Vol. 66, p. 162-179, jul./dec. 2025. DOI: http://dx.doi.org/10.5380/dma.v66i.90992 e-ISSN 2176-9109

UFPR

DeMA
DESENVOLVIMENTO
E MEIO AMBIENTE

BIBLIOTECA
DIGITAL
DE PERIÓDICOS
BDP | UFPR

revistas.ufpr.br

Unpacking small-scale fishing interactions with Brazilian blue economy

Revelando as interações entre a pesca artesanal e a economia azul no Brasil

Deborah Santos PRADO[1*], Lucas Milani RODRIGUES[2], Érica Silva MENDONÇA[3], Bianca Gabani GIMENEZ[4], Beatriz Mesquita Pedrosa FERREIRA[5], Paulo Wanderley de MELO[6], Leopoldo Cavaleri GERHARDINGER[7]

[1] Federal University of São Paulo (UNIFESP), São Paulo, SP, Brazil.

[2] University of São Paulo (USP), São Paulo, SP, Brazil.

[3] Independent researcher

[4] Federal University of Rio de Janeiro (UFRJ), Rio de Janeiro, RJ, Brazil.

[5] Joaquim Nabuco Foundation (FUNDAJ), Recife, PE, Brazil.

[6] Federal University of Alagoas (UFAL), Maceió, AL, Brazil.

[7] National Institute of the Atlantic Forest (INMA), Santa Tereza, ES, Brazil.

Contact e-mail: deborah.prado@unifesp.br

Article received on April 28, 2023, final version accepted on February 17, 2025, published on September 4, 2025.

ABSTRACT: The initiatives known as the Blue Economy are recent in Brazil, and some questions have been raised about the nature of the projects and their relationship with the real promotion of a more inclusive and sustainable development. In this paper, we aim to analyze the interactions between small-scale fishing and the policies focused on the development of the Blue Economy. To do this, we identified the following in the period 2012-2020: (i) the government narrative of the Brazilian Blue Economy and the incorporation of the small-scale fishing sector; (ii) the international investments related to the Blue Economy in the period and (iii) the conflicts and environmental injustices affecting fishing communities, based on the systematization of 5 national and international platforms. We observed a focus on financing coastal development and environmental conservation projects, with only one directly related to the fishing and aquaculture sector. We systematized 133 cases of environmental conflicts and injustices, primarily associated with changes in land use and occupation,

as well as energy projects. The historical asymmetrical power relations between the small-scale fishing sector and industrial and infrastructure agents have been reinforced by Brazil's political situation in recent years. The way out for the Blue Economy narratives to be fairer for small-scale fishing communities lies in the restoration of inclusive and participatory governance spaces and investments for the strengthening of small-scale fishing. Political opportunities to increase the visibility of the socio-environmental, territorial, and economic agenda of fisheries through networking between academia, civil society, and government entities also seem promising.

Keywords: blue growth; ocean governance; socio-environmental conflicts; environmental justice; blue justice.

RESUMO: As iniciativas denominadas como Economia Azul são recentes no Brasil, e alguns questionamentos são levantados sobre a natureza dos projetos e sua relação com a real promoção de um desenvolvimento mais inclusivo e ambientalmente sustentável. Neste artigo, objetivamos analisar as interações entre a pesca artesanal e as políticas voltadas para o desenvolvimento da Economia Azul. Para isso, identificamos no período de 2012 a 2020: (i) a narrativa governamental da Economia Azul brasileira e a incorporação do setor da pesca artesanal; (ii) os investimentos internacionais que tangenciaram de alguma forma a Economia Azul no período e (iii) os conflitos e injustiças ambientais que afetam as comunidades pesqueiras, a partir da sistematização de 5 plataformas nacionais e internacionais. Observamos um foco no financiamento de projetos de desenvolvimento e conservação ambiental costeiros, sendo apenas um diretamente relacionado ao setor da pesca e aquicultura. Sistematizamos 133 casos de conflitos e injustiças ambientais, associados principalmente a mudanças no uso/ocupação do território e a empreendimentos ligados à matriz energética. As históricas relações assimétricas de poder entre o setor da pesca artesanal e os agentes do setor industrial e da infraestrutura foram reforçadas pela conjuntura política brasileira do último período. As saídas para que as narrativas de Economia Azul sejam mais justas para as comunidades de pesca artesanal estão na retomada de espaços de governança inclusiva e de investimentos para o fortalecimento da pesca artesanal. Oportunidades políticas para ampliar a visibilidade da agenda socioambiental, territorial e econômica da pesca a partir de um trabalho em redes de articulação entre academia, sociedade civil e entidades governamentais também parecem promissoras.

Palavras-chave: crescimento azul; governança oceânica; conflitos socioambientais; justiça ambiental; justiça azul.

1. Introduction

Brazil is the Latin American country with the longest coastline, spanning 8,500 km and encompassing more than 3.6 million km² of Exclusive Economic Zone (EEZ). Considering its extended continental shelf, the total ocean area under Brazilian jurisdiction would increase to 4.5 million km², or approximately 50% of the country's continental area (Marroni, 2013; Castro *et al*., 2017). The Brazilian coastal zone extends over 17 states, 443 municipalities, and around 80% of the population lives within 200 km of the coast (IBGE, 2011; MMA, 2021). The Navy has released data that the Brazilian maritime economy brings in BRL 2 trillion a year (Marinha do Brasil, 2019), which corresponds to 19% of GDP originating at sea, with 95% of Brazilian foreign trade being carried out by sea (BRASIL, 2020; PSRM, 2020).

In 2004, the Navy coined the term "Blue Amazon" to refer to the riches of the ocean in areas of Brazilian jurisdiction and to guarantee

national defense and sovereignty over its resources (Wiesebron, 2013; Duarte, 2016). The Blue Amazon has been presented as a "political-strategic concept that supports robust economic development", usually considered from its economic, environmental, scientific, and national sovereignty aspects (Barbosa Junior, 2012, p. 223). In the last decade, Brazil has been planning more intensively and strategically for the prospects of governance and economic strengthening of the sea, especially after the discovery of the pre-salt oil layer in the southeast of the country. Although initiatives explicitly called the Blue Economy are recent in Brazil and Latin America (Gerhardinger *et al*., 2022), numerous risks regarding this model of economic development have been raised in international literature (Bennet *et al*., 2021; Cisneros-Montemayor *et al*., 2022; Blythe *et al*., 2023). These include processes of environmental injustice, especially for communities dependent on small-scale fishing, due to threats related to the degradation and reduction of ecosystem services, loss of access to marine resources necessary for food security and human well-being, unequal distribution of economic benefits, violation of human rights and other social and cultural impacts (Bennet, *et al*., 2021; Ertör, 2023). Since 2018, the concept of Blue Justice has been gaining prominence as a strategy for taking a critical position on Blue Growth initiatives based on an exclusionary and unsustainable hegemonic economic development model (Jentoft, 2022). The definition of blue justice that we adopt in this work recognizes the inherent right of all people and communities to a healthy, productive and sustainable marine environment, with respect, meaningful involvement and fair treatment of all coastal populations – such as small-scale fishing communities – and to how ocean and coastal resources are accessed, used, managed and enjoyed (Blythe *et al*., 2023).

In this paper, we aim to analyze the interactions between small-scale fishing and policies related to developing the Blue Economy between 2012 and 2020, in terms of the government's narrative of the Brazilian Blue Economy and the incorporation of the small-scale fishing sector; international investments that have somehow touched on the Blue Economy and the environmental conflicts and injustices that affect fishing communities. The focus on 2012 relates to the milestone of the Blue Economy agenda internationally, in the context of the United Nations Conference on Sustainable Development, Rio+20.

2. Research methods

To understand the Blue Economy narrative in Brazil and its relationship with small-scale fishing, we conducted a narrative literature review (Bourhis 2017), including scientific literature and gray literature. To this end, we used the Google and Google Scholar platforms in January 2021 from the following sets of keywords in Portuguese: "Artisanal fishers" AND "Blue Economy" AND 'Brazil'; "Artisanal Fisheries in Brazil" AND "Blue Economy" between the years 2012 and 2020. After initial screening, 97 scientific papers, technical reports and legislation, and 62 newspaper reports were selected for analysis. However, despite mentioning one or other keyword, few documents provided information that directly linked small-scale fishing to the Blue Economy (section 3). We also conducted

a semi-structured interview with a national small-scale fishing leader, with the aim of capturing her perception of Blue Economy initiatives in Brazil and their relationship with fishing communities. The leader was selected because of her relevance to the Blue Economy discussion within the Brazilian Artisanal Fishermen and Fisherwomen's Movement (MPP). Other interviews with the same objective were carried out with leaders from ten Latin American countries as part of a wider project. For this paper, only the interview data from Brazil will be presented.

To get an overview of blue investments in Brazil, information on projects carried out between 2012-2020 by five financial institutions was assessed: the Latin American Development Bank[1] (CAF from the acronym in Spanish), the Inter-American Development Bank (IDB), the World Bank (WB), the United Nations Development Program (UNDP) and the Global Environmental Facility[2] (GEF). Among the 1,459 projects identified in Brazil by all 5 international investors from 2012 to 2020, a total of 81 were identified as coastal-marine, 'blue' investments[3]. The projects were classified according to investment sectors, based on the titles and prior information that the banks make available on their website.

Finally, to identify the main conflicts and environmental injustices involving small-scale fishing communities, we systematized the information available in the database of five platforms:

(i) Map of conflicts involving environmental injustice and health[4] (Fiocruz);

(ii) Report on conflicts involving small-scale fishing organized by the Fisher's Pastoral Council[5] (CPP);

(iii) Environmental Justice Atlas[6] (EJA);

(iv) Collaborative Map of the Socio-Environmental Justice Team and data from the Brazilian Ocean Horizon Program [7](HOB); and

(v) Information System on Small-scale fishing (ISSF).[8]

It was not possible to confirm whether cases were repeated on different platforms, as the databases do not always have the same analysis variables, or the authors are identifiable.

[1] Corporación Andina de Fomento.

[2] Global Environment Facility.

[3] The coastal context was identified by searching for keywords (in English and Portuguese) that could indicate such a relationship, either by the type of enterprise, location, proximity to water or environmental projects, such as: blue economy, fish, shrimp, aquaculture, fish farming, mariculture, ocean, cabotage, island, sea, coast, water, watershed, gulf, bay, marine, coast, tourism, port, navigation, carbon, platform, oil, biotechnology, climate. Subsequently, the analysis was refined and the context of these projects deepened, verifying their proximity to the Blue Economy topic, based on the information available in the titles, objectives, description, and sector of activity, as described by each financial institution.

[4] Available at: https://mapadeconflitos.ensp.fiocruz.br/.

[5] Available at: http://www.cppnacional.org.br/publicacao/relat%C3%B3rio-dos-conflitos-socioambientais-e-viola%C3%A7%C3%B5es-de-direitos-humanos%C2%A0em%C2%A0comunidades.

[6] Available at: https://ejatlas.org/.

[7] Available at: https://painelmar.com.br/mapa-justica-socioambiental/.

[8] Available at: https://issfcloud.toobigtoignore.net/.

3. The blue economy narrative in Brazil

From the literature review carried out between 2012 and 2020, we observed that the Blue Economy discourse in Brazil has been predominantly linked to developing economic sectors (e.g. oil and gas, shipbuilding, ports, maritime transport, tourism and fishing) and emerging ones (e.g. marine biotechnology, deep sea mining exploration, aquaculture and renewable marine energies – wind, wave, tidal current, etc.).

A major part of the country's Blue Economy narrative has been spearheaded by the Interministerial Commission for the Resources of the Sea (CIRM), which seeks to guide activities aimed at "the effective use, exploration and sustainable exploitation of the natural resources of the Blue Amazon" (Marinha do Brasil, 2020). CIRM coordinates actions relating to the National Sea Resources Policy and is composed of 16 government bodies[9]. The CIRM has also frequently used the term "economic aspect of the Blue Amazon" and emphasized the development agenda for the sea, based on the potential for major economic ventures for the Brazilian coast.

In a survey carried out in 2019, the majority of participants in the Interministerial Working Group (WG) on Shared Use of the Marine Environment reported the lack of a cohesive and well-formulated proposal for the Blue Economy in Brazil (Gerhardinger *et al*. 2020). Among the specific points, the participants mentioned the lack of relevant knowledge and an integrated and consistent vision on the subject. The interviewees' visions rarely took into account social equity considerations in the Blue Economy debate, a perspective that can hinder the implementation of development policies for the ocean that take into account not only economic, but also environmental and social results (Gerhardinger *et al*. 2020).

In October 2020, the federal government instituted the Federal Development Strategy for Brazil for the period 2020 to 2031[10]. Among the environmental guidelines for the marine environment, the plan only mentions the goals of carrying out actions to combat waste in water bodies and coastal and marine areas; and encouraging the conservation and sustainable use of biodiversity in national biomes and marine environments, mineral and water resources, and energy potential in Brazilian territory. There were no strategies specifically called Blue Economy in this policy, nor was there any alignment with the international debate, since, for example, the document makes no mention of the Sustainable Development Goals (SDGs).

In November 2020, the Brazilian federal government approved its tenth Sectoral Plan for the Resources of the Sea[11] (PSRM, 2020), to define the guidelines and priorities for the sector from 2020 to 2023. It was the first time that the term Blue

[9] Civil House of the Presidency of the Republic; Ministry of Justice and Public Security; Ministry of Defense; Ministry of Foreign Affairs; Ministry of Economy; Ministry of Infrastructure; Ministry of Agriculture, Livestock and Supply; Ministry of Education; Ministry of Citizenship; Ministry of Health; Ministry of Mines and Energy; Ministry of Science, Technology and Innovations; Ministry of the Environment (MMA); Ministry of Tourism; Ministry of Regional Development; Navy Command of the Ministry of Defense (Decree No. 9.858, of June 25, 2019).

[10] Decree No. 10,531, of October 26, 2020.

[11] Decree No. 10,544 of November 16, 2020. The sectoral plans are also led and coordinated by various ministries and the Brazilian Navy. They are based on various actions aimed at the conservation and exploitation of marine resources.

Economy was used in the government's plan for the sector, which has as one of its objectives: "to contribute to the development and consolidation of a Blue Economy in the country on a sustainable basis, based on the survey of the still unknown or unexploited potential of the Blue Amazon in the coming years" (PSRM, 2020). The previous plan, corresponding to the years 2016-2019, did not mention the expressions 'Blue Economy', 'economy of the sea', or 'blue growth', revealing that efforts to consolidate initiatives from this perspective are recent.

With regard to the fishing sector, the PNRS provides some important perspectives in line with the SDGs (i.e., SDG 14). However, small-scale fishing does not seem to feature prominently in Blue Economy initiatives. Despite its significant importance in fish production in the country, it is mentioned only once in the sector plan (with objectives aimed at "re-registering professional small-scale fishing in the General Fishing Activity Registry System"). We would like to point out here that, although this measure is very important for efforts to understand and manage the small-scale fishing sector and for public policies for this category, in recent decades several national processes for registering fishers have been carried out, but with low effectiveness, demonstrating the state's low capacity to manage a single national register. Small-scale fishing production is substantial for food security and the economy of thousands of families along the Brazilian coast, who have historically been on the margins of government subsidies and/or international investments (Azevedo & Pierri, 2014).

Other sectors can be highlighted as more relevant to the federal government in terms of the Blue Economy. The tenth PSRM prioritizes, for example, investments in deep-sea mining and aims to define the criteria that will be used for research, exploration, exploitation, and mining concessions, and for environmental licensing that would be important to investors and producers (PSRM, 2020). Another government initiative related to the Blue Economy was the Program for the Development and Sustainable Use of the Blue Amazon (Pro-Blue Amazon), coordinated by the Brazilian Navy. Among the products expected from the implementation of the program were maps and studies on wind patterns, marine currents, the properties of marine soil and subsoil, as well as other parameters that "subsidize projects aimed at the Blue Economy, such as the establishment of offshore wind farms and the exploitation of the mineral potential of the Blue Amazon" (PSRM, 2020).

Another fact that shows the federal government's attempts to leverage policies aimed at the Blue Economy was the creation of the "GDP of the Sea" Technical Group in July 2020[12]. The purpose of this group was to: define the concept of Blue Economy or Economy of the Sea for Brazil; identify the sectors and activities that are part of and/or contribute to the Blue Economy and their contributions to the GDP of the Sea; develop a methodology to measure the GDP of the Sea, contributing to the regular statistical monitoring of its evolution in the country, among other objectives. There is no evidence that the initiatives presented here have been focused on small-scale fishing, and that the priority was to discuss how to distribute

[12] CIRM Resolution No. 14/2020.

the wealth obtained from the sea more fairly, at least until 2020.

Some events and projects to advance the Blue Economy agenda with national and international funding were identified in the gray literature review and can be seen in Table 1. Analysis of the predominant narrative on the Blue Economy in projects and events in the period revealed that small-scale fishing do not appear as a relevant sector. It is important to highlight the importance given to the aquaculture sector, for example, when compared to fishing. According to the GEF, the Brazilian fishing and aquaculture sector is projected to grow by 104% by 2025, but with special emphasis on shrimp and shellfish mariculture, "which will play a central role in this growth" (World Bank, 2020). One of the goals of the government's Sector Plan was to "strengthen assignment policies and restructure the National System of Authorizations for the Use of Physical Space in Federal Waters for Aquaculture Purposes" (PSRM, 2020). Between 2019 and 2022, the federal government implemented measures to expedite and streamline the process of assigning aquatic and marine spaces for aquaculture development. At the same time, there are other internationally funded projects aimed at developing the aquaculture chain in Brazil, such as the ASTRAL project (Table 1).

Blue Economy projects are "death projects" for small-scale fishing and traditional fishing peoples and communities, according to the leader of the Movement of Artisanal Fishermen and Fisherwomen of Brazil (MPP) interviewed in this research. Using the northeast coast as an example, the interviewee showed that she knew of Blue Economy initiatives underway are in the

TABLE 1 - Events and projects that are explicitly associated with the Blue Economy in Brazil and the organizations that organize them. Data obtained from the review of news and grey literature between 2012 and 2020.

Events/Projects	**Organization/support**	**Year**
Norway Brazil Weeks for "productive and sustainable oceans, unlocking their economic and social potential."	Norway Brazil Chamber of Commerce	2019
International Forum on Environment and Blue Economy	Government of Bahia; Atlantic International Research Center of Portugal; Federal University of Bahia (UFBA), Federation of Industries of the State of Bahia (Fieb)	2020
ASTRAL Project – All Atlantic Ocean Sustainable, Profitable and Resilient Aquaculture	The European Union	2020
Climathon – "innovative proposals from startups and entrepreneurs to boost the circular Blue Economy"	CTG (energy company and large hydroelectric plant operator), among other private organizations.	2020
LEME – PwC Barometer of the Economy of the Sea: reports with quantitative information on the different sub-sectors operating in the economy of the sea in several Brazilian states (e.g., Bahia, Ceará, and Santa Catarina).	Consulting firm Pricewaterhouse Coopers (PwC) and state governments, and industry federations	-

Source: elaborated by the authors.

wind energy, port expansion, modernization of the industrial fishing fleet, tourism, shrimp farming, and oil and gas sectors. The problem of the absence of prior, free, and informed consultation of the communities for the development of these projects that directly influence their way of life – as advocated by Convention 169 of the International Labor Organization (ILO) – was also highlighted. When communities are invited to meetings related to the projects, these are merely informational meetings about the projects, which no longer allow for real consultation or substantial changes to the initiatives. The cases of many offshore wind energy projects, for example, were mentioned by the interviewee as having a direct impact due to their overlap with small-scale fishing territories, which is also pointed out in the literature (Gorayeb *et al*. 2018).

3.1. Profile of blue investment in Brazil

About 9% (almost USD 4 billion) of the total amount invested by the financial institutions analyzed in the period (more than USD 42 billion) were related to the Blue Economy and were classified according to the economic sectors shown in Figure 1. The IDB was the organization with

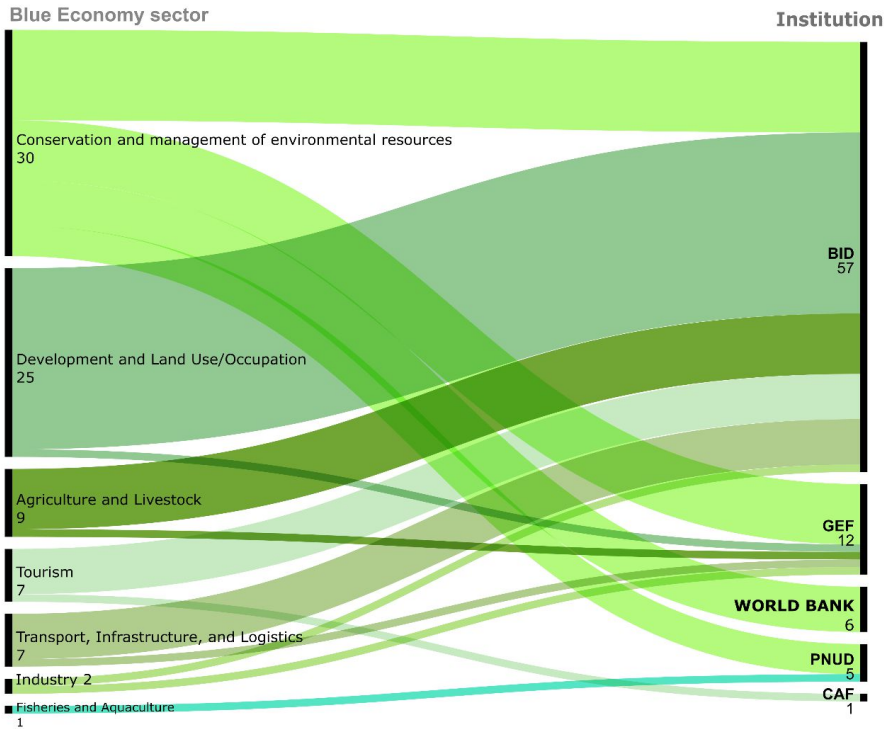

FIGURE 1 - International investments in Brazil in Blue Economy sectors by institution from 2012 to 2020.

NOTE: Inter-American Development Bank (BID); Global Environmental Facility (GEF); United Nations Development Program (PNUD), and Latin American Development Bank (CAF).

SOURCE: elaborated by the authors.

the highest number of blue investments (n=57), followed by GEF, World Bank, UNDP, and CAF. The majority of these investments were classified as environmental resource conservation and management projects (n=30) and were supported by the IDB (n=12), IDB; GEF (n=8), World Bank (n=6), and UNDP (n=4). Land use/occupation development projects came second, with a total of 25 projects, mostly supported by the IDB (n=24) and GEF (n=1). Other sectors tangential to the blue were identified, but to a lesser extent, such as agriculture and livestock projects (IDB n=8; GEF n=1), tourism (IDB n=6; CAF n=1), transportation (IDB n=6; GEF n=1), and other industries (IDB n=1; GEF n=1).

In terms of the total value of investments in each of the Blue Economy sectors listed, land use/occupation and development projects received investments in the order of USD 1.73 billion, mainly from the IDB (USD 1.7 billion) and GEF (USD 22 million). Conservation and environmental resource management projects follow with a sum of USD $1.4 billion invested by the World Bank (USD 862 million), IDB (US$384 million), GEF (USD 174 million), and UNDP (USD 36 million). Other sectors also received significant investments, such as tourism (USD 263 million from the IDB and USD 112 million from CAF), transportation (USD 281 million from the IDB and $6 million from GEF), and agriculture and livestock (USD 118 million from the IDB and USD 7 million from GEF). Although some of these investments could have indirect positive impacts on small-scale fishing, the sector does not seem to be one of the priorities for international funding by the agencies investigated.

We found only one project related to the fishing and aquaculture sector in Brazil, supported by the UNDP (USD 1,500 dollars), entitled "BRA/01/037 – Fauna e Pesca" [Fauna and Fisheries] whose objective was to "… contribute to the conservation of Brazilian biodiversity through the management and protection of its wildlife and fisheries resources". Although it could also be considered a project aimed at conserving resources, this was the only one that explicitly referred to fishing.

4. Conflicts and socio-environmental injustices involving Brazilian small-scale fishing

In this section, we present data on the systematic analysis of socio-environmental conflicts suffered by small-scale fishing communities in Brazil, related to sectors of the Blue Economy. In total, 133 cases of conflicts involving fishing and/or fishing communities were identified. It is important to note that each of the platforms used has its methodological variations and predefined variables for recording conflicts, making it difficult to establish comparative analyses or regional patterns of conflicts along the Brazilian coast. While Fiocruz's Conflict Map, for example, identifies the origin and the activity that caused the conflict, as well as the socio-environmental and health impacts on the population, the ISSF platform uses the method of freely recording the history of the affected population, the contextualization of the conflict case and the procedures being taken for each conflict reported.

4.1. Map of conflicts involving environmental injustice and health – Fiocruz

This platform selected 61 cases of coastal conflicts affecting small-scale fishing. The platform presents other social groups, which in this case were also included in the classification of small-scale fishers: small-scale farmers and shellfish gatherers (women who extract shellfish) in 26% of the cases reported, as well as *quilombola* communities (21%) and indigenous peoples (10%) living on the coast. Social groups such as crab harvesters, riverside dwellers, aquaculture farmers, port communities, among others, are also affected within the scope of the cases analyzed. The Northeast region had the highest number of conflicts recorded on the Fiocruz map (n = 34), followed by the Southeast (n = 16), South (n = 8), and North (n = 3). Only two states out of the seventeen on the Brazilian coast had no recorded cases of conflicts involving small-scale fishers (Amapá and Piauí).

The Fiocruz platform found records on: (i) the activities that are generating conflicts; (ii) socio-environmental impacts, and (iii) damage to health. In the majority of cases (72%), conflicts have been generated by the actions of government bodies and their socio-environmental policies, followed by various traditional Blue Economy activities in the coastal zone, such as the petrochemical industry, port infrastructure, aquaculture, mining, tourism, biodiversity conservation, and large-scale monoculture. Additionally, some conflicts are attributed to the poor performance of the judicial system's institutions.

Regarding conflict-generating activities, the following were cited for the Northeast region: fishing and aquaculture, wind energy, landfills and dumps, timber, pesticides, civil construction, and agribusiness. In the Southeast, the cases are especially linked to the exploration, processing, and transportation of oil and gas, waterways, roads, railroads and port complexes/terminals and airports, the work of judicial institutions, conservation units, thermoelectric production, and pipelines (mining, gas, and oil). The South was the only region with conflicts related to shipyards and shipping/cabotage. The low number of disputes reported in the North of Brazil limited our ability to understand the contextual specificities of the region in more detail from this platform.

The Fiocruz database also covers the socio-environmental impacts generated by the 61 conflicts reported. The most commonly reported types of socio-environmental impacts were alterations to the traditional regime of land use and occupation (75%, n=45), pollution of water resources (70%, n=43), lack of/irregularity in environmental authorization or licensing (44%, n=27), soil pollution (41%, n=25), invasion/damage to a protected area or Conservation Unit (38%, n=23), air pollution (36%, n=22), lack of/irregular demarcation of traditional territory (34%, n=21), deforestation (33%, n=20) and contamination or poisoning by harmful substances (16%, n=10).

The most common types of damage to health linked to the 61 conflicts identified are threefold and occur in all regions affected by the conflicts reported: reduced quality of life, an increase in chronic non-communicable diseases, and threats of violence. This shows that, regardless of the conflict-generating activities and their impacts, almost all the 61 cases of conflicts recorded reduce

the quality of life of the small-scale fisheries populations affected. Increased food insecurity and threats of violence ranked second as critical health damages affecting small-scale fishers on the coast of Brazil. This is followed by increases in chronic diseases and accidents, as well as several additional and interconnected health problems. In cases of increased threats and violence affecting small-scale fishing communities, for example, physical coercion, bodily injury, psychological harm, and murder are also cited. Finally, various types of health damage reported are possibly related to a general decrease in quality of life and an increase in chronic diseases. For example, we can refer to reports of malnutrition, reduced access to health services, contagious diseases, chemical contamination, alcohol abuse, and suicide.

4.2. Reports on socio-environmental conflicts from the Fisher's Pastoral Council (CPP)

By 2020, the CPP had 50 cases of socio-environmental conflicts on its register, with reports from the 1970s to 2014. For this paper's purposes, we have separated the conflicts that were in seafront municipalities, using the information provided by the IBGE (2019), totaling 39 cases. One specific piece of information provided by the CPP is the number of families affected in each conflict. Adding up the data for this variable, from the 39 episodes, we have 52,520 families affected by socio-environmental conflicts. In addition to this significant number, the platform also shows the number of conflicts by region, with 31 in the Northeast (79% of the total), the Southeast and South with three conflicts each (8% in each region) and the North with two episodes (5%), following the logic of the Fiocruz platform. It is worth noting that some states along the Brazilian coast had no records in the CPP until it was updated in 2021. Although the conflicts in the new CPP report have not been incorporated into the analysis in this paper, there has been an increase in the number of states and new types of conflict (CPP, 2021).

One variable presented by the platform was the type of conflict in each report. Environmental degradation is the most common, present in 49% of cases. Real estate speculation and tourist developments feature in 14 of the country's 39 episodes (36%). Privatization of public lands is also relevant, present in 12 cases (30%). The category of eviction and restriction of access is only present in the Northeast region, in ten of the 31 reports (32%). It is interesting to note that the Southeast region, despite the low number of conflicts reported, had death threats and the oil industry as the type of conflict in all three reports. Similarly, unsustainable fishing was present in all the conflicts in the North, and shrimp farming was present in the Northeast and Santa Catarina, in the South.

In addition to the different types of conflict, the platform also presents the agents causing these episodes in five classifications. The most frequent are private companies, present in 82% of conflicts. This is also the only causal agent present in all regions of the country. Public companies are also agents causing conflicts, but to a lesser extent, in 15% of the conflicts reported. A category expressed by the CPP, which ranks second in frequency in the country, is private individuals. We understand that these are not exactly companies, but possibly

individuals who promote socio-environmental conflicts (33%). Farmers are the least frequent category in five of the 39 conflicts. There is also the 'other' category, in which the type of agent causing conflicts is not specified (18% of the total).

4.3. Environmental Justice Atlas (EJA)

Among the 172 conflicts reported by the Environmental Justice Atlas (EJA) in Brazil, we identified 15 that affect coastal-marine small-scale fishing. The most common types of conflicts involve fossil fuels and climate justice/energy (n=4), land and biomass (n=4), and infrastructure and the built environment (n=3). The most frequent secondary conflicts are fisheries and aquaculture (n=7), followed by land tenure disputes (n=6), wetland and coastal zone management (n=4), transportation infrastructure (n=3), and contamination (n=3). A total of 22 types of specific goods in dispute were identified behind the conflicts reported, the most common being crude oil (n=5), followed by land, electricity, natural gas, chemicals, and shrimp (n=3 each).

Some salient regional trends can be noted. For example, a significant number of conflicts derived mainly from fossil fuel exploitation and climate/energy justice, as well as secondary conflicts from fishing and aquaculture, are recorded only in the Northeast of Brazil. However, the fact that each injustice reported could be associated not just with one primary conflict, but with several secondary conflicts and goods, revealed the socio-ecological complexity of the circumstances of injustice and also a possible bias in the reporting of data for the Northeast region on the EJA platform.

4.4. Collaborative map of the socio-environmental justice team of the Brazilian Ocean Horizon Program (HOB)

The cases described in this Collaborative Map are outcomes of HOB Volumes I and II, which are part of the scope of the HOB Program of the Brazilian Panel for the Future of the Ocean (PainelMar). The map contains 15 cases of socio-environmental injustice, covering all the coastal states in the Southeast (Vol. I HOB) and Northeast (Vol. II HOB) regions of the country. It mentions the types of impacts on the territory, the communities affected, and the enterprises or initiatives responsible.

All the communities are made up of small-scale fishers, or caiçaras (in the Southeast), including two cases involving quilombola communities (Maranhão and Pernambuco). Among the total of 15 conflicts reported, all associate cases of socio-environmental injustice with changes to the traditional regime of use and occupation of the territory: the greatest number describe environmental degradation and the consequent impact on the availability and quality of natural resources (ten cases) and the impact generated by disputes over territory (eight cases). As for those responsible for the impacts and conflicts, ten cases report actions by private initiatives, and two cases are related to public authorities.

4.5. Small-scale fishing information system (ISSF)

The ISSF is an international platform developed by the Too Big To Ignore (TBTI) network which brought together 3 cases of environmental

injustice in Brazil during the period of analysis, involving local communities and small-scale fishing in the Southeast (n=1) and Northeast (n=2) regions. The platform divides the description of the cases into topics about the context of small-scale fishing, the type of injustice, the context of justice and the procedures or mobilizations triggered by each case.

One of the cases (referring to Rio Grande do Norte) reports failures in the effectiveness of public policies applied to small-scale fishing and the impacts of the COVID-19 pandemic. The second case, also in the Northeast, refers to the oil spill and the impacts on traditional communities. In the Southeast, the conflict is between the traditional use of territory and conservation policies, with the creation of a no-take protected area prohibiting fishing.

5. Summary of development vectors and threats to small-scale fishing in relation to the promotion of the Blue Economy

The Fiocruz, EJA and CPP platforms are the most significant for the country, and the most commonly reported conflicts are in the Northeast, Southeast and South, respectively. The limited coverage of the platforms for the northern region of Brazil raises the hypothesis that this is the region least affected by the Blue Economy sectors so far. An alternative hypothesis would be a bias towards the regional interest of the research groups that feed the platforms. In the Northeast, for example, we have the highest level of social and political organization of small-scale fishers social movements, which can intensify complaints of injustice and socio-environmental conflicts suffered by communities, as well as the highest number of fishers in the country (MPA, 2024) and its high demographic density on the coast.

Other challenges for the analysis and systematization of the data collected on the platforms lie in the different variables collected by each of them. Although these differences make it difficult to generalize and compare some phenomena, the systematization of so many cases of conflicts affecting small-scale fishing communities gives us an idea of the complexity, diversity and intensity of the challenges that the Blue Economy sectors impose on small-scale fishing.

In order to highlight the relationship between cases of socio-environmental conflicts and injustices regarding the Blue Economy, we used the pre-defined categories of the five platforms accessed and grouped the variables into their respective Blue Economy vectors, generating nine analysis groups:

(i) coastal development and land use/occupation;
(ii) conservation and management of environmental resources;
(iii) energy sector;
(iv) fishing and aquaculture;
(v) industries (general);
(vi) mining;
(vii) public sector and public policies;
(viii) tourism;
(ix) transportation infrastructure and logistics.

The main factors generating conflicts in Brazilian small-scale fishing communities are associated with coastal development and changes in land use/occupation (e.g., environmental degradation,

real estate speculation, access restrictions and evictions, disputes over land occupation trends, etc.). Conflicts generated by activities linked to the energy matrix are frequently reported for the Southeast and Northeast of the country (e.g. chemical and petrochemical industry, oil exploration and transportation, wind energy, dams, thermoelectric plants, etc.). Another important cluster of conflicts is related to the public policies that affect the coastal zone, based on the poor performance of government bodies and the judiciary, as well as the tendency to facilitate the privatization of territories (Figure 2).

The data presented reveals major challenges for small-scale fishing in Brazil in terms of their relationship with initiatives linked to the Blue Economy. Among the challenges, we saw evidence that Brazilian Blue Economy initiatives have not focused on small-scale fishing and the need to redistribute the wealth obtained from the sea in a fairer way. These results have also been observed in international literature (Schreiber *et al.* 2022; Knol-Kauffman *et al.* 2023; Sowman *et al*. 2023).

There was a lack of international investment prioritizing the strengthening of the small-scale

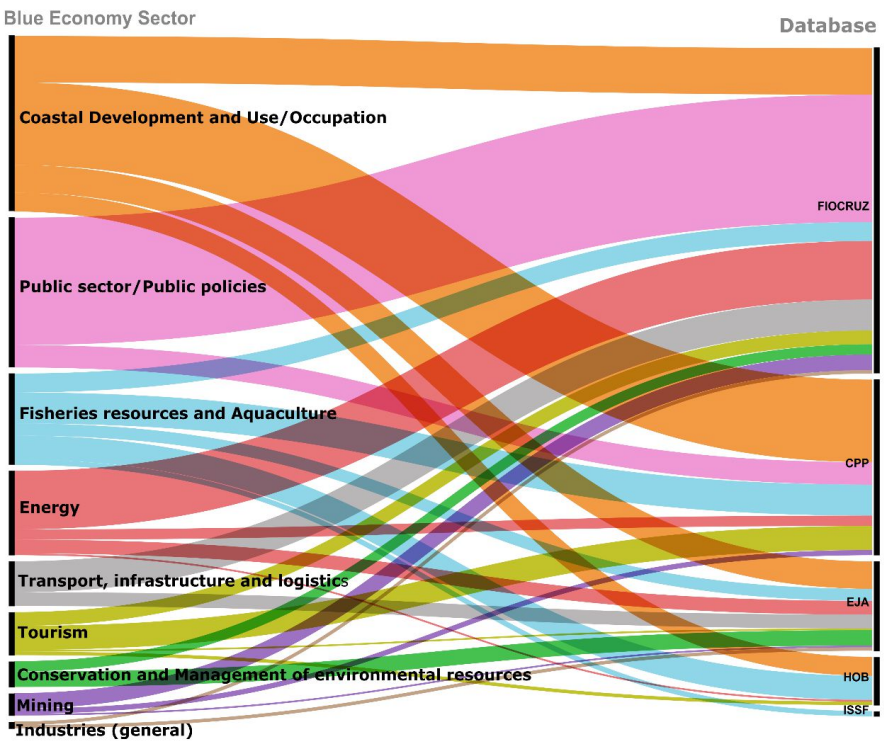

FIGURE 2 - Blue Economy sectors/drivers associated with conflicts and cases of environmental injustice in small-scale fishing communities in Brazilian coastal regions (n=133). The cases were coded using data from the platforms FIOCRUZ: Map of conflicts involving environmental injustice and health from the Oswaldo Cruz Foundation; EJA: Atlas of Environmental Justice; CPP: Pastoral Council of Fishermen; ISSF: Information System on Small-scale fishing; HOB: Brazilian Ocean Horizon.

SOURCE: elaborated by the authors.

fishing sector in Brazil, with the main investments going towards development projects in other sectors, the use and occupation of marine territory, or the conservation and environmental management of marine resources. These results are compatible with a more comprehensive analysis of investments related to the Blue Economy in other Latin American countries (Gerhardinger *et al*. 2022).

Hundreds of cases of environmental conflicts and injustices have affected small-scale fishing communities along the coast. Large part of these conflicts are associated with the coastal development policies that have been a priority for the Blue Economy initiatives underway in Brazil, as already observed in other research on conflicts (Martins *et al.* 2023; Reis-Filho *et al*. 2024). It is important to note that after the period analyzed in this research (2012-2020), the Blue Economy initiatives and narrative began to be strengthened in the country, especially with the beginning of the development of the Marine Spatial Planning (PEM) in 2024. It is essential that the MSP considers the recognition, distributive and procedural injustices that small-scale fishers face (Bennet *et al.* 2019), including the history of conflicts and injustices to fishing communities demonstrated in this paper.

The rhetoric of sustainability expounded by the Brazilian government when referring to Blue Economy initiatives in the period under analysis was permeated with intense contradictions. Specifically in the Bolsonaro government, it was possible to observe a drastic reduction or non-existence of environmental crime enforcement, the softening of the environmental licensing system for activities that cause impacts, and the deactivation of the Coastal Management Integration Group (Seixas *et al*. 2020; Bastos Lima and Costa, 2022). These challenges have further reinforced the very asymmetrical power relations between the small-scale fishing sector versus agents from the industrial and infrastructure sectors. Power asymmetries need to be seriously considered for fairer and more sustainable ocean governance.

6. Final considerations: paths for Brazilian small-scale fishing in the Blue Economy

According to the leader interviewed, the projects labeled the Blue Economy do not include the specificities of small-scale fishing and tend to further violate the rights of communities. According to this, the social movements have not seen opportunities for Brazilian small-scale fishing in the Blue Economy. Even so, some indirect opportunities can be glimpsed in the future, if there is political articulation and social pressure. With the progress of the UN Decade of the Ocean, the start of Marine Spatial Planning in Brazil and the structuring of the Small-scale fishing Secretariat of the Ministry of Fisheries and Aquaculture, a more opportune political moment is being consolidated for the necessary advances in more inclusive public policies. Cases such as: (i) the draft Law of the Sea, which, if approved, provides for "exclusive areas for fishing by traditional populations, small-scale fishers, harvesters, indigenous peoples or other local populations dependent on marine resources and ecosystems"; or (ii) the bill of law, which provides for the recognition, protection and guarantee of the right to the territory of traditional fishing communities (PL No. 131 of 2020), and proposes the regularization of fishing territories, are ways

to strengthen small-scale fishing.

Some international funding initiatives could also be strategically interesting for strengthening small-scale fishing, although the rhetoric is mostly focused on the implementation of protected areas or the growth of other economic sectors. There are also various initiatives and projects that seek to build territorial networks of rural-fishery technical assistance in Brazil, as well as the growing dynamics of building and evolving collaborative networks with a strong bias towards socio-environmental justice. These initiatives seek to foster greater protagonism and leadership among small-scale fishers in the struggle for rights and preferential access to aquatic spaces and resources.

In summary, the main ways for small-scale fishing to transform the lack of equity and the unwanted injustices that permeate the Blue Economy in the country are through:

• Call for the resumption of inclusive ocean governance spaces (on the agendas of marine protected areas, marine spatial planning, coastal management and environmental licensing) at the various federal, state and municipal levels.

• Identify initiatives and investment opportunities (albeit scarce) to strengthen small-scale fishing, taking into account their social, economic and environmental dimensions.

• Identify political opportunities to give visibility to the environmental, social, territorial and economic agenda of small-scale fishing, especially in the context of Brazilian Marine Spatial Planning, the UN Decade of the Ocean and other ongoing projects.

• Strengthen working groups and learning networks in favor of an environmentally appropriate and socially just Blue Economy agenda, with the participation of Brazilian and Latin American social movements, along with other networks between academics, civil society and government entities.

• Stimulate the role and strengthening of coastal communities and their leaders, with special attention to gender and youth issues.

Acknowledgements

We would like to thank the International Collective in Support of Fishing Workers for their support in carrying out this study, which is part of a Latin American assessment of the impacts of the Blue Economy on small-scale fishing; the Brazilian Ocean Horizon program and the Revealing Socio-environmental Injustices project, both carried out by the Brazilian Panel for the Future of the Ocean, with funding from the Boticário Group Foundation, the Linha D'Água Institute and the Fundação Casa. DP gratefully acknowledges the São Paulo Research Foundation (FAPESP, process No. 2020-16028-5). LCG thanks to the ERC Tradition project (European Union's Horizon 2020: No 817911) and Maria de Maetzu (CEX2019-0940-M). We also thank the Joaquim Nabuco Foundation for supporting the translation of the paper.

References

Azevedo, N. T.; Pierri, N. A política pesqueira no Brasil (2003-2011): a escolha pelo crescimento produtivo e o lugar da pesca artesanal. *Desenvolvimento e Meio Ambiente*, *32*, 2014. doi: https://doi.org/10.5380/dma.v32i0.35547.

Banco Mundial. *Sustaining Healthy Coastal and Marine Ecosystems Project* (P168989). 2020. Disponível em: http://documents1.worldbank.org/curated/en/212121594303366420/pdf/Project-Information-Document-Sustaining-Healthy-Coastal-and-Marine-Ecosystems-Project-P168989.pdf. Acesso em: 11 dez. 2020.

Barbosa Júnior, I. Oceanopolítica: conceitos fundamentais: Amazônia Azul. *In*: *Amazônia azul: política, estratégia e direito para o oceano do Brasil*. Rio de Janeiro, Femar, 205-231. 2012.

Bastos Lima, M. G; Da Costa, K. Quo vadis, Brazil? Environmental malgovernance under Bolsonaro and the ambiguous role of the sustainable development goals. *Bulletin of Latin American Research*, 41(4), 508-524. 2022. doi: https://doi.org/10.1111/blar.13336.

Bennett, N. J.; Blythe, J.; White, C. S.; Campero, C. Blue growth and blue justice: ten risks and solutions for the ocean economy. *Marine Policy*, 125, 104387. 2021. doi: https://doi.org/10.1016/j.marpol.2020.104387.

Bennett, N. J.; Cisneros-Montemayor, A. M.; Blythe, J.; Silver, J. J.; Singh, G.; Andrews, N.; Sumaila, U. R. Towards a sustainable and equitable blue economy. *Nature Sustainability*, 2(11), 991-993. 2019.

Bourhis, J. Narrative Literature Review. 2017. *In*: Allen, Mike. *The SAGE Encyclopedia of Communication Research Methods*. SAGE Publications, Inc.

Blythe, J. L.; Gill, D. A.; Claudet, J.; Bennett, N. J. *et al*. Blue justice: a review of emerging scholarship and resistance movements. Cambridge Prisms: *Coastal Futures*, 1-36. 2023. doi: https://doi.org/10.1017/cft.2023.4.

Brasil. *Lei nº 11.959, de 29 de Junho de 2009.* Dispõe sobre a Política Nacional de Desenvolvimento Sustentável da Aquicultura e da Pesca, regula as atividades pesqueiras, revoga a Lei no 7.679, de 23 de novembro de 1988, e dispositivos do Decreto-Lei no 221, de 28 de fevereiro de 1967, e dá outras providências. 2009b. Disponível em: http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2009/lei/l11959.htm.

Brasil. Decreto nº 9.858, de 25 de junho de 2019. Dispõe sobre a Comissão Interministerial para os Recursos do Mar. 2019. Disponível em: https://www2.camara.leg.br/legin/fed/decret/2019/decreto-9858-25-junho-2019-788564-norma-pe.html.

Brasil. Decreto nº 10.531, de 26 de outubro de 2020. Institui a Estratégia Federal de Desenvolvimento para o Brasil no período de 2020 a 2031. Disponível em: https://www2.camara.leg.br/legin/fed/decret/2020/decreto-10531-26-outubro-2020-790761-publicacaooriginal-161724-pe.html.

Castro, B. M.; Brandini, F.P.; Dottori, M. A Amazônia Azul: recursos e preservação. *Revista USP*, 113, 7-26, 2017.

Cisneros-Montemayor, A. M.; Ducros, A. K.; Bennett, N. B. *et al*. Agreements and benefits in emerging ocean sectors: Are we moving towards an equitable Blue Economy? *Ocean & Coastal Management*, 220, 106097. 2022. doi: https://doi.org/10.1016/j.ocecoaman.2022.106097.

CPP. Conselho Pastoral dos Pescadores. Disponível em: http://cppnacional.org.br/node/3. Acesso 06 jan. 2021.

Duarte, É. Brazil, the Blue Economy and the maritime security of the South Atlantic. *Journal of the Indian Ocean Region*, 12(1), 97-111. 2016. doi: https://doi.org/10.1080/19480881.2015.1067384.

Ertör, I. We are the oceans, we are the people!': fisher people's struggles for blue justice. *The Journal of Peasant Studies*, *50*(3), 1157-1186. 2023.

Fiocruz. Mapa de conflitos envolvendo injustiça ambiental e saúde no Brasil. Disponível em: http://mapadeconflitos.ensp.fiocruz.br/. Acesso em nov. 2020.

Gerhardinger, L. C.; de Andrade, M. M.; Corrêa, M. R.; Turra, A. Crafting a sustainability transition experiment for the Brazilian blue economy. Marine Policy, 120, 104157. 2020. doi: https://doi.org/10.1016/j.marpol.2020.104157.

Gerhardinger, L.; Ribaric, A.; Gimenez, B. G.; Garrido, C. H.; Prado, D. S.; Mendonca, E. S.; Araos, F.; Pera, G. T.; Narvaez, G. N.; Figueroa, I.; Anbleyth-evans, J.; Saavedra-Diaz, L. M. ; Rodrigues, L. M. ; Wojciechowski, ; Stort, M. ; Reis, N. B. L. ; Satizabal, P. ; Abel, R. A. ; Campos, ; Velasquez-Mendoza, Y. *Baffling Shades of Blue: Addressing the impacts of the Blue Economy on small-scale fisheries in Latin America*. International Collective in Support of Fishworkers (ICSF), 2022.

Gorayeb, A.; Brannstrom, C.; de Andrade Meireles, A. J.; de Sousa Mendes, J. Wind power gone bad: Critiquing wind power planning processes in northeastern Brazil. *Energy research & social science*, 40, 82-88. 2018. doi: https://doi.org/10.1016/j.erss.2017.11.027.

IBGE. *Atlas Geográfico das Zonas Costeiras e Oceânicas do Brasil*. Rio de Janeiro, 2011. Disponível em: https://biblioteca.ibge.gov.br/visualizacao/livros/liv55263.pdf. Acesso em 10 dez. 2020.

IBGE. *Municípios defrontantes com o mar*. 2019. Disponível em: https://www.ibge.gov.br/geociencias/organizacao-do-territorio/estrutura-territorial/24072-municipios-defrontantes-com-o-mar.html?=&t=acesso-ao-produto. Acesso em 06 jan. 2021.

Jentoft, S. Small-Scale Fisheries in the Blue Economy. *In*: Jentoft, S.; Chuenpagdee, R.; Bugeja Said, A.; Isaacs, M. (Eds.). *Blue Justice*. MARE Publication Series, 26. Springer. 2022.

Knol-Kauffman, M.; Nielsen, K. N.; Sander, G. *et al.* Sustainability conflicts in the blue economy: Planning for offshore aquaculture and offshore wind energy development in Norway. *Maritime Studies*, 22(4), 47, 2023. doi: https://doi.org/10.1007/s40152-023-00335-z.

Marinha do Brasil. *Economia marítima rende R$ 2 trilhões para o Brasil por ano*. 2019. Disponível em: https://www.marinha.mil.br/secirm/amazoniaazul. Acesso em 12 dez. 2020.

Marinha do Brasil. *Amazônia Azul*. 2020. Disponível em: https://www.marinha.mil.br/cgcfn/amazonia_azul. Acesso em 12 dez. 2020.

Marroni, E. V. *Política Internacional dos Oceanos: Caso brasileiro sobre o processo diplomático para a plataforma continental estendida*. Porto Alegre, Tese (Doutorado em Ciência Política. *UFRS,* 2013.

Martins, I. M., Prado, D. S., Gonçalves, L. R., Jacobi, P. R., Kefalas, H. C., Oliveira-Monteiro, Scachetti, R.N; Taddei, R.; Vianna, L.P.; Vivacqua, M.; Quito, L.; Vilches, V. N.; Xavier, L. Y.; Christofoletti, R. A. (2023). Ocean conflicts for whom and why? Participatory conflict assessment in the southeast coast of Brazil. *Maritime Studies*, *22*(3), 40.MPA. Ministério da Pesca e Aquicultura. Painel Unificado do RGP. 2024. Disponível em: https://www.gov.br/mpa/pt-br/assuntos/cadastro-registro-e-monitoramento/painel-unificado-do-registro-geral-da-atividade-pesqueira. Acesso em 11 nov. 2024.

PainelMar. Mapa Colaborativo de Redes, Comunidades e Conflitos envolvendo Injustiça Socioambiental na Costa Brasileira. Disponível em: https://painelmar.com.br/mapa-justica-socioambiental/. Acesso em 22 ago. 2021.

PSRM. X *Plano Setorial dos Recursos do Mar*. Decreto nº 10.544, de 16 de novembro de 2020. Disponível em: https://www.in.gov.br/en/web/dou/-/decreto-n-10.544-de-16-de-novembro-de-2020-288552390. Acesso em 12vdez. 2020.

Reis-Filho, J. A.; Hatje, V.; Barros, F. Navigating blue justice: Policy gaps and conflicts in coastal development from small-scale fisher perspectives. *One Earth*, *7*(10), 1786-1802. 2024.

Schreiber, M. A.; Chuenpagdee, R.; Jentoft, S. Blue Justice and the co-production of hermeneutical resources for small-scale fisheries. *Marine Policy*, *137*, 104959. 2022.

Seixas, C. S.; Prado, D. S.; Joly, C. A.; May, P. H.; Neves, E. M. S. C.; Teixeira, L. R. Governança ambiental no Brasil: rumo aos objetivos do desenvolvimento sustentável (ODS)? *Cadernos Gestão Pública e Cidadania*, 25(81). 2020.

Sowman, M.; Mbatha, P.; von Holdt, J. Strategies for addressing conflicts arising from blue growth initiatives: Insights from three case studies in South Africa. *Maritime Studies*, *22*(4), 51 (2023).

Wiesebron, M. Blue Amazon: thinking about the defense of the maritime territory. *Austral: Brazilian Journal of Strategy & International Relations*, 2(3), 107-132. 2013.