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海洋委員會赴帛琉參與第7屆「我們的海洋大會」
彰顯我國海洋貢獻，成果豐碩

Ocean Affairs Council Participates in the 7th "Our Ocean Conference" in Palau
Highlighting Taiwan's Marine Contributions and Bountiful Results

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Ocean Affairs Council

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Working Towards Making the 21st Century the Maritime Century: Taiwan and France Walking into the Future, Hand in Hand!

Translated by Linguitronics

Minister of the Ocean Affairs Council: Chung-Wei Lee

The 7th "Our Ocean Conference" (OOC) was held from April 13 to 14 this year (2022). This issue's "Special Report" introduces the event, to which Taiwan was invited by the host country, Palau, to participate with official government titles. It also introduces the core concept of the conference, the promotion of Taiwan's participation, and a comprehensive reflection on the conference. Taiwan has intimately communicated and interacted with various countries through the participation and presentation in the plenary sessions, holding side activities, submission of marine commitments, and participation of youth representatives. It has also declared to all countries in the world Taiwan's determination to promote maritime affairs and its willingness to contribute.

Taiwan and France have a long-standing and close cooperative relationship in marine research and technology. As one of the important member states of the EU, France plays an important role in the decision-making of EU marine affairs. This issue focuses on reporting on France's maritime policy and development. The Secretariat General of the Sea (*Secrétariat général de la mer*, SGMer) has been invited to introduce France and its international agenda related to maritime challenges, as well as France's development in the offshore wind power industry. From February 9th to 11th of this year, the international "One Ocean Summit" held under the initiative of France advocated solutions for protecting the marine ecosystem, promoting sustainable fishing, combating plastic pollution, and ameliorating global change, as well as the 4 goals of the "Brest Commitments for the Ocean", such as updating of ocean governance. In view of the commitments of EU member states for carbon neutrality by 2050 and the Climate Energy Law passed by France in 2019, the SGMer also introduced the development of the offshore wind power industry which itself occupies a key position in the carbon neutrality plan, including important roles for captains, energy companies, grid operators RTE, and citizen participation and discussions in offshore wind power projects; the French Research Institute for Exploitation of the Sea (IFREMER), introduced the key research technologies in ocean observation and monitoring, marine research vessels and underwater system coordination, as well as a vast swath of research topics and a history of cooperation and exchanges between Taiwan and France. "Regulatory Systems" will introduce how France, in addition to setting up national parks, Natura 2000, species reserves, ecological reserves, cultural heritage sites, wetlands, and signing maritime conventions with other countries, has used these to manage the law of Les Parcs Naturels Marins (PNM) across its massive exclusive economic zone (EEZ). Taiwan and France have a long-standing and close cooperative relationship in marine research and underwater cultural assets. Thus, we also hope to engage in more exchanges and cooperation in marine affairs in the future, and work together to realizing the 21st century as the "maritime century"!

Ocean Affairs Council Participates in the 7th "Our Ocean Conference" in Palau Highlighting Taiwan's Marine Contributions and Bountiful Results

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Keywords: Our Ocean Conference, Our Ocean Palau, Climate change



Figure 1/ Group photo of the Heads of Delegations of participating countries
Source/ Official photo section on the official website of the conference

The "Our Ocean Conference" (OOC) is an initiative originally proposed by then US Secretary of State John Kerry (now special presidential envoy for climate, SPEC) in 2014 to rouse global attention to the ocean, which has a profound impact on human development and environmental sustainability. OOC calls on the global public and private sectors to take practical actions to fulfill their responsibility to protect the ocean. OOC participants include heads of governments, ministers, political and business celebrities, NGOs, and multinational corporations. Through this annual gathering, the participants exchange and share their experiences on ocean issues and build consensus among countries and civil society groups from around the world.

Beginning with the first OOC held in Washington, DC, USA, in 2014, the conference has been held by Chile, the United States, the European Union, Indonesia, and Norway from 2015 to 2019. This year's conference is the 7th and was organized by the host country, Palau, and the United States, the co-host country. Its theme for the year is "Our Ocean, Our People, Our Prosperity", and it is the first time being held by a Small Island Developing State. According to official statistics compiled by the OOC, more than 600 participants and 150 non-state actors of more than 70 countries' delegations participated in the 2022 conference.

The conference was originally scheduled for August 2020, but was postponed several times due to the COVID-19 pandemic; finally, it was set for April 13-14, 2022. In the past, due to international diplomatic and political factors, Taiwan sent scholars and experts to participate in a non-official capacity; this time,

however, it was officially invited by its diplomatic ally Palau. Taiwan President Ing-Wen Tsai appointed Tzi-Chin Chang, Minister of the Environmental Protection Administration, to lead relevant personnel of the Ministry of Foreign Affairs, Ocean Affairs Council (including the Coast Guard Administration and the Ocean Conservation Administration), and Fisheries Agency, as well as the International Cooperation and Development Fund (ICDF), to attend the meeting with their official government titles. Compared with the past, this is arguably a significant breakthrough.

The Ocean Affairs Council, together with relevant government agencies, started to prepare for the 7th OOC as early as 2019, more than two years before the conference. This time, Deputy Minister Dr. Ching-Piao Tsai of the Ocean Affairs Council and Director-General Dr. Julia Hsiang-Wen Huang of the Ocean Conservation Administration led professional staff to participate in the meeting. During the period, through participation and presentation of the plenary, the holding of side events, the submission of marine commitments, and the participation of young representative, there were intimate exchanges and interactions with various countries. Taiwan's determination and willingness to contribute to the promotion of marine affairs were thus declared to countries around the world.

The core concept of the OOC: "Make commitments, take action"

In their opening remarks, Palau President Surangel S. Whipps Jr., US special presidential envoy for climate John Kerry, and US President Joe Biden all pointed out: The survival of human beings depends on the oceans. It nourishes life, provides food, job opportunities, and energy. It also fulfills the important function of regulating the climate, and changes in climate and oceans impact the environment. Thus, it's time for humans to introspect, accept reality, face problems, and take more aggressive, determined, and innovative actions to change the situation.

This conversation clearly revealed the core concept of the conference: "make commitments, take action." Since its inception, the conference has focused on the world's ocean issues in six areas of action, namely:

- I. Advancing Marine Protected Areas for Communities, Ecosystems, and Climate.
- II. Tackling Marine Pollution.
- III. Confronting the Ocean-Climate Crisis or Towards an Ocean Solution for Climate Change.
- IV. Creating Sustainable Blue Economies.
- V. Advancing Sustainable Small-Scale Fisheries and Aquaculture.
- VI. Achieving a Safe, Just and Secure Ocean.

These six areas of action cover marine issues of global concern. Overall planning of the conference, including agenda design, speaker invitations, and side events are all carried out based on this framework; more importantly, each conference will hold a meeting for the six major areas of action to obtain "commitments" from the global public and private sectors; participants are also asked to provide updates on yearly implementation progress, making the conference an initiative with "promoting action" as its core concept. Since 2014, the conference has obtained more than 1,800 commitments from countries, entities, and organizations, altogether amounting to US\$108 billion and designating five million square miles of marine protected areas (MPAs). This conference alone garnered 410 commitments, amounting to US\$16.35 billion.

High-ranking officials from Taiwan attended the meeting with their official titles, breaking through long-running restrictions

Since 2019, the Ocean Affairs Council has started preparations for participating in the 7th OOC. It set four strategic goals, including "strive to raise the level of participation and expand into the international

space," "select advantageous topics and enhance substantial participation," "select outstanding representatives and participate in youth activities," and "apply for side events to expand participation." Through joint promotion of various ministries and associations, all goals have been achieved with fruitful results.

For the purpose of "raising the level of participation," the Taiwan delegation was led by Tzi-Chin Chang, Minister of the Environmental Protection Administration Ching-Piao Tsai, Deputy Minister of the Ocean Affairs Council; Chung-Kwang Tien, Deputy Minister of Foreign Affairs; Julia Hsiang-Wen Huang, Minister of the Ocean Conservation Administration; Timothy T. Y. Hsiang, Secretary General of the International Cooperation and Development Fund (ICDF); and other senior officials at the ministerial level. Also, professional staff from the Fisheries Agency and the Coast Guard Administration formed a delegation of more than 20 people. In the past, only scholars and experts could participate in their personal capacity, so this change has significantly broken through the previously restricted situation.

For "enhancing substantial participation," the Ocean Affairs Council, integrating various ocean-related ministries, submitted 14 commitments in six major areas of action, with a budget of US\$384 million; also, Acer made a commitment to tackle marine pollution in response to the conference's call for public-private collaboration.

In addition to the Taiwanese delegates participating in the entire plenary, the organizers also invited Minister Chang and Deputy Minister Tsai to make presentations on the second day of the conference. Minister Chang described Taiwan's environmental protection policies and achievements in the session on "tackling marine pollution", including the management of land-based waste, implementation of a series of "Salute to the Seas" policies such as coastal waste cleanup, abandoned fishing gear control, and river and land-source waste rejection. Minister Chang also displayed the OOC official island formal made by Taiwanese manufacturer Shinkong Synthetic Fibers Corporation using marine debris from Palau, showing Taiwan's determination to pursue the sustainable development of the environment. Deputy Minister Tsai proposed commitments on behalf of Taiwan in the session on "achieving a safe, just and secure ocean", including promoting implementation of the "Maritime Center and the Smart Navigation Safety System," enhancing maritime search and rescue capabilities, and combating cross-border criminals such as drug smuggling, thereby demonstrating Taiwan's efforts and contributions to promoting a safe and secure ocean. Since the agenda is only two days long, representatives from public and private sectors around the world are all competing for exposure at the plenary. The organizer gave two official representatives of Taiwan the opportunity to speak on the stage at the plenary, a high-level courtesy and an affirmation of Taiwan's contribution to the ocean.

As for "participating in youth activities," cultivating youth to participate in marine affairs actively is one of the key tasks of the Ocean Affairs Council. The outstanding youth representative selected and recommended by the Ocean Affairs Council—Huai-Pu Chen from the Department of Electrical Engineering of National Taiwan University, stood out among the 490 global candidates from 110 countries and was selected as Youth Delegate of the conference, becoming the first youth representative in Taiwan to participate in the OOC. As a delegate, Chen communicated with youth representatives from the Cook Islands, Palau, the Maldives, Panama and other countries, and engaged in dialogues with senior officials from the United Nations, US NOAA, and NASA, thereby setting a foundation for Taiwan's international exchange on ocean affairs.

In "applying for side events," since this conference is the first time being hosted by a Small Island Developing State, in order to highlight the severe challenges of climate change to the marine environment



Figure 2/ Deputy Minister Tsai of the Ocean Affairs Council expresses Taiwan's commitment to "Achieving a Safe, Just and Secure Ocean" area of action

Source/ Official photo section on the official website of the conference

and coastal communities as well as the ecological impact caused by marine debris and pollution, Taiwan held a total of four side events, including two static exhibitions and two side meetings. One of the static exhibitions was co-organized by the Ocean Affairs Council and the ICDF, and was titled "Taiwan Ocean Action Exhibit-Blue Ocean Green Future," which presented Taiwan's effectiveness in marine debris management. It was approved by the organizers of the conference as an official side event and exhibited at the Palau National Gym; in order to expand the promotion of Taiwan's blue economy concept, the second static exhibition was held at the Palau Royal Resort under the theme of "Toward Zero Emission and Zero Waste Future," and invited about 70 dignitaries from Palau, ambassadors to Taiwan for Belize, St. Vincent, and St. Kitts and Nevis, and representatives from the public and private sectors of the United States, Japan, and other countries. As part of the side meetings, the ICDF, the United States Agency for International Development (USAID), and the Palau government jointly organized the side meeting on "Climate Resilience and Sustainable Development in Small Island Developing States". In addition, the ICDF and the Austronesian Forum jointly organized the "Nature-Based Solutions - Austronesian Ethnic Perspectives", to which were invited Taiwanese experts and scholars, including Director-General Huang of the Ocean Conservation Administration and Dr. Chun-Fa Tung, Honorary Professor of the College of Indigenous Studies, National Dong Hwa University, as panelists to share Taiwan's opinions and suggestions.

In addition to the main activities of the conference, the Embassy of the Republic of China (Taiwan) in the Republic of Palau arranged for a delegation to visit the Rock Island for ecological visits and green sea turtle release activities. The green sea turtles released this time were discovered by the Palau Coast Guard in the Rock Island in 2021. After being nurtured by the Aquaculture Project Center of Taiwan's Technical Mission in Palau, they were of a size appropriate to release back to the sea in April 2022. The act shows Taiwan's contribution to Palau's marine ecological conservation. Moreover, in order to show the unwavering friendship between Taiwan and Palau, the Coast Guard Administration dispatched the vessel "Tainan (CG126)" to conduct a joint patrol mission with Palauan counterparts. A solemn and grand flag-raising ceremony held at the port on the morning of April 16, 2022 symbolized a milestone in the collaboration on joint patrols between Taiwan and Palau.

Overall Observation of the conference

I. Emphasizes the issues of the ocean-climate nexus from the perspective of a Small Island Developing State (SIDS)

Since the IPCC Special Report on the Ocean and Cryosphere in a Changing Climate was approved in 2019, the importance of the ocean in the issue of climate change has been given more attention

increasingly. The terminology of the "Climate Change" action field of this conference also deliberately added the "ocean" element, to rewrite it as "Confronting the Ocean-Climate Crisis". President Surangel Whipps, Jr. of Palau also delivered a speech, emphasizing that island countries are at the forefront of the dual challenge of climate and ocean. By hosting this conference, Palau conveys a message to the world about how vulnerable it is to these challenges. Protecting the ocean to restore its health and resilience and developing ocean-based climate solutions have become the core conceptual through-lines of the OOC.

II. Weighs the concept of indigenous-led marine conservation

In addition to the need for cross-border, cross-government, and cross-departmental cooperation to protect the ocean, this conference also highlights cross-ethnic and cross-age group participation. In addition to the traditional performance at the conference's opening ceremony, Tongan singer/songwriter Mia Kami was invited to sing her song "Rooted" live in the plenary, to bring hope to the people of the Pacific and this region and emphasizing ancient connections with the ocean. The conference also arranged a special Indigenous-led Conservation. Other areas of action invited moderators and participants with indigenous ancestry to share the wisdom, history, culture, and other aspects of the indigenous peoples, thus showing inexorable connections between the indigenous peoples and the ocean.

III. The core concept of the conference "Make commitments, take action" is in the details

Land-based waste is one of the main sources of marine pollution, and Small Island Developing States are heavily affected by marine waste. The organizer took the lead in implementing the core concepts of the conference in many small places, including the conference not providing paper materials, not selling souvenirs, light food, or drinking water, which can only be collected at the supply station, and entirely using recyclable materials instead of plastic products. Not only at the conference, but also at the official closing reception, no plastic tableware was provided; instead, it used natural materials such as leaves and bamboo forks for guests to use for eating, thus avoiding excessive unnecessary packaging and implementing the commitment to reduce the use of disposable plastics to achieve source reduction.

Conclusion

This conference is one of the very few multilateral international conference venues in which Taiwan was able to participate with fair and reasonable treatment in recent years. It fully demonstrates the long-standing and substantial friendship between Taiwan and Palau. With various government agencies seizing the opportunity and working together, abundant results have been achieved in diplomacy, politics, and maritime expert fields; the next conference is tentatively set to be hosted by Panama in March 2023; Panama also announced that "transparency" will be an important element of the next conference, and encourages participants to make new commitments to support transparent fisheries and maritime transport, use innovative technology and scientific data to combat IUU fishing practices, overfishing, and marine resource depletion. In the future, the Ocean Affairs Council will continue to strive for equal opportunities to participate in international arenas actively, promote multilateral international exchange, deepen people-to-people ties with like-minded countries, and drive momentum for more international participation.

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France and the International Agenda on Maritime Challenges

Denis Robin (Secretary General for the Sea)

Keywords: One Ocean Summit, Brest commitments

France has the second maritime domain in the world, which comes along with unique responsibilities regarding its international maritime agenda. Some of them will grow of major importance in the coming years.

The seas and oceans are a source of food, energy and raw materials, a medium for tourism, transportation and trade, and can provide solutions to many global policy challenges. However, the oceans are neither inexhaustible nor immune to damage. Human activity creates pressures on land, brings dangerous pollutants into the ocean, including plastic waste, releases carbon into the atmosphere that leads to warming and acidification of the oceans contributing to the destruction of biodiversity, or sea level rise that threatens the world's coasts.

The ocean, which covers more than 71% of our planet's surface, is of major importance to the global climate system. It absorbs more than 25% of the CO₂ emitted by humans into the atmosphere every year and provides 50% of the oxygen produced on Earth. It also absorbs more than 90% of the heat from greenhouse gas (GHG) emissions, thereby limiting the warming of the air we breathe and playing an essential part in climate regulation.

The 2021 World Ocean Assessment (WOA II) is the major output of the second cycle of the United Nations Regular Process for Global Reporting and Assessment of the States of the Marine Environment, including Socioeconomic Aspects. This report updates the first World Ocean Assessment, providing scientific information from over 300 experts on the state of the marine environment. The study raises alarm on the decrease of the benefits brought by the ocean to the ecosystem: *"the benefits provided by the ocean are increasingly undermined by human actions"*, said the UN Secretary-General, who qualified the findings as alarming. Moreover, today, 90% of world trade, i.e. what we consume on a daily basis, transits through the sea. Globalisation has thus led to a strong dependence on the security of the world's main maritime routes, which pass through straits where traffic can be interrupted.

This is why France is increasing its fight against direct threats, such as piracy and terrorism, but also and above all ensures that the principle of free movement of ships is respected. In order to lead and coordinate the development of the Government's maritime policy, the French Prime Minister created in 1995 a dedicated General Secretary for the Sea, whose role is to propose actions and decisions and to ensure the implementation of the French maritime policy, transversally with the different Ministers having Seas and Oceans subject in their portfolio.

Recently, on the initiative of the President of the Republic, an International Ocean Summit was held in Brest from 9 to 11 February 2022. The "One Ocean Summit" gave a strong political impetus to the international agenda of maritime issues, in particular to bring to a successful conclusion the multilateral negotiations that have an impact on the ocean and to feed the UN Ocean conference (Lisbon, end of June 2022). France has thus shown its willingness to translate the world's shared responsibility in terms of protection of the ocean into concrete actions and commitments in order to raise the international level of ambition. The goal of the summit indeed was to increase the level of commitment of the international community to reduce human pressures on the ocean.

The international agenda and the upcoming multilateral meetings on the protection of the ocean in 2022 represented an opportunity to bring a strong political impetus to the international agenda on maritime issues: Our Ocean Conference 2022 (Palau, 13-14 April 2022), 4th round of negotiations of BBNJ (March 2022), United Nations Ocean Conference (27 June-1 July 2022, Lisbon).

This summit was the first of its kind, prepared in cooperation with the UN and the World Bank, as well as with numerous public, private and civil society partners. It brought together 41 states, representatives of civil society and businesses.

*41 states: Germany, Barbados, Canada, China, Cyprus, Colombia, Comoros, Congo, Republic of Korea, Costa Rica, Ivory Coast, Croatia, Egypt, Spain, United States, France, Gabon, Ghana, Greece, India, Ireland, Iceland, Italy, Japan, Madagascar, Malta, Morocco, Mexico, Monaco, Namibia, Norway, Palau, Panama, Papua New Guinea, Portugal, United Kingdom, Senegal, Seychelles, Tanzania, Tonga, Tunisia.



Source/ Département
vidéo de la
Présidence
de la République

The "Brest commitments" which were adopted during the high-level segment are divided into four general objectives: I. the protection of marine ecosystems and the promotion of sustainable fishing; II. the fight against pollution, in particular plastic; III. an ocean of solutions to climate change; IV. the renewal of ocean governance.

The protection of marine ecosystems and the promotion of sustainable fishing

I. New Marine Protected Areas to reach 30% of marine protected areas by 2030

The creation of protected areas is an essential pillar of the preservation of biodiversity. In this framework, more than 30 new countries joined the High Ambition Coalition for Nature and People which was launched at the One Planet Summit in January 2021, which means that 84 countries now share the goal of protecting 30% of the world's land and seas by 2030.

Moreover, France, Italy, Spain and Monaco committed to reduce and limit speed of ships to protect marine biodiversity in the Mediterranean Sea, and Colombia announced its intention to protect 30% of its EEZ at the end of the current year. France has claimed to have reached 33% of marine protected areas on its territory – thanks in particular to the extension of the French Southern and Antarctic Reserve.

II. End overfishing and verify, control and punish illegal, unreported and unregulated fishing

Illegal, unreported or unregulated fishing accounts for almost a fifth of the world's catch, and undermines efforts to manage fish stocks sustainably. It often comes along with very degraded safety and working conditions for fishermen. 14 countries participating in the One Ocean Summit committed to strengthening the fight against illegal fishing on several fronts:

- 6 countries have committed to ratify the International Maritime Organization's Cape Town Agreement before the October 2022 deadline, which will finally be able to come into force and set safety standards for fishing vessels.
- 2 new countries will ratify the FAO Port State Measures Agreement, which allows for better monitoring of fishing activities at landing ports.
- Several Member States of the European Union have committed to mobilize their State Navy on external missions to strengthen surveillance of illegal fishing, in accordance with the 2008 EU Regulation.

New commitments are expected in order to fight against illegal fishing: as the 12th World Trade Organization (WTO) Interdepartmental Conference takes place in 2022, Emmanuel Macron called on the WTO to ban all subsidies contributing to illegal fishing in 2022. A call that therefore does not concern overfishing while target 6 of SDG 14 on the conservation and sustainable exploitation of ecosystems, which will be assessed at the Lisbon conference on the ocean, aims to prohibit any subsidy contributing to overfishing.

The fight against plastic pollution

9 million tons of plastic are dumped into the ocean each year, 80% of which comes from the coasts and rivers. The fight against pollution was at the heart of the debate, as it affects the entire ocean, has direct consequences for marine ecosystems and human populations. Hage Geingob, President of Namibia, spoke on behalf of the developing countries, which are the main victims of these pollutions: *"We do not produce plastic and yet we are the first to suffer the consequences."*

In order to face the challenge of plastic pollution, the States have called for the adoption of a legally binding treaty on plastic pollution, which has been under discussion for several months, and whose importance was reinforced at the COP26 for Climate in Glasgow and COP22 of the Barcelona Convention. The launch of these negotiations will be discussed at the 5th United Nations Environment Assembly (UNEA), which will take place from 28 February to 2 March in Nairobi. Such an initiative *"will provide a binding international framework to make this commitment a real treaty for the end of single-use plastic"*, according to Emmanuel Macron.

At the Summit, the European Bank for Reconstruction and Development (EBRD), and the European Investment Bank (EIB) have announced to join forces with the French, German, Italian and Spanish development banks to develop the Clean Ocean initiative. This initiative is the largest one dedicated to reducing plastic pollution at sea. Their financial contribution to the fight against plastic pollution should be doubled and reach a total of €4 billion by 2025.

The Summit also allowed Greece, Italy, Colombia, Republic of Korea, the City of Paris and the Central Greece Maritime Region to join the "global commitment to a new plastics economy": the initiative aims at accelerating the transition to a circular economy. India and France jointly launched a multilateral initiative on the elimination of single-use plastic pollution.

An ocean of solutions to fight global change

I. Decrease the environmental impact of maritime transport

The strong growth of maritime transport, driven by world trade, requires a rapid and strong reduction of its nuisances and correlated damages. In this aim, 22 European ship-owners committed to the new Green Marine Europe label, applying very concrete measures in eight areas: underwater noise, polluting air emissions, greenhouse gas emissions, aquatic invasive species, waste management, oily discharges and ship recycling.

In order to reduce air pollution, all Mediterranean countries, and the European Union, have pledged to ask the IMO to create a low sulphur emissions area throughout the Mediterranean on 1 January 2025. France, Spain, Italy and Monaco will also ask the IMO this summer for the creation of a Particularly Vulnerable Maritime Zone in view of the strong presence of cetaceans, in order to limit the speed of navigation and thus reduce collisions.

II. Protect and restore marine ecosystems

The ocean plays a decisive role in the fight against and adaptation to climate change. Some marine and coastal ecosystems (salt meadows, underwater meadows or mangroves) have the capacity to absorb and store large amounts of carbon.

France and Colombia have launched an international blue carbon coalition, which will bring together national and multilateral actors in this field to help finance the restoration of coastal ecosystems, based on shared common and rigorous methodologies.

Many heads of state and business representatives have highlighted the potential of ocean-based solutions to effectively combat and adapt to climate change during the Summit. While the island States (Fiji, Tonga, Palau) have recalled the dramatic consequences of sea-level rise and extreme events on their lifestyles and cultures, the restoration and conservation of coastal ecosystems have been put forward as necessary measures for mitigation and adaptation to climate change. Henry Puna, Secretary General of the Pacific Islands Forum, recalled the claim from the Pacific Islands Heads of State in the framework of the "Declaration on the Preservation of Maritime Areas in the Face of Rising Sea Levels Linked to Climate Change" signed in August 2021. Ahead of this high-level segment, the Sea'ties Forum was also held as part of the One Ocean Summit, bringing together more than 30 mayors and governors from coastal cities around the world – from Stockholm to Bangkok, Jakarta and Lagos. On this occasion, they signed the Sea'ties Declaration calling on national governments and the international community to intensify mitigation and adaptation measures in order to limit the impacts of sea-level rise on coastal cities, the territories and their communities.

The renewal of ocean governance

The One Ocean Summit is the starting point for a series of international events to which the ocean will be central, including the United Nations Ocean Conference in Lisbon in June, but also the COP27 hosted by Egypt in the fall.

Building on this achievement, France and Costa Rica have proposed to organize together in 2024 the next United Nations conference on the Ocean.

The digital revolution is an opportunity to build an integrated model of the ocean, covering physics, chemistry, marine life and human activities. A "digital twin" of the ocean, whose implementation was

announced during the Summit, should be able to inform policy decisions and monitor their effects, enable the marine economy to develop in a way that respects ecosystems and foster dialogue with stakeholders and the public.

The European Union is committed to develop this digital ocean twin that will bring together knowledge and test action scenarios for European blue growth and global governance.

UNESCO is committed to mapping at least 80% of the seabed by 2030.

Ahead of the fourth intergovernmental session on an agreement for the conservation and sustainable use of marine biodiversity beyond national jurisdictions (BBNJ) that was held in March in New York, the Heads of State recalled the urgency of finding an operational agreement by the end of the year. With this in mind, the 27 Member States of the European Union as well as 16 third states have announced the launch of the "High Ambition Coalition for a High Seas Treaty".

France and the Development of the Offshore Wind Industry: State of Play

Anne Legrégeois (Maritime Economy Project Manager, SGMer)

Keywords: offshore wind industry, Climate Energy Law

While scientists are converging on the urgency to act against climate change, the recent report of the Intergovernmental Panel on Climate Change (IPCC) [1], published last fall, reminded us of the importance of reducing greenhouse gas emissions very quickly to limit the potentially catastrophic effects of climate change. The COP26 (26th Conference of the Parties of the United Nations Framework Convention on Climate Change - UNFCCC [2]) organized in November 2021 in Glasgow, Scotland, led to new commitments and actions for the coming decade. Indeed, the transformation needed to move away from fossil fuels must be completed in just three decades and accelerate substantially by 2030.

Some might consider the efforts to be made by a single country to meet its climate commitments to be futile or negligible, given its share of global emissions (about 1% for France). However, in France, as in all industrialized countries, per capita emissions remain above the world average, even more so when the carbon impact of imports is taken into account ("carbon footprint").

An important factor in achieving carbon neutrality by 2050, to which the Member States of the European Union (and France through the 2019 Climate Energy Law) have committed themselves, the installed offshore wind power capacity in Europe is currently 12 GW and must increase to 300 GW by 2050 according to the ambitions and projections of the European Union, representing 20% of total energy production, compared to 3% today. Of this 300 GW, France has a potential of 49 to 57 GW. France is preparing to take an active part in this European objective.

In France, different options have been studied to achieve carbon neutrality in 2050. These options have some common features (lower energy consumption, higher share of electricity, use of renewable energies) but also significant differences in terms of the rate of change in consumption and its distribution by use, the development of industry, the future of nuclear power, and the role of hydrogen.

Last October, the French electricity grid operator, Réseau de Transport d'Electricité (RTE) finalized and published its analysis entitled "Energy Futures 2050" [3] in response to the need to document the options available for energy decarbonization in France. It describes the technical evolution of the energy production system, quantifying the associated costs, detailing the environmental consequences in the broadest sense and explaining the implications for lifestyle.

Several scenarios have been elaborated, each one giving an important or even very important place to offshore wind energy. Indeed, wind power has been perceived as a source of decarbonization but also as a way to improve the robustness of the electrical system and its resilience, by allowing the diversification of the energy mix.

A turning point is being taken to lead simultaneously an accelerated energy policy towards decarbonization and a coherent and efficient industrial policy.

The affirmation of the domestic market and French players

France has been supporting the development of offshore wind energy for 10 years. Three competitive bidding processes for offshore wind farms were launched in 2011, 2013 and 2016. They total 3.6 GW of planned installed capacity, and are divided into seven projects (4 on the Eastern

Channel - North Sea and 3 on the North Atlantic - Western Channel). In addition, four floating wind farms were awarded in 2016. Currently, the calls for tender launched for commercial wind farms represent 2.5 GW for an installed capacity between 2028 and 2029 (1 GW in Channel, 250MW floating in South Brittany, twice 250MW floating in the Mediterranean and 500 to 1GW in the South Atlantic).

I. The new course set in 2022

In 2022, France has set a clear and determined goal of 40 GW of installed offshore wind power by 2050, representing about fifty wind farms in its territorial sea or exclusive economic zone. This new course was set following the report of RTE [3] which, as recalled by the French Minister of Ecological Transition and Solidarity during its presentation in October 2021, directed in any case to double the pace of offshore wind power from 1 to 2 GW per year, in order to have installed and commissioned between 2,000 to 4,000 offshore wind turbines by 2050.

This is how the two vectors of the offshore wind industry development have been accelerated: on the one hand, the creation of the French market for the production of energy from offshore wind turbines, and on the other hand, the industry associated with this market itself (which is also oriented towards export). This deployment and its necessary acceleration constitute an opportunity for each of the actors of the French maritime sector, but also for the countries of export of French goods and services associated with offshore wind energy.

II. Which offshore wind actors, for which needs?

Ports are real industrial tools and are the vector for the deployment of fixed and floating offshore wind farms and their operations and maintenance. French ports are preparing to increase the surface areas dedicated to the construction and storage of wind turbines and their fixed or floating foundations. This involves both the land area (polders) and the water area. A challenge is woven around the necessary investments and authorizations that France is working to facilitate. For both land-based and floating wind energy, the port is a logistics hub with a crucial role.

The shipowners are other key actors. They face the challenge to be able to mobilize investment capacity in specialized vessels very early in the bidding process. This investment capacity is all the easier to stimulate if energy and maritime spatial planning provides visibility and a known timetable as far upstream as possible, which is what France is doing.

The following ship-owning activities are already being carried out by French shipowners in the service of offshore wind energy beyond the French market: transfer of personnel to and from electrical substations and to wind turbines for their maintenance installed at sea; arming of light nautical means; laying of power and optical cables; protection of cables; maintenance work; construction and supply of CTVs (Crew Transfer Vessels). The further the wind farms are from the coast, the greater the need for a large number of them, DSVs (Multipurpose Vessels) and SOVs (Service Operation Vessels) with the capacity to accommodate personnel on board, along with ROV (Remotely Operated Vehicles) services for underwater operations or inspections. The fleet is becoming greener, to be consistent with the purpose of the wind farms themselves. Floating wind power brings a lot of new perspectives to the sector, by using a fleet that is "lighter" than the one used for land-based wind power (which is also a fleet that is pre-existing wind offshore industry. Bourbon, a historical player in the Oil & Gas industry, is a key French player, due to its leading position in the installation of floating wind farms: installation of anchors and cables, towing, with several projects already completed [Portugal and Scotland]).

The integration of the turbines to the float can be done on land, in port, and the transport on site will mobilize more maneuvering and support vessels than imposing lifting vessels. The positioning and anchoring of floats equipped with their turbines, on site and the connection of dynamic cables will also require "lighter" vessels. These vessels will be more standardized (freight assistance, intermediate constructions at sea) and will make it easier to capitalize on pre-existing and adapted French fleets. On

the French market, we still need to develop the fleet dedicated to research campaigns and data collection on areas dedicated to the installation of wind turbines, the fleet for transporting components to be mounted in the port or on site, port and maritime services that are key to the value chain for floating wind. Eventually, a fleet of vessels dedicated to repowering and then dismantling the fields will be required.

A strong mobilization in terms of number of vessels is anticipated in any case. A large volume of ships and barges construction will be associated with this. This could be a development opportunity for French shipyards, but will require the world's shipbuilding industry to step in. With regard to the latter, and if we look ahead to 2030 and the context of renewal of the world fleet of cargo ships, we can ask ourselves whether the supply will be able to meet the demand (Chinese shipyards are increasingly dedicated to the construction of the domestic fleet).

Energy companies are also a key to success: a deep and mutual knowledge of the ecosystems of the different sectors of the industry is essential. Engineering firms and manufacturers are also mobilized through the laying and floating of foundations, towing, anchoring, installation of sub-assemblies, unwinding of cables, lifting and installation of heavy packages, and commissioning of the installation.

RTE, the French electricity grid operator, is a key player in the deployment of offshore wind energy and is responsible for connecting the wind farms to the electricity grid, including the development of the network and interconnection of the different park. The integration of renewable energies, the development of electricity markets and the establishment of regional cooperation require in-depth adaptation of network design and operation. An adequate regulatory framework for the electricity system is essential for these changes to take place successfully. RTE's entity dedicated to international market (RTE International) has teams dedicated to the assistance of authorities (Ministries of Energy, regulators, network operators) to design or develop the regulatory framework for the electricity sector in order to adapt it to new conditions. With extensive experience both in Europe and worldwide, RTEi has the ability to find solutions adapted to each context.

III. Local content: a shared objective with Taiwan

In Taiwan, the Taiwan Bureau of Energy (BoE), in response to industry feedback, has modified local content requirements several times since the first draft, but it appears they remain a major issue for developers. This results, for example, in the requirement that all economic activities in marine engineering and design engineering be local.

In France, and more broadly in Europe, the same work is being carried out to encourage local content on a European scale in order to lower the costs of this decarbonized energy on the one hand, and to create as many jobs as possible on the European territory, for the benefit of the structuring of this sector, which remains emerging.

Confirmation of the existence of French offshore wind energy sector: the opportunity of floating wind energy

I. From land-based to floating

In the European context, and with regard to wind power, the proactive public policies of Germany, Denmark, the Netherlands and the United Kingdom have enabled non-French value chains to structure a dominant position in installation activities thanks to fleets of ships specially equipped for offshore wind power and to experience acquired in heavy work in the North Sea.

However, France is now particularly supportive of floating wind power. The domestic market depends on it, with the objective of improving the acceptability of local populations on the one hand, and the installation of wind farms in areas too deep for land-based wind power on the other, particularly in the Mediterranean. Industrial export opportunities have also been identified.

French offshore wind energy players, particularly floating wind energy, offer industrial solutions and are gathering references, whether they are design and engineering providers (Dedicated for instance to the development of multi-use, multi-project platforms, coupling with hydrogen production, and the development of maintenance strategy with equipment manufacturers.), project developers, builders (Including [but not limited to] the following companies: Chantier de l'Atlantique [CDA] builder of offshore platforms [OSS] for foundations and topside, Nexans, CNB, chantier Allais MSI, Alumarine, Ocea, Socarenam, Piriou, Navalu.) or shipowners (We can mention for example the following companies: Atlantique Maritime Services [AMS] Lamanage, VDC Offshore, Chambon, CERES, JifmarOffshore Services, Finist'Mer, Louis Dreyfus Armateur Group, Prolarge, TSM group.). They are supported by the initiatives of international players involved in projects in France and abroad.

To date, the French MRE sector represents nearly 5,000 direct jobs with €1.5 billion in investments for a turnover of €833 million.

II. The French strategy to accelerate decarbonized energy in favor of floating wind power

The development of floating wind energy will be an opportunity for many French companies to diversify their activities and will be one of the major levers to reach the French objective of 40 GW of installed offshore wind power capacity in 2050, as announced by French President Emmanuel Macron on the day before the opening of the One Ocean Summit. On November 19, 2020, the European Commission released its long-term strategy for marine renewable energy. While there is currently only 12 GW of installed capacity on the coasts of European Member States (the vast majority of which is wind power), the objectives put forward are ambitious: 60 GW of marine renewable energy must be installed by 2030 and 300 GW by 2050. Due to constraints in terms of depth and spatialization, a significant part of this capacity to be installed will be with offshore wind floating technologies.

Floating wind energy is still at a pre-commercial stage of development, but several factors point to a major boom in the period 2020-2030:

- a decline in production costs that is expected to be faster than that which has occurred for land-based wind, particularly due to rapid growth in turbine size and greater confidence in the technologies among players;
- the opening of large areas for offshore wind energy development by removing the obstacle of the depth of the sea bed. As part of France 2030 and in particular the "Advanced energy systems technologies" acceleration strategy, nearly €1 billion will be devoted to the emergence of innovative solutions in the field of photovoltaics, floating wind power, energy networks and accelerating the industrialization of renewable energies.

III. What are the advantages of France in the deployment of floating wind energy?

This strong development of floating wind energy will lead to a race for industrialization giving many French companies the opportunity to diversify their historical activities, i.e. Oil & Gas, marine construction, developers/energy companies. Thanks to the four pilot farm projects financed within the framework of France 2030 and the awarding of the first commercial floating wind farms scheduled for 2022 and 2023, France is now one of the most advanced countries in the development of commercial floating wind energy.

However, it remains for France to take advantage of this positioning to develop a large-scale floating wind industry on our own territory. The presence of the industry would enable France to rely on its own significant engineering and production capacities that already include highly valued segments of offshore wind energy: development and studies, nacelles and blades (the world's largest wind turbine blade in the world was built in France), and electrical engineering for substations and cables. Currently, there are 460 companies positioned along the entire production chain, ready to grow the industry further.

The "Advanced Energy Systems Technologies" acceleration strategy will enable the financing of innovative projects and the development of French ports. The strategy is designed to support the development of new generation floats. These new concepts, integrating a high degree of hydro-aerodynamic coupling between the wind turbine, its floating support, its anchoring and its export cable, are major levers to reduce the costs of floating wind energy making it a viable and competitive solution by 2030.

The State is committed to contributing to the development of a French floating wind industry in terms of construction or assembly of floats and installation of turbines at the dock. This development should enable certain ports, currently dependent on fossil fuels, to diversify and turn to renewable energies. The State will finance, in a first step, the elaboration of an inventory of the ports and lands likely to host floating wind energy activities. In a second phase, the State will help finance projects to modify port infrastructures in order to accommodate industrial production and assembly capacities for floats, launching capacities and installation capacities for turbines at the quayside. Projects for industrial sites for the assembly of floats and factories for substructures or sub-components of floats will also be supported.

The support of technological building blocks aims at accelerating the reduction of costs. The strategy could support the development of more powerful turbines better suited to floating wind turbines, the development of rare earth-free generators, lightweight nacelles and recyclable blades. It can also support the development of direct current connection solutions, floating substations and dynamic high voltage electrical cables. Projects that improve the acceptability of offshore wind farms, especially floating ones, can be supported.

No offshore wind energy without acceptability: the experience of the public debate

It is also necessary to put in comparison the question of the acceptability by the local coastal populations and the users of the maritime spaces dedicated to the installation of the wind farms. It is all the more important initially, the weakness of the generated local employment is sometimes decried, as well as the denouncement of damage to aesthetics and the marine environment. Conflicts of uses on the concerned zones are also anticipated, and particular attention is constantly paid to the public debate.

In France, for each offshore wind project, the French National Commission for Public Debate (CNDP) is tasked with organizing public participation. Since 2018, the French law for a State at the service of a trustworthy society, known as the "ESSOC law", the referral is made by the State upstream of the competitive bidding procedure. The public is thus involved as early as possible in the definition of projects, particularly to inform the decision on the location of the wind farm and its offshore connection.

After these debates, the French local commissions for public debate (CPDPs) produced a report and the CNDP drew up an assessment. In response, the State has submitted a report detailing the lessons it has learned from the public debate and specifying the responses it will provide.

The law on the acceleration and simplification of public action (ASAP) of 2020 provides for the possibility of public debates on the development of several offshore wind projects on the same coastline over period of several years.

From the modalities to work on the acceptability of offshore wind projects to the ability to cross energy planning and maritime spatial planning to reconcile uses in the impacted areas, it remains a daily challenge for public authorities and developers to successfully and efficiently carry out their design, construction and maintenance projects of offshore wind farms.

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The French Ministry of the Sea and its Major Maritime Policies

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The French Ministry of the Sea (Ministère de la Mer) was established in 1981 in the era of French President François Mitterrand. Since then, when each prime minister formed a cabinet, the powers and responsibilities of the ministry were adjusted. Aside from the fact that cabinet members of different levels were appointed as the minister or a representative of the ministry, there have also been many cases where there were no such cabinet members for several years [1]. On May 15, 2017 French President Emmanuel Macron appointed Édouard Philippe as Prime Minister. Ever since Alain Vidalies, the former Secretary of State for Transport, Oceans and Fisheries (Secrétaire d'État aux Transports, à la Mer et à la Pêche), left office, the Ministry of Ecological Transition and Solidarity (Ministère de la Transition écologique et solidaire) assumed responsibility for ocean affairs until President Macron stressed the importance of maritime strategy [2] at the French Ocean Economy Summit in December 2019 and in a televised speech on June 14, 2020, when the Ministry of the Sea was reinstated into the cabinet of the new Prime Minister Jean Castex. Born in the seaside city of Saint-Malo, Ms. Annick Girardin, the then 3-year Minister of the Overseas, was officially appointed as the Minister of the Sea on July 7, 2020. Although the powers and responsibilities of the Ministry of the Sea have undergone many changes, as one of the important EU member states, France plays a vital role in the decision-making of EU maritime affairs. This article attempts to introduce the responsibilities, composition, and important maritime policies of the Ministry of the Sea by reviewing much of the relevant literature in French, in hopes that the content of this article can provide reference for those interested in maritime affairs in Taiwan.

What are the responsibilities of the new French Ministry of the Sea?

The current Minister of the Sea is Annick Girardin, and there were only two Ministers before her: Louis Le Pensec, who served from 1981 to 1983 and 1988, and his successor, Jacques Mellick, appointed as the Minister Delegate in charge of the Sea (1988-1991) [3]. The former resigned in 1983 because the then Prime Minister proposed that he become the Secretary of State for Transport. After the return of the Ministry of the Sea, he emphasized that there were fundamental differences between a minister who could fully exercise his functions and powers and a minister who is a subordinate of the Prime Minister or is under the jurisdiction of other ministers and secretaries of state. The mayor of Quimperlé, Michaël Quernez, who is also the president of the Bretagne Docks Association and the president of the United Fisheries and Recreation Union, said that the Minister of the Sea is a lateral and cross-departmental position that has to deal with maritime activities and transport, ecology, energy transition, resources, territorial planning, and tourism affairs. This is why the country needed a Minister of the Sea.

As Annick Girardin stated in her inauguration manifesto: "France has a maritime exclusive economic zone of more than 11 million square kilometers, with more than 391,000 marine jobs, and its biodiversity accounts for 10% of global biodiversity. Therefore, taking over as the Minister of the Sea will be a great challenge for me" (see P.18). The public is also quite concerned about how the new minister will lead the Ministry of the Sea. Thereupon, she began by proposing four key factors for the reforming of the Ministry of the Sea: Training, Growth, Sovereignty and Solidarity, as the first step toward making the 21st century the "maritime century" [4]. The duty of the Ministry of the Sea is to formulate and implement national and international policies in different aspects of the maritime domain. Its responsibilities cover maritime services and national maritime operations, ocean and coastal territories, marine culture and exploration, seafarers and professions, sea shipping and marine industries, and aquatic products [5].

Organizational Structure of the Ministry of the Sea

The organizational structure of the Ministry of the Sea includes three major parts: the central administration, state administration services, and local services.

I. Central Administration (Administration centrale)

The central administration of the Ministry of the Sea consists of the General Secretariat (Secrétariat général), the General Inspectorate of Maritime Affairs (Inspection générale des affaires maritimes, IGAM), and the Directorate of Maritime, Fisheries, and Aquaculture (Direction des affaires maritimes, de la pêche et de l'aquaculture, DGAMPA). It is worth mentioning that 18 months after the establishment of the Ministry of the Sea (March 2 2022), the Directorate of Maritime, Fisheries, and Aquaculture was established by the merger of the former Department of Maritime Affairs (Direction des affaires maritimes, DAM) and the former Department of Marine Fisheries and Aquaculture (Direction des Pêches Maritimes et de l'Aquaculture, DPMA); it is jointly managed by the Minister of the Sea, the Minister of Agriculture and Food [6]. From this, the French government's vision for maritime sustainable development is evident.

The Minister of the Sea also participates in the affairs of the General Secretariat (Secrétariat général de la mer, SGMer), cooperates with the Minister of Ecological Transition and Solidarity, the Minister of Agriculture and Food, and Minister of European and Foreign Affairs, and is appointed by the Prime Minister as the Chairman of the Inter-ministerial Committee for the Sea (Comité interministériel) de la mer, CIMer and the chairman of the National Council of the Sea and Coast (Conseil national de la mer et des littoraux, CNML).

II. State Administration Services (Services à compétence nationale)

- i. Armament Bureau of Lighthouses and Signals (Armement des phares et balises, APB): Led by a fleet of about 20 ships, the APB carries out the tasks of installing and maintaining marine signaling devices along the coast of France for the purpose of warning and marking routes and port canals to ensure marine navigation safety.
- ii. National School of Safety and Administration of the Sea (École nationale de la sécurité et de l'administration de la mer, ENSAM): Committed to the training of French, European, and international civil servants specializing in the management of maritime affairs, including maritime administrators, maritime inspectors and national public work engineers [7].

III. Local Services (Services déconcentrés)

Including the Directorate of Interregional Maritime of France and the Directorate of Overseas Maritime

(DIRM dans l'Hexagone et DM en outre-mer), the Departmental Directorate of Territories and the Sea (DDTM), ship safety centers (CSN), maritime monitoring and search & rescue coordination centers (CROSS), and control and monitoring mechanisms (DCS).

Public Bodies Regulated by the Ministry of the Sea

Public institutions are the main policy actors of and are overseen by the Ministry of the Sea. Social seafarer protection organizations include the National Supreme School of Maritime (École nationale supérieure maritime, ENSM) and the National Naval Veteran Association (Établissement national des invalides de la marine, ENIM). There are 11 major seaports under the joint supervision of the Ministry of the Sea and the Ministry of Ecological Transition and Solidarity: Bordeaux, Dunkirk, Guadeloupe, Guyana, Le Havre, Marseille, Martinique, Nantes-Saint-Nazaire, Reunion Island, La Rochelle, and Rouen, and 2 autonomous ports in Paris and Strasbourg. In addition, the National Institute for Ocean Science (Institut français de recherche pour l'exploitation de la mer, IFREMER) is jointly supervised by the Ministry of the Sea, the Ministry of Ecological Transition and Solidarity, the Ministry of Agriculture and Food, and the Ministry of Higher Education, Research and Innovation.

The Ministry of the Sea is also involved in the governance of the following public bodies: The Directorate of Biodiversity of France (Office français pour la biodiversité, OFB), the Waterways Navigation Authority of France (Voies navigable de France, VNF), the Conservatory of the Littoral (Conservatoire du littoral), Cote d'Azur, Guadeloupe and Port Cros National Parks (Parc national des Calanques, de Guadeloupe, de Port Cros), and the Coastal Management Planning Unit of Guadeloupe and Martinique (les agences des 50 pas géométriques de Guadeloupe et de Martinique).

The main public policies of the Ministry of the Sea

The public policy of the Ministry of the Sea covers the seven major categories listed above. This article describes the relevant policies of the French marine environment, culture, and economy.

Table 1/ Public Policy of the Ministry of the Sea

Aspect	Main Content
I. Maritime state operations and maritime services (Action de l'Etat en mer, services maritimes)	• Maritime rescue and monitoring • Signaling for ocean routes • Management of marine environment and fisheries • Modernization of maritime administration
II. Maritime professions and seafarers (Métiers et gens de mer)	• Maritime professions, training and skills • Legal and health rights of seafarers • Social protection for seafarers
III. Marine recreation, sports and recreation (Palisance, sports et loisirs nautiques)	• Aquatic recreational activities and yachting • Recreational pier
IV. Maritime heritage, exploration and discovery (Patrimoine, exploration et découverte de la mer)	• Marine knowledge
V. Oceans, coasts, and impact (Territoires maritimes, littoraux et rayonnement)	• Marine, coastal strategy and maritime planning • European and international maritime operations • Coastal area
VI. Marine environment, innovation and pollution prevention (Milieu marin, innovation et lutte contre les pollutions marines)	• Marine Protected Areas (MPAs) and knowledge • Marine renewable energy and innovation • Marine pollution prevention
VII. Blue economy (Économie bleue)	• Harbors • Trading vessels • Naval, navigational, and technological innovation industries • Ship safety and ecological transition • Fisheries and aquaculture

Source/ <https://mer.gouv.fr/politiques-publiques>

I. Maritime heritage, exploration, and discovery

- i. In terms of understanding the ocean, with the Prime Minister or the Minister of the Sea as its chairman, the National Council for the Sea and Coast (Comité pour la recherche marine, maritime et littorale) plays an important advisory role and establishes a communication mechanism between scientific research institutes and local management services.
- ii. On January 10, 2021, Minister of Culture Roselyne Bachelot-Narquin and Minister of the Sea Annick Girardin appointed Henry Masson as the Regional Administrator of the historic area of Bretagne for the promotion of the marine heritage of France and for the devising of protective and developmental strategies [8]. Masson paid special attention to the marine heritage of lighthouses, and jointly proposed management guidelines and measures with the Directorate of Maritime to stimulate the national interest in the "French Seascape". In October 2021, the Ministry of the Sea also published an introduction to lighthouses in the French mainland and overseas territories, detailing the history of lighthouses, the World Heritage-listed Cordouan Lighthouse, the distribution of existing lighthouses, and information on public visits [9].
- iii. On October 23, 2020, the IFREMER announced the new autonomous submarine Ulyx, which is capable of diving to a depth of 3,000 – 6,000 meters. With its multi-scale observation capacity, the Ulyx can see from afar and study up close, and as it is equipped with particular instrumentation, a wider range of parameters can be collected. This innovative scientific design has perfected the configuration of French marine research vessels, taking marine environmental protection and restoration to the next level [10].

II. Marine environment, innovation and marine pollution prevention and control

- i. In order to protect marine biodiversity, the marine policy of France combines sea users, elected representatives, and experts with the management of marine space to form a coherent network of marine protected areas (MPAs) [11].
- ii. For marine renewable energy and innovation, France supports everything from research projects to technological and commercial deployment, and hopes to achieve the goal of renewable electricity accounting for 40% of the final consumption by 2030. Wind electricity generation is one with the most potential. Since 2012, seven offshore wind farms have been approved and are in operation. In the future, more offshore wind farms will be built in Normandy, southern Bretagne, the Mediterranean Sea, and the South Atlantic Ocean area, providing up to 15,000 direct and indirect employment opportunities [12].
- iii. France has made various efforts to combat marine pollution, including the signing of the SAILS Charter (guidelines for shipping practices to reduce environmental impact), the Tony de Brum Declaration (to reduce greenhouse gas emissions, and an aim to limit global warming to +2°/+1.5°C), the Intercontinental Oil Pollution Program (POLMAR/Terre) (to prevent oil pollution along the French coast), and to combat air pollution from ships (to reduce sulfur content in fuel). In addition, France has also signed the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea [13].

III. Blue Economy

The Blue Economy is an economic term related to the development, protection, and regeneration of the marine environment. The Blue Economy policy of the French Ministry of the Sea pays special attention

to the regeneration of seaport energy, technological innovation of the maritime industry, ship safety, and ecological transformation. First, seaport activities include loading and unloading, warehousing, construction, and transportation services. Due to the impact of the current business model, seaports must be able to accommodate larger ships and commercial ships; and developing the utilization of renewable energy gives seaports the potential of becoming energy hubs. Secondly, shipbuilding is a long process, and in the event of an economic crisis, there may be excess production capacity. Future requirements for ship performance and energy efficiency will also require fleet renewal or transformation. Finally, activity clusters such as port logistics, maritime transport, shipbuilding, and ship repairing have all increased traffic congestion and pollution, which are challenges that need to be addressed by developing a Blue Economy [14].

Conclusions

In the past, French maritime affairs have often been subordinated to the Prime Minister or under the jurisdiction of the Ministry of Ecological Transition and Solidarity, the Ministry of Transportation, and other ministries. In response to the necessity of integrated management of maritime affairs, the Ministry of the Sea was reformed in 2020 and became a first-class government authority of France, carrying on the mission of making the 21st century the maritime century. In order to follow closely to the formulation and implementation of marine and coastal policies, the affiliated organizations of the Ministry of the Sea work closely with inter-ministerial associations and local management services. The relevant public policies of the Ministry of the Sea, especially those relating to marine heritage, marine exploration, marine environment, technological innovation, and the Blue Economy mentioned in this article, focus on the protection of marine resources and sustainable development. Just as Christian Buchet, a professor at the Catholic University of Paris, emphasized, we cannot survive without the oceans, and protecting the oceans means protecting our future [15].

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The French Research institute for Exploitation of the Sea (Ifremer)

European and International Affairs, Ifremer

Keywords: Ifremer, ocean science research, ocean observation

The French Research institute for Exploitation of the Sea (Ifremer) is a national institute for integrated ocean science research and founded in 1984 through the merge of two institutes: Marine Fisheries Scientific and Technical Institute (ISTPM) and the National Centre for Exploitation of the Oceans (CNEXO). Ifremer operates under the joint supervision of the French Ministries for Higher Education, Research and Innovation, for the Ecological Transition, for Agriculture and Food and for the Sea. With 1,500 staff and an approximate annual budget of 230 million euros, Ifremer operates in 5 centres and 19 coastal stations distributed along the French metropolitan coastlines and in French overseas territories, such as the Pacific Centre in the French Polynesia and the New Caledonia.

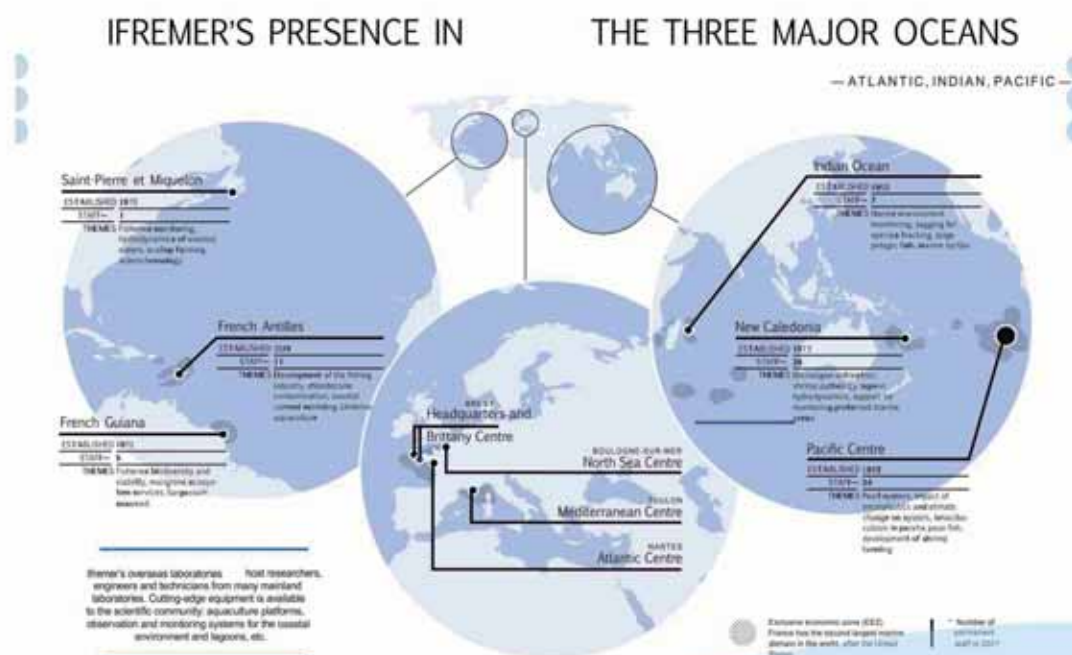


Figure 1/ Ifremer's presence in the three major oceans
Image by Ifremer

The institute relies on its observational and monitoring capacities to advance science, expertise and innovation to protect and restore the ocean, to use sustainably marine resources and to manage and share ocean data, information and knowledge. The marine data portal [1] at Ifremer gathers all information collected across all themes nationwide and facilitates access to other European and international platforms that Ifremer manages or takes part in. Ifremer's research topics stretch from the coast to the deep sea, from studying marine ecosystems and biodiversity, identifying sustainable exploitation of marine resources, learning about ocean dynamics to exploring deep ocean frontiers. To this end, Ifremer designs and builds marine research and monitoring infrastructures, develops tools for observation and scientific investigation and manages databases.

On the observational front, for example, Ifremer houses Euro-Argo [2] (The Argo network is a global array of more than 3,500 autonomous instruments, deployed over the world ocean, reporting subsurface ocean properties to a wide range of users via satellite transmission links to data centres), the European coordination office of the international Argo programme, acts as a key driver for the coastal research infrastructure network (ILICO [3], JERICO [4]) for a holistic appraisal of coastal marine system changes and is a co-leader of EMSO-France, the national component of ERIC EMSO network for the multidisciplinary seafloor and water column observatories [5]. This leadership ensures observation activities integrated in the European & international landscapes and facilitates mutual accesses to research infrastructures and data products.

Today, the energy transition is a crucial enabler of sustainable development and climate resistance and the sector of offshore renewable energy represents great potential. Ifremer is a member to the French Institute for the Energy Transition for offshore renewable energies, France Energies Marines [6], and leads the Carnot Institute MERs [7] (marine engineering research for sustainable, safe and smart seas) to scale up our contributions in this sector. The Carnot Institute is a public laboratory-conducted network to develop and address the needs of partnership-based research. The Institute Carnot MERs is the first one dedicated to the ocean and supports companies in the development of maritime activities. The research infrastructure for marine engineering research at Ifremer is presented by the THeoREM at national level [8] and Marinerg-i [9] through the European network. To support the development of offshore engineering, the hydrodynamic and mechanical test facilities operated at Ifremer can test offshore equipment and models of posed, floating or underwater systems. These include the deep wave or current-generating pools for hydrodynamic studies, test benches for the durability of polymers and composite materials or hyperbaric tanks for materials in the pressurized environment (deep-sea immersion simulations).



Figure 2/Testing of the floating wind platform in the deep-water basin at Ifremer
Image by Ifremer/ O.Dugomay



Figure 3/ Launch of the AUV 6000 Ulyx from R/V Pourquoi Pas?
The Ulyx has a capacity to dive down to 6,000m depth and to accomplish a mission up to 48 hours of autonomy
Image by Ifremer, S. Lesbats (2022)

Ocean Decade Laboratories Projects and Activities

As a state-owned public industrial and commercial institute, Ifremer is in addition endowed with missions on public policy advice and technology transfer through public-private partnership. For the former, the French government regularly enlists Ifremer to help assess marine resources and the conditions of resources use, such as for the deliverables for the European directives Water Framework Directive, the Marine Strategy Framework Directive, the Common Fisheries Policy or for the national biodiversity strategy and other animal health or aquaculture policy issues, etc. Because marine research possesses enormous potential for innovation and leads to competitiveness and growth, Ifremer goes beyond its objectives of producing knowledge and contributes to economic development by creating economic value from its studies, and transfers this value to the socio-economic sectors, such as underwater systems, operational oceanography, marine biotechnologies, fisheries science, aquaculture, environmental monitoring and energy and mineral resources. It is the Institute's ambition to share the benefits of this "blue growth" with companies, corporate groups and SMEs through its proactive strategies to foster an environment of innovation.

Capacity in coordinating French research vessels and underwater systems

The French Oceanographic Fleet (FOF) [10][11] is a designated very large research infrastructure reorganised and operated by Ifremer since 2018. It comprises all the naval resources, including six deep-sea vessels (ranging from 30m to 120m in length), five coastal vessels, seven research station vessels, manned and autonomous submersibles and other underwater devices. The Fleet undertakes an average of 40 deep-sea cruises and 50 coastal cruises every year from conducting scientific observations (marine geoscience, physical & chemical oceanography, marine biodiversity and palaeoceanography) to surveillance activities (hydrography, fish stock, survey in/for the economic exclusive zones [EEZ], coastal environment or hazard assessment) for the government. This single operational structure receive budget entirely from the Ministry of Research since 2018. The independent scientific advisory boards (coastal & high-seas) evaluate the cruise proposals by their scientific merits once a year for the high-sea applications and twice a year for the coastal ones. Based on their ranking and geographic locations of the research cruises, the Fleet management committee then programmes the ship schedules accordingly.

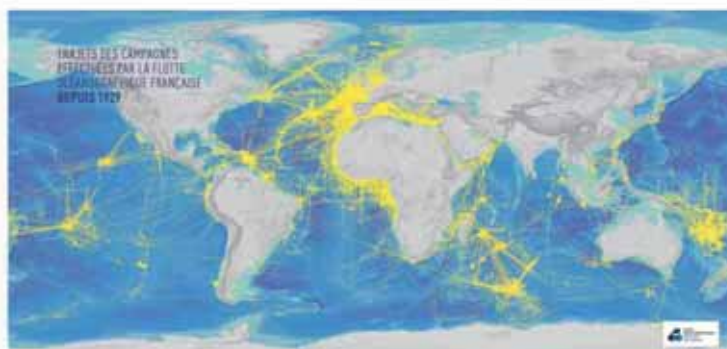


Figure 4/ Caption: Journey made by the French Oceanographic Fleet since 1929
(cc: Ifremer)

Image by Ifremer

Figure 5/ Giant coring system in action from the R/V Marion Dufresne (<https://www.flotteoceanographique.fr/en/Facilities/Tooling/Sediment-Sampling/Gravity-Corer>)

Source/ I. Saumermilch, Institut polaire français



Endeavouring a mission for the ocean

The ocean connects, sustains and supports us all. It is therefore primordial to keep a healthy and resilient ocean we need for the future we want. Scientific understanding of the ocean's responses to pressures through observation and measurement is fundamental for a management action towards the goals of the sustainable development. Ifremer endeavours to deliver the science we need for the ocean we want. Under the United Nations Decade of Ocean Science for Sustainable Development vision, Ifremer actively participates and leads several endorsed Decade actions. For example, I. we organised a *Decade Activity One Ocean Science* [16] that gathered global partners to raise the awareness of the ocean science that matters, II. we co-lead with CNRS a *Decade Contribution "A ocean of solutions-Ocean-Climate"* to support the research projects through funding, and III. we coordinate a Decade Programme "One Ocean Network for Deep Observation (OneDeepOcean)" that aims to federate international observatory networks to facilitate knowledge integration, to encourage technology innovation and to develop capacity building through training. OneDeepOcean is also part of the deep-sea community of practice [17] that work together for more transformative actions to unveil and protect the last frontier of the ocean.

Under this global recognition of ocean's central role for the 2030 sustainable development agenda, Ifremer will continue to deliver its mission and vision thanks to its prodigious expertise, multiple research infrastructures, and the international partnerships. The ocean science is experiencing a transformative process, with initiatives such as ocean literacy and citizen science that are bridging the research community with the society closer and are engaging each other better in this connected ocean. Two examples of citizen sciences initiatives at Ifremer Deep Sea Spy in annotating biological images taken in the Atlantic and Pacific Oceans [18] and Phenomer in monitoring phytoplankton seawater discoloration [19]. To join the ocean momentum, apart from institute's representation in several European and international organisations for policy advices through expert working groups, Ifremer also takes an active role in recent events such COP26 in Glasgow 2021, One Ocean Summit in Brest 2022 and the UN Ocean Conference in Lisbon 2022.

For more information, visit <https://wwz.ifremer.fr/> @Ifremer_fr

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French Marine Natural Park (parc naturel marin français)

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Translated by Linguitronics

Keywords: Exclusive Economic Zone

France boasts one of the largest exclusive economic zones (EEZ) in the world, covering an area of more than 10 million square kilometers (*Wikipedia* ranks the French EEZ as the largest, while the French Ministry of Ecological Transition and Solidarity website considers itself second largest [1]). France has been devising improved marine conservation tools of its own since protection and restoration of biodiversity were put forward by the 1992 Earth Summit in Rio as important means to achieve sustainable development, and the European Parliament issued Directive 2000/60/CE [2] water policy on October 23, 2000 that first expanded to coasts and seas, as well as the 2002 World Summit on Sustainable Development in Johannesburg in which countries acknowledged the importance of biodiversity and expressed their commitment to developing a marine conservation network. At the 10th Conference of the Parties (COP10) of the United Nations Framework Convention on Climate Change (UNFCCC), held in Nagoya in 2010, countries promised to designate 10% of their sea areas as protected areas by 2050. However, as the threat of climate change intensified, the "Global Ocean Treaty" was held in New York on March 7-18, 2022, for intergovernmental negotiations. Its goal is to protect at least 30% of the ocean by 2030 (30x30). Although no consensus was reached, the 30x30 vision still has the support of the majority of countries, and it is expected to submit a draft amendment in May which it will submit to the meeting in August [3].

France has many tools to protect sea areas, such as national parks, Natura2000, species reserves, ecological reserves and cultural sites designated by the United Nations Educational, Scientific and Cultural Organization (UNESCO), wetlands designated by the Convention on Wetlands, as well as maritime conventions signed with other countries, such as the Nairobi Convention governing the Western Indian Ocean of some East Africa countries in 1985, the Cartagena Convention governing the Caribbean Sea in 1986, the Barcelona Convention governing the Mediterranean in 1995, and the OSPAR Convention governing the Northeast Atlantic in 1998. However, the complexity of the sea-land interface still brooks no effective tool to manage both the seashore and ocean within the range of 200 sea miles (EEZ). Serge Lepeltier, French Minister of the Environment in 2004, proposed the Marine Natural Park (parc naturel marin français, PNM) concept, the legislation for which was passed on April 14, 2006. The legislation echoed the recommendations for planning and managing the ocean at the first international workshop on Marine Spatial Planning at UNESCO in 2006. There are three main tasks for PNMs: I. Identify the field; II. Protect the ecosystem; III. Attain sustainable development of marine activities. PNMs are considered to be the most sophisticated of all French maritime protection measures. This new tool also helps France achieve the goal of protecting 30% of the ocean by 2022, ahead of schedule (the protected area of the sea area will reach 33% in 2022, compared to 0.3% in 2006, 0.8% in 2009, 3.8% in 2013, 16.3% in 2014, 23.5% in 2019, and 33% in 2022 [1]).

Regarding the establishment of its PNMs, France has set 8 conditions [4]: I. Conserved species, heritage, or species and habitat requiring continuous conservation (rare, threatened species); II. Non-conserved

species, but specific conservation targets (exploited fish species, species that are abundant and important in the local ecological chain); III. Key ecological functions (spawning, seedbed, nursery, productivity, rest, food, migration, etc.); IV. Good condition of marine waters; V. Sustainable use of resources; VI. Sustainable development activities; VII. Marine cultural heritage; VIII. Possesses social, economic, scientific, and educational added value. PNMs must meet all 8 conditions.

The planning of PNMs attaches great importance to stakeholders, including the users and residents of the sea area, elected representatives, and scientific researchers. It usually takes 2-3 years to reach a consensus before legislation is proclaimed. The content of the plan should include at least 3 items: I. Delineated scope after comprehensive consideration of ecology and use; II. Development positioning, which is the guide for all follow-up actions; III. The management committee is the management body of the marine park, and its members shall include various sea users.

After legislation, active preparations began. The initial goal was to set up 10 PNMs, but Golfe Normand-Breton finally announced the termination due to local opposition. On June 8, 2021, Glorieuses was abolished and converted into a national nature reserve [5], and 8 PNMs remain.

Table 1/ Date of establishment, area and number of management committee members for French PNMs

	Iroise	Mayotte	Golfe de Lion	Glorieuses	Estuaires Picards et de la Mer d'Opale	Bassin d'Arcachon	Estuaire de la Gironde et de la mer des Pertuis	Cap Corse et de l'Agriate	Martinique
Date of establishment	2007. 9.28	2010. 1.18	2011. 10.11	2012. 2.22	2012. 12.11	2014. 6.5	2015. 4.15	2016. 7.15	2017. 5.5
Area (km ²)	3,500	68,800	4,010	43,500	2,300	435	6,500	6,830	48,900
Number of committee members	49	41	60	20	60	56	70	48	53

Source/ each PNM. 3 in the Atlantic: Iroise [6], Bassin d'Arcachon [7], Estuaire de la Gironde et de la mer des Pertuis [8]; 2 in the Mediterranean: Golfe du Lion [9], Cap Corse et Agriate [10]; In the English Channel/North Sea: Estuaires picardset de la mer d'Opale [11]; In the Indian Ocean: Mayotte [12]; In the Caribbean Sea: Martinique [13]

The parent agency of the PNMs is the Marine Conservation Agency (Agence des Aires Marines Protégées, AAMP) under the Ministry of Ecological Transition and Solidarity. AAMP is responsible for providing financial, technical, and human support. After establishment, the management of the park becomes the responsibility of the management committee. The responsibilities of the committee are to follow the development position set at the time of the establishment, formulate guidelines, and formulate an inter-departmental management plan for the next 15 years, which should include specific measurable marine health and management performance indicators. Members of the committee include AAMP personnel. For example, the first established Iroise PNM has about 20 AAMP members, including technical personnel, residents, and administrators.

The main task of the committee is to supervise, communicate, and stimulate local residents' awareness of marine protection. Although members do not have the power of law enforcement, they can implement policies through existing law enforcement agencies, such as those governing fishing, environmental protection, and cultural assets. The committee has the right to review all activities within its scope. For activities that have a major impact on the sea area, the committee has power of veto and can request handover to pertinent agencies. For example, on June 17, 2015, the management committee of Glorieuses voted against the subsea drilling plan proposed by an oil company.

PNM's management scope includes: I. Natural resources; II. Land-sea interface; III. Water quality; IV. Industrial activities, such as fishing, tourism, and navigation; V. Cultural assets; VI. Environmental education; VII. Governance [14]. Management of PNMs may not be able to respond to the complexity of maritime issues it carried out from a local perspective. The management of PNM through AAMP thus helps to expand the geographical space to the international level. For example, the scope of Golfe du Lion is adjacent to Spanish waters, Golfe normand-Breton is adjacent to British territorial waters, Mayotte is adjacent to the southwest waters of the Indian Ocean, Estuaires Picards et de la Mer d'Opale is related to the cooperation between England and the North Sea in the plan of the EU, and Martinique must consider the complex situation in the Caribbean.

The following is an introduction to the first established PNM, the Marine Natural Park of the Iroise Sea. Iroise is located in the Atlantic Ocean northwest of mainland France. In 1988, it was designated as a protected area by UNESCO's MAB (Man and Biosphere) program; the EU's NATURA 2000 has 5 sites in this scope.

Table 2/ Important History of the Marine Natural Park of the Iroise Sea

Time	Event
1989	Set up an ecological reserve
1995	The inter-ministerial committee on the sea area approved the establishment of a national park
1996	The navy dispatched officers to preside over national park design research projects
2000	The draft plan for national parks sought input from public and local representatives
2001	The French Prime Minister signed an agreement to create a national park
2002	Promoted consulting programs
2004	The Iroise area was deemed not suitable for designation as a national park
2005	National Natural Park project launched
April 14, 2006	National Natural Park announced
November 20, 2006	One-month public opinion consultation
September 28, 2007	Official establishment of Iroise PNM
December 19, 2007	The first management committee was held and its chairman elected
September 23, 2008	The management center was established at the former site of the Conquet radio station
December 2, 2009	Established south management station on Tristan Island
September 29, 2010	The management committee approved the management plan endorsed by the AAMP on November 25
2014	Conservation achievements recognized by IUCN
July 2018	The prefects (préfet) of Finistère and Maritime de l'Atlantique propose to expand the scope
From February 2019	Discussions began on proposals to include several small islands within the park to protect seabird habitats
From July 2020	Public opinion consultation (1,129 hectares of land expansion and 1,008 hectares of sea area expansion)

Source/ [15]

Waves and wind forming its main scenery, the park is home to many professional and leisure activities, rich cultural scenery, and residents' local awareness is very strong: This is their sea! After the announcement of the establishment of PNM in 2007, local protests continued. First, the Association for the Defense and Valorization of the Islands and Coast of the Iroise Sea (ADVILI) requested to abolish the PNM, which was rejected by Parliament as not representative and not justified. The same appeal was also made for Ouessant for the following reasons: I. The public consultation process is incomplete; II. Public opinion opposes it; III. The establishment of PNM is a mistake. Parliament rejected the appeals: I. There is no clear evidence for which; II. Environmental regulations do not prohibit the government from passing proposals that have objections; III. All evidence supports its uniqueness of the ecological and marine diversity.

The 49 members of the Iroise management committee include: 11 public opinion representatives (regional and local governments), 12 representatives from NGOs (fishing associations, farmers' associations, chambers of commerce...), 8 representatives from marine use organizations (sea fishing associations, diving associations, sailing associations...), 2 representatives from environmental protection organizations, 9 marine experts and scholars, 1 representative from the Armorique Regional Natural Park, 6 representatives from the central government.

Latest publication of the minutes for 2020 [16], the French Biodiversity Agency (OFB) reiterated the 5 main tasks of the French PNMs: I. Biodiversity; II. Scientific investigation and analysis; III. Actual implementation of national policies; IV. Management and restoration of protected areas; V. Promotion of environmental education. There was a total of 72 cases of PNMs reviewed in 2020, of which 5 were rejected (avis conforme), one being Iroise; the technical department provided a total of 165 professional opinions and subsidized 90 plans, totaling 963,835 EUR (about NT\$34 million), 15-20% of which is for environmental monitoring.

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