



Ceará Global
by  nupex



BLUE ECONOMY

March Edition - 2024



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CEARÁ



Federação das Indústrias do Estado do Ceará
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Our Team



Mônica Luz



Emílio Viana



João Alfredo



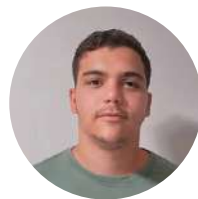
Sofya Damasceno



Christina Taleporou



Gabriel Schmid

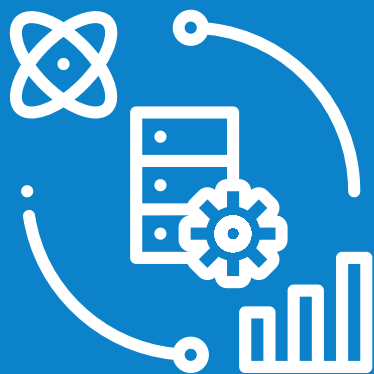


Gustavo Brasil



Manoel Matos

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EDITORIAL

**ROBERTO DE MATOS BRITO GRADVOHL**

Graduate in Law at UNIFOR | CEO at CAIX | Blue Economy Masterplan's Leader | President at the Sectorial Chamber for Blue Economy (ADECE)

With pride, I present the March edition of the Digital Magazine of Ceará Global. It is a synthesis of the efforts and achievements of our state in promoting the [Blue Economy](#), a topic of vital importance not only for Ceará but for the entire world.

The Blue Economy, or the [Ocean Economy](#), is an approach that recognizes the potential of oceans and marine resources to drive sustainable economic development. This concept is aligned with the guidelines of the UN and the Global Compact, seeking a future where economic prosperity is in harmony with the conservation and preservation of marine ecosystems.

In this context, it is essential to highlight the important role played by the [Sector Chamber of the Blue Economy of Ceará](#). This initiative brings together leaders from the productive sector, academics, scientists, and government representatives, united by a common goal: to promote a sustainable and inclusive maritime economy.

Through the Sector Chamber, these diverse stakeholders collaborate, share knowledge and experiences, and develop innovative strategies to drive economic growth while protecting and preserving marine resources. With a business-focused vision that generates income, quality of life, and decent work, these leaders are committed to adopting [sustainable practices](#) that ensure a prosperous future for the coastal communities of Ceará.



It is fundamental to recognize our sea in Ceará as [a living being that deserves to be cared for and protected](#). Through the Sector Chamber of the Blue Economy, we are working together to promote this vision and make it a reality.

We are in the [Decade of the Oceans](#), a crucial period to intensify global efforts in the protection and sustainable use of the oceans. Ceará, as a coastal state, recognizes the importance of this moment and is committed to contributing to this cause.

This is evidenced by the event "[Navigate - Forum on Ocean Culture and Science and the Blue Economy](#)," held on March 22nd. It marks efforts in awareness and collaboration. Experts, researchers, entrepreneurs, and authorities gathered to discuss innovative solutions and strategies to promote a more sustainable and [inclusive maritime economy](#).

International cooperation in science and innovation is being established to expand our research and development capabilities in the marine area, opening doors to [new opportunities](#) for growth and collaboration.

I am also pleased to highlight Ceará's [leadership in fish exports](#), underlining the economic importance of the fishing sector in our region. However, more than that, I am proud of the commitment to ensuring that these activities are carried out sustainably, preserving marine resources for future generations.

Furthermore, Ceará's [unique blue experiences](#), from coastal tourism to algae cultivation and artisanal fishing, emerge as initiatives that not only promote local economic development but also encourage the conservation of marine ecosystems and the well-being of coastal communities.



Finally, the [energy transition](#) and its impact on the maritime economy highlight the fundamental role of renewable energies, such as offshore wind and tidal energy, in promoting a more sustainable and resilient maritime economy.

As we move towards a future of sustainable development, Ceará is firmly positioned as a [protagonist](#) in promoting the Blue Economy. We will continue to collaborate with local and international partners, adopting innovative and sustainable practices to ensure the prosperity of present and future generations.

Therefore, in this edition, we celebrate not only individual achievements but also the spirit of collaboration and shared commitment by all involved in promoting the Blue Economy in Ceará.

Best regards,



SOURCE: CANVA

BLUE ECONOMY IN THE STATE



RÔMULO ALEXANDRE SOARES

Lawyer | Master's degree in International Business | Specialization in International Law and Maritime Law | Co-founder of Winds For Future Festival and Ceará Global | Partner at APSV Advogados

Recently, Ceará has made a strategic move to establish a hub for green hydrogen within its boundaries. This initiative is closely tied to a decision over two decades ago to harness the state's solar and wind resources. Consequently, Ceará became home to Brazil's inaugural wind farm, followed by its first solar park, and now hosts one of the nation's pioneering hydrogen plants.

These two landmarks illustrate why we should embark on a third, future-oriented investment: strengthening Ceará's ties to the ocean. This venture by Ceará couldn't be more timely. The most pressing issue echoed in sustainable development and future-focused discussions worldwide is the climate crisis and its ramifications for the ocean, alongside the ocean's critical importance to life on Earth. It's imperative to protect this domain, which covers nearly 70% of Earth's surface, generates 70% of our oxygen, harbours 80% of the world's biodiversity, and is a vital source of protein for human diets.

A glance at the South American map shows Ceará protruding into the Atlantic, positioning it as the nearest point to Africa, Europe, and North America. It's no coincidence that flights linking South America to Europe pass over Fortaleza, that sub-sea cables connecting South America with North America, Europe, and Africa are anchored off our coasts, and that vessels crisscrossing the Atlantic on north-south voyages pass by Ceará. The nearer we draw to our maritime territory, the more substantial the advances we'll see in governance structures, marine ecosystem protection, and the sustainable development of Ceará's 249,000 km² of maritime area and 573 km of coastline, an expanse far more significant than our land mass.

Globally, we witness exemplary models like Canada's oceanic supercluster, particularly in Nova Scotia, illustrating how the maritime economy can expand in a digital, sustainable, and inclusive fashion. Collaboration among industry, research institutions, civil society, investors, and the government is crucial for fostering innovative blue solutions and wealth creation.



Portugal, too, has transformed its approach to the ocean, turning the Lisbon Oceanarium into a success story where private management has spurred economic growth and Ocean literacy and marine conservation achievements.

Drawing from these and other examples, we can champion changes and progress that bring additional opportunities for Ceará to position itself as a critical player in the South Atlantic's blue economy.

Despite being among Brazil's top seafood exporters, there is scope for further advancement. Despite being a global nexus for submarine cables, we can attract additional data centres. Despite our prominence in renewable energy, we are poised to become a leading offshore wind power producer. The same potential exists for the naval and tourism industries and water sports.

I contend that Ceará stands at a unique juncture, poised to assume a regional leadership role in the blue economy, tapping into its maritime potential in a manner that is both sustainable and innovative. Closer integration with our maritime domain is not merely an economic strategy but a forward-looking vision that blends development, sustainability, and innovation.



SOURCE: <https://www.complexodopecem.com.br/porto/>

PROJECTIONS FOR THE OCEAN ECONOMY IN CEARÁ

The state of Ceará, located in northeastern Brazil, continues to see a promising future in the maritime economy. With an extensive coastline bathed by the waters of the Atlantic Ocean, the economic potential of maritime-related activities stands out as a crucial source of growth and sustainable development for the region.

Ceará's ports, led by the Port of Mucuripe in Fortaleza, are undergoing a process of modernization and expansion to meet a growing volume of international trade. Projections indicate that the increase in global trade, driven by demand for agricultural products, manufactured goods and commodities, will result in a significant increase in the state's port activities. Investments in port infrastructure, including improvements in cargo handling capacity and operational efficiency, are fundamental to Ceará's competitiveness in the international market.

Fishing and aquaculture will continue to play a crucial role in Ceará's maritime economy. However, projections suggest a trend towards diversification, with an increase in the production of species with higher added value, such as farmed shrimp, tuna, lobsters and other high-priced seafood on the international market. Technological innovations and sustainable management practices will be essential to ensure the long-term viability of these industries, while preserving marine resources and the environment.



SOURCE: <https://diariodonordeste.verdesmares.com.br>



Coastal tourism will continue to be an important driver for Ceará's economy. Projections indicate a continuous increase in the number of tourists, attracted by the golden sandy beaches, crystal clear waters and a variety of recreational and cultural activities. To ensure sustainable tourism growth, it is essential to invest in tourism infrastructure, responsible environmental management and the promotion of sustainable tourism practices that benefit local communities and protect natural resources.

To achieve the full potential of the maritime economy, the state of Ceará needs to promote technological innovation and establish strategic partnerships with research institutions, private companies and international organizations. The development of advanced technologies for marine exploration, environmental monitoring, maritime security and port logistics can boost the competitiveness and resilience of Ceará's maritime sector on a global scale.

Given the favorable projections, the maritime economy of the state of Ceará is well positioned to prosper in the coming decades. With strategic investments, effective public policies and a sustainable approach, Ceará can consolidate its position as a regional center of excellence in maritime activities, generating jobs, boosting economic growth and promoting the well-being of coastal communities.



SOURCE: <https://www.viaje24h.com>

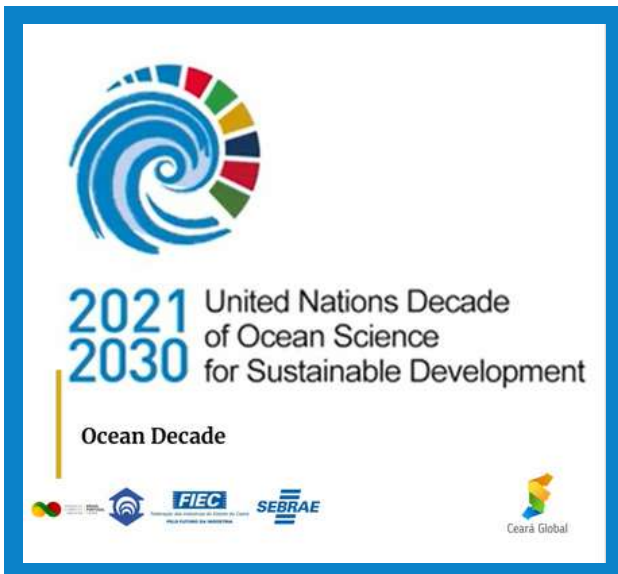


OCEAN ECONOMY POSTS

In this post, we highlight the significance of the maritime economy in the state of Ceará, Brazil, which has enacted the first Maritime Law in the country. Aimed at balancing traditional and innovative sectors of the maritime economy while promoting conservation, innovation, community involvement, and sustainable economic opportunities.



Here, we aimed to discuss the United Nations' "Decade of Ocean Science for Sustainable Development" and highlight Ceará's significance in environmental terms. Ceará boasts paradisiacal beaches and significant marine resources, with the state being the second-largest exporter of fish in Brazil. Additionally, the economist Célio Fernando underscores the state's potential in marine resource exploitation.



The Navegar Forum, a hybrid event held on March 12, brought together key players in Ceará's ocean agenda along with experts from Portugal and Canada. Sponsored by various organizations, including Winds for Future and Setur, the forum delved into ocean culture and economic science, offering insights into achieving the 2030 vision of the Decade of the Oceans through local and international experiences.



OCEAN ECONOMY POSTS

The CETREDE Foundation (Ceará) and Discovery Centre International (Canada) have signed a Memorandum of Understanding during the Navegar Forum to strengthen the blue economy and energy transition in Ceará. This collaboration emphasizes international cooperation in science and innovation to address global challenges. Investing in the Atlantic economy and energy transition can create local jobs, preserve marine ecosystems, and mitigate climate change.



Ceará leads Brazil in fish exports, surpassing US\$ 94 million in 2022. Its strategic Atlantic location and modern logistics facilitate efficient trade, with significant growth in exports seen in January 2024, totaling US\$ 5.28 million. This highlights Ceará's potential for economic development, job creation, and benefiting other sectors of its economy.



Seaweed cultivation on Cumbuco beach, Ceará, holds economic and environmental promise, utilized in food and cosmetic industries globally. Sustainable exploitation is essential. The BlueC project, led by marine biologist Stefany Pereira, aims to revitalize local economic activity through seaweed farming, offering hope for sustainable livelihoods while preserving the marine ecosystem.



OCEAN ECONOMY POSTS

Brazil, particularly the state of Ceará, is focusing on developing its blue economy, aiming to conserve marine resources for long-term use. Projects like the Sea Economy Chief Scientist, led by Funcap, and the Sea Economy Studies Center (NEMA), aim to boost the maritime economy through research, innovation, and governance enhancement. These initiatives seek to increase competitiveness and promote sustainable development in Brazil's marine sector.



This post had a focus on tourism. Ceará's coast offers a paradise for coastal adventures. In Cumbuco, kitesurfing thrives amidst stunning natural beauty. Morro Branco invites diving enthusiasts to explore vibrant reefs and historic shipwrecks. Jericoacoara captivates with pristine beauty and unique experiences in its national park.



Ceará's extensive coastline is pivotal in its energy transition efforts, with projects focusing on green hydrogen, wind, and solar energy. Recent studies explore harnessing thermal energy from oceans, while Roberto Gradvohl highlights ample opportunities for sea economy development. Optimistic projections foresee Brazil leading in green hydrogen production by 2030, potentially injecting up to R\$7 trillion into the GDP by 2050.





FELIPE MATIAS

Chief Scientist for Ocean Economy at FUNCAP | Doctor in Fisheries Engineering | PhD in Ocean and Earth Management

The relationship between the sea and the economy is gaining strategic importance globally, with Ceará emerging as a key player in this dynamic landscape. As the state explores the vast opportunities offered by its maritime resources, several initiatives and programs have been launched to leverage its potential.

In this interview, we delve into the significance of these efforts and their impact on Ceará's economy and global positioning.

Emilio Viana Filho | Ceará Global Collaborator



The strategic importance of the relationship between the sea and the economy is rapidly growing worldwide. Ceará is recognized as a protagonist in this scenario. What are the indicators that comprise this vast 'sea of opportunities' for the state?

I'll start speaking in a more romantic way, let's say, about our hero from Ceará. It comes from the sea, which is the "Dragão do mar". The flag of our state has a Raft that is from the sea, one of the great tourist assets of our state that is in our capital, our "Beira Mar". It's the seaside. And we have others.

Everything converges to the issue of the sea and the insertion of Ceará into it. And then the maritime economy as well. They called it the Blue Economy. It brings together various sectors, economic segments. And then, for you to have an idea of how Ceará is interconnected with this, I'll give you some examples. We have traditional fishing in our state, lobster, snapper, now tunas, shrimp. We have aquaculture, which is cultivation, basically with shrimp, with tilapia, but we have that. They are traditional activities, but we have other relatively more recent activities, for example, like water sports. I was recently in Greece, and when I went to check in at the hotel, when I informed that I was from Ceará, from Fortaleza, the person at the front desk said, "Wow, every year I go to Ceará to kitesurf," so it's already a known thing in the world of water sports. But we have oil, we have energy, wind energy, solar energy, nautical tourism, shipbuilding, so there are a series of economic segments within the maritime economy or the blue economy. And Ceará already has these interests.

More recently, we also have the issue of desalination plants. We also have the issue of fiber optic cables that connect Brazil to Europe. So, like that. We are very interconnected. The point of the maritime economy has a lot of impact within our state.

There is a great concern noticed from the Government of the State of Ceará and the entire society of Ceará regarding the sea in the environmental and technological context. What is the objective of the "Chief Scientist" program in this topic of the Maritime Economy? And what are the proposed goals by this program that have already been achieved?



First, a brief history: originally, the Chief Scientist program was focused on fishing and aquaculture. However, with the change of government, FUNCAP had the idea to expand it to the maritime economy. We understood that it wasn't just about fishing and aquaculture, but that there were all these other segments that I mentioned earlier, so we expanded the program to include the maritime economy.

I usually say the following: we have two structural goals. The first one, in conjunction with the Chief Scientist program in Environment, we managed to be the first state to have a maritime law. There was a discussion about whether this was possible or not because legislation regarding the sea falls under federal jurisdiction, but we managed to verify this and today we have a maritime law. This was worked on by the chief scientists in the environmental field together with us, in the maritime economy, which at that time was fishing and aquaculture. So, it was one of the structural goals that we achieved. The second one, which I also consider structural, we haven't achieved yet, which is the issue of state maritime planning. We need to have planning; an organization of the maritime economy in the state.

Recently, Brazil launched issues of regional maritime state planning, in the south, southeast, and northeast regions. But we also want to have local, state planning. So, it's a structural goal of these two, the law and the planning. We have achieved the first one, but not the second one yet. We hope to achieve it. From this planning, there are a series of other goals. I also say, imagine you arrive on Saturday and you want to go for a swim in the sea, whether it's at Beira Mar or Praia do Futuro. When you enter the sea, you may come across a kite surfer, or a surfer, or a fisherman, and then you get angry and want to leave. You have to be careful with the fishing line. And when you're on the sand, playing soccer or frescobol, or with a drone that could hit you, and then you get angry, want to leave the beach? Be careful, look both ways, as there might be a 4x4 car that could run you over, right? And who is right? And who is wrong about this? Everyone is right because everyone wants to use the sea. And everyone needs organization, right? We need to organize, have this planning, and then you extrapolate this to economic developments. We want wind energy, we want fishing, we want aquaculture, we want water sports. But this needs to be organized, and this organization needs to be done through state maritime planning.

The Ceará was the first state to possess a "Maritime Law." How does this legal milestone differentiate us from other coastal states in the exploration of the maritime economy? And what advances can it represent for the economy of the state of Ceará?



I would even go further by saying that this was pioneering in Brazil. Yes, we have a series of professionals who discussed this, from federal judges to university personnel, private initiative, the Secretariat of the Civil House of the state government, the State Attorney General's Office, who discussed this issue of maritime law, verified if it was possible, and we found out that yes, it was possible from some legal perspectives, and we managed to have the first maritime law at the state level. So, this allows us to guide, from the law, and from planning, as I said, these are the structural factors. Then you can organize administratively, but also with a legal basis that any economic segment needs legal certainty to be able to make their investments. So, that's the great importance, the great advancement.

The United Nations (UN) declared the period from 2021 to 2030 as the Decade of Ocean Science for Sustainable Development. How can the objectives of the project change the exploration of the maritime economy in the state?

Exactly what we have been talking about so far. The world has recently begun to concern itself with the oceans from two perspectives: conservation and sustainable use. Perhaps conservation was the original theme. The world began to confront ocean pollution and became very concerned about it. Subsequently, it was realized that we must take care of this conservation while simultaneously ensuring sustainable use. So, there are two aspects of development, of the maritime economy, that we need to work on.

In this way, various countries and states, or provinces, subnational entities, began to address this issue because it was realized that there is a significant economic contribution that these segments involved in the maritime economy generate for their states, for their countries, but there are also conflicts. When we talk about sustainable development, it cannot only have an economic dimension. It has a tripod called the "Triple Bottom Line." It must have the economic dimension, but also the social and environmental dimensions. So, it is based on this tripod that we, in Ceará, are trying to create this state maritime planning and to increase employment, generate income, but also to have social inclusion and environmental responsibility.

Considering the state's potential to develop a range of activities in the Maritime Economy, how can we increase our competitive advantages?



I have been saying the following: Ceará, perhaps in the last 10 or 15 years, has been a pioneer in many strategic things. But now it's time to operationalize that strategy. And with the operationalization of these strategies, we will start to generate competitive advantage because planning without action is an illusion. So, we have the strategic part, we need to do the state planning, but we have to start executing. We have to see how we can attract investments to the various economic segments, listening to the communities, having environmental concerns and thus promoting the sustainable development of the state within the maritime economy. This is the true maritime economy. The true Blue Economy. So that's how we're going to generate these competitive advantages.

We are following your participation in two major events that bring together the entire fishing and aquaculture production chain. What is the significance of this segment for the state's economy? In your perception, can the state participate more actively in the global market?

Let's say, pardon the pun, but literally it's my beach. I have been a graduate for 30 years, this year marking my 30th anniversary as a fisheries engineer. I'm also an administrator, albeit for a shorter period. Traditionally, I've worked in aquaculture. I had the opportunity to serve as National Secretary of Aquaculture at the Ministry of Fisheries, and later participated in the transitional government, reinstating the Ministry of Fisheries, which gives me a lot of authority to speak on this matter.

I'm here in Chile, at the largest aquaculture fair in the southern hemisphere, Aquasul, located in the salmon-producing region here in Chile. What I've seen here is impressive. We're experiencing the information revolution with the emergence of new technologies in all sectors.

Applied to this sector, especially aquaculture, it will bring about a major revolution in seafood production: fish, crustaceans, algae, mollusks. We're having good discussions with the folks at Unifor, through the Vice-Rectorate for Research, the Tech Unifor technology laboratory, Unifor's technology park, discussing how the state can work and how Unifor can benefit the state by generating these new technologies in the state. In my lectures, I often tell students who ask, "Oh, professor, do you think it's a great idea for me to learn to pilot a drone?" I say, yes, it's a good idea, but even better if you manufacture the drone. That way, you generate your own business, your own company. Here, I've seen underwater robots, drones, nano bubbles, biotechnology, so all of these are examples of innovations. And it's not just about food, there are many others, but in this specific sector, why is it so important? Because Ceará is the largest producer of farmed shrimp in the country, the largest lobster producer, the largest fish exporter, and the largest tuna producer.



So, we have this tradition, this pioneering spirit, this leadership in the sector for the country. How can we benefit? By bringing in these innovations. We still have an institutional political obstacle, as Europe has blocked our fish exports. So, we need to reopen the European market, especially France and Spain, which are major importers in Europe. This opens up many opportunities for our shrimp, for example, which are already highly competitive and can be exported. My expectation is that, together with Unifor, the Federal University of Ceará (UFC), and the State University of Ceará (UECE), I, as the chief scientist of the maritime economy at FUNCAP, can develop these new technologies in partnership with the universities.

At the IFC-International Fish Congress Brazil, your lecture addressed aquaculture and blue bioeconomy. In addition, you coordinated the panel on artificial intelligence in aquaculture. Could you talk a about these approaches?

Besides the issue of the IFC, last October, I returned to China. I went to China initially in 2009, and last year I returned. China produces 70% of the world's seafood, so everything happens there. And then, when I came here to Chile, and already in that IFC lecture, I make this connection of artificial intelligence with the production of blue food. And how does it work? Let me give you a clear example. The biggest production cost in aquaculture is feed. So, there are technologies that promote algorithms, that check if the fish is eating and if it is converting that food into meat. That is, you can optimize and lower costs while also being able, with artificial intelligence, to predict the growth level and when this fish will be on the market. Here we also saw the issue of using nano bubbles, they call it nano bubbles. With them, you can increase stocking density proportionally, and productivity goes up. And furthermore, you can put this in fish processing and extend the shelf life of the product. So these are examples of these new technologies using artificial intelligence and others that come to benefit, provide a revolution in the sector.

The Food and Agriculture Organization (FAO), which is the UN agency that works with agriculture and food, estimates that by 2030, in less than 6 years, the world will need twenty million more tons of fish. And how can this be generated in such a short time? It is through this revolution, this informational revolution, these new technologies. We won't have much more land space to increase, we'll have it in the sea, but difficulties would make it impossible to have enough time. So what will provide the world with blue food is these technological innovations that increase productivity and profitability and manage to democratize it, especially for small producers who also need to benefit from it.



What do you believe is the biggest challenge for implementing these technologies here in the state of Ceará?

The first thing is the issue of convincing the four pillars. We have to convince the government, we have to convince the academia, we have to convince civil society, and we have to convince the private sector. We have these four pillars, which need to understand this. Some understand, have heard about it, but doubt it. I'll give a clear example here. Brazil imports a hundred thousand tons of salmon every year. Did you know that if we want to raise salmon, we can already do it? But as salmon is a Cold Water fish? you produce it in Ceará, which is warm water? Yes, through technology, there is technology for that, so people find it interesting. It's a high cost, but it's a cost that pays for the salmon, it's high value-added, but people have doubts. We have entrepreneurs in Ceará interested in this, but they have doubts, so it's just an example that we need to spread. And then it's important this joint work of FUNCAP, the state government, the federal government, universities, and civil society, joint work of dissemination, dissemination of the development of these new technologies. All of these are actions that we have to work on from now on.

According to your experience, how can we ensure that the state continues to grow in terms of maritime economy and becomes increasingly global?

Within the Chief Scientist program for the maritime economy, we have some projects. I'll give 2 examples. We are going to be the first state to know exactly how much seafood is consumed per state planning region. So we already have the results from the metropolitan region, but we're going to all regions of the state to find out what seafood is consumed, when it's consumed, and what type of seafood is consumed. When you know exactly what you have, you can plan better. Another thing, we have another project that is measuring the economic contribution of seafood to the state's GDP. And our idea is to then measure wind energy, the issue of water sports, measure the contribution of each of these segments to the state's GDP. And then we will see how, after this diagnosis, we can see how to multiply this economic, social, and environmental contribution and thus transform Ceará, increasingly global, in all segments of the maritime economy.



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