

MINISTRY FOR AN ECOLOGICAL AND SOLIDARY TRANSITION

National Strategy for the Sea and Coast

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NATIONAL STRATEGY FOR THE SEA AND COAST

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INTRODUCTION AND LONG-TERM OBJECTIVES

The need for a strategic framework for marine and maritime issues has become increasingly important since the post-war period. The long-standing United Nations Convention on the Law of the Sea (UNCLOS), signed in 1982, sets out the first UN framework for areas of sovereignty, use and preservation of resources.

The United Nations has formulated specific commitments for sustainable sea and coastal development at the Rio + 20 or Earth Summit in 2012, through the "The Future We Want" document¹. They were reinforced by the autumn 2015 sustainable development goals, which put the Ocean among the 17 goals for 2030². The Intergovernmental Panel on Climate Change (IPCC)'s decision to draw up a special report on the ocean reflects the global awareness of the issues at stake.

At the European level, the integrated maritime policy³ defined in 2009 and finalised in 2012 in Limassol, puts maritime contribution to European growth and employment, without jeopardising the vital viability of marine ecosystems, at the heart of the ambition, inviting Member States to specify how they implement the procedures for the sustainable development of the sea and coast.

The movement towards a national maritime ambition was launched at the "Grenelle of the Sea"⁴ in 2009, which was outlined at the Sea and Coastal Meetings in 2013, reinforced in the works of the National Council of the Sea and Coastlines in 2014, and was more recently promoted through the mobilisation in France on the topic of Ocean at the COP21.

The state of affairs in 2014, a summary of which is appended to this strategy, recalls the advantages France has at its disposal to face the challenges of a great maritime nation. France is at the forefront for the richness of its marine ecosystems, the excellence of its oceanographic research is recognised worldwide, some of its industrial sectors such as shipbuilding, freight transport and boating are cutting edge, its flag is recognised for the quality, technical expertise and reliability of its ships and crew, its national navy is present on all seas, changes or initiatives are launched in historic or emerging sectors. Finally, its competence in the management of marine protected natural areas is widely recognised throughout the world.

The National Strategy for the Sea and Coastline is responsible for providing a framework for public policy on the sea and coast. This includes the National Strategy for the Ecological Transition to Sustainable Development, the National Research Strategy and the National Biodiversity Strategy, all of which it contributes to, and of which it is the benchmark for the sea and coastline.

Thanks to the expertise of its research centres and the associated economic, territorial and associative actors, France must give cohesion to a nation present in all the oceanic

¹The Future We Want: http://www.uncsd2012.org/content/documents/775futurewewant_french.pdf

²Sustainable Development Goals: http://www.un.org/fr/documents/view_doc.asp?symbol=A/69/L.85

³The European Union's Integrated Maritime Policy:
http://ec.europa.eu/maritimeaffairs/policy/documents/limassol_fr.pdf

⁴National round table with five-part governance involving state organizations, companies, trade unions, elected officials and non-governmental organizations.

regions of the globe, and make this metropolitan and predominantly overseas “French Archipelago”, an asset for its influence throughout the world. European and international cooperation and the European Strategy for Marine and Maritime Research are essential in this respect. For its strategic dimension, the following text leads to the adherence of all citizens to a collective project, to share the ambition of an entire sea-faring nation.

Maritime stakeholders want to play a major role in this national maritime ambition: the services of the State, at all territorial levels, local and regional authorities - more broadly the elected coastline representatives, and first and foremost the national association of elected coastline representatives - maritime and coastal stakeholders, economic and environmental players, scientists, all have a responsibility and a future related to the ocean.

The national strategy cannot be achieved without the territories. Complementarity is essential, both in metropolitan France and in the overseas territories, for the coherence of territorial ambitions such as those resulting from regional drive and initiatives, as illustrated by the Regional Conference of the Sea and Coastline in Brittany or the Parliament of the Seas in Occitania.

LONG-TERM OBJECTIVES

The strategy for the sea and coastline sets four complementary and inseparable long-term objectives:

- the ecological transition for the sea and coastline
- the development of the sustainable blue economy⁵
- the good environmental status of the marine environment and the preservation of an attractive coastline
- France’s influence.

THE ECOLOGICAL TRANSITION FOR THE SEA AND COASTLINE

The sea and the coastline are areas of seemingly contradictory challenges, facing a wide range of developments and pressures, to which France has chosen the path of ecological transition towards sustainable development.

Development is the result of the ocean’s formidable potential in terms of resources (as regards biodiversity, ecosystem services - notably for climate regulation - such as employment, and food, pharmacological, mineral, and energy resources), which is largely described in the appendix.

The pressures are those related to the impacts of climate change on the sea and coast, such as the accelerated loss of biodiversity, increasing environmental health risks, and demographic pressure on the coastal fringe. They are all constraints and threats to the economy and social wellbeing.

⁵ "Blue economy" in this context refers to the maritime and coastal economy in connection with the sea.

The ability to respond to these issues is therefore a central issue for sustainable development. Ecological transition is an evolution towards a new economic and social model, a model of sustainable development, renewing our ways of consuming, producing, working and living together in order to respond to major environmental issues. In so doing, it is an asset in terms of innovation, competitiveness and social progress.

The objective of the strategy is assessed, on the one hand, from the point of view of the sea and coastline's contribution to the national objective of ecological transition which is covered by the national strategy for the ecological transition towards sustainable development and, on the other hand, for the coastal territories themselves:

- At the national level, the strategy aims to ensure that the sea and coastline, as well as related activities, contribute to mitigating the amount of greenhouse gases in the atmosphere, developing the circular economy, and to a better knowledge and understanding by as many people as possible, of the ecological, social and economic challenges associated with the sea.

Proposed indicators: share of maritime companies filing a CSR report, contribution of RME (Renewable Marine Energy) to electricity production.

- As regards coastal territories, the goal is to achieve good resilience and adaptation to natural hazards and the consequences of climate change, as well as less energy dependence, especially for the islands. This also includes the need to successfully complete the digital transition, to aim for a circular economy that enhances the particular situation of the coastline, and to develop maritime techniques and facilities that have a positive impact on the environment.

Proposed indicators: housing and population in low-lying coastal areas exposed to risks of marine submersion, share of positive energy coastal territories.

DEVELOPMENT OF THE SUSTAINABLE BLUE ECONOMY

Data from the maritime and coastal economy was estimated by IFREMER in 2011 at 460,000 jobs and an added value of EUR 30 billion, or about 1.5% of France's GDP. The sector is growing - the OECD estimated in its May 2016 report that it is expected to double by 2030 to USD 3 trillion.

In terms of social progress, the European Commission's Regional Social Progress Index (February 2016) project shows that mainland France's coastal regions are within the national average. Nevertheless, comparatively, the regions of the United Kingdom and Northern Europe countries are ranked higher, showing that there is a margin for possible progress for the French regions.

The development of the blue economy must be a source of added value and employment, especially for coastal populations, and must provide strategic functions for the national economy in terms of raw material supplies, energy, transport and communication. At the territorial level, it aims to maintain and develop a productive economy that contributes to solidifying a dynamic and competitive economic, social and demographic base.

The desired blue growth is sustainable growth in the various sectors of the coastal and maritime economy, which are socially beneficial and based on knowledge and training.

It promotes the considerable potential for innovation and growth offered by the seas and the ocean, in areas under French jurisdiction and on a global scale for French industry players. It integrates a high level of safety and security into all maritime activities.

Blue growth aims to enhance natural resources. It aims to develop coastal and maritime tourism through marine and coastal heritage, natural and cultural heritage, water-based recreation and leisure activities, beach establishments, cruises, physical activity and sports establishments and leisure activities in general.

It promotes transport and maritime services as well as the competitiveness of commercial ports.

It focuses on the development of the shipbuilding and ship repair industry, decommissioning and maritime infrastructure, with a focus on the attractiveness of our ports, technological innovation and environmental performance, particularly in leading sectors.

It pays particular attention to social progress, a factor of competitiveness, and an objective in itself.

Proposed indicators: Maritime contribution to GDP, regional social progress index (European Commission project 2016).

THE GOOD ENVIRONMENTAL STATUS OF THE MARINE ENVIRONMENT AND THE PRESERVATION OF AN ATTRACTIVE COASTLINE

It is the objective that constitutes the environmental pillar of the strategy and responds to the need to protect the environment as a living environment as well as a source of goods and services and potential for the future.

The good ecological status of the marine environment⁶ is the state of functioning of marine ecosystems (conserved biodiversity and correct interactions between species and their habitats, a healthy, dynamic and productive ocean), enabling the latter to ensure the long-term sustainability of all ecosystem services. It determines sea practices for future generations within a perspective of sustainable development.

The preservation of an attractive coastline presupposes a preserved environment and quality landscapes, retaining a significant share of natural environments and the traditional uses of soils. They offer enjoyable living conditions and maintain a high level of attractiveness in coastal areas for permanent residents and to accommodate tourism. By improving the state of conservation of ecosystems and landscapes, there is also an aim to increase their economic value.

For this reason in particular, a moratorium has been applied, since the beginning of 2016, to hydrocarbon exploration in the Mediterranean, both in the territorial waters of France and in the exclusive economic zone, taking into account the dramatic consequences likely to affect the whole of the Mediterranean in the event of an oil drilling accident. It is extended to the Atlantic coast of mainland France.

⁶The “good environmental status” corresponds to the objective set by the “Marine Strategy Framework Directive”. The National Strategy for the Sea and Coastline is the framework for implementing the framework directive as regards mainland France. It builds on the experience gained from establishing the first action plans for the marine environment.

Finally, this must be reflected in the development of the cultural and social dimension of the coast and sea, notably through the heritage values associated with the environment and activities taking place there and the living traditions attached to them.

Proposed indicators: coral reefs in good health, Natura 2000 marine habitats in a good state of conservation, share of mainland France's coastlines with land protection, those of the DCSMM (Marine Strategy Framework Directive).

FRANCE'S INFLUENCE

France's influence as a maritime nation must be an objective and a consequence of its geostrategic involvement in the protection, sustainable management and use of the ocean as a channel of communication. It must express itself through its exemplary nature and leadership on issues related to the sea, maritime affairs and integrated coastal zone management, and its position on the high seas.

This influence is based on the global scale that overseas territories provide to France. Overseas territories represent 97% of our maritime space and occupy a special place in France's strategy. In the wider territories, and in particular those in the Pacific, it is the local authorities that have jurisdiction over the marine environment. The State supports these overseas initiatives and will continue this support. As the President of the Republic recalled during his official visit to French Polynesia in February 2016, the National Strategy for the Sea and Coastline takes these particularities into account.

The quality of our flag, our presence in technical and scientific networks, the international recognition of expertise and achievements in marine protected areas are also assets that must be developed and maintained.

The objective is to play a leading role in international and European negotiations on the ocean and maritime affairs and to enjoy recognition that also benefits French economic operators.

Proposed indicators: ranking of the French flag, involvement in international oceanographic research programmes, share of the French foreign trade advisers sensitised to maritime affairs by the French Maritime Cluster, France's rate of involvement in European project funding.

In light of the main issues to be taken into account, the National Strategy for the Sea and Coastline is designed to promote and succeed in the long term (i) the ecological transition of the sea and the coast, (ii) the development of the maritime economy, (iii) the good environmental status of marine environments and the preservation of the attractiveness of the coastal zone; and (iv) France's international influence, which therefore constitute four complementary and inseparable objectives. However, the general guidelines that frame 26 priority actions of this national strategy are organised along four cross-cutting axes:

- Rely on knowledge and innovation.
- Develop sustainable and resilient maritime and coastal territories.
- Support and enhance initiatives and remove barriers.
- Promote a French vision within the European Union and in international negotiations.

These guidelines apply to mainland France as well as overseas territories, which make a unique and original contribution to implementing them with their specificities: geographical positioning around the world, biodiversity, island situations, potential for marine energies and aquaculture. They will be adapted for each sea basin, as well as for mainland France's coastlines, taking into account their distinctive characteristics, in particular in terms of governance and regional involvement.

The National Strategy for the Sea and Coastline defines an ambition and a direction. It will then be necessary to continue to set targets and indicators and mobilise the necessary resources at the national, regional and local levels. The text is not fixed because it must be alive and, beyond the six-year review, its implementation and the achievement of objectives must be assessed and monitored within the framework of the National Assembly of the Sea and Coasts. It will be enriched through its revisions, the experiences of all stakeholders, civil society, the State and the elected representatives.

Thus the will of a maritime nation will come together in the service of a great maritime plan.

LIST OF PRIORITY ACTIONS

1. Getting to know the sea better, developing a marine and maritime knowledge society
2. Support maritime innovations, increase research capacity
3. Teach others about the sea
4. Launch a major cultural initiative for the sea, develop a national maritime consciousness and include French maritime culture in the UNESCO World Heritage list
5. Provide training for sea-related professions by a cluster of maritime education, the network of marine universities and making the French Maritime Academy (ENSM) a global benchmark
6. Build maritime spatial planning to reconcile uses, seek synergies between activities and integrate new activities
7. Build 100 positive energy maritime territories
8. Protect environments, resources, biological and ecological balance
9. Preserve sites, landscapes and heritage
10. Preserve our coastline and anticipate the evolution of physical phenomena of coastal erosion and submersion
11. Maintain a high level of safety in our maritime areas so as to protect the marine environment and our economic interests
12. Attain our renewable marine energy goals
13. Study the establishment of dedicated jurisdictions for the review of disputes relating to maritime activities
14. Achieve sustainable resource management, while reducing seafood dependency by reinforcing the ambition of French fisheries, enshrined in the Common Fisheries Policy, and support the development of aquaculture
15. Develop the French-flag merchant fleet and have more than 20,000 French sailors
16. Support innovative sectors and energy transition in transport and maritime services
17. Make France the main European port
18. Support the development of recreational boating
19. Establish a cross-cutting policy document for the sea budget Ensure it is operable in the Finance Act
20. Build a fiscal goal for the sea
21. Combat social dumping for seafarers in the European maritime area
22. Renew the pattern of the National Establishment for Maritime Disabled
23. Modernise and simplify administration of the sea
24. Define relevant maritime policy monitoring indicators
25. Expand our international involvement in order to defend French positions
26. Be the engine of European blue growth

STRATEGIC AXES

I/ RELYING ON KNOWLEDGE AND INNOVATION

France is one of the leading European countries supporting the construction of a marine and maritime knowledge-based society, thanks to the quality of its scientific work and research tools. However, the sea and marine environments are still only partially known and the possibilities for exploiting marine resources in a long-term perspective remain largely to be explored for many activities, such as: aquaculture, developing animal and plant biological resources, exploiting sea beds and renewable energies, how ecosystems work, the impact of our activities, the resilience of environments. The field of studies is vast and needs to be targeted as a priority objective. Moreover, it is also through research that France will strengthen its leadership on the international scene.

The ocean and its resources are addressed in two of the societal challenges that underpin the National Research Strategy: resource management and adapting to climate change on the one hand, and food security and the demographic challenge on the other. They are also addressed through two other societal challenges, those related to mobility, and those related to sustainable energy. The National Strategy for the Sea and Coastline will present a new cross-cutting challenge regarding the sea to be incorporated into the National Research Strategy during its revision.

A/ Better understand the “sea system”

Knowledge of the "sea system" in all its components (geophysics, hydrology, biology, ecology), understanding the physical and chemical processes and interactions with the biosphere are all challenges for research. They influence the ability to assess, predict and act to preserve biodiversity and ecosystem services in the face of increasing human activity. They also affect the ability to sustainably develop maritime activities and address the major economic and social challenges of adapting to global change, preventing and mitigating natural hazards - particularly for island and coastal populations - as well as accessing mineral and energy resources.

In metropolitan France, the periodic review of action plans for marine environments translates into a review of knowledge on the ecological status of marine environments. It also helps to target knowledge acquisition needs.

The scientific objectives to be prioritised concern interfaces, remarkable environments and their associated, particularly vulnerable ecosystems, which deserve special attention:

- *The coastal, littoral and estuarine zones*, which are under the strongest pressures as a result of human activity⁷ and are home to remarkable habitats, that are particularly sensitive to the combined effects of long-term trends and extreme weather events. Acquiring new data, as well as digitising and interpreting old data, on the dynamics of the coastline and coastal erosion are priority issues for coastal territories. *In particular*, priority should be given to:
 - the impact of the rising mean sea level on erosion and accumulation processes and the impact of changing storm patterns and the effects of offshore hydrodynamic energy dissipation on coastal areas;
 - the hazards associated with the seismic and sedimentary regime of coastal zones (earthquakes, sedimentary destabilisation, submarine landslides, tsunamis), as well as the vulnerability of sites and the monitoring of associated ecosystems;
 - the development of observation and alert systems for seismic risk, erosion and submersion, including, in particular, data collection and simulation tools, and forecasting capabilities on sea conditions.
- *Deep environments and the pelagic domain*, where pressures from human activity are exerted in a prominent manner (petroleum development, exploration and metal development projects at depths greater than 1000 m, fisheries, storage of waste, etc.) on ecosystems that are more diverse and complex than previously thought (margins, canyons, plains, dorsals, etc.) and whose functioning is linked to temporal dynamics different from those observed in other areas of the ocean. It is a matter of anticipating potential issues to protect the wide potential of deep environments in terms of new knowledge, innovation and services (including climate regulation and genetic resources).
- *the singular environments: tropical island domain, polar or sub-polar regions*.
 - The tropical island domain, particularly in overseas territories, is home to ecosystems that are particularly exposed, such as coral reefs and mangroves. In such places, the effects of global change are violently expressed with an increase in extreme events, to which the way to be resilient needs to be identified.
 - The polar domain, especially its coastlines, reflects climate change in a particularly rapid manner, with features specific to the Arctic and Antarctic. Significant disturbances affect all "balances", with repercussions on global climate through oceanic and atmospheric circulation and mean sea level. Polar marine environments are home to original biodiversity, characterised by a high level of endemism.
- *the Mediterranean Sea*, to build collective approaches on strong issues shared with both our European partners (the BLUEMED initiative of the Horizon 2020 programme's SC2-BIO Committee), as well as those on the southern shore of the

⁷60% of the world's population lives within 100 km of a coastline, and 260 million people have a job directly linked to the sea.

Mediterranean (the French National Centre for Scientific Research (CNRS) is coordinating the MISTRALS project), in conjunction with the international processes of the 5+5 Dialogue and the Union for the Mediterranean. The multiple ecosystem services and the challenges of blue growth for riparian States make this semi-enclosed sea a true sustainable development "laboratory", from the coast to the deep areas.

More generally, the acquisition of scientific knowledge on the link between anthropogenic pressures and the direct or indirect impacts (cumulative pressure) on the marine ecosystem will enable adequate environmental policies to be established.

1. Getting to know the sea better, developing a marine and maritime knowledge society

B/ Innovate to recover resources and develop the maritime economy

Human activities in relation to the sea have a growing economic interest and are intensifying due to technological developments. The maritime economy, for a country like France, accounts for 1.5% of the gross domestic product and total employment. The innovation objectives, integrating a sustainable development approach for all sectors, should give priority to:

- Harnessing *marine biological resources sustainably, and supporting the implementation of the new objectives of the common fisheries policy (landing obligation and achieving a maximum sustainable yield by 2020).*
- Evaluating *the services provided by marine ecosystems.*
- Developing *sustainable and competitive aquaculture (shellfish, fish farming).*
- Developing *marine renewable energies.*
- Supporting *the research effort for the exploration, development and sustainable management of deep ocean resources.*
- Developing *marine biotechnologies.*
- Developing innovation for *coastal management techniques and ecological engineering, as well as research efforts in the field of environmental services.*
- Developing *innovation* in the following specific areas:
 - o Maritime transport to make the "seas safer" and strengthen our merchant navy.
 - o Ports and infrastructures to enhance the fluidity and intermodality of the logistics axes in the sustainable management and preservation of our port economy industry, turned towards energy transition.
 - o Naval research: fishing vessels and future trade vessels that are safer, cleaner and more energy efficient; eco-design of recreational, commercial and service vessels.
 - o Observation, maritime surveillance, security and maritime safety.
 - o Deep-sea robotics.

- Technology for offshore activities.
- Digital maritime transition and services based on intensive use of data.
- Blue biotechnology and the use of microalgae.
- Satellite observation technologies.
- The technology of fishing gear and methods.
- Seafood.
- Agro-ecological approaches likely to apply to shellfish aquaculture.

2. Support maritime innovations, increase research capacity

C/ Structuring research

Developing scientific knowledge requires coordinated research programming and developing capacities to implement these programmes, i.e. human capital and high-level infrastructure.

The progress of modern science leads to the assertion of an objective of pooling large research facilities between various operators within the same country, or even between different countries. For environmental sciences, research infrastructures often aim to respond to a double request - research per se and observing environments and eco-systems.

The dynamics of the network and coordinating stakeholders are also to be reinforced, through pooling and sharing and reference tools, such as the European Union's Copernicus Programme, access to different databases, identification of knowledge sites and their funding, in order to optimally exploit the means put in place for the knowledge, which require innovation on a wide range of observation tools (such as ships, satellites, planes, floats, and gliders). The French oceanographic fleet must be strengthened and its use optimised.

D/ Developing research and knowledge for and by French overseas territories

French overseas territories have specific characteristics to be valued within the framework of guidelines for research, development and innovation in the fields of the sea and the coast, in particular:

- important observatories of global change;
- a remarkable biodiversity to be discovered;
- the enhancement of marine resources;
- renewable energies for the autonomy of territories and isolated islands;
- deep-sea resources;
- specific needs for sustainable resource management;

- promoting networking to develop innovation;
- developing innovation on pilot sites.

E/ Building a marine and maritime knowledge-based society; raising public awareness of maritime issues

Building a strategic approach is both the fruit and the source of a growing awareness of maritime issues. This dynamic marine development is an essential element of a French maritime society project; it can mobilise and unite new human, economic and political energies in order to remove obstacles. In this regard, the definition of a communication and awareness strategy on the major issues of the sea and coastline should make it possible to better discover, know and understand these specific spaces. It is a framework that is declinable to educational, awareness-raising or communication media, including via digital tools. It must rely, in particular, on networks that are involved in raising public awareness, such as large aquariums, museums, and environmental educational centres (CPIE Centre permanent d'initiatives environnementales).

The appropriation of maritime reality by civil society involves strengthening the place given to the sea and coastline in various educational courses by presenting their major strategic, scientific, ecological and economic issues, as well as nautical occupations, which are too often avoided and which, by offering a scientific, technical and behavioural background, allow us to live in harmony with the sea.

L'Éducation nationale (French National Education System), which largely includes sustainable development education, can play an important role in this regard, by including sustainable development themes and issues (including those relating to the sea) in education curricula, teacher training and the training of supervisory staff, in school and establishment projects, as well as in producing teaching resources. Developing lessons on the sea, educational marine areas and involving leisure structures with the marine environment can also be used as tools for this awareness-raising effort.

3. Teach others about the sea

Building a maritime society goes through science and culture. Marine sciences and technology and French maritime cultural heritage have a potential that should not be neglected. They must be valued in support of a communications policy that contributes to the influence of the maritime world and the attractiveness of the coast, with a major maritime cultural initiative to be launched.

4. Launch a major cultural initiative for the sea, develop a national maritime consciousness and include French maritime culture in the UNESCO World Heritage list.

Initiatives such as publications, maritime events, competitions and nautical competitions are also part of a vibrant maritime culture and deserve encouragement and support.

F/ Continue training efforts

Today's professional skills in the world of the sea are a basic set of essential skills and current maritime trades are the foundation of training and jobs. However, new skills will have to be mobilised. The transition to a blue economy will lead to the modification of practices, a change in specialisms and the emergence of new occupations dominated by technology, computer sciences and the environment. The adoption of a strategy to open up initial training, and training to meet environmental needs and objectives is desirable. The marine energy sector is the very illustration of our need for training.

Career paths will evolve and short-term and ever-developing careers will become widespread. This implies facilitating and developing professional mobility between the different sectors of the maritime and terrestrial worlds. This mobility covers at least three fields: mobility between the maritime and terrestrial sectors, mobility within the maritime sector (between fisheries and trade, for example) and inter-sectoral mobility, through social advancement.

The change in progress in the management of marine spaces and recreational boating shows the emergence of new service needs and support for new practices as well as the necessary adaptations to these future sectors.

There will be a significant impact on the training system on a cluster of maritime education to be established through higher education at the marine universities network, the National Maritime College (ENSM), the 12 maritime vocational high schools, the accredited centres that participate in maritime vocational training by offering a range of training courses (such as CAP, BAC PRO, BTS, Bachelor's degree, engineering degree), as well as all the schools active in developing the maritime economy.

The size of the network and its very fine integration in local and regional life are an asset to be in line with the needs and offer prospects for young people in a context where careers will include many professional experiences. It will be necessary to reason more and more in terms of the maritime sector, the profession of seafarer being only one part of these sectors.

- 5. Provide training for sea-related professions by a cluster of maritime education, the network of marine universities and making the French Maritime Academy (ENSM) a global benchmark**

II/ DEVELOP SUSTAINABLE AND RESILIENT MARITIME AND COASTAL TERRITORIES

A territorial approach adapted to the sea and coastline must ensure the conditions for the development and management of the maritime domain under jurisdiction, which promote stakeholder involvement, the reconciliation of uses, the exploitation of resources and the protection of the environment. At the same time, it must allow existing uses to be adapted to the emergence of new activities, such as climate change or the evolution of the coastline.

It should apply at different scales (national, coastal or overseas basin, region, park, inter-communes) while respecting a principle of subsidiarity between the different nested levels.

It must be based on projects from territories that more solidly involve the stakeholders, both in defining and implementing such projects, as they concern them directly.

It must be articulated with the approach of the other countries bordering the same sea.

A/ Implement strategic planning ...

The National Strategy for the Sea and Coastline provides a general framework for a declination at the level of each sea basin, adapted to the specificities and issues of the space concerned, through a strategic document, which includes, in particular, the planning of maritime spaces. Alongside considerations on the development of the blue economy, the environmental component and spatial planning component of these strategic documents constitute, for mainland France, implementing the European Marine Strategy Framework Directive and planning maritime areas.

Strategic planning at the level of the sea basins is based on a vision that is both global and inter-sectoral within the framework of guidelines for sustainable development and an ecosystem approach:

- it is based on a state of affairs and an analysis, shared with the stakeholders, of the issues that arise (deadline 2017);
- it then sets the sustainable development and strategic orientation objectives (in particular sectoral at the national level) and translates them, at the level of the sea basin into the planning of the maritime spaces (deadline 2018);
- finally, it operationally completes the implementation of the strategic orientations through an action plan and a monitoring mechanism (deadline 2021).

Dialogue takes place at all stages, to shed light on and support the competent authority's decisions. It is based on the French National Assembly of the Sea and Coastline at the national level. Strategic planning can be developed at sea basins and basins, with dialogue based on maritime advice from sea basins.

Strategic planning must be further developed at the regional level in relation to coastal zones and the sustainable economic development of the coastline, in particular with the major upcoming coastal development operations. Several Regions have set up regional conferences for the sea and the coast, under various forms and designations,

as some of the many relevant examples of what can be achieved. This involvement, reinforced by the increased legislative responsibilities upon the Regions for economic development and strategic planning, must be generalised and encouraged in forms to be defined by the Regions. The sea will be one of the major components to be integrated into the SRDEII (Regional Economic Development, Innovation and Internationalisation Plan) and SRADDET (Regional Plan for the Management, Sustainable Development and Equality of Territories), which are currently under development.

Consistency between the planning documents of the sea basin and the regional plans is provided for by the regulation in the form of a taking into account of the former by the latter. The proper coordination between the levels must be built by crossed approaches to define the issues and coordinate political choices between the State and the Regions. In this search for synergy, the sea basin Maritime Councils will rely on regional conferences to strengthen the link with the regional problems and to better take into account the guidance contained in the regional planning documents.

The local scale that of the coastal Territorial Coherence Plan (SCOT) and its maritime component, must eventually find its way into successive planning scales. Within the time frame of the six-year strategy, the principles must be defined by drawing on the experiences of the few communities which have implemented and encouraged pilot projects, in the spirit of regional projects elaborated on in the following chapter.

As regards overseas regions, taking into account the specificity of the "Regional development schemes" and the presence of a marine nature park throughout the EEZ of Mayotte, the planning scales must be evaluated pragmatically: in many cases they can be combined and, in others, articulated in an appropriate way.

B/ ... With a spatial component

Within the strategic planning process, maritime spatial planning has a special place. On the basis of a clear and shared representation of maritime territory, it must make it possible to better organise a reconciliation of uses which takes account of the fact that activities may coexist or follow on from each other in time in the same place, in accordance with good ecological status.

A preliminary assessment of the cumulative impacts of different uses is part of this process, which also includes cooperation with neighbouring States in the same maritime area.

Spatial planning must take into account the higher intensity of uses and protection issues in the coastal zone, by adapting the zoning scales to this reality. The aim is to ensure integrated management of the interface between the sea and land, in particular the link between watershed management and coastal management.

It thus aims, for the sea basin, to establish a map that determines constraints and strategic objectives, the general issues and objectives that will then guide the decision-making processes concerning authorisation of activities and reconciliation of uses for each zone identified with regard to the elements of the state of affairs. Providing comprehensible and dynamic information to the public on offshore activities and spatial planning is essential, and a dedicated tool could be put in place for users.

6. Build maritime spatial planning to reconcile uses, seek synergies between activities and integrate new activities

Some spatial planning already exists at sea. They will be taken into account and put into perspective in a more global and evolutionary approach. In particular, the next six years should create favourable conditions for establishing marine renewable energies, aquaculture and protecting areas with a high stake in the protection of the marine environment, in particular fisheries conservation zones.

In the particular case of terrestrial shorelines, another priority issue is to reconcile new activities with the maintenance of traditional terrestrial activities (agriculture and forestry). This involves collaboration with local authorities with their planning tools and developing tools to manage natural coastal areas (such as departmental strategies for managing the maritime public domain and the Coastal Conservation Strategy).

C/ Develop "territorial projects"

At least two reasons justify a strategic choice for territorial projects for the sea and coast. On the one hand, the value of the sea for the coastal economies deserves to be better understood and better taken into account. On the other hand, efforts within the framework of sectoral policies sometimes come up against interactions with other activities, in particular the marine and coastal environment and pressure on the use of coastal land resources.

The territorial project focuses on local governance and a long-term vision to enhance the value of ecosystems and marine, submarine, landscape and cultural heritage (built, navigable or intangible) in the coastal economy and to facilitate development projects. It seeks to take advantage of all the opportunities for transition. It must take into account the capacity of the territories to limit the pressure on the spaces and the marine environments. It aims to conserve aquaculture, fisheries, agricultural or forestry activities on the coast, as well as natural areas and open access to the public. It aims to make the economy and coastal development resilient against the global change resulting from climate change, natural hazards and economic and societal developments, to create 100 positive energy maritime territories by 2022.

7. Build 100 positive energy maritime territories

This local scale can be carried out by a competent public institution, for example, to develop a SCOT territorial coherence plan (SCOT including an individualised chapter as a blueprint for the development of the sea) or a regional nature park, a marine nature park or even a national park. It may benefit, in particular, from projects financed under the European Maritime and Fisheries Fund (EMFF) within programmes such as "Local Development carried out by Local Actors", carried out by the Local Action Groups on Fisheries, or "Best possible aquaculture sites".

Finally, commercial seaports, which have been given the role of managing their natural areas through the 2013 national port strategy, must draw up management plans that integrate the recovery of sensitive areas and deal with the interface zones between the city and port. More broadly, they are assets and must be active for territorial projects in relation to their hinterland, in an integrated fashion with the development of their maritime approaches, which are considered as an expansion of the territories.

D/ Protect environments, resources, biological and ecological balance; preserve sites, landscapes and heritage

The preferred approach for marine environments is the ecosystem framework chosen, described and organised by the “Marine Strategy Framework Directive” (biodiversity, trophic chains, integrity of sea-beds, non-native species, eutrophication, contaminants in the marine environment and marine products, marine waste and underwater noise) and the resulting environmental objectives. The implementation of the directive has led to the approval of a first generation of action plans for the marine environment for mainland France.

The principles of the ecosystem approach apply to the overseas territories and will be applied in the development of the environmental component of overseas basin strategic documents, taking into account the specificity of these territories. The regional strategic analyses carried out in recent years for marine protected areas provide the basis for this.

Adherence to the “avoid, reduce and compensate” sequence is also an essential point of support for achieving environmental protection objectives, which must be taken into account in the developmental approaches of the activities promoted elsewhere by the strategy.

8. Protect environments, resources, biological and ecological balance

Particular attention is paid to the fight against pollution, in particular of land-based origin (especially waste), reducing light and noise pollution, improving the quality of coastal and littoral waters in relation to water policy, implementing measures to protect species and habitats, and developing an engineering programme to restore marine ecosystems. In addition, the fight against illegal fishing will contribute to preserving fishery resources.

The moratorium in place on hydrocarbon exploration in the Mediterranean since the beginning of 2016, which was extended to the Atlantic coast of mainland France, contributes to the preservation of marine biodiversity and reduces the risk of damage to fragile ecosystems.

The National Strategy for the Management and Creation of Marine Protected Areas specifies the policy for protecting areas with a view to contributing to the knowledge of environments, healthy marine ecosystems, the maintenance and the sustainable development of maritime activities, better management of the interface between the land and sea and taking into account the issues defined at different levels.

Concerning the coast, the same principles apply and there is added attention to the landscapes and living conditions. With a view to limiting artificialization, the objective of the "natural third" has been set, which contributes to the land policy to safeguard the coastal area, respect natural sites and the ecological balance led by the Conservatoire du Littoral (the French “Coastal Protection agency”), in close partnership with local authorities.

9. Preserve sites, landscapes and heritage

E/ Adapt coastal management to global change

The coastline is subject to erosion and sedimentary dynamics, it is the site of submergence risks for human settlements and it will be directly affected by sea-level rise. The coastline is mobile in essence: it cannot and must not be fixed everywhere. It is now necessary to plan and prepare the stakeholders for the implementation of the long-term relocation of activities and properties exposed to coastal risks, with a view to re-defining the coastal fringe, even if transitional measures are implemented.

This begins in the context of proposals for projects for relocations, which will collectively involve building upon experiences for further action.

In areas where coastal risks are high, the location of vulnerable properties and activities must be stopped in order to retain only those activities that are compatible with these constraints and capable of controlling these specific risks and which need to be on the coastline due to their inherent nature (such as ports, aquaculture, etc.). The submersion and erosion hazards will be jointly taken into account in the plans for preventing coastal risks.

The integrated management of the coastline takes into account the three pillars of sustainable development as well as the cultural dimension (such as coastal heritage, landscapes, etc.). It is based on the coherence between the options for urban planning and sustainable development of the territory, risk prevention measures and coastline development.

In order to cope with climate change, it is necessary to anticipate changes to the physical phenomena of coastal erosion and marine submersion. This requires knowledge of the hazards and functioning of coastal ecosystems, including coastal sediment dynamics and inshore/offshore water exchange systems in their present state and a forecast of their evolution over 10, 40 and 90 years. Data on hazards and coastal ecosystems should be made available to all stakeholders.

10. Preserve our coastline and anticipate the evolution of physical phenomena of coastal erosion and submersion

These principles are implemented in a National Strategy for Integrated Coastal Management, which is involved in climate change adaptation planning.

F. Preserve national interests and prevent risk at sea

The objectives of sustainable development of the sea and coast cannot be conceived without securing the seas and the ocean. Preserving national interests in areas under jurisdiction, and protecting them from the multiple risks threatening these spaces and French maritime activities, in all zones where they have economic or environmental

interests, first of all requires a detailed and evolving analysis of such risks and threats. The very diverse missions for prevention or intervention also draw on highly sophisticated technical information and control networks essential to the safety of navigation, air and sea means of intervention that are judiciously designed and geographically well distributed, without forgetting the crews regularly trained to act in sometimes extreme conditions. Finally, nothing effective would be possible without the coherent national interdepartmental framework that enables State Action at sea.

In this context, the Regional Operational Surveillance and Rescue Centres (CROSS) are responsible for coordinating search and rescue at sea (more than 10,000 operations per year), for monitoring of maritime navigation (more than 130,000 reports per year), monitoring of marine pollution (289 reports in 2015), and monitoring of fisheries (National Fisheries Monitoring Centre). In this regard, our national sea rescue model, unique in Europe, must be the focus of particular attention.

A maritime security strategy was adopted by the interdepartmental committee on the sea, on 22 October 2015, in order to respond to this global imperative. It is a follow-up to the 2013 white paper on defence and national security, and provides a national vision complementary to the EU's maritime security strategy adopted in 2014. It aims to control our maritime areas, to protect our citizens and vessels, to combat illegal trafficking at sea, to defend our economic interests, to promote a safe international maritime area, and to prepare for the future.

This strategy sets in motion initiatives intended to sharpen our knowledge of what is happening at sea, to increase the effective presence of State services at sea, to direct surveillance, and to increase the strength of means of intervention and their capacity for action.

11. Maintain a high level of safety in our maritime areas so as to protect the marine environment and our economic interests

The safety of maritime transport is a key factor in economic development and in protection of the environment. In order to achieve this, the following are required. A quality French fleet, application of international rules to ships that frequent French and European waters and ports, hydrographic knowledge, and marine cartography adapted to the new uses of navigation. A deterrent monitoring chain and strong intervention capabilities that are specifically reactive and effective in the event of accidents, must enable handling of the very large vessels produced by shipbuilding yards in recent years.

The French ports, with their capacities for receiving and reconfiguring vessels in difficulty, constitute an equally important preventative of major risks. In this regard, the vessel safety centres ensure the control and certification of vessels flying the French flag (over 10,000 visits per year), and the control of foreign vessels calling at French ports (approximately 1,300 inspections per year). These visits and interventions focus on safety, security, pollution prevention, and social certification.

III. SUPPORT AND OPTIMISE INITIATIVES, AND REMOVE OBSTACLES

One of the main goals of the strategy is to monitor the transition or development of economic stakeholders, to give impetus to emerging activities, to combine efforts, and to facilitate and enhance the initiatives of companies and of civil society.

A. Support new activities

Alongside the traditional sea and coast sectors, new activities are gradually emerging, reflecting an unprecedented trend of diversification, while offering considerable potential for development.

These new opportunities, like the traditional activities, must be part of the SNML's long-term objectives. Work focused on defining compatibilities and spatial planning is essential to ensure best exploitation of the maritime environment, by reconciling all of the existing and emerging activities, by means of strategic documents on the marine surface and basin.

Renewable marine energies, with the exception of wind power already installed at a commercial stage (with a total installed, or being installed, capacity target in 2023 of up to 9000 MW), are still mostly in the pilot stage. They are the subject of numerous demonstration projects, supported by the State, in particular through the Investments in the Future Programme. This support will be continued over the coming years, to bring the industrial sectors to maturity, and to structure a competitive French offer, including exports.

In order to provide visibility to stakeholders, development objectives have already been set for 2023 for the most advanced technologies. Therefore, the installed power targets for 2023 are set at 100 MW for floating wind and for marine hydro. In addition, the goal for the volume of projects awarded by invitation to tender, and that will therefore be in progress in 2023, has increased to 2,000 MW for these energies (depending on the experience of the first projects, local consultations and price conditions). Finally, the State is attempting to secure and simplify the legal framework for the deployment of these major projects.

These combined objectives include the development of other solutions using sea energy (thermal sea energy, wave energy, heat exchangers, etc.), and must contribute, in a land-sea energy mix, to the pursuit of energy autonomy for island territories.

12. Attain our renewable marine energy goals

The marine biotechnology sector is also opening up promising prospects. Living organisms from the sea provide an already substantial and growing share of the pharmacopoeia and resources necessary for the cosmetic industry, without the importance of this contribution being precisely known at this stage. Seaweed biotechnology opens up new avenues for human and animal nutrition, particularly for aquaculture, as well as for the chemical industry and the production of bio-sourced materials. These potential solutions are multiplying alongside increased knowledge of microalgae, on the one hand, and technologies for their large-scale reproduction on the other.

Non-biological resources such as aggregates or deep-sea minerals can be exploited with ever more advanced technologies, in order to respond to scarcity of land-based deposits.

The mineral substances of the deep seabed represent an economic potential to be studied. In order to anticipate the possible development of deep mineral exploration and exploitation activities, a collective scientific assessment of environmental impacts was carried out in 2014, and a strategy for exploration and mining of the deep seabed was approved by CIMer on 22 October 2015.

These activities can only be authorised or promoted - including on the high seas - to the extent that they ensure reduced impacts on ecosystems. The same applies to desalination of seawater, a sector in which French companies are responding to developmental challenges at the international level, particularly in the context of global warming.

The infrastructure sector must be interested in the prospects opened up by multi-purpose offshore platforms. These would enable development of zones of activities at sea, facilitating the establishment of facilities for the development of maritime resources.

In general, for all activities, eco-design approaches must be the norm, in order to guarantee the resilience of the environment as well as to respond to the issues raised by ecological transition towards sustainable development.

Finally, development initiatives and maritime innovations would be favoured by centralising examination of judicial appeals before specialised jurisdictions. It would be justified to extend to other activities what has been done in this regard for marine energies: applicants and sponsors would benefit from enhanced expertise and faster response. This matter will be studied to determine its scope and modalities.

13. Study the establishment of dedicated jurisdictions for the review of disputes relating to maritime activities

B. Assist evolution of traditional activities towards sustainable and resilient models

There are several traditional sectors in the maritime and coastal economy. It is important to ensure their sustainability by promoting their transformation and their economic competitiveness.

Development of fisheries and aquaculture takes place within the framework of the new Common Fisheries Policy (CFP), in operation since 2014. The aim is to achieve optimised management of fisheries resources, known as "Maximum Sustainable Yield" (MSY) in the timetable set by the Common Fisheries Policy (CFP). This policy, which strengthens the competitiveness and sustainability of a large part of France's fisheries, is formulated by the operating programme of the European Maritime and Fisheries Fund (EMFF).

This programme fosters convergence between the economic development of competitive and sustainable sectors - based on knowledge, innovation, and a high employment rate, and respect for the environment with economical use, recovery of resources, reduced footprint on the marine environment, and reduced dependence on carbon-

based energies. Specifically, it must create conditions ensuring maintenance and renewal of the fishing fleets, in mainland France and overseas, as well as the development and modernisation of companies.

The strength of the French fishing industry is characterised by the diversity of its businesses and practices. The programme will particularly take into account the specificities of small-scale fishing. The issues inherent to “small businesses” must be taken into account at an individual coastal level for contribution to regional projects and to sustainable management of fisheries.

In the field of aquaculture, the Multiannual National Plan for the development of sustainable aquaculture 2014-2020 (PSNPDA) envisages growth in this sector by focusing on production of a high environmental quality, and strengthening the control of health risks. It responds to the need to reduce dependence on imports of aquatic products, including from outside of Europe. This plan can benefit from increased support from the 2014-2020 EMFF, particularly in spatial planning (EMFF provision 51-1a for determining the best possible aquaculture sites). The strategic plan specifically focuses on the synergies between professionals and governments, in order to increase the range of aquaculture products and to remove obstacles to aquaculture development, for both mainland France and its overseas territories.

In the long run, these combined actions should reduce France’s dependence on sea food products.

14. Achieve sustainable management of resources, while reducing sea food dependence, by reinforcing the ambition of French fishing, as written into the common fisheries policy, and supporting the development of aquaculture

France’s merchant fleet is at the heart of its maritime economy. It creates jobs at sea and on land, has exceptional know-how, and is recognised for its excellence in environmental and social matters.

The fleet also has a strategic character, contributing to security of supply, communications and services. At all times it provides a nautical capacity that meets the needs of the armed forces and those of the nation, reaffirmed by law on the blue economy.

By means of the skilled jobs it creates and the services it requires, it stimulates all sectors of the maritime economy (insurance, classification, brokerage etc.).

France’s goal is to develop its French-flag commercial fleet, both in the transport sector and in the maritime services sector. The objective is to increase the number of French sailors under the French flag to 20,000 by 2025.

15. Develop the French-flag merchant fleet and have more than 20,000 French sailors

French transport and maritime services companies have been committed for many years to reducing their impact on climate, air and the marine environment, and on improving the competitiveness of the French fleet. This objective involves working with international bodies (IMO and ILO), for appropriate rules and harmonisation of rules between flags, as well as national and European support mechanisms. Concerted approaches between professionals and the State, to drive the sector towards steps to reduce greenhouse gases, have proven their effectiveness and must be continued. France must encourage them.

Alternative maritime fuels such as LNG or hydrogen, sail support devices, whether still in the research stage or already deployed, must be supported by the State. Their development will allow construction of innovative industrial and port sectors as well as reduced vessel pollution emissions. The setting up of electrical connection points for vessels at berth would be an effective contribution to reducing pollution emissions, and would enhance the quality of supply for French ports.

France is committed to supporting modernisation of the fleet in order to have vessels that are ever cleaner, safer and more energy efficient.

16. Support innovative sectors and energy transition in transport and maritime services

National port strategy is part of an integrated approach to maritime policy for blue growth, and is based on three main pillars: logistical strengthening of ports, with an emphasis on intermodality, improvement of the port situation, promotion of installation of industrial activities for energy transition, and development of the new role of ports in integrated management of their spaces. The aim of the national overseas ports strategy is to enhance their potential, with regard to the particularly rich ocean and coastal environment in overseas territories, and to give new impetus to the development of ports that contribute directly to job creation and value.

Thanks to sustained action to facilitate port transit, and development of efficient mass transport networks and services, French ports, major seaports as well as decentralised ports, must regain market share vis-à-vis their European competitors. The objective is to process all goods destined for the natural hinterland - France, and then extend this hinterland beyond France's borders. This objective must be supported by a proactive policy to develop the most sustainable logistics chains and to optimise port areas in order to help revitalise the industrial base. France can envisage being the premier European port by 2030, provided it no longer addresses the world in a divided way. Ports must also work together to be visible internationally.

It is indeed the logic of development that must inspire the best possible sharing of maritime space and do so using a logic of complementarity, not only at the level of the ports - the axes, by harmonisation of the tariff policy for ports and port services, but more globally at the level of all of our ports, which account for nearly 350 million tons of goods, at the level of the "French ports team".

17. Make France the main European port

Recreational boating is also in a process of ecological and sharing economy transition: boat building is applying eco-friendly building standards and establishing a ship recycling industry (extended producer responsibility). Marinas are reducing their footprint by energising the management of sites and services - a logic of quality, especially in terms of the environment, replacing a purely quantitative logic. It is particularly necessary to continue the support provided within the framework of the call for “exemplary marinas” projects, which promote the development of reception capacities using a sustainable development approach. France is the only nation in the world to have set up, with its standards agency (AFNOR), a European environmental certification specific to marinas: Clean Ports or Clean Harbour Guidelines (CWA 16387) European certification. These efforts must be strengthened and continued and must be accompanied by a raised awareness among recreational boat users.

18. Support the development of recreational boating

France, the world's leading tourist destination, owes much to the attractiveness of its coast, its landscapes and its maritime heritage. The opportunity for all to access the sea and to enjoy sailing and seaside recreation rests on fragile ecosystem and economic balances which must be safeguarded. On this condition, the leisure market provision, which is often coastal areas' main resource, and which continues to create jobs, can be developed and diversified. Synergies between tourism, fishing, and aquaculture sectors need to be deepened (a ministerial report on the development of fishing tourism - which is only part of the subject - is under way). Emerging approaches to participatory science, sustainable tourism and, more generally, sustainable development undertaken by stakeholders must be optimised and strengthened.

C. Steer budgetary matters and set out a harmonious fiscal and funding strategy

Implementing an ambitious maritime policy requires financial resources for the management of maritime and coastal areas and ecosystems, for safety and security functions, infrastructures, and support for development of the blue economy.

Presentation of State resources devoted to maritime policy must be the subject of a transversal policy document appended to the budget, and presented to Parliament. This document was produced for the first time during the 2016 budget. It indicates, although the inventory is still incomplete, funding of 1.76 billion €, centred on State missions and competences. As of the presentation of the 2018 budget, the transversal policy document will be supplemented and refined in its content and reorganised according to the objectives and orientations of the National Strategy for the Sea and Coast. It must be the tool for budgetary steering and for Parliament's involvement.

19. Establish a cross-cutting policy document for the sea budget Ensure it is operable in the Finance Act

The investment program for the future has also contributed to the funding of around a hundred projects in the maritime sector, to a sum of € 195 million in grants and € 650 million in other forms of support. This approach has proven to be effective in matters of innovation, and has an important role to play in implementation of the strategy.

In addition to resources mobilised by the State, the European Union and local and regional authorities are implementing skills that play an essential role in implementing the strategy. The development of a public resources centre devoted to the sea and coast must make it possible, more globally, to assess the scope of public intervention and to discuss its orientations in relation to the strategy's objectives and its offshoots in the individual coasts and basins.

It is also necessary to define the State's taxation strategy for the maritime sector. Taxation must be both a lever for the promotion and development of maritime activities, particularly those directly subject to international competition, and a tool for more equitably envisaging treatment of the different uses of maritime space, as well as applying the polluter-pays principle. For this reason, it is also important to offer stakeholders visibility in the regulatory and fiscal framework, allowing them to appreciate the logic and to mobilise existing economic instruments under the best conditions.

It is with this perspective that the Committee for the Green Economy will undertake a thorough appraisal of the economic instruments likely to encourage better preservation of marine ecosystems, prevent coastal risks, and support economic development of maritime activities. This appraisal will aim at proposing adaptations of the existing framework, as well as new instruments, while also ensuring the reform of possible subsidies harmful to the environment.

20. Build a fiscal goal for the sea

D. Make maritime careers attractive

Far from being limited to environmental and economic issues, the maritime challenge is also social, in a sector that represents more than 450,000 jobs. The main lines of action on this point are to develop maritime employment by increasing the attractiveness of sea-related professions, in close synergy with the associated sectors. This attractiveness relies in particular on social dialogue, in particular for seafarers as regards working conditions, prevention of occupational risks, and the development of social advancement through vocational training, which is one of the maritime sector's strengths.

Implementation of the International Maritime Labour Convention of 2006, the International Convention on Labour in the Fishing Sector, and the Blue Economy Act of 2016, provide many opportunities for more balanced competition between flags and to promote decent working conditions. This work of preserving and consolidating social rights must continue at the Community level in order to ensure the full application of international conventions and to convince European partners to launch a project with a view to a "high-end" harmonised social framework. This work could begin with activities taking place specifically in European waters by means of an appraisal of a form of "European flag".

21. Combat social dumping for seafarers in the European maritime area

A change to the oldest system of social protection in the world must be possible to simplify and modernise its functioning as has taken place in all such schemes. The ENIM must evolve to give French sailors a chance, to enable them to make France and its merchant navy shine. The social protection system must be better adapted to the needs of companies and seafarers. Both employers and unions must be fully involved in its governance and its board of directors.

22. Renew the pattern of the National Establishment for Maritime Disabled

E. Improve governance, pursue modernisation of public action

Simplifying the life of citizens and companies is another major project. It involves continuous clarification of the action of the State and of communities in the sea and coast sector.

The emergence of new State operators in the regions (future branches of the French Agency for Biodiversity, Marine Natural Parks, etc.) must be an opportunity to better organise the maritime policy of the State, local authorities and their institutions. In a pragmatic manner and based on the principle of subsidiarity, it is advisable to envisage the optimal level of practice for each type of mission or initiative.

The role of the Maritime Councils for individual coasts and basins (CMF and CMU) must go beyond the role of consultative body on texts presented by the State. They must be able to be a force for presenting proposals, a place for debate, and for preparing decisions concerning the sea and the coast.

For this reason, CMFs rely on regional sea and coast conferences, as and when they take place.

Regular exchanges must be organised between CMFs and CMUs, and with the National Council for the Sea and Coast, in order to continuously foster monitoring and development of the national strategy and enrich it with the experience of the work carried out in the individual coasts and basins.

Finally, it is necessary to improve the division of labour in State action by reorganising the powers of the maritime authorities. Strengthening the responsibilities of the coordinating prefects is a priority. This approach strengthens the link between design of strategic planning, and its implementation, thus promoting a coherent appraisal of maritime issues.

In addition, the “one-stop shop” or “single authorisation” approaches must be systematised to facilitate the functioning of the blue economy, and to promote emerging or positive-impact projects. “Simplification programs” must be carried out in order to streamline and better coordinate procedures.

23. Modernise and simplify administration of the sea

F. Draw on the sea and coast Monitoring Centre, share data and information

The mission of the National Sea and Coast Monitoring Centre (ONML) is to disseminate summary information on environmental, social and economic matters for coastal areas and the sea, both in mainland France and overseas. It has already produced and put online some sixty thematic files. It is the tool for statistical summary, and for information dissemination, on which the strategy must be based. It ensures the mobilisation and availability of the SNML's monitoring indicators as outlined above in relation to the objectives. It provides support to the National Council for the Sea and Coast, in a form to be defined with the Council.

Depending on progress of work carried out elsewhere, it will be able to mobilise available information on assessment of ecosystems, their services and, where appropriate, their value.

Regarding data, the opening up of public data will lead to their re-use and exploitation for new uses. These will create new services useful to businesses and citizens, which in turn can encourage the creation of new activities, both public and private.

These principles, concerning all public data, must be applied to the sea and coast, in particular to contribute to the development of economic initiatives in the maritime sector, and to control their impacts on marine and coastal environments. They require the involvement of State services and operators, and of private actors, involved in the creation of public data. They may be supported by the interdepartmental directorate of the State's digital information and communication system, and by the data supervisor at the Ministry of the Environment.

The Monitoring Centre will be the main actor in monitoring and coordination of spatial planning.

24. Define relevant maritime policy monitoring indicators

IV. PROMOTE A FRENCH VISION AT THE HEART OF THE EUROPEAN UNION AND IN INTERNATIONAL NEGOTIATIONS, PROMOTING NATIONAL ISSUES

A. At the international level

France must pursue and strengthen its multilateral involvement, in order to carry out a better appraisal of marine, coastal and maritime issues in processes in which our country plays a recognised role: scientific research, safeguarding human life at sea, safe navigation, decent working conditions for seafarers, combating illegal fishing, combating illicit trafficking, governance of biodiversity in the high seas, implementation of the Mediterranean strategy for sustainable development 2016-2025⁸, better appreciation of the role of the oceans in adapting to and mitigating climate change.⁹

The strategy will contribute in particular to objective 14 of the sustainable development objectives, adopted in September by heads of state and governments, within a UN framework, and aiming to “Conserve and sustainably use the oceans, seas and marine resources”.

It is now for France, a stakeholder in many international conventions that contribute to better use of maritime spaces at regional and global levels, to foster better European coordination on maritime issues, while maintaining its freedom to speak on the issues that are not of exclusive Community competence.

France's action, its international reputation and its ability to export expertise in global markets will be based on an understanding of maritime issues shared between the State, economic actors, and civil society, as well as on the full integration of its overseas dimension.

The objectives pursued by France's positions must be defended within the specific frameworks of regional fisheries organisations and regional seas Conventions. In this regard, France can make a stronger contribution to the development of regional plans for the marine environment within the framework of the regional seas conventions of which it is a member, in the Northeast Atlantic, the Mediterranean, the Caribbean, The Indian Ocean, the Pacific, and the Southern Ocean. To do so, it can draw on the clear logical framework and the national vision affirmed by this strategy, which it will promote and defend at international forums, taking advantage of its prominent position.

In matters of the environment and economic and social development, the overseas aspect is an essential dimension of France's international reputation and its capacity for regional cooperation. The overseas aspect is also a major challenge for the preservation of biological diversity, in particular through the establishment of a representative and coherent network of marine protected areas.

⁸Adopted at the 19th meeting of the contracting parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention).

⁹Paris's 2013 call for governance of the high seas, then Presidency of the COP 21 held in 2015, which was marked by integration of the subject of the oceans into the process of adaptation to climate issues.

The national roadmap on the Arctic, which France adopted in June 2016, illustrates France's high level of scientific, environmental, economic and strategic interest in this emerging area. On the continent and in the Southern Ocean, France, a member of the Antarctic Treaty System, will ensure that human activities are compatible with continued protection of the environment.

In matters of maritime transport, France must also continue to play a leading role within the International Maritime Organisation (IMO), particularly in terms of reducing CO2 emissions. In association with the professionals and associations grouped together in the Ocean and Climate platform, it is its responsibility to propose international solutions to better reconcile the development of maritime transport and the environment.

In addition to regional and cross-border cooperation measures, France has played and must continue to play a prominent role in international and Community forums in order to promote better governance of maritime activities, in particular in the field of safe navigation, and in the promotion of a common social base for vessel operation.

Through its action, particularly within the ILO, France has a special place in promoting a stabilised social framework for the Community flag/s, which is also a lever in the recruitment of Community seafarers, in particular for maritime cabotage activities in Europe. France could complement this action with a high-level initiative, to be applied to third-party vessels, ensuring higher social standards to third-party vessels providing intra-Community services, these being higher than those of the MLC Convention 2006, and approximating those of the most advanced European flags. Action could also be taken to re-establish a substantial link between the flag and the economy of the country concerned, in order to better regulate conditions for the registration of vessels.

The United Nations General Assembly is developing a legally binding agreement on the conservation and sustainable use of marine biodiversity beyond national jurisdictions. France, alongside the European Union, supports these negotiations in which it will continue to play an active role as a force for providing proposals until an agreement is reached.

France can also play a role in defining access to marine resources:

- on its continental shelf through continuation of actions related to its extension (under the EXTRAPLAC program) and the securing of its sovereign rights over natural resources through an action plan for maritime delineations. In addition, the State will anticipate future requests for exploration and exploitation by industrialists, by ensuring that all areas concerned have the appropriate legal framework, and by safeguarding the implementation of the respective competences of the State and of the overseas communities;
- on the ocean bed constituting the Zone, in accordance with the definition of the Montego Bay Convention, France decides to limit its international contracts to those it now deems to be for the "Clarion-Clipperton" and the "Mid-Atlantic Ridge" sectors. The State will give its full support to Ifremer's contractual obligations with the International Seabed Authority (ISA).

25. Expand our international involvement in order to defend French positions

B. At the European level

The national strategy for the sea and coast is part of the dynamic of the integrated maritime policy, and is in line with the guidelines set out in the Limassol Declaration and the European Commission Communication on “Blue Growth”. France, through its action in the European Council and Parliament, must play a leading role in guiding Community policies affecting the sea and coast. If the reorientation or confirmation of the integrated maritime policy must be the subject of a formal declaration, for example on the occasion of the Maltese Council Presidency, France must play its full part in the production of this declaration.

Particular attention must be paid to France’s position in the Common Fisheries Policy, which is a highly integrated European policy, in the context of the United Kingdom’s referendum on exit from the EU. The Brexit negotiation must seek to preserve national interests, both from the viewpoint of the historical rights of French fishermen in British waters, and from the viewpoint of access of British seafood to the European market.

Particular attention will also be paid to developing enhanced European cooperation, particularly in the context of cross-border approaches. Improved access to European funds, whether for permanent funding or one-off projects, as well as deployment of interface tools between relevant maritime actors at the European level, will be prioritised. France will also be able to conduct regional or collaborative initiatives using its sovereign powers, whether regarding subsidiarity or drawing on local proposal capacities.

With a view to blue growth and support for maritime employment at the European level, European programs will be used to promote development of the French maritime sector via initiatives in maritime basins such as the Atlantic and the Mediterranean, or regional maritime policies in the overseas basins that have territories eligible for qualification as an extremely remote region.

Tools for implementing spatial planning of maritime activities and uses must enable going beyond thematic approaches in order to optimise sustainable exploitation of the sea and the coast, and preservation of its biodiversity. This approach involves and fosters a dimension of regional cooperation between States bordering the same maritime area, as well as enhanced cross-border cooperation in regional seas, and in defining and implementing European and international policies. It requires access to the best available data on marine environments and maritime areas. It also requires cross-border technical exchange in order to render the data and their dissemination systems compatible.

26. Be the engine of European blue growth

Annex 1

Summary of the current situation¹⁰

The ocean has great potential for stimulating economic growth, employment and innovation, and for ensuring resilience regarding the effects of climate change. It is one of the keys to solving the many global challenges facing the planet in the coming decades, from food security to climate change, from energy production to natural resource management, and improving medical care.

Conversely, it is already subject to the pressures of overexploitation, pollution, loss of its biodiversity, and climate change. Achieving the ocean's full potential therefore requires responsible and sustainable approaches to its economic development.

In its projections, the OECD estimates that between 2010 and 2030, based on a trend scenario, the ocean economy could contribute significantly to employment growth and more than double its contribution to global value added. Strong growth is particularly expected in marine aquaculture, fish processing, renewable marine energies, port activities and shipbuilding and repair (OECD, 2016).

¹⁰A summary of the current situation is viewable at the following address:

http://webissimo.developpement-durable.gouv.fr/IMG/pdf/Rapport_-_Etat_des_lieux_mer_et_littoral_cle76f2cb.pdf

I. FRENCH MARITIME TERRITORIES

11 million km² under jurisdiction

With nearly 11 million square kilometres under its national sovereignty or jurisdiction, 97% of which are located overseas, France has the second largest maritime space in the world. Present in all seas and oceans of the globe except the Arctic, France has a considerable heritage which makes it a great maritime nation. These spaces, having economic potential, play a major role in the development capacities of overseas departments and communities.

Since 2002, France has chosen to submit several requests for extension of the continental shelf, to the UN Committee on the Limits of the Continental Shelf:

- applications accepted for Guyana, Martinique, Guadeloupe, New Caledonia and the Kerguelen Islands (Decrees of 25 September 2015) for a total extension of 579 000 km²,
- applications under consideration for the Crozet Archipelago, Réunion, Saint-Paul and Amsterdam Island, Wallis and Futuna, and Saint-Pierre and Miquelon.

France is pursuing, in parallel, its program of negotiation of boundary agreements; with several disputes concerning these delimitations with third-party States. In accordance with the provisions of UNCLOS, it has opted not to agree to submit these maritime delimitation disputes to international jurisdictions.

In the absence of definitive settlement of dispute, France retains sovereign rights in the zones thus delimited, and no decision of a third-party State can therefore be opposed to it.

And on interests far beyond

Beyond the areas under French sovereignty and jurisdiction, France has economic interests in a number of maritime areas that are of strategic importance to it: the main maritime transport routes, fishing zones, exploitation of hydrocarbons, sectors of interest in renewable marine energies for French stakeholders, deep-sea exploration permits, and submarine cable routes.

It is also involved in protecting the ocean by participating in the governance and management of marine protected areas in the high seas. Finally, it shares responsibility for protection and management of the Antarctic Ocean, within the Antarctic Treaty.

II. THE SEA, DRIVER OF GROWTH AND JOBS

The economic importance of the maritime sector

According to INSEE and the National Marine and Coastal Observatory (ONML), the foundation of the maritime economy accounted for around 450,000 jobs in 2012, i.e. 1.7% of total employment in France, and more than 8% of the European Union's maritime jobs (INSEE/ONML, 2015).

The French Institute for Exploitation of the Sea (Ifremer) meanwhile estimated maritime added value at nearly € 30 billion in 2011 (Ifremer, 2013).

Combined in eleven domains by Ifremer and the ONML, the maritime economy encompasses a wide range of diversified activities, from traditional to constantly innovating and transforming (fishing, shellfish farming, maritime transport, shipbuilding and ship repair, etc.), or emerging (renewable marine energies, biotechnologies, etc.). In addition to these activities, which are the foundation of the maritime economy, there are also "indirect" activities: transport and services, logistics, industrial port zones etc. which constitute a halo more difficult to define and measure.

Tourism, with half of jobs and value added, is a key player in the maritime economy.

The maritime industry (commercial fleet and ports, shipbuilding and ship repair, nautical industries, fishing and seafood etc.), excluding coastal tourism and the public sector, represents more than 150,000 jobs for an added value estimated at nearly 13 billion euros. In particular, France has a number of leading industrial players in sectors promising constant development.

An innovative industry

With world-class operational oceanographic research, extensive expertise in offshore and deep offshore exploration and exploitation, state-of-the-art technological expertise in shipbuilding, particularly for high-value-added vessels, good materials science (composites, corrosion resistance, etc.), France has many assets for facing the technological challenges of tomorrow, market foundations that will develop and, in the future, be key sectors.

It can rely on this in the two clusters of competitiveness with global vocation that are the Brittany-Atlantic and Mediterranean clusters. The Aquimer competitiveness cluster also enables development of stronger innovation in the aquaculture food products sector.

Since its creation in 2005, it has been the mainstay of investment in research and development of tomorrow's technologies, and technologies applied to the maritime world: close to 1.7 billion euros of private and public investment, in more than 610 collaborative projects supported by an ecosystem of more than 800 members, most of them SMEs, representing more than 100,000 jobs (sources: Brittany-Atlantic and Mediterranean Sea clusters and Aquimer cluster, 2015). The clusters also represent about 90% of French research and training in marine science and technology.

Beyond research and development, many technological innovations are already being implemented and integrated in many fields, such as deep robotics, the latest generations of vessels, to improve their operational efficiency and reduce their ecological footprint or infrastructure for use of new fuels.

From traditional to emerging activities: an approach of particular sectors

- ***Sea-fishing activities***

French professional maritime fishing is a “traditional” activity present in all oceans, and particularly concentrated in the coastal zone. It is mobile and variable in time (day, season, year), subject to the location of a living resource available at a more or less large geographical scale (from the very localised shellfish deposits to tuna stocks at an oceanic scale) and is itself sensitive to environmental fluctuations and anthropogenic pressures on the marine environment.

The specificity of French fishing lies in its extreme diversification: 7,000 vessels (nearly 16,700 seafarers) carry out more than 300 different trades, each with specific issues in terms of spatial distribution and coexistence with other uses (FranceAgriMer, 2016).

A sector for structuring coastal economies and for permanent modernisation, maritime fisheries are governed by the Common Fisheries Policy (CFP) and national, regional and local regulations whose main objective is to make best use of the available resources in order to contribute to security of food supply while ensuring the long-term environmental, social and economic sustainability of the sector.

French production in 2014 represented a total volume of 536,585 tonnes for a total value of 1.1 billion euros. While net imports of seafood account for almost two thirds of French consumption (FranceAgriMer, 2016), the situation varies considerably depending on the species. Although import dependence is almost total for certain species, most of which are imported before processing (salmon, shrimp, etc.), the French sector manages to meet or even exceed domestic demand for many others (monkfish, hake, sole, cephalopods, trout etc.).

- ***The aquaculture sector***

Marine aquaculture is largely dominated by shellfish farming, a traditional activity on the coast. France is the leading European farmed oyster producer, despite a decline in production linked to mortality observed since 2008. In 2013, shellfish companies employed 16,277 people, corresponding to 8,763 “full-time equivalents” and sold 154,517 tonnes of shellfish, worth 535 million euros (FranceAgriMer, 2016).

Marine fish farming, which had developed strongly until 1995, has seen its production stagnate, despite potential and a European and national will for its development. Some 40 companies involved in marine fish farming employed 617 people as “full-time equivalents” in 2013, and sold 5,215 tonnes of shellfish, worth 36 million euros (FranceAgriMer, 2016).

Seaweed farming, with an annual production of 60 tons, remains a marginal sector but with significant development potential.

- ***Seafood products: marketing and processing***

In 2011, the fish wholesaling sector represented 306 companies and more than 4,584 jobs for a turnover of nearly 1,932 million euros (FranceAgriMer, 2016). Relationship between the upstream and the downstream of the seafood industry, fishmongers, directly purchasing marine fishery products for human or animal consumption, preparing and selling them to processors, distributors, restaurateurs, wholesalers, and fishmongers in France and abroad.

In 2010, there were 2,926 retail fishmongers employing 7,475 “full-time equivalents” with a turnover of 1,135 million euros. (FranceAgriMer, 2016).

In 2013, the fish wholesaling sector represented 302 companies and more than 17,300 jobs, for a turnover of nearly 1,932 million euros (FranceAgriMer, 2016). These companies produce

- canned foods: tuna, sardines, and mackerel as the main species, as well as salads, soups, hors d’oeuvres, and spreads (rillettes, etc.);
- refrigerated products: such as smoked salmon, trout, and herring, surimi, cooked shrimp, tarama, breaded fillets, terrines and many cooked dishes (cod brandade etc.).

The majority of processed aquatic products are sold in large and medium-sized retail areas (84% market share, in value, for refrigerated products, 81% for canned goods, and 55% for frozen products) (MEDDE, 2014).

- ***Maritime transport and services***

90% of world trade now takes place via the sea: maritime transport is thus at the heart of globalisation, and the development of maritime routes to and from France constitutes a global economic challenge for the country, conditioning the development of French foreign trade and the ability of companies to develop.

Maritime transport and service activities are also of strategic interest to the nation and they condition France's ability to ensure the security of its energy supplies, the security of its communications, and more generally, the control of its economic flows.

Passenger transport and particularly transshipment is also a key sector, guaranteeing territorial continuity within maritime territories, particularly cross-border ones.

The French-flag commercial shipping fleet (maritime transport and services) consists of 298 vessels with a gross tonnage equal to or greater than 100 tonnage units, of which 168 are for the long-haul fleet, or cabotage, and 130 for the maritime services fleet (MEEM, 2016a). The French flag is one of the safest in the world, with an average¹¹

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ship age of 8.2 years (compared with 16.3 years¹ for the world fleet, as of 1 January 2015), for several years it has been in the top three in the Paris Memorandum ranking. It also benefits from cartography produced to international standards, maintained by SHOM, for all zones under French jurisdiction. In addition, the fleet operated by French interests under foreign flags, which is constantly increasing, is assessed as 796 vessels¹². (MEDDE, 2015a). This fleet is both strategic and a provider of jobs in France, particularly sedentary ones, at the headquarters of major maritime companies that are leaders in their sector, such as CMA, CGM and Bourbon.

The balance of segments tends to refocus on sectors with high added value. The transport fleet is under intense pressure due to global competition (competition of flags, increasing operating costs). The so-called “service” fleets, also exposed to international competition, are developing particularly in offshore yards, in: cable laying, seismic exploration, oil activity. This trend towards the most valued activities matches a trend also observed in several European fleets.

The development of the fleet and its adherence to high value-added activities is an important issue in the maritime economy. Development of the service fleet is an essential tool for managing offshore industrial projects, and is a key element in the integration of sectors in terms of employment, know-how and wealth creation.

- ***Commercial ports***

The commercial ports are essential actors for giving France a prominent presence in international trade and for contributing to the country’s industrial and economic development.

Located at the interface of maritime routes and multimodal transport networks, French ports are at the heart of the territorial supply chain. French ports must become “architects” of maritime and terrestrial logistical solutions, for a hinterland - in particular a river system - projected on a European scale. They aim to position themselves as coordinating actors, providing high added value in the implementation of integrated, sustainable, and economically competitive logistics chains, favouring high volumes.

They are also intended to accommodate the activities essential to the blue economy in logistics and industrial sectors, particularly in the energy sector and in the industrial sectors of the future, oriented towards energy transition. Places for the processing of products and goods for both import and export, port areas, are cornerstones of the country's industrial development.

France has the 5th biggest port presence in Europe, with more than 300 million tonnes of cargo and nearly 30 million passengers in 2013. Marseilles and HAROPA are among the top European ports in total volume of goods handled. Marseilles is the 3rd largest oil port in the world, Le Havre is Europe’s 10th biggest container port, and the port of Rouen is the 1st cereal port in Western Europe (MEDDE, 2013).

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The direct jobs provided by the seven major metropolitan maritime ports account for nearly 40,000 people. Industrial activities employ more than 90,000 people in ports (MEDDE, 2013).

The major overseas seaports had total traffic of 11.7 million tonnes in 2014 (MEEM, 2016b).

- ***Shipbuilding and repair***

The companies that make up the shipbuilding industry operate in two main sectors:

- shipbuilding activities in the service of “5 navies” (defence, merchant, fishing, leisure, research), which includes shipbuilding and repair yards as well as specialised suppliers and services,
- and construction of shipbuilding structures and equipment for related sectors such as offshore or renewable marine energies (RME).

Today, the French naval sector accounts for almost 40,000 jobs, 60% of which are in SMEs and ETIs, with a turnover of 8 billion euros, 45% of which is exported (80% for civilian vessels, 30% for military vessels, and 66% for leisure vessels) (source: GICAN, Oceans 21 program)

Driven by several large industrial groups and made up of a dense fabric of many small and medium-sized enterprises, the shipbuilding industry specialises in the construction of high-technology and high value-added ships: passenger ships and other vessels, research and other specialised vessels, combat vessels, force projection vessels, submarines, and support vessels.

- ***Recreational boating***

With 9 million regular and occasional users, recreational boating is a major sector of the maritime economy, representing 5,000 companies, 50,000 jobs and a turnover of more than 5 billion euros (source: Confédération du nautisme et de la plaisance, 2015).

Structured around four major interdependent and complementary sectors: a dense network of nautical bases on the entire coastline and inland waterways, 570 marinas representing 160,000 berths, a dense network of clubs, federations and associations promoting the nautical sports industry, and a world-leading nautical industry in the fields of sailing and water sports, and 4th in the production of motor boats, the French nautical sector is a vector of growth and employment essential for the coastal areas and their economies.

The nautical leisure sector, in particular due to the emergence of so-called collaborative activities, has undergone a marked transformation for several years. This sustainable development, which must be supported by the State, is an emerging source for developing and energising the sector.

- ***Oil-related and gas-related offshore industry***

The offshore oil and gas industry includes a number of companies with adapted fleets carrying out extensive engineering and design work to explore and exploit offshore hydrocarbon deposits. It includes equipment suppliers and service providers, particularly shipyards, and engineering and design offices. As a sector of excellence in French industry, its turnover has increased from 3.5 billion euros at the end of the 1990s to about 17.55 billion euros today, 90% of which is for export. (source: GEP-AFTP, 2014).

Its reputation is also particularly strong and recognised in the deep and ultra-deep offshore sector, the development of which in the years to come should account for the bulk of growth in offshore oil and gas production.

Maritime zones under French jurisdiction, particularly overseas (Guyana, the Mozambique Channel around the island of Juan de Nova, Saint Pierre and Miquelon), could also contain hydrocarbon resources (oil, gas, gas hydrates etc.), which are currently uncompetitive or unusable, but which could become strategically important in a few decades.

- ***Renewable marine energies***

Renewable marine energies cover many technologies at different stages of maturity. If installed wind turbines have reached a commercial stage, many other technologies are likewise going to benefit from technological advances: floating wind, oceanic and river hydrokinetic, wave, ocean thermal energy, osmotic energy, and thermal gradients, as well as other related developments such as offshore energy storage.

Because of its position with the world's second largest maritime space, with strong research capacity and diversified industry in both naval and maritime activities, France has many assets, not only to participate in the development of industrial sectors in the various renewable marine energy technologies, but also to host, on its mainland or on its island territories, renewable energy production plants. The contribution of marine energies will be expedient for meeting the 40% renewable electricity target by 2030, and will contribute to reaching the target of 38% renewable heat by 2030, set by the law on energy transition for green growth. France is pursuing its program for the development of offshore wind power, with the objective, in 2023, of an installed capacity of 3,000 MW, and additional projects launched of between 500 and 6,000 MW.

- ***Marine biotechnologies***

Marine organisms represent an immense, yet little-explored reservoir of genes, molecules and biological functions useful in the field of basic research and likely to originate new products or processes in the fields of health, cosmetics, food, energy and materials.

A creator of jobs, particularly highly skilled jobs, and wealth, by means of products with high added value, marine biotechnologies are booming in fields such as pharmacopoeia and the cosmetics industry, without it being possible today to predict its evolution. Their development, however, raises questions about conservation, but also equitable access for all countries to those resources whose global market is now estimated at 2.8 billion euros (European Science Foundation, 2010).

- ***Marine aggregates***

The marine aggregates sector has nearly 1,000 jobs, including 650 direct, and 16 extractive vessels, half of which are under the French flag, and operates 18 valid concessions with an area of 165 km² (source: UNPG, 2015).

Production of about 5 million tons, in the order of 1.5% of national production: siliceous sands and gravels for the construction and public works sector, and more specific limestone sands for the agricultural sector, for water treatment, and for animal feed.

Studies carried out by Ifremer and BRGM between 2005 and 2012 reveal potential material resources estimated at 542 billion m³ on the Atlantic and English Channel coastlines.

- ***Deep mineral resources***

While marine resources of metallic minerals and strategic metals are still largely unknown, they could one day become critical for global commodity requirements. Exploitation of these resources first requires an assessment of the potential impacts on biodiversity, ecosystems and environments such as could be caused by the various phases of exploration and exploitation, in order to ensure that the principles of sustainable development are respected. With this in mind, the “Wallis and Futuna” program was launched from 2010, to search for active and inactive hydrothermal sites and to study the associated biodiversity.

In a competitive context for obtaining exploration and exploitation permits in international waters, France has also filed two exploration permits with the International Seabed Authority (ISA): a first one in 2001, relating to polymetallic nodules in the Clarion-Clipperton area of the Pacific Ocean, and a second in 2012 for hydrothermal sulphides in an area of the North Atlantic.

III. A SEA UNDER PRESSURE

An exceptional and fragile natural heritage ...

France, with the extent of its mainland and overseas maritime spaces, and its presence in all latitudes, is custodian of an extraordinary natural heritage (reefs, mangroves, aquatic plant habitats etc.) which supports the identity and cultural traditions of numerous local populations.

Overseas areas alone account for 80% of national biodiversity, and France is home to 10% of the world's reefs and 20% of its atolls (MEDDE/MELTR, 2014).

While being an asset, this exceptional biodiversity also creates a special responsibility for the preservation of marine and coastal environments.

...the conservation of which is a condition for the maintenance and development of maritime and coastal activities

Marine and coastal ecosystems provide a variety of ecological functions: primary production, food chains, support for biodiversity, geochemical cycles, gas exchange, recycling, water purification, sediment transport, etc. These ecological functions are themselves the basis of many valuable resources and services provided to human societies: food resources derived from fisheries, primary productivity for shellfish farming, climate regulation, protection against coastal erosion, recreational facilities, creative inspiration etc.

Consequently, many socio-economic and socio-cultural maritime and coastal activities are dependent on the use of ecological functions, and on the proper functioning of marine and coastal ecosystems. The problem of preserving natural resources crosses all maritime activities, and the integration of sustainable management of the environment will be at the heart of the maritime economy's future development.

However, marine and coastal environments are under pressure that could undermine the proper functioning of ecosystems and jeopardize their ability to provide sustainable resources: alteration and degradation of habitats, pollution of water, air and land, proliferation of invasive species, overexploitation of natural resources, all pressures that are now aggravated by climate change.

Alteration and degradation of habitats

Certain human activities at sea interact directly with seabed and coastal waters and may disturb them to varying degrees, depending on the nature of the seabeds, the particular sensitivity of certain habitats or species, and the characteristics of the activity. This physical harm may result from biological disturbances, such as a shift in species, loss of biodiversity - with the disappearance of sensitive species - and the appearance of opportunistic species, a change in the composition of living communities, change of spawning or nursery areas, and fragmentation of habitats, which themselves may have an impact on exploited resources.

In addition to physical changes, habitats may also be affected by degradation of water quality, chemical contamination, or changes in parameters such as temperature or salinity.

Development of coastal zones, such as dams, port structures, coastal defence works or beach stabilisation projects, result in an increasingly artificial coastline and lead to the degradation of habitats at such sites and, by modifying the environment's natural conditions, can also lead to degradation of neighbouring habitats.

Pollution and reduced water quality

The forms of anthropogenic pollution are numerous and diverse. They may be massive or diffuse, and have immediate or long-term effects at the pollution site, or at a great distance. "Cocktail" effects have also been observed, making it extremely difficult to predict the consequences of a given pollution on biodiversity.

Marine and coastal environments are a receptacle for continental pollution (pesticides, heavy metals, plastic waste, etc.) that drain into them, in particular, via watercourses. This is compounded by pollution from human activities at sea. While accidental marine pollution, such as oil spillage, is often highly publicised, land-based, diffuse and continuous pollution continually affects the quality of coastal waters and poses a real threat both to the functioning of ecosystems, to the services they can render, and to the activities that depend on them (e.g. fishing and aquaculture).

- ***Eutrophication***

Eutrophication is a dysfunction of coastal ecosystems due to excessive nutrient inputs from coastal rivers. These inputs of nutrients - mainly nitrogen and phosphorus - cause excessive development of phytoplankton, called blooms or efflorescences, which may be limited in time but considerable in magnitude. Eutrophication can lead to oxygen depletion (hypoxia), which can lead to the death of marine organisms by anoxia. It can also lead to the proliferation of green algae, a phenomenon particularly prevalent on the coasts of Brittany. In the Caribbean, Martinique and Guadeloupe face massive beaching of sargassums.

To this eutrophication phenomenon may be added a toxicity phenomenon due to the efflorescence of certain species of microalgae, which poses risks to human health.

- ***Microbiological pollution***

The introduction of pathogens into the marine environment is essentially from the land. It is due to malfunctions in non-collective sanitation devices and sanitation networks (human contamination) on the one hand, and diffuse pollution (contamination of animal origin) on the other.

These pathogens may harm both the quality of bathing waters and the quality of shellfish waters, and natural deposits of shellfish. They may affect marine organisms, filtering bivalves such as oysters, mussels and scallops or burrowing organisms, with consequences on the marketing and consumption of shellfish.

- ***Chemical pollution***

Chemical pollution covers hydrocarbons, heavy metals (copper, lead, cadmium), biocides and pesticides (anti-fouling, pesticides for agricultural and non-agricultural use), industrial products (PCBs, flame retardants, surfactants, solvents), pharmaceuticals (drug residues) and, more recently, nanoparticles that can escape into the environment and the origins of which are unknown.

They are mainly diffuse and related to the supply, via coastal rivers, of chemical elements of anthropogenic origin, the release of which into the environment occurs at low levels, but on a continuous basis. They can be sporadic, and are massive in the case of maritime accidents.

At sea, since 2006, the number of Polreps (“Pollution Reports”: official pollution reports issued by the regional operational monitoring and rescue centres), whether confirmed or not, has decreased significantly (MEDDE/MELTR, 2014). Changes in maritime traffic are, however, liable to cause emission into the marine environment of various substances. Loss of containers at sea is increasing as the dimensions and carrying capacity of container ships evolve. Between 2003 and 2014, it was established that the declared losses amounted to 1,200 containers for the Atlantic and English Channel/North Sea areas alone, with specialised recovery from the sea of 49 containers, i.e. less than 4% (MEDDE/MELTR, 2014). Moreover, the number of chemical tankers and vessels transporting chemical products along French coasts grows each year. French maritime areas have experienced several maritime incidents involving chemical tankers (ECE, IEVOLI SUN, SICHEM OSPREY, YM URANUS) and container ships carrying chemicals (MSC NAPOLI, MSC FLAMINIA), requiring greater State involvement in chemical pollution risk management (MEDDE/MELTR, 2014).

- ***Pollution from waste***

Macro-waste includes objects or materials that are deliberately or not, directly or indirectly, disposed of or abandoned at sea and on the coast: household appliances, containers, plastic bags or particles, cigarette butts, fishing nets, etc. They can result from losses at sea, abandonment of old equipment or degradation during storms, but most often they are the result of transport to the sea of land deposits. Three-quarters of macro-waste comes from the land.

Such waste often has a very long life at sea - more than 400 years for plastic bottles - with important consequences both biological (asphyxiation or choking of the fauna which mistakes it for prey, phantom fishing by lost or abandoned nets) and chemical (release of substances into the environment).

From this macro-waste comes, by fragmentation, micro-waste of size less than 5 mm, generally called “micro-plastics” because of the abundance of this material (90%), and the presence of which in the oceans is estimated at billions of pieces. Concentrating pollutants by up to a million times, marine pollution supports bacteria, including certain pathogens, and invasive species, and so these micro-wastes are found throughout the food chain.

Invasive non-native species

This pressure is induced by the introduction and spread of animal or plant species in ecosystems where they were not originally present, and where they proliferate to the detriment of the pre-established natural species such as hollow oyster and crepidula in the Atlantic, caulerpa in the Mediterranean, and lion fish in the Caribbean, that have proven invasive characteristics.

The two main drivers of non-indigenous species now identified are, on the one hand, areas of marine cultures at the origin of primary introduction of species like the hollow oyster, non-native species through the regular transfer of oyster spat and stocks between the various oyster sites and, on the other hand, ports which are main sites of introduction of non-indigenous species via de-ballasting operations and *fouling*.

Introduction by means of vessels' ballast water is considered one of the most worrying drivers on a global scale. Treatment of such ballast water is covered by the International Convention for the Control and Management of Ballast Water and Sediments of Ships, adopted by the International Maritime Organisation (IMO) in February 2004, and which will come into force shortly.

Overexploitation of living resources

Overexploitation of living resources in marine and coastal biodiversity, and in particular of fisheries resources, contributes to erosion of directly exploited biodiversity as well as that which is dependent on these resources.

A community and maritime problem that is also terrestrial, and often international, the management of fish stocks is a very complex subject.

Efforts made by fisheries professionals over many years, and measures taken to ensure the good health of stocks, notably through rules on access to the resource (European, national, regional but also local regulations: licenses introduced by fishermen themselves through their professional structures), however, now lead to the prospect of stabilisation of stocks and could lead, in the medium term, to increased fishing potential. At EU level, the proportion of stocks that have been evaluated has increased from 6% in 2004 to 61% in 2012 (MEDDE, 2014).

Climate change: a chain reaction

Climate change, which manifests itself through proven changes in the physical and chemical parameters of the environment (global temperature rise, ocean acidification, salinity change, sea level rise, etc.) directly affects marine and coastal biodiversity and tests the resilience of marine and coastal ecosystems.

By changing these factors in an accelerated way, climate change disrupts marine species that have adapted over millennia to local conditions and to their slow natural evolution. It alters abundance, diversity and distribution, but also food, development and reproduction, as well as relationships between species.

In the Northeast Atlantic, northward migrations of copepods (marine zooplankton) have been observed. This could have repercussions on the fauna that feeds on it and ultimately on the entire food chain. Fishing activity could thus be weakened.

The phenomenon of acidification, due to excessive absorption of carbon dioxide, also threatens many ecosystems and marine species. It affects marine organisms that have a skeleton or limestone shell and which develop by fixing calcium carbonate, such as coral reefs, crustaceans and zooplankton.

All these developments, whose scale and spatial distribution are difficult to measure today, will have repercussions on different sectors of activity (fishing, aquaculture, and tourism, for example) and coastal societies, and indirectly on larger parts of the world economy and population.

IV. A COAST CAUGHT BETWEEN TWO WAVES

A demographic dynamic continues both in mainland France and overseas

In 2010, the mainland and overseas coastal municipalities had nearly 8 million inhabitants, a population density of 285 per km² in mainland France (nearly 2.5 times more than the average density in mainland France), and 46 per km² in the overseas coastal municipalities (ONML, 2016).

Between 1962 and 2010 the mainland coastal population increased by 41%. In the overseas departments, it has almost doubled (+89%), with a very significant increase since 1982 (ONML, 2016).

In mainland France, the close hinterland also has seen a marked increase in population density due to the gradual spread of the population inland.

Since 1962, and with a marked acceleration since 1999, the population density in the mainland coast's hinterland has increased by more than 70% (ONML, 2016).

According to INSEE's projections, population growth in the coastal departments should not slow down. Assuming that recent demographic trends are maintained, the population of coastal departments is expected to increase by 4.5 million by 2040: 3.9 million in mainland France (+17%), and 660,000 in overseas territories (+36%). The population of the coastal municipalities could increase by 1.4 million inhabitants and reach more than 9 million by 2040 (ONML, 2016).

A face-to-face economy focused on leisure and tourism

The face-to-face sphere (activities mainly aimed at catering to households in the area), and service activities for people - residents and tourists - are now the main drivers of employment in coastal communities. In 2010, the share of employees working in the face-to-face sphere amounted to almost 76%; 80% overseas and 75% in mainland France, i.e. 8 percentage points above the national average (MEDDE/MELTR, 2014).

In 2012, the tourist capacity of mainland coastal municipalities amounts to 7.8 million beds, i.e. 8,850 beds per municipality. This is more than the number of inhabitants per coastal municipality and more than 15 times the average for France (MEDDE/MELTR, 2014).

Three-quarters of this capacity is accounted for by secondary residences. These are very numerous on the mainland coast, where they represent almost 3 out of 10 accommodation units. The remaining quarter, 1.85 million beds, is related to the commercial sector, mainly in campsites (MEDDE/MELTR, 2014).

Attractiveness as a source of imbalances

If the demographic and economic attractiveness of coastlines is a source of dynamism, it also weakens the social, territorial, economic and environmental equilibrium.

This attractiveness causes a rising price of land and property in coastal areas. This results in problems related to retention of local people, and the introduction of new populations - economically active, seasonal or retired, and people with low income are often forced to move back from the coast or deeper into the hinterland.

This demographic and economic appeal is accompanied by an increase in housing construction and presence of related infrastructure. This trend continues today in coastal communities, and is even stronger in areas just to the rear of the coast, having negative impacts on the living environment: urban sprawl, rendering areas more artificial, degradation of natural habitats and landscapes, saturation of road infrastructure etc. In 2012, the proportion of coastal municipality land rendered artificial amounted to 14.6% compared to 5.5% of land in France's hinterland, i.e. 2.6 times more. Between 2006 and 2012, 0.3% of the total area of coastal municipalities was rendered artificial, or 2 times more than the mainland average (ONML, 2016).

This leads to municipalities having to make costly investment in wastewater treatment capacity, the processing of which is complicated by wide variations in population, and this presents risks of microbiological pollution and water waste.

Vulnerable territory: coastal risks and climate change

According to the results of the preliminary risk assessment - the 1st implementation stage of the flooding directive - carried out in 2011, 1.4 million permanent residents in mainland France, 129,000 in overseas departments, and at least 850,000 jobs on the mainland could now be potentially exposed to coastal flooding (MEDDE, 2012).

In territories where past development trends could be included for estimation, as part of producing, in 2015, the national coastal erosion indicator, 22% of mainland coasts (excluding Corsica), i.e. more than 650 km of coastline, are in retreat, at speeds ranging from 0.1m to 8m per year. One hundred and forty-two municipalities have erosion rates of above 0.5m per year, and 19 have rates of more than 3m per year (MEDDE, 2015b).

Climate change and rising sea level could significantly increase the potential of natural risks to which coastal areas are particularly vulnerable.

According to the projections of the latest IPCC report, the rising global average sea level between the periods 1986-2005 and 2081-2100, in response to ocean warming, melting glaciers, and polar ice caps, will be between 26 and 55 cm for the most optimistic scenario and between 45 and 82 cm for the most pessimistic (MEDDE, 2015c).

Extreme sea levels have followed, over recent decades, the same upward trend as those of rising sea levels. Worsening of coastal flooding will be the most immediate consequence of sea level rise, although locally other factors may exacerbate or moderate these trends.

And while the IPCC's Fifth Assessment Report is cautious on possible changes to the frequency and intensity of storms, it is likely that climate change will increase the intensity of tropical cyclones.

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