Natural gas (LNG) Terminal in

11 Pipeline that connects the Duque de Caxias refinery to the Terminal of Ilha d'água, ensuring the transport and export of dark products for 17 km along the Guanabara Bay

12 In 2007, the Environmental Impact Study and Environmental Impact Report (EIA-RIMA) of the petrochemical complex of Rio de Janeiro (COMPERJ) consolidated the choice by the municipality of Itaboraí as the installation site of the largest individual enterprise in the history of Petrobras and one of the important parts of the Growth Acceleration Program-PAC, launched in early 2006 by the Federal Government, with an initial investment of R$ 15 billion

Guanabara Bay[13], the Guanabara Bay LPG project[14], among others.

Due to the various developments and infrastructures existing in the Guanabara Bay Area, there are a number of areas in which fishing activity is restricted or prohibited. It is identified, mainly in the context of the installation of COMPERJ, an effort by certain social groups and researchers, often in partnership with artisanal fishermen in Guanabara Bay, to prepare scientific and academic documents and even maps on environmental conflicts between artisanal fishermen and enterprises and infrastructures, mainly related to the oil and gas industry (CHAVES, 2011; MOYSÉS, 2010; SOARES; 2012; PESSOA DIAS, 2013). et al.., 2013; MOYSÉS, 2016; FIOCRUZ/FASE, 2022; MARESS-FURG LABORATORY, 2022).

In this context, it is observed articulations of artisanal fishermen, mainly from AHOMAR, with different institutions, civil organizations, social movements, unions, ecologists, universities (Human Rights Commission, Amnesty, Frontline, Global Justice, FASE, ASISBAMA, Mais Democracia, Brazilian network of Environmental Justice, FIOCRUZ, UFRJ, UERJ) in the elaboration of these materials. As examples, we cite: the fishing exclusion map of Guanabara Bay prepared by AHOMAR together with the Permanent Assembly of entities in defense of the environment (APEDEMA) - RJ in 2007; the participatory mapping with 28 fishing communities together with the geographer Carla Chaves in 2011; the creation of the "Forum of those affected by the oil and Petrochemical Industry near Guanabara Bay (FAPP-BG"" in April 2012[15]; public documents prepared by

---

and expected operation in 2012 (RIMA-COMPERJ, 2007; MOYSÉS, 2016).

13 The LNG project consists of a maritime terminal interconnected by pipelines to the Rio de Janeiro pipeline network through the Campos Elíseos Terminal. This project aims to provide the import of liquefied natural gas through ships and its regasification on the vessel itself to meet the short-term demands of the fuel (Federal Public Ministry, public CIVIL inquiry No. 1.30.020.000044 / 2009-53).

14 The LPG project (installations of the Long Island Terminal, adaptations of the Redonda island waterway Terminal and liquefied petroleum gas pipelines in Guanabara Bay) aims to anticipate natural gas production projects in the Southeast Region. They are being built two pipelines-with submarine and terrestrial sections-for the transfers of liquefied petroleum gas between the Duque de Caxias refinery and Redonda Island. The project concerns the construction of a pipeline to connect, through the Bay, the Duque de Caxias refinery (REDUC) to the waterway Terminal on Redonda Island (TAIR), where ships are supplied with fuel gas (Federal Public Ministry, public CIVIL inquiry No. 1.30.020.000044/2009-53).

15 Among the main objectives of the forum are: the demand for more in-depth studies on

the Public Prosecutor's Office (MP), such as Technical Report No. 50/2009 and public civil action (ACP) No. 1.30.020.000044/2009-53 against INEA, PETROBRAS, GDK S / A and

Oceânica Serviços Técnicos LTDA., and by the Rapporteurship on the Human Right to the environment of the platform on human, economic, social, cultural and Environmental Rights (DHESCA, 2013).

Chaves (2011) includes in the list of areas in which fishing activity is restricted or prohibited: (i) the safety areas of the Rio-Niterói bridge, the dredged channel in the center of the Bay, the routes of the river boats to Niterói and the airports (Santos Dumont Airport and Antônio Carlos Jobim International Airport); (ii) the areas of Anchorage and piloting of ships that are anchored awaiting permission to proceed; (iii) Petrobras pipelines, which exclude fishing in 400m on each of its sides;

(iv) the pipelines of the State Water and sewerage company (CEDAE), which have security areas of 200 meters on each side; (v) the Petrobras terminals, which exclude boat anchoring and fishing within a radius of 5Km; (vi) and the restricted area of the Suzano terminal. Considering all these areas of restriction or prohibition of fishing activity, according to the author, only 12% of the 377 Km2 of the Bay remains

health, social and environmental impacts, as well as the guarantee of dissemination and democratization in access to these studies. They work for training actions that relate oil and gas and environmental injustices and the insertion of this information in school curricula (an instrument endowed with power relations), as well as the construction of critical and participatory environmental education processes that consider local traditional knowledge, such as that of the artisanal fishermen of Guanabara Bay. The groups that are part of the forum: Association of professors researchers of history of the Baixada Fluminense (APPH-Clio), Association Guadá Vida, Association Men Of The Sea of Guanabara Bay (AHOMAR), Solano Trindade Community Library, heritage and Historical Reference Center of the municipality of Duque de Caxias (CRPH), Dean of extension of the Federal Rural University of Rio de Janeiro (UFRRJ), ECOCIDADE, Federation of residents associations of Duque de Caxias (MUB), Federation of bodies for Social and Educational Assistance (FSSA), phase), Feira Cultural E Artesanal de Santa Cruz da Serra - Grupo de Educação e Recuperação Ambiental (GERA), GT Racismo Ambiental, Instituto Brasileiro de Direito Ambiental (IBDA), Movimento Pró-saneamento e meio ambiente da região do Parque Araruama – São João de Meriti, Núcleo Interdisciplinar de Estudo do Espaço da Baixada Fluminense (NIESBF/FEBF/UERJ), Rede Brasileira de Justiça Ambiental (RBJA), Sindicato dos Trabalhadores na Indústria do Petróleo De Duque de Caxias (SINDIPETRO-CAXIAS), Sindicato dos Trabalhadores nas Indústrias construction, industrial assembly, marble and Granite, furniture and Wicker Duque de Caxias, São João de Meriti, Nilópolis, Magé and guapimirim (siticommm), State Union of education professionals – nucleus of Duque de Caxias (Sepe/DC), fishermen's Union of the state of Rio de Janeiro (SINDPESCA – RJ).See: http://fappbg. blogspot.com.br/p/quem-somos.html

without restriction of any order to carry out fishing activity.

In addition to the factors of restriction and Prohibition of fishing, the maps, documents and media cited above also highlight the risks, socio-environmental impacts and violations of the rights of artisanal fishermen, as well as allegations of attempts on the lives of fishermen linked to the AHOMAR and the weaknesses of the Protection Program for Human Rights Defenders.

1.3 - Conflicts Between Fishermen And The State

According to the amendments referring to Guanabara Bay in the environmental chapter of the Constitution of the state of Rio de Janeiro, the Bay is considered a "permanent preservation area" and an "area of relevant ecological interest" (AMADOR, 1992).

From this, Guanabara Bay also has restrictions and prohibitions determined by the State for the use of its space and resources. These result in conflicts between public institutions, supervisory bodies, protected areas and fishermen. The main inspection agents are: the Brazilian Institute of the environment and Renewable Natural Resources (IBAMA), the ICMBio, the State Institute of the environment (INEA).

On the other hand, from the analysis of socioeconomic characterization data developed by *Project to monitor fishing activity in the state of Rio de Janeiro* (PMAP-RJ), since 2017, it has been possible to collect information on environmental conflicts involving fishermen and the state and identify localities that, from the perspective of the fishermen interviewed, verify these conflicts. The fishing localities within the areas of jurisdiction of the Guapimirim Protection Area and the Guanabara ecological Station stand out.

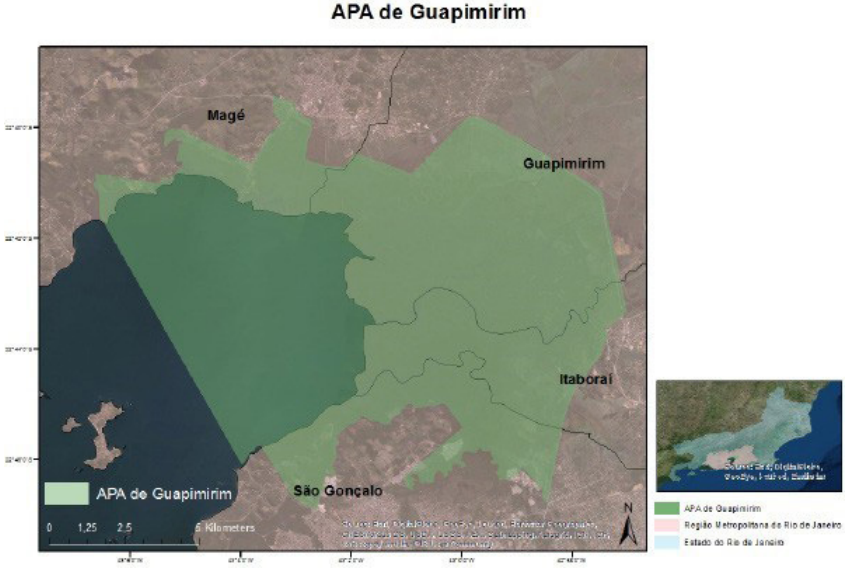
As a privileged spatial context in this article, we will discuss about the conservation units (APA of Guapimirim and ESEC of Guanabara) and the environmental conflicts existing between the managers of these UCs and artisanal fishermen in more detail in the next section.

2-APA OF GUAPIMIRIM / ESEC GUANABARA AND FISHERMEN

The APA of Guapimirim was created in 1984 by Federal Decree No.

90.225 (management plan of the GUAPIMIRIM APA, 2001), being considered the first community movement in defense of Guanabara Bay (AMADOR, 1992, p.207). This unit, with about 14,000 hectares, covers more than 80% of the remaining mangroves of Guanabara Bay (AMADOR, 2001), with more than 71 Km2 of vegetation cover area (MORAES et al.., 2009), comprising part of the municipalities of Magé, Guapimirim, Itaboraí and São Gonçalo) (Figure 1).

Figure 1: Guapimirim Environmental Protection Area (Green)



Source: 2010 census, MMA

The Environmental Protection Area (APA) was the first model of management category, institutionalized in Brazil in 1981 by the special secretariat of the environment, which allows the reconciliation of people who already lived in the area and their economic activities with nature conservation.

This idea of" sustainable use "by communities recognized as" traditional" gains strength with the regulation of the National System of Conservation Units (SNUC) (2000) - a policy that establishes the UC - and the definition in this of a group of sustainable use units, in which the APA

fits.

It is understood that the policy that tends to establish this group (sustainable use conservation units) allows natural systems to be conserved while maintaining certain economic activities linked to the extraction of their resources. In this sense, environmental area protection policies have as their premise not only the preservation of nature, but also the preservation of the peoples themselves already residing in these areas and who deal directly with them for their survival. It would thus be an institutional regulation for the protection of one's own existence of these subjects: their practices, their knowledge and know-how (SNUC, 2000, art. 4, inc. XIII). To this end, the SNUC (2000) also ensures, in one of its guidelines, "the effective participation of local populations in the creation, implementation and management of conservation units" (art. 5, inc. III).

In 2006, an ecological station was also established within the APA of GUAPIMIRIM: the Guanabara ecological station,[16] created by decree s/n of February 15, 2006. This, unlike an APA, falls into the other group defined by the SNUC, the Integral Protection Units.

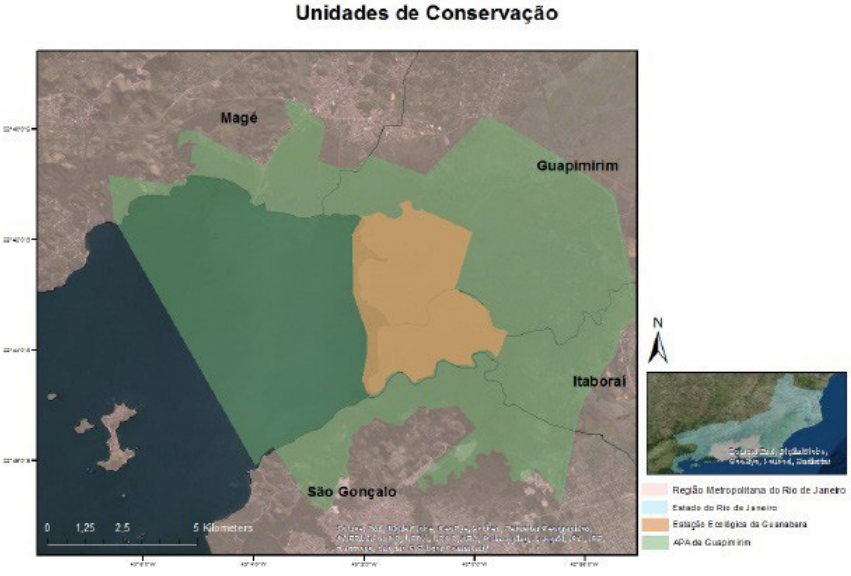
The IBAMA[17] it would justify the creation of this ecological station from the premise that it would be the most preserved area of the entire Guanabara Bay, covering the municipalities of Itaboraí and Guapimirim (IBAMA, 2006) (Figure 2). Within the UC belonging to the latter group,

16 According to SNUC - National System Of Nature Conservation Units in its article 9: The Ecological Station has as its goal the preservation of the environment, and the conduct of scientific research; and the Ecological Station is in the possession of and to a domain, public, and private areas included in its limits, it will be confiscated in accordance with the terms of the law " (§1); it is forbidden to open to the public, except where the purpose of it is educational, and according to that you have a Plan for the Management of the unit or specific regulations (§2); scientific research relies on the prior authorization from the body responsible for the administration of the unit and is subject to the terms and restrictions of this set, as well as to those laid down in council regulation (§3), in the Ecological Station are only allowed changes to the ecosystems in the case of the I - measures with a view to the restoration of disturbed ecosystems, (II - management of the species, with the aim of preserving biological diversity (cbd), III - the collection of the components of the ecosystem for scientific IV - research, the impact on the environment is greater than that caused by a single observation, or through the collection of managed components of the ecosystem, in an area corresponding to a maximum of three per cent, of the total length of the unit, and to the extent of one million and a half hectares (#4) (SNUC, 2003).

17 At that time, IBAMA was still the environmental agency responsible for the execution of the actions of the National System of Conservation Units: proposal, implementation, management, protection, supervision and monitoring of the UCs established by the Union. On August 28, 2007, by law 11,516, this responsibility becomes the Chico Mendes Institute for Biodiversity Conservation - ICMBio.

any direct use of Natural Resources is not allowed, such as the use of the area for the establishment of residences, extraction of fruits and flowers, use of the waters of rivers and lakes, hunting, fishing, agriculture, etc. Only indirect use of Natural Resources is allowed, represented by environmental education, leisure, scientific research, and ecotourism activities (SNUC, 2000).

Figure 2. Guanabara



Source: 2010 census, MMA.

According to Pellens et. al. (2001) and Isidoro (2012), the population that lives inside the Guapimirim APA is about 2 thousand inhabitants, being a large part involved in artisanal fishing and crab capture. Because it belongs to the category of sustainable use, as mentioned above, the APA allows in a controlled way economic activities such as fishing, agriculture and traditional livestock, its mangroves generating income for some families that inhabit the APA and its surroundings.

Still, although the creation of the ecological station (ESEC) of Guanabara UC was based on a preservationist environmental discourse, since an ESEC falls within the category of Integral use, that is, it does not allow the presence of artisanal fishermen and any other traditional population, its management plan presents a particularity. The Management Plan of the ecological station (ESEC) of Guanabara, published in March

2012, allows crab hunting by the community of Itambi, crab community belonging to the municipality of Itaboraí in this UC. However, as well as several empirical studies on protected areas indicate many conflicts in the relationship between the populations living in these areas and their managers (MILANO, 2000, 2001; SOARES, 2004; MENDES de MELO, 2007; IRVING, 2006), mainly due to the privileged thinking of the separation of the social and the Environmental in the management of these areas, these conflicts can also be found in the management of the APA of Guapimirim and ESEC Guanabara.

Examples that illustrate these conflicts are the works of Moysés (2008; 2010), which show an absence of dialogue between the managers of these UCs and the crab community of Itambi in the municipality of Itaboraí, which was systematically inspected and fined by the environmental agency (ICMBIO) based on the assumption that its legal attributions should be summarized in the protection of nature and inspection, not being its responsibility "environmental" the social issue. And the study conducted by FIPERJ (2015), in which fishermen from the town of Barbuda, in the municipality of Guapimirim, who fish within the limits of the Guapimirim APA, stated that IBAMA inspectors, in their enforcement activities in the region, carried out authoritarian and sometimes truculent approaches, often seizing their fishing gears. From this, the fishing communities respond to these attitudes with revolt and disbelief at the actions of said environmental body.

On the other hand, the ESEC Guanabara management plan itself can also be interpreted as a moment of dialogue between the managers of the APA of Guapimirim and the ESEC Guanabara and the crabs of Itambi in a certain historical - geographical context, since it represents an achievement that directly affects these subjects (MOYSÉS, 2016). An example, that the strategies themselves among the subjects of dispute for the appropriation, use and significance of the territory may vary depending on different historical-geographical contexts, as in the case of the" entry " of new agents with other social practices on the territory[18].

Another existing conflict between state bodies and fishermen in these areas involves the corral fishing modality. According to the Secretary

18 According to Moysés (2016), the moment of elaboration of the Management Plan of the ESEC Guanabara represents a moment of proximity of artisanal fishermen with the managers of the APA of Guapimirim and the ESEC Guanabara due to the installation of the petrochemical complex of Rio de Janeiro (COMPERJ)- another agent- in the region.

of State for the environment (SEA)[19], in the area located within the Marine limits of the Guapimirim APA (bottom of the bay), it is estimated that there are at least 500 corrals, between active and deactivated. In 2002, Ibama (2002) reported 360 active and 151 deactivated corrals, totaling 511 corrals. About a decade later, Valle (2012) counted 119 active corrals and 567 deactivated corrals, totaling 686 corrals.

According to the Secretary of State for the environment (SEA)[20], despite being a legal practice in protected areas, such corrals are considered predatory because they were built in large numbers and practically one after the other, which aggravates the siltation of rivers. Another problem attributed to the corrals of the locality refers to the fact that part of them were built with mangrove wood, which constitutes an environmental crime, according to normative Instruction No. 14 of the Ministry of the Environment, of June 14, 2005. Valle (2012), for example, identified 54 active corrals located at the bottom of the Bay that were made with a combination of mangrove wood in their structure.

The presence of the corrals in Guanabara Bay also generates conflicts with civil, commercial and military navigation, since the wooden trunks of the deactivated corrals are abandoned stuck in the bottom of the Bay, endangering local navigation. Due to this problem, initially the managers of the APA of GUAPIMIRIM considered removing these abandoned corrals to avoid accidents with thevessels. However, after carrying out a general analysis of the situation, these managers concluded that deactivated corrals are important in the preservation of marine species, since they form artificial marine nurseries and prevent the practice of trawling (VALLE, 2012).

Despite the work cited, in general, however, there is a lack of more systematic studies and analyzes that include the legal conditions of the environmental conflicts existing between these two social groups- managers of the APA of GUAPIMIRIM and ESEC Guanabara and fishermen- which reinforces once again, the lack of knowledge about the true conditions of artisanal fishing in this territory, now, specifically within the areas of jurisdiction of the APA of GUAPIMIRIM and ESEC

19 SEA-Secretary of State for the environment, June 09, 2010, news item entitled "Operation ends traps and predatory fishing in the Guapimirim APA". Available at: https://uc.socioambiental.org/noticia/86377

20 SEA-Secretary of State for the environment, op. cit.

Guanabara

To minimize this lack of data, we will continue with the analysis and presentation of the data and materials produced from the infraction notices applied in these areas. Public documents that, as we have already pointed out in the introduction, show conflicts already inserted in the legal-institutional system and that can subsidize an analysis of the policies and environmental conflicts present in the analyzed territory.

3-ENVIRONMENTAL CONFLICTS INVOLVING FISHING COMMUNITIES AND CONSERVATION UNITS MANAGERS

In this section, we will seek to identify and analyze the existing environmental conflicts between the managers of the APA of Guapimirim and ESEC Guanabara. Let us begin by describing the methodology used.

3.1 - Methodology

This research is based on two research plans that interconnect and complement each other: documentary analysis and interviews[21]. However, the analysis and treatment of the data systematized in this work have as centrality the infraction notices issued by the ICMBio supervisory agents, in this case, the APA of Guapimirim and ESEC Guanabara.

From this, in the documentary analysis, a survey of official ICMBio documents (infraction notices) was carried out in the period from 2010 to 2022 that specifically involved fishermen/fishing. To this end, the project was registered in the authorization and Information System in biodiversity (SISBIO) to request authorization to conduct research in federal conservation units, especially in the Environmental Preservation Area (APA) Guapimirim and ecological station (ESEC) Guanabara, thus complying with the normative instruction ICMBio n° 03/2014.

From the authorization requested, it was possible to analyze the documents of the APA of Guapimirim/ESEC Guanabara from the year 2010.

In the first stage of data collection / processing of the aforementioned public body, the infraction notices, the terms of custody

21 As a methodological option, the interviews were recorded through notes and inserted in the field reports conducted at the guapimirim APA/ESEC headquarters in Guanabara and AHOMAR. Thus, the interview data used in this article refer to the records of these reports.

and deposit and summary destination, referring to the years 2010 - 2015, which specifically involved fishermen/fishing, were identified and collected at the headquarters of the APA of Guapimirim/ESEC Guanabara Subsequently, the terms were arranged according to their respective infringement notices.

From this, in the process of processing documents, a database was built, organized in a Microsoft Excel, containing various information, such as: date of the report; latitude/ longitude of the place of the infraction; institutions involved in the inspection; reason for the report; fish involved; fishing gear involved.

As a way of preserving the identity of the defendants, their personal data were not registered in the database. Furthermore, these data have already been organized in such a way that they are later spatialized. In this sense, for the infraction notices that did not contain the location of the georeferenced infraction, the latitude and longitude were estimated, based on the other information contained in the document itself. The data referring to the geographical location of the points (latitude/ longitude) were initially in degrees and minutes. The values were converted into UTM coordinates for the spatialization in the *software* free *Quantum* GIS. To export the Excel data to the QGis, Excel information was also saved in CSV format, separated with comma.

The maps were also used *Shapefiles* of the municipalities of Rio de Janeiro of the IBGE of 2020 and of the federal Conservation Units (UC) of the ICMBio of November 2020.

At the end, the results of the analysis of the infraction notices from 2010 to 2015, collected at APA of Guapimirim/ESEC Guanabara, as well as the maps produced, were presented to the managers of the UC involved at two different times. At that time, we took the opportunity to conduct a first pre - interview with the coordinator of the conservation units involved, which has already allowed us to collect important elements for the preparation of semi-structured interviews to be applied both with the managers of the UC, and with the fishermen of Guanabara Bay, especially the APA of Guapimirim/ESEC Guanabara.

From this, the project had to be updated again in SISBIO with the submission of a report with the specification of the activities developed in the UCs for the request of a new authorization for the continuity of the research in the APA of Guapimirim and ESEC Guanabara. At that time, in particular, we were able to have access to the documents of the UCs from

2016 and the permission to apply the semi-structured interviews, both with the managers of the UCs and with the artisanal fishermen belonging to the conservation units.

Thus, it was returned to the headquarters of the APA of Guapimirim / ESEC Guanabara to identify and collect the infraction notices, terms of custody and deposit and summary destination that specifically involved fishermen / fishing from the year 2016, following the same methodology applied in the first stage, already described earlier.

In addition to the aforementioned documents, the notifications applied in relation to fishing and fishermen have also been identified and collected at this time. In addition, an interview was conducted with the inspection agent of the conservation units.

The notifications and their information, again preserving the identities of the notified, were organized in another Microsoft Excel spreadsheet. This methodological procedure was carried out based on the elements collected in the pre-interview with the coordinator and in the interview with the inspection agent.

In parallel with the actions developed listed above, data surveys were also carried out in projects developed internally and externally to the Rio de Janeiro State Fisheries Institute Foundation-FIPERJ, with emphasis on *Project for monitoring fishing activity in the state of Rio de Janeiro-PMAP-RJ*, executed by FIPERJ, already mentioned earlier in this work. The survey and analysis of these data, as previously mentioned, provided guidelines for identifying possible and different conflicts involving Fishing, Fishermen and public agencies and inspectors in/of Guanabara Bay. In addition, this action, in a concomitant and complementary way, also allowed us to identify important elements for the elaboration of semi-structured interviews, as well as indicated possible privileged places/groups for their application within the APA of GUAPIMIRIM/ESEC Guanabara.

With this, from the elements collected in the interviews with managers of APA of Guapimirim / ESEC Guanabara and the analysis of data from PMAP-RJ, a conversation round was held with four fishermen and a fisherman from AHOMAR at the institution's own headquarters, located in the municipality of Magé/RJ.

We sought to resolve the effects of possible "symbolic violence "in the interviewer-interviewee relationship and" establish a relationship of active and methodical listening, as far removed from the pure non-intervention of the undirected interview, as from the dirigisme of the

questionnaire" (BOURDIEU, 2003, p.695). Thus, the conversation was based on comprehensive questions that could help to understand the dynamics of existing conflicts in the region and to recognize and examine the interests and collective demands involved in conflicts.

3.2 - Results, Analysis And Discussion

By privileging an analysis of Guanabara Bay that highlights the spatial dimension as an analytical category, we align ourselves with Santos' (1985) proposal to analyze the various "elements of space" and the conflicts that are established between them, applying such a method in the space of Guanabara Bay. According to Santos (1985), the "elements of space "are the"people"[22], firms, institutions, the so-called Ecological Environment and infrastructure. People are elements of space, whether as providers of work or candidates for it - young people, unemployed or unemployed; companies produce goods, services and ideas; institutions produce norms, orders and legitimations; the environment is the set of territorial complexes that constitute the physical basis of human work; and infrastructures are human work materialized and located in the form of houses, plantations, roads, among others. In Table 1, we present the application of the methodological position of Santos (1985) in the case of Guanabara Bay.

22 Milton Santos (1985) uses the category "men" as one of the "elements of space". However, from a feminist and gender perspective, it was decided here to replace the category used by the author with "people", in order to overcome the understanding of "men" as a "universal subject".

Table 1. Application of the methodological position of Santos (1985) in the case of Guanabara Bay.

Elementos do espaço	Enumeração e Funções	Exemplos de elementos do espaço na Baía de Guanabara
Pessoas	Elementos do espaço na condição de fornecedores de trabalho e de candidatos a isso	Pescadores, Marisqueiras, Catadores de caranguejo, Descarnadeiras de siri etc.
Firmas	Produtoras de bens, serviços e ideias	Petrobras, Cedae, Infraero, CCR Barcas, Companhia Docas do Rio de Janeiro etc.
Instituições	Produtoras de normas, ordens e legitimações	Estado (APA Guapimirim, ESEC Guanabara); Forças Armadas (Marinha) etc.
Meio ambiente	Conjunto de complexos territoriais que constituem a base física do trabalho humano	A Baía de Guanabara e seus rios, ilhas, praias, costões rochosos, vegetação de Mata Atlântica etc.
Infraestruturas	Trabalho humano materializado e localizado em forma de casas, plantações caminhos etc.	Portos, Indústrias, Ponte, Embarcações, Bases Militares, Fortes etc.

Source: Pacific (2011, Adapted).

By adopting the methodological position of analyzing the" elements of space " that constitute Guanabara Bay, we use the resource of typification, that is, a cognitive resource that the researcher uses to circumvent the reality of actions as fragmented units. According to Weber (1992 [1922]), the potential tension between typical actions does not, however, prevent effective affinities from being established between them. Santos (2014) emphasizes the "affinity" to which Weber refers when highlighting the "interchangeability" of the elements of space, which causes, for example, the functions of firms and institutions to be confused and intertwined, to the extent that firms, directly or indirectly, also produce norms, and institutions are, like the state, producers of goods and services. Similarly, men can be taken as firms (the seller of labor power) or as institutions (in the case of the citizen, for example).

It is verified, as already evidenced in several moments in this

work, the overlap of spatial practices by these different social groups and agents in the Bay of Guanabara with differentiated modes of appropriation, use and significance of the territory that result in different environmental conflicts in that territory.

Similarly, if on the one hand, there is an effort among certain groups and researchers to systematize data that reveal environmental conflicts between fishermen and enterprises, mainly related to the oil and gas industry (CHAVES, 2011; MOYSÉS, 2010; SOARES; 2012; MOYSÉS, 2016; FIOCRUZ / FASE, 2022; LABORATÓRIO MARESS-FURG, 2022), on the other hand, there is little work that seeks to make a more systematic analysis of the conflicts between environmental public agencies and fishermen in Guanabara Bay and, therefore, data that can help in the proposal of democratic and sustainable public policies.

One of the premises of this work is thus to contribute to the construction of a database and a mapping of environmental conflicts that can assist in these public policies, which should ensure, above all, the preservation of the natural heritage, the quality of life of the inhabitants of the region and the fight against environmental inequality.

Following this objective, in the analysis of the infraction notices and other documents of APA of Guapimirim/ESEC Guanabara referring to the years 2010-2015, 59 records were identified and treated: 5 of 2010,

5, 2011, 10, 2012, 17, 2013, 12, 2014 and 8, 2015.

The importance of such a survey is due to the need to identify conflicts that have ascended to the public arena and are processed within the legal-institutional system, since this rise, according to Fuks (2001), shows that the conflict has reached a sufficient degree of maturity so that both the subject under discussion and the identity of the person responsible are well defined. From this, it is understood that each infraction order consolidates what we define by a individual conflict and, with this, the importance of mapping each of the identified records for the characterization of possible environmental conflicts existing in the analyzed territory.

Following this premise, with the spatialization of the 59 conflicts in the QGis, an effort was made to formulate a typology of the identified conflicts. In this sense, first, 12 (twelve) types of conflicts were identified: storing species in a defunct period (n=1); commercialization in the off-season (n=10); cutting of mangrove trees (n=1); fishing in the off-season (n=5); storing mangrove wood (n=2); installing non-permitted fishing

tackle (n=2); fishing with fishing tackle in a place not allowed for the modality used (n=15); fishing in a place not allowed (n=8); fishing without a license (n=7); fishing for species smaller than allowed (n=5); transporting species in the off-season (N=5); defunct (N=2); uninformed (n = 1).

Subsequently, these conflicts were still synthesized in 5 (five) "major" conflicts: DEFESO (fishing, storing, transporting and marketing during the period of defeso); mangrove (cutting and / or saving mangrove trees); PETRECHO (installing and / or fishing in a place not allowed); license (fishing without a license); others (fishing species smaller than allowed and/or not informed), now understood as *environmental conflicts*, since they exceed the sphere singles and they start to set themselves up in a conflict *collective* (ACSELRAD, 2004; PACHECO, PORTO e ROCHA, 2013).

It also verified in this period that the main fish involved in the inspections were: uçá crab, shrimp (pink and gray), sea bass (peva and flexa). And the fishing trawls involved were waiting net, trawl net with doors, cast net, gill net, siege and corral.

Continuing the analysis, at the time of return to the managers of APA of Guapimirim / ESEC Guanabara of the activities developed, it was possible to verify already in the interviews with the managers of the conservation units, a possible decrease in the number of infraction notices from 2016 for different reasons: change of approach of the inspection agents; publication of Decree 9.760 of 2019 and the regulatory instructions published in 2021; and due to the covid-19 pandemic.

In the interview, the inspection agent would also indicate the most harmful fishing modality in the view of UCs managers, shrimp trawling. Other forms could be rethought, such as the use of the casting. Still in his speech, the artisanal fishermen of APA Guapimirim / ESEC Guanabara complained about the lack of supervision of shrimp trawling, but, according to him, it would be outside the jurisdiction of the conservation units, although as we can see in the maps produced, before the year 2016, it was also assessed in the buffer area of APA Guapimirim.

In the analysis of the infraction notices from 2016 to the year 2022, the above perceptions were found. Only 8 records of infraction, 6 (six) in 2016, 1 (one) in 2017 and 1 (one) in 2019. E 6 (six) notifications, 2 (two) in 2018 and 4 (four) in 2019.

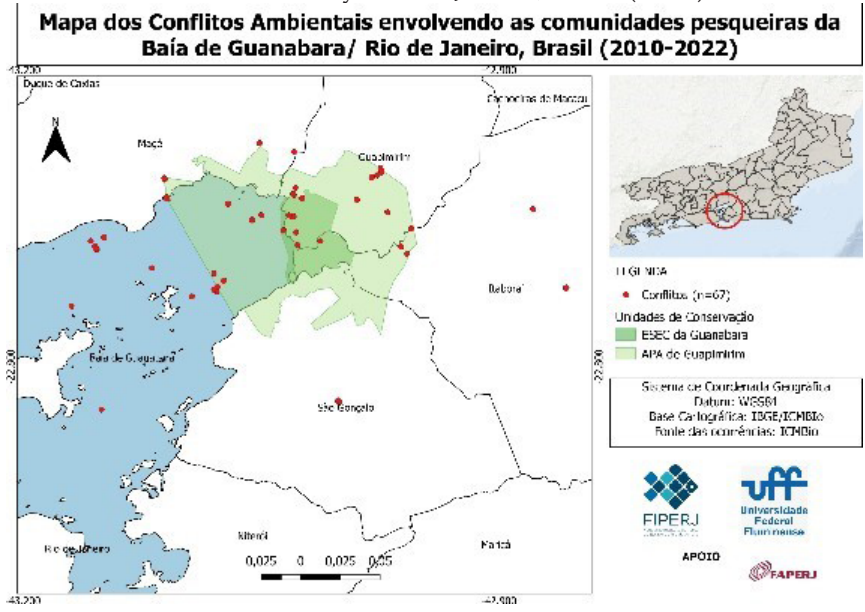
Also, in the analysis of the records analyzed from 2016, it was verified, in the same way, that all were related to the typology "fishing

with fishing gears in a place not allowed for the modality used" (n=8), specifically to trawling with shrimp doors. And four of the six notifications were also related to shrimp trawling. The others were related to the waiting network. It was not possible to identify the fish involved in the latter.

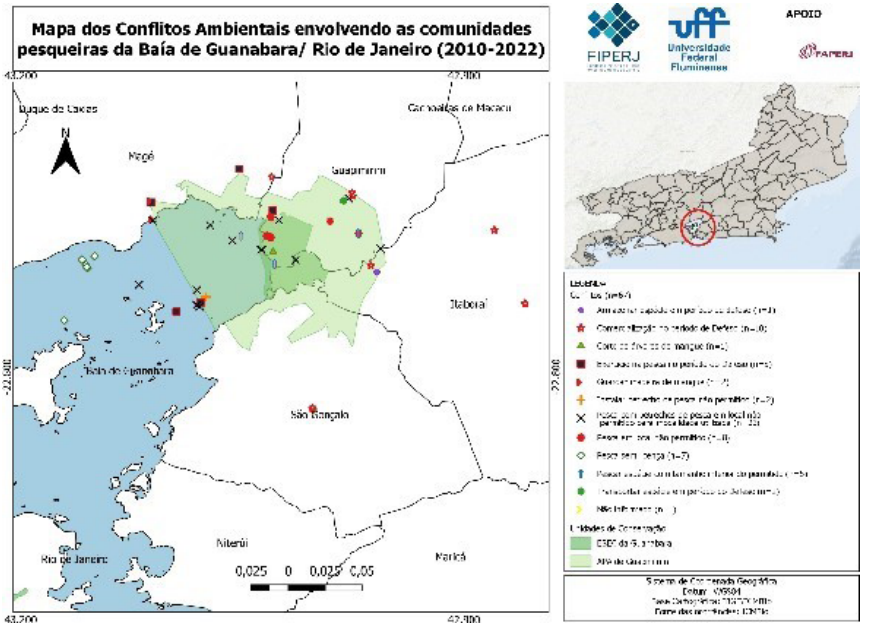
From the data collected from 2010 to 2022, three maps entitled: *Map of environmental conflicts involving fishing communities in Guanabara Bay/ Rio de Janeiro, Brazil* (2010-2022). The first without distinction of the types of conflicts (map 1), the second with typology of the 12 conflicts (Map 2) and the third with the typology of the 5 conflicts (Map 3). Also, as a form of comparison, a fourth map was made with the distinction of the conflicts identified between the periods of 2010-2015 and 2016-2022 (Map 4).

It was not possible to enter the data of the notifications in the maps, because in addition to not containing the location of the georeferenced infraction, they did not have any geospatial reference information of the same. Only information that occurred within the areas of jurisdiction of the APA of Guapimirim and ESEC Guanabara.

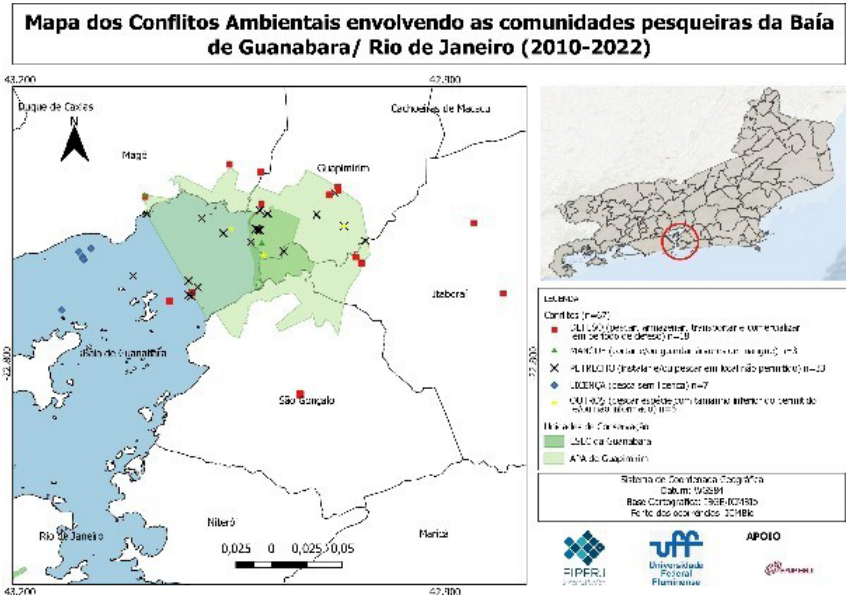
Map 1. Map of environmental conflicts involving fishing communities in Guanabara Bay/ Rio de Janeiro, Brazil (Total)



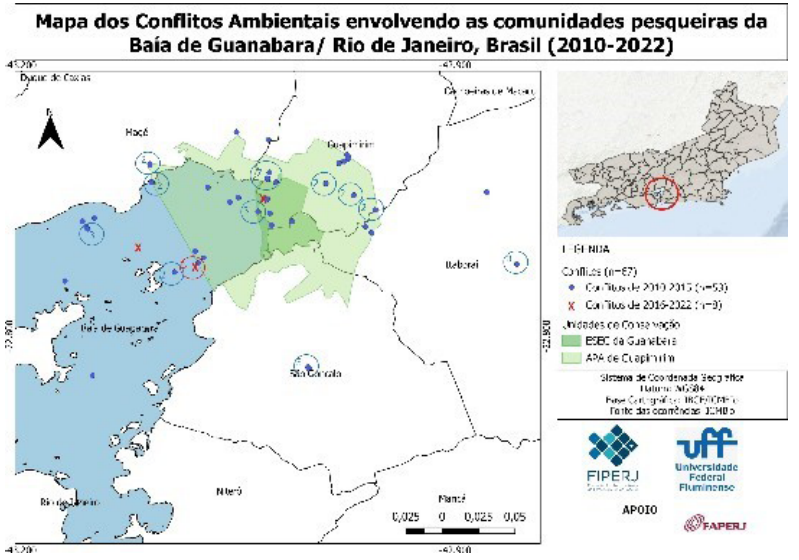
Map 2. Map of environmental conflicts involving fishing communities in Guanabara Bay / Rio de Janeiro, Brazil (12 types)



Map 3. Map of environmental conflicts involving fishing communities in Guanabara Bay / Rio de Janeiro, Brazil (5 types)



Map 4. Map of environmental conflicts involving the fishing communities of Guanabara Bay / Rio de Janeiro, Brazil (difference between the period 2010-2015 and 2016-2022)



Still in the statements of the managers of APA Guapimirim/ ESEC Guanabara, the decrease and/or change in the inspection procedure verified between the years 2016 and 2022 could generate and/or intensify other environmental conflicts between fishermen, both between artisanal and industrial fishing, and between artisanal fishermen themselves.

However, this decrease in infringement notices and/or supervisory change in these years is interpreted differently by AHOMAR fishermen, as verified in the conversation wheel. They allege that despite the apparent decrease in infraction notices since 2016 by the ICMBio and the testimonies of the managers of the UC involved, the number of seizures and even destruction and "disappearance" of fishing gear has increased in recent years. Without, however, generating any record: neither infringement notice and / or notification. In their interpretation, thus, conflicts specifically between artisanal fishermen and the managers of the APA of GUAPIMIRIM/ESEC Guanabarawould have intensified in recent years.

From this, it is understood that the greater the systematization of the characteristic data of the present work, the greater the knowledge of the nature and origin of the conflicts both present in these areas – APA of Guapimirim/ESEC Guanabara - and in the entire Guanabara Bay. In this

sense, the update and continuity in the adoption of other methodological procedures for recording and mapping new data must be constant so that they can serve as a subsidy to public agencies. And, with this, they can establish practical strategies to confront environmental injustice through the creation/ improvement of control, licensing and inspection mechanisms.

FINAL REMARKS

The database and maps related to environmental conflicts involving fishermen of the APA of GUAPIMIRIM/ESEC Guanabara produced in this work sought to contribute to the production of data related to fishing in Guanabara Bay.

It is considered that the information base presented and produced in this research is already capable of subsidizing both public agencies and fishermen in the diagnosis of conflict situations and, therefore, in the creation of possible practical strategies to deal with environmental inequality through the creation/improvement of control, licensing and inspection mechanisms.

However, the updating and deepening in the analysis of the data characteristic of this study, as well as the adoption of multiple methodological procedures in these analyzes, should be continuous and expanded. As, for example, it is important to investigate in greater depth the meanings and impacts of the decrease in infraction notices between the years 2016 and 2022 and/or change of inspection instrument by the perception of both the managers of the APA of Guapimirim and ESEC Guanabara, as well as the fishermen.

This systematization of data is fundamental for the construction of democratic and sustainable public policies. This work thus seeks to contribute to the public authorities in expanding and updating an information base that seeks not only to describe technical risks, but also to outline a picture of the conditions for dealing with problem situations, contemplating, whenever possible, the legal conditions of environmental conflicts, the cognitive conditions involving the characterization of causal relationships and responsibilities in socio-ecological transformations, as well as the organizational conditions by which social actors press for fair solutions.

ENVIRONMENTAL CONFLICTS INVOLVING FISHING COMMUNITIES IN THE APA OF GUAPIMIRIM/ESEC GUANABARA–GUANABARA BAY/ RIO DE JANEIRO/BRAZIL

ABSTRACT

This article analyzes the environmental conflicts involving fishing communities in the Guanabara Bay, with a special look at the jurisdiction areas of the Guapimirim Environmental Protection Area (APA De Guapimirim) and the Guanabara Ecological Station (ESEC Guanabara). There is a need for studies that seek to make a more systematic analysis of the existing conflicts between environmental public agencies and fishermen and, thus, data that can help in the proposal of democratic and sustainable public policies. Based on this, the research is grounded on two research plans - documentary analysis and interviews - focusing on the analysis and treatment of the infraction notices issued by the inspection agents of ICMBio in the period from 2010 to 2022. This work seeks to contribute to the public power in the expansion and updating of an information base that seeks to subsidize both public agencies and fishermen in the diagnosis of conflictive situations and in the creation of practical strategies for confronting environmental inequality through the creation/improvement of control, licensing and inspection mechanisms.

Keywords: Environmental Conflicts; Fishermen; Guanabara Bay.

References

ACSELRAD, Henri. Conflitos Ambientais no Brasil. Rio de Janeiro: Relume Dumará, 2004.

ADOMILLI, Gianpaolo. Territorialidade e conflito na pesca embarcada: um estudo de caso sobre os pescadores de São José do Norte e suas analogias sobre animais marinhos. In: Adomilli, G.; Carreno, G.; D'Ambrosio, L.; Miller, F. S. (org.). Coletivos Pesqueiros: Desafios e Perspectivas Antropológicas. 1 ed. Rio Grande, v. 1, [s. n.], p. 213-233, 2010.

AMADOR, Elmo da Silva. Baía de Guanabara: um balanço histórico. In: ABREU, Maurício de Abreu (org.). Natureza e Sociedade no Rio de Janeiro. Rio de Janeiro: Biblioteca Carioca, 1992.

AMADOR, Elmo da Silva. Baía de Guanabara e Ecossistemas Periféricos: homem e natureza. Rio de Janeiro: Interciência, 1997.

AMADOR, Elmo da Silva. Bacia da Baía de Guanabara: características geoambientais, formação e ecossistemas. Rio de Janeiro: Interciência, 2012.

AMADOR, Elmo da Silva. Roteiro de visita à Baía de Guanabara. In: Educação Ambiental: especialização e capacitação em educação para gestão ambiental. v. II. Rio de Janeiro: Gráfica UERJ, 2001.

BARROCAS, Paulo Rubens; WASSERMAN, Cesar de Faria. O mercúrio na baía de Guanabara: uma visão histórica. Geochimica Brasiliensis, [S. l.], v. 9, n. 2, 1995.

BEGOSSI, Alpina. Áreas, Pontos de pesca, pesqueiros e territórios na pesca artesanal. In: Begossi, A. (org.); A. Leme et al (ed.). Ecologia de Pescadores da Mata Atlântica e da Amazônia. São Paulo: HUCITEC, 2004.

BERKES, Fikret. Social systems, ecological systems, and property rights". In: S. HANNA, C. FOLKE, AND K.-G. MÄLER (ed.). Rights to nature, Ecological, economic, cultural, and political principles of institutions for the environment. Washington, D.C., USA: Island Press,

1996.

BERTOLI, Ana Lúcia; RIBEIRO, Maisa de Souza. Passivo ambiental: estudo de caso da Petróleo Brasileiro S. A. - Petrobras. A repercussão ambiental nas demonstrações contábeis em consequência dos acidentes ocorridos. Revista de Administração Contemporânea, Curitiba, v. 10, n. 2, 2006.

BOURDIEU, Pierre. A Miséria do Mundo. 5. ed. São Paulo: Vozes, 2003.

BRASIL. Lei nº 9.985, de 18 de julho de 2000; Decreto nº 4.340, de 22 de agosto de 2002. Sistema Nacional de Unidade de Conservação da Natureza (SNUC), 3. ed. aum. Brasília: MMA/SBF, 2003. 52 p.

BRASIL. Ministério da pesca e aquicultura. Boletim estatístico. Brasília: MPA, 2010.

BOLSA VERDE DO RIO DE JANEIRO (BVRIO); FUNDO BRASILEIRO

PARA A BIODIVERSIDADE (FUNBIO). Sistemas de Cotas Negociáveis e o controle de efluentes industriais na Baía de Guanabara: Estudo de viabilidade. Rio de Janeiro, mar. 2013.

CANTARINO, A. A. A; SOUZA, D. S. Valoração econômica dos benefícios alcançados pela despoluição da Baía de Guanabara por ETEs domésticas. Rio de Janeiro: PPE/COPPE/UFRJ, 2000.

CHAVES, Carla Ramôa. Mapeamento Participativo da Pesca Artesanal da Baía de Guanabara. 2011. 187f. Dissertação (Mestrado em Geografia) – Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2011.

CENTRO DE INFORMAÇÕES E DADOS DO RIO DE JANEIRO (CIDE).

Anuário estatístico do Rio de Janeiro. Rio de Janeiro, 2003.

COELHO, Victor. Baía de Guanabara: Uma história de agressão ambiental. Rio de Janeiro: Casa da Palavra, 2007.

COIMBRA, J. P. P. Atlas da Região Hidrográfica V: Baía de Guanabara e sistemas lagunares de Maricá e Jacarepaguá. Resende: AGEVAP, 2021

CORDELL, John. A sea of small boats. Cambridge, USA: Cultural Survival Inc., 1989.

DHESCA. Indústria do Petróleo e Conflitos Ambientais na Baía de Guanabara: o caso do Comperj Relatório da Missão de Investigação e Incidência. In: FAUSTINO, Cristiane; FURTADO, Fabrina. Relatoria do Direito Humano ao Meio Ambiente. 1. ed. Rio de Janeiro, 2013. 81 p.

DIAS, Alexandre Pessoa et al. Complexo Petroquímico do Rio de Janeiro (Comperj): Impactos socioambientais, violação de direitos e conflitos na Baía de Guanabara. Revista Ética e Filosofia Política, v. 16, n. 1, p.153- 175, jun. 2013.

DIEGUES, Antônio Carlos. Pesca e marginalização no litoral paulista. 1973. Dissertação (Mestrado em Ciências Sociais) - Universidade de São Paulo, São Paulo, 1973.

DUARTE, Luiz Fernando Dias. As redes do suor: a reprodução social dos trabalhadores da pesca em Jurujuba. Rio de Janeiro, Niterói: EdUFF, 1999.

FIOCRUZ/FASE. Mapa de conflitos envolvendo injustiça ambiental e Saúde no Brasil. [S. l. : s. d.]. Disponível em: http://www.
conflitoambiental.icict.fiocruz.br/index.php?pag=ficha&cod=105. Acesso em: 18 de jun. 2022.

FUNDAÇÃO INSTITUTO DE PESCA DO ESTADO DO RIO DE
JANEIRO (FIPERJ). Relatórios de demanda realizado no âmbito do Projeto de Caracterização Socioeconômica da Pesca e Aquicultura (PCSPA). Rio de Janeiro, 2015.

FUKS, Mario. Conflitos Ambientais no Rio de Janeiro: ação e debate nas arenas públicas. Rio de Janeiro: Editora UFRJ, 2001.

FURTADO, Lourdes Gonçalves. "Dinâmicas sociais e conflitos da pesca na Amazônia". In: Acselrad, Henri (org.). Conflitos Ambientais no Brasil. Rio de Janeiro: Relume Dumará, 2004.

GIULIANI, Gian Mario et al. Diagnóstico socioeconômico para o Plano de Manejo da ESEC Guanabara. Rio de Janeiro, 2005.

HERCULANO, Selene. Conflitos ambientais e territoriais: pesca e petróleo no litoral fluminense. Revista Nordestina de Ecoturismo, Brasil, v. 5, n. 1, p. 39-52, 2012.

INSTITUTO CHICO MENDES DE CONSERVAÇÃO DA BIODIVERSIDADE (ICMBIO). Plano de Manejo da Área de Proteção Ambiental de Guapi-Mirim. Rio de Janeiro, [s. d.]. Disponível em: http://www.icmbio.gov.br/apaguapimirim/?id_menu=52. Acesso em: fev. 2023.

INSTITUTO CHICO MENDES DE CONSERVAÇÃO DA BIODIVERSIDADE (ICMBIO). Plano de manejo da Estação Ecológica da Guanabara (ESEC). Rio de Janeiro, [s. d.]. Disponível em: http://www. icmbio.gov.br/apaguapimirim/?id_menu=52. Acesso em: fev. 2023.

INSTITUTO BRASILEIRO DO MEIO AMBIENTE E DOS RECURSOS NATURAIS RENOVÁVEIS (IBAMA). Levantamento de Dados da Atividade Pesqueira na Baía de Guanabara como Subsídio para a Avaliação de Impactos Ambientais e a Gestão da Pesca. Rio de Janeiro, set. 2002.

ISIDORO, Inês A. Entre a Preservação e o Desenvolvimento: a comunidade de pescadores de Itambi/RJ e a transformação dos espaços livres. In: Seminario Nacional sobre Áreas de Preservação Permanente em Meio Urbano: Abordagens, conflitos e perspectivas nas cidades brasileiras, II., Natal. Anais […]. Natal: APPURURBANA, 2012.

LIMA, Elizabeth Cristina da Rocha. Qualidade de água da Baía de Guanabara e saneamento: uma abordagem sistêmica. 2006. Tese

(Doutorado em Planejamento Energético) – Universidade Federal do Rio de Janeiro, Rio de Janeiro, 2006.

UNIVERSIDADE FEDERAL DO RIO GRANDE. Mapeamento de Conflitos na Pesca. Rio Grande, Laboratório Interdisciplinar MARéSS, 13 fev. 2020. Disponível em: https://maress.furg.br/maress. Acesso em: 18 de jun. 2022.

MARTINS, Andreza; CAZELLA, Ademir Antonio. O conflito entre pesca e conservação ambiental na construção de territórios pesqueiros. In: VI Encontro da Rede de Estudos Rurais. São Paulo, UNICAMP, 2014.

BRASIL. Ministério Público Federal. Procuradoria da República no Estado do Rio de Janeiro. Inquérito Civil MPF/PRRJ/GP/04/2000, Proc. Administrativo MPF n° 1.30.012.000001/2000-39. Brasil, 29 nov. 2000.

BRASIL. Ministério Público Federal. Ação civil pública nº 1.30.020.000044/2009-53. Brasil, [s. d.].

BRASIL. Ministério Público Federal. Relatório técnico nº 50/2009: Impactos de atividades petrolíferas na pesca artesanal da Baía de Guanabara. Rio de Janeiro, 2009.

MORAES, Luiz Eduardo de Souza; GHERARDI, Douglas Francisco Marcolino e FONSECA, Leila Maria Garcia. Análise multi-temporal da cobertura vegetal do tipo manguezal da APA de Guapimirim (RJ) através do processamento de imagens TM-LANDSAT. In: Simpósio Brasileiro de Sensoriamento Remoto Natal, XIV., Brasil, 2009. Anais […], Brasil: INPE, 2009.

MOYSÉS, Yana dos Santos. Pescadores artesanais e COMPERJ: discursos ambientais e a disputa pela Baía de Guanabara. 2016. 215 f. Tese (Doutorado em Geografia) – Programa de Pós-Graduação em Geografia, Instituto de Geociências, Universidade Federal Fluminense, Niterói, 2016.

MOYSÉS, Yana dos Santos. A instalação do COMPERJ e des-re- territorialização da Comunidade de Itambi (Itaboraí, Rio de Janeiro): Desenvolvimentos e Sustentabilidades. 2010. Dissertação. (Mestrado em

Geografia) - Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro: PUC-Rio, 2010.

OBSERVATÓRIO DA BAÍA DE GUANABARA. Municípios da Região Hidrográfica da Baía de Guanabara. Rio de Janeiro, 4 out. 2019. Disponível em: https://storymaps.arcgis.com/stories/ae5de262391d418fa07e9bcdb624222f. Acesso em: fev. 2023.

PACHECO, Tania; PORTO, Marcelo Firpo; ROCHA, Diogo. Metodologia e Resultados do Mapa: uma síntese dos casos de injustiça ambiental e saúde no Brasil. In: PORTO, Marcelo Firpo (org). Injustiça ambiental e saúde no Brasil: o Mapa de Conflitos. Rio de Janeiro: FIOCRUZ, 2013.

PELLENS, Roseli et al. Plano de Manejo da Área de Proteção Ambiental de Guapi-Mirim (APA de Guapi-Mirim). Rio de Janeiro: MMA/IBAMA, 2001.

PESSANHA, Elina G. F. Os companheiros: trabalho e sociabilidade na

pesca de Itaipu. Niterói: EdUFF, 2003.

PINTO, Raquel Giffoni. "Pesca artesanal e conflito ambiental na Baía de Guanabara". In: FAPP (org.). 50 anos da Refinaria Duque de Caxias e a expansão da indústria petrolífera no Brasil: conflitos socioambientais no Rio de Janeiro e desafios para o país na era do Pré-sal. Rio de Janeiro: Fundação Heinrich Böll, 2014.

PIORSKI, Nivaldo Magalhães; SERPA, Sheilla Silva e; NUNES, Jorge Luiz Silva. Análise comparativa da pesca de curral na ilha de São Luís, estado do Maranhão, Brasil. Arquivo de Ciências do Mar, Fortaleza, v. 42, n. 1, p. 65-71, 2009.

PORTO-GONÇALVES, C. W. De saberes e de territórios: diversidade e emancipação a partir da experiência Latino-Americano. GEOgraphia, v. 8, n. 16, 4 fev. 2010.

PETROBRAD. Relatório de Impacto Ambiental – Complexo

Petroquímico do Estado do Rio de Janeiro (RIMA-COMPERJ). Rio de Janeiro: Concremat Engenharia, 2007.

BASTOS, Júlia; NAPOLEÃO, Patrícia. O Estado do Ambiente: Indicadores Ambientais do Rio de Janeiro de 2010. Rio de Janeiro: Secretaria de Estado do Ambiente (SEA), Instituto Estadual do Ambiente (INEA), Rio de Janeiro, 2011. Disponível em: http://www.inea.rj.gov.br/ basetematica_ estadoambiente/. Acesso em: 12 nov. 2014.

SEIXAS, Cristiana Simão. Estratégias de pesca e utilização de animais por comunidades pesqueiras da Ilha Grande, RJ. 1997. Dissertação (Mestrado em Ecologia) – Universidade Federal do Rio de Janeiro, Rio de Janeiro, 1997.

SOARES, David Gonçalves. Pescadores e Petrobrás: ação coletiva e justiça ambiental na Baía de Guanabara. 2012. Tese (Doutorado em Sociologia e Antropologia) - Universidade Federal do Rio de Janeiro. Rio de Janeiro, 2012.

VALLE, Bruno Roberto de A. L. de G. Impacto da Pesca de Curral no fundo da Baía da Guanabara dentro dos limites da APA de

Guapimirim. Rio de Janeiro: Instituto Chico Mendes de Conservação da Biodiversidade, 2012.

WEBER, Max. Metodologia das ciências sociais. São Paulo: Cortez, 1992 [1922].

*** Received January 26, 2023, and approved for publication on May 09, 2023.**