

A continent with growth at its heart

*"Soon there will come the century of the last barrier
The ocean will reveal an immense continent
On the marine horizon a new world will rise up"*

(Medea, Scene III Chorus II 301-379, Seneca)

Cluster Maritime Français 2015-2016



The French maritime force
300,800 jobs
Total output 69 billion euros



Cluster Maritime Français

*Le Faire-Savoir Maritime
The Maritime Voice*

Introduction

Dear Friends of the French Maritime Cluster,

On the occasion of the 11th annual Conference on the Maritime Economy (les Assises de l'économie de la Mer), it is our pleasure to unveil the new brochure from the French Maritime Cluster.

Over the years this brochure, our "bible", has grown in response to the gathering strength of the maritime economy. This 2015 / 2016 edition is 136 pages long not counting the cover pages, whereas the very first edition compiled 11 years ago by the French Institute of the Sea had just 20 pages.

This edition is twelve pages longer than last year's, an increase attributable partly to the enrolment of more than thirty new members, and partly to the addition of more detailed information on a number of sectors. Indeed, with the help of the whole editorial team, we have made a special effort to include in this brochure a wealth of sector information to give readers an idea of the importance not only of the French maritime economy as a whole, but also of each sector connected with it.

The key figures given here show that the maritime economy remains stable in terms of jobs and production value.

Some fluctuations, such as a slight fall in the number of jobs in the leisure marine industries and in Government Action at Sea, are offset by a slight rise in employment in the fishing sector. Overall, the French maritime economy is standing firm and is in the starting blocks ready to face the challenges of blue growth!

Ten years after it was founded thanks to the determined efforts of Francis VALLAT, who is now its Honorary President and tireless ambassador, the French Maritime Cluster has nearly 400 members! This figure, this growth gives us an even greater incentive to pursue our vision of excellence, to go on consolidating and building a permanent united front for maritime France, and to persuade our politicians both male and female to take an interest in the Sea and do even more for the maritime economy, this powerful growth driver for the 21st century!

When we look back over the past decade there can be no doubt. The results are there for everyone to see! They are unequivocal and must inspire us to fully appreciate this continuing success and seek to identify areas for further progress in the coming years, such as the following:

- Other than in the maritime press, which is often of a very high standard, the maritime economy receives little coverage. Specialist magazines on the economy in general seem reluctant to tackle maritime issues or any of the wide ranging related activities. What we need are journalists who take an interest in the benefits derived from the maritime economy, instead of focusing incessantly on disasters and pollution. We need more TV news broadcasts

that recognise contracts won, technical advances, new market prospects and initiatives combining ecology and growth, and fewer presenting dubious interpretations generally prejudicial to economic stakeholders.

- In attempting to draw the attention of politicians to the sea, subtlety and tact would have been futile. So, to breach this wall of indifference to maritime affairs among politicians, we mounted a vigorous lobbying campaign. This has clearly paid dividends as all political parties now take an interest in (or have a strategy for) the maritime economy. This is borne out by the stream of elected representatives of all hues appearing at the last Euromaritime trade show! Almost all now have a dedicated programme... but when it comes to the coherency of such programmes there is still some way to go. Needless to say each political group, in defining its programme, has passed the maritime economy through the filter of its convictions, which is as it should be... Or almost... The problem is that, whereas ten years ago there was a resounding silence, now there is a confusing level of background noise! This may give the impression that the Cluster is never satisfied – too great a silence then too much noise – but, after all, this Cluster, our Cluster, is French and so will never stop complaining!
- Above all, we are concerned that too many politicians are clouding the issues. What we want from our statesmen and women is a genuine sincere vision. In short, we want fewer statements and more concrete action. The talking is over, it's now time to act!

In a few days time, COP 21, the major climate change conference will open in Paris. Together with other partners from the maritime economy, the French Maritime Cluster will use the occasion to enlighten as many people as possible about the range of possibilities offered by the sea, its tremendous growth potential and also its fragility. This major international event will also be a rare opportunity to promote the expertise of French economic stakeholders, all convinced of the need for a balance between development and sustainability.

Before letting you peruse this latest brochure, we wish to express our most sincere thanks to Monsieur Laurent FABIUS, Minister of Foreign Affairs and International Development, who kindly agreed to preface this work, putting into perspective the formidable assets of the French maritime economy and the international development of our country.

And finally, a big thank-you to "the team" at the CMF who had to finish off this brochure a month early on account of the dates of this 11th Conference on the Maritime Economy being brought forward to avoid clashing with COP 21 and the electoral calendar.

It is our hope that you derive as much benefit and enjoyment from this brochure as we have in producing it,

Frédéric Moncany de Saint-Aignan and Philippe Perennez

The CMF team offers grateful thanks to:

- its 390 members;
- and all those who have contributed so efficiently to the production of this brochure: Boris, Eudes, Florence, Patrick, Marie-Geneviève, Marie and Thierry, whom we thank for their time.



As France prepares to host the 21st United Nations Climate Change Conference, the "Paris Conference", I am honoured to be given the opportunity to preface this report by the French Maritime Cluster for 2015.

The oceans are central to the challenge we face from climate change. Firstly because they are severely affected by the rise in temperatures, which is causing the ice sheets to melt, the sea level to rise and the waters to become warmer. Secondly, due to these same disruptions, the oceans threaten coastal areas with flooding or even submersion. Finally, the maritime sector is spearheading the "Agenda for Action" promoted by the French presidency of COP 21. Apart from our central objective, which is to forge an ambitious universal intergovernmental agreement to limit the rise in temperatures to 1.5° or 2°C by the end of the century, in Paris we also want to coordinate the initiatives taken by non-state actors. We want to show that solutions do exist, and that the transition to a low-carbon economy is underway. The French Maritime Cluster has rallied to this cause.

France has considerable potential in its waters. We are a very old sea power where tradition and innovation go together, as witnessed by the reconstruction project of the frigate Hermione and the cutting edge research programme of IFREMER. Thanks to our coasts and our overseas territories, we have the second largest maritime zone in the world. Our maritime industry is diversified. Our merchant fleet, ports, shipbuilding, the boating industry, fishing and aquaculture, marine renewable energy, marine resources, training organisations, maritime administrations: the sector as a whole encompasses a vast range of occupations and skill sets, and accounts for nearly 300,000 jobs and a production value of nearly €70 billion.

The sea is also a major source of renewable energy. Our companies are achieving remarkable results. Our economic diplomacy has been mobilised: renewables are a "priority for export", with Jean Ballandras as the driving force. The archipelagos in particular can benefit from our expertise in the various types of marine energy – wind, tidal, ocean thermal, osmotic, wave, or energy sourced from the marine biomass.

The sea is a productive source of innovation. Through the impetus of the French Maritime Cluster, our companies have learned to work together on innovative joint projects such as the BlueDome project which arose from the combined efforts of all those engaged in the fight against piracy: shipping companies, the French Navy, insurers, manufacturers.

The sea is one of our trump cards in the tourist industry. The cruise market has doubled in ten years and is likely to double again in the next fifteen years. On that basis and on the basis of the report by Jacques Maillot, I adopted a series of measures at the end of July aimed at making France the top destination for cruise ship departures in both continental France and the overseas territories. These measures will be introduced in the coming months. Initial results for the summer of 2015 confirm just how dynamic this sector has become.

In the French Maritime Cluster, France has a complete range of professionals whose expertise is recognised internationally. The Cluster is an important tool for our economic development and our international standing. Therefore you can count on my support to help sustain your efforts and your initiatives.

Laurent FABIUS

Minister of Foreign Affairs and International Development

Laurent Fabius

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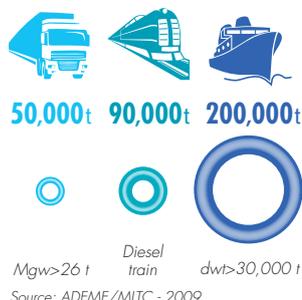
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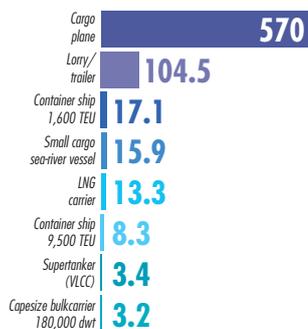
The importance of the sea

One tonne oil equivalent (toe), for one kilometre travelled, enables the transport of:

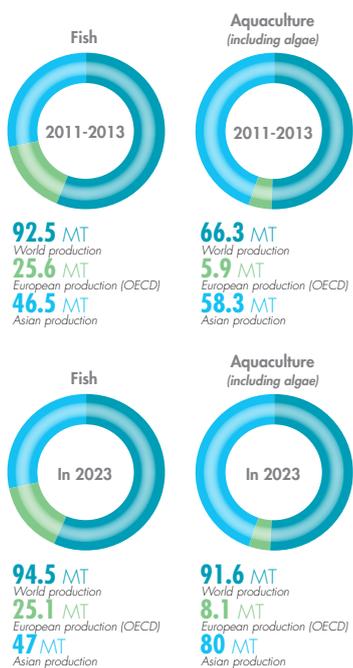


Comparison of CO₂ emissions between different modes of transport

CO₂ (gramme per tonne/kilometre)



World headline data



Humanity is dependent on the sea

By 2030 there are likely to be 9 billion. 80% of people live less than 100 km from the coast, and most major cities are also situated near the coast. Increasingly the people of the world are turning to the sea and are constantly using it as a medium for the flow of goods, people and information, and as a limitless provider of resources such as fish, energy and minerals. A new strategic paradigm has materialised based on geographical advantages and invaluable industrial know-how. France has unparalleled assets in its 12,840 kilometres of coastline and its maritime zone of more than 11 million km² in every ocean.

A substantial, innovative maritime industry

If the sea is the future on earth then the maritime industries are clearly the industries of the future. "Everything around you has gone by sea". This assertion is based on a simple fact: 80% of world trade is transported by sea and handled in seaports. With the phenomenon of containerisation, container ports have become icons of globalisation with ships able to carry up to 18,000 containers (soon 20 to 21,000). The most recently built ships can be up to 400m long, or more than 4 football pitches, and have a power capability equivalent to the electricity generated for a town of 16,000 people. Sea transport is shortening distances and cutting down on transport costs: transporting a container from Shenzhen to Rotterdam costs \$1082, or just 50 cents per kilo. France's flag is of acknowledged excellence, testifying to the performance of its maritime sector and the commitment of its shipping companies to safety, innovation and respect for the environment. It is often forgotten that sea transport is the method least harmful to the environment. With emissions of less than 3%, it emits 5 times less CO₂ than road transport and 13 times less than air transport. All around us, the sea also provides basic resources for our daily needs. Foremost among these is fish, with world production currently standing at 92.5 million tonnes and forecast to reach 94.5 million tonnes by 2023. On earth 400 million people live by this activity which happens to be one of the first casualties of climate change and pollution. Next in importance are the offshore energy resources which account for 30% of world oil production, or 25 million barrels per day - 27% for gas - with reserves estimated at 30% for each resource. These activities rely on a substantial naval industry. This innovative sector is capable of developing technologies for working at sea in ever cleaner and safer conditions, and also in extreme conditions. The many links between the naval and other sectors (especially the aircraft, automobile and even civil engineering sectors) also helps to raise the competitiveness of these industries.

A new field of activity for the future of humanity

The Blue Growth report identifies five future activities for the maritime sector:

- Tomorrow's aquaculture will be a key element for supplementing and balancing our agriculture, which will struggle to keep pace with our estimated population growth. In fact, while average annual fish consumption in 1960 was 9 kg per person, since 2013 it has been estimated at 19 kg per person. Forecasts predict that world production is set to rise from 66.3 million tonnes today to 91.6 million tonnes by 2023.

- In the field of marine resources, blue biotechnologies are flourishing: driven by expectations in the pharmaceutical, medical and nutritional markets and even in energy and materials. The sector is experiencing growth of 4 to 5% per year and in the global market it accounts for €2.8 billion of production. The French sector is also flourishing with a market worth €421 million and a large number of companies and research platforms.

- The sea also offers energy potential from wind, currents, waves and temperature. Although marine renewable energy currently has a small market share, its development will be essential for achieving the energy mix needed to cut carbon emissions in energy generation.

- Deep Sea Mining is a fast developing sector. Building upon the expertise of the offshore and minerals industries, this new industry will, by 2020, be able to supply 5% of world demand for minerals, cobalt, copper and zinc, and 10% by 2030, for a potential €10 billion of production value in Europe.

- Finally, coastal tourism and cruising especially in the French overseas territories will play an ever larger role in revitalising coastal areas while protecting marine environments and allowing tourists to discover the richness and fragility of their ecosystems, generating numerous economic activities in the process.

Projects for all of society

The increasing number of sea-related activities and their necessary coordination requires above all else a detailed knowledge of the seas. The marine sciences, in addition to their links with industry, will open up new horizons in human knowledge. This is a new frontier where mankind will be challenged to push back the boundaries or go beyond them with advanced projects such as scientific stations or mega-platforms. Beyond the expectations of blue growth, the sea undoubtedly offers a new way of life for us all.

Contribution of the maritime sector to the French economy

Sector of activity	Directly supported jobs	Value of production (bn euros)	"In a nutshell..."
Merchant fleet	22,000	15	Ships present in all sectors of transport and in all the seas of the world.
Ports ^(a)	39,000	4.5	French commercial sea ports handle around 85% of France's external maritime trade by volume and 66% by value.
Shipbuilding and related activities ^(a)	42,000	8.5	A position among the leaders in high value-added vessels, services and equipment.
Offshore service and supply ^(a)	32,000	17.6	Oil and gas extraction in depths up to 2,000m, and beyond!
Nautical industry ^(b)	40,300	4.4	9 million occasional participants, 4 million recreational sailors, 72.4% of boats built are exported.
Fishing and aquaculture	61,040 ^(b)	8.7 ^(a)	7,121 navires boats (8% of the European fleet), Production tonnage: 625,000
Marine Renewable Energy*	800	0.1	After the allocation of the first parks, deployment is close. R&D efforts are continuing...
Marine Resources ^(b)	2,250	0.5	Marine materials, mineral and biological resources (incl. algal culturing).
Defence and Government Action at Sea	36,000	4.2	1,545 people rescued, 2,793 vessels inspected at sea, 2.4 tonnes of narcotics seized.
Marine and oceanographic research institutes	3,620	0.4	From clusters to deep-ocean, so much to discover!
Training organisations	2,000	0.1	Including the École Nationale Supérieure Maritime and several maritime oriented MBA.
Other activities**	17,065	~ 5	Recognised professionals in insurance, broking, law, advice, administration, management, finance, and also fish merchants and thalassotherapy.
Maritime administrations (DGITM, DAM, ENIM, LPM...)	3,300	0.2	The civil service working for the benefit of the sea.
Total (round)	300,775	69.1	

Base 2015 except (a) Base 2014, (b) Base 2013

* Only R&D for this year. Figures likely to be up sharply in forthcoming years

** estimate including uncorroborated figures for full-time equivalent jobs.

In October 2014, the Secretary of State for Transport, the Sea and Fishing unveiled an ambitious maritime policy in support of jobs, the environment, innovation and education. Now its time for action!



Given the dispersion or absence of some of the statistical data, these figures are estimates.

However, this table is limited to jobs dependent almost exclusively on the sea. Thus activities centred on coastal tourism, which alone contributed €28.5 billion and 190,000 jobs in 2010, have been excluded from the maritime cluster! Likewise port activities properly speaking do not take account of indirect jobs, such as those in port industrial zones or those generated in shops and businesses.

Gross National Income (an indicator similar to the former GDP) having risen in France in 2014, the value of maritime production (excluding double accounts, i.e. net of internal trade), which also rose, was stable at around 3.2% of GNI. The active

maritime population (employed directly) represents 1.1% of the total active population of the country.

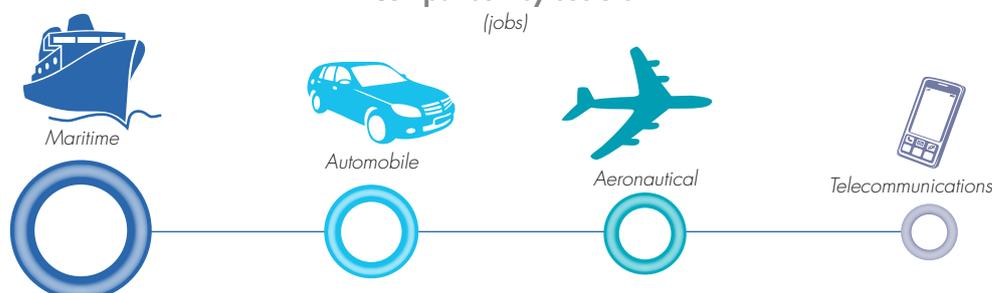
The maritime sector is as important if not more important than "traditional" French sectors:

The maritime sector employs more people than the aeronautical industry (180,000 jobs in 2014), the telecommunications sector (122,000 jobs in 2014) or the automobile industry (in 2013, including car parts suppliers, 201,000 jobs).

The maritime industry is bigger by value of production than the aeronautical industry (€50.7 bn in 2014) or even the telecommunications sector (€33.8 bn in 2014).

Comparison by sectors

(jobs)



Maritime Europe

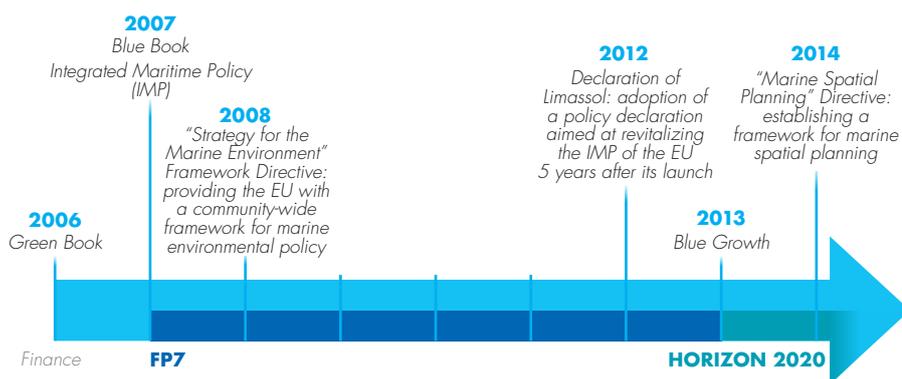
The ocean is the "lungs" of our planet: **50%** producing our oxygen, it is the thermostat of the climate system and absorbs **25%** of our CO₂ emissions.



Europe: a seaward facing continent

The coastline of the European Union (EU) extends for over 68,000 km, three times that of the United States, and the combined area of the EEZ of the EU is About 25 million square kilometres, the largest EEZ in the world. Nearly half the population of the Union live less than 50 km from the sea and these maritime regions generate more than 40% of Europe's GDP. According to the "Blue Growth" report published in 2012, the maritime economy of the European Union accounts for 5.4 million jobs (7 million by 2020) and gross value added of nearly € 500 billion per year. **These figures however are provisional.** 75% of the EU's external trade and more than 37% of its domestic trade is transported by sea; this makes Europe very much a seaward facing continent.

Policies implemented for a maritime Europe



Maritime policy and sector policies

The **Integrated Maritime Policy (IMP)** introduced in 2007 was designed to boost the sustainable development of the European maritime economy by facilitating multi-sector cooperation and coordination among all maritime stakeholders. In this it is aided by the **Blue Growth** report which identifies the growth levers of the European maritime sector and serves as a tool for achieving the objectives identified in the **Europe 2020** strategy for intelligent, sustainable and inclusive growth. The Blue Growth report has also identified sectors of traditional activities and new sectors which will act as genuine growth levers: aquaculture, biotechnologies, MRE, deep sea mining and coastal tourism. The ultimate objective is to achieve European leadership in blue growth.

This IMP is also underpinned by two important directives designed to give more protection to the marine environment ("**Strategy for the Marine Environment**" Framework Directive) and to organise the expanding range of marine activities ("**Strategic Maritime Spatial Planning**" Directive). A number of sector policies also include a significant maritime dimension, such as the reworked Trans-European Transport Network

(TEN-T) for creating within the European Union effective transport corridors linking the seaboard and ports with the European hinterland. This policy is designed to develop both the port infrastructures and the inland infrastructures (river and canal, rail and road), acknowledging the key role of intra-European shortsea shipping which accounts for 70% of sea transport in Europe.

The future of the IMP and the maritime economy depends on a number of institutional and private stakeholders, and on the need for harmony among all of these activities.

A maritime Europe of mobilised stakeholders

The institutional stakeholders

European maritime policy is built around the interaction of numerous institutional stakeholders, primarily the European Commission, along with the European Commissioner for Maritime Affairs and Fisheries and the Directorate-General for Maritime Affairs and Fisheries (DG Mare), and also other Commissioners and DG. Alongside these, the European Parliament, already acknowledged with the Fisheries Commission, intends to play a decisive role in implementing maritime policy and acknowledging Blue Growth with the creation of the parliamentary intergroup "**Seas, rivers, islands and coastal areas**". Made up of 83 MEPs, this Intergroup meets regularly to deal specifically and transversally with all subjects of special interest to its members. Its secretariat is provided by the **Conference of Peripheral Maritime Regions of Europe (CPMR)**. The CPMR is a public entity independent of the community institutions, which permits the formulation of a strong European regional policy covering all regions of Europe, the implementation of an integrated maritime policy more likely to boost European economic growth, and allows account to be taken of the needs and interests of the PMRs in all policies with a significant territorial impact.

The private stakeholders

Although Maritime Europe is shaped mainly by public stakeholders, private stakeholders are also involved and through their cooperation and actions help to assert the role and place of blue growth in the European economy.

The **European Network of Maritime Clusters (ENMC)** aims to be a common European voice for the seventeen national clusters which together represent all aspects of the European maritime economy. Its two main objectives are: an analysis of the figures of this economy, and supporting the efforts of the European Institutions to create a European Maritime Cluster capable of influencing the decisions and policies of the sector in Brussels.

In addition, numerous federations are working to defend the interests of the stakeholders of their sector, chief among which is **Sea Europe**. Created by the merger between the European Association of Shipyards and the Association of European Equipment Manufacturers, this federation is structured around key issues for shipbuilding, notably research, innovation, training and finance. The **ECSA** (European Community Shipowners' Association) for its part is formed of 25 associations of shipowners from EU member countries, and defends the interests of European shipowners in the context of the social sectoral dialogue. The **ESPO** (European Sea Ports Organisation) is a grouping of all management and administrative authorities of European sea ports (around 800 ports), and represents them in institutions and protects the interests of European port authorities while encouraging their proactive engagement.

Projects for the future

Coordination among all of these stakeholders is more effective within the framework of projects and initiatives for creating a more dynamic maritime Europe, mainly with the benefit of European finance. Apart from the Structural Funds, the **"Framework Programmes for Research and Technological Development"**, also called simply the "Framework Programmes" (FP), fund research and innovation aimed at maintaining the competitiveness of European industry. The 8th programme Horizon 2020 launched in 2014 replaced the previous FP7 and provides support for the different sectors, especially the maritime sectors, using its budget of €79 billion.

In concert with these institutional measures, European maritime companies and industries have launched various initiatives. Leading the way is the **LeaderSHIP 2020** strategy, adopted in 2013, which makes short and medium term recommendations for sustainable growth and high quality jobs, while tackling the social issues encountered in shipbuilding and the shipping industry. In second place is the role of the technology platform **WaterBorne-TP**, a forum for all stakeholders of the maritime sector. Its objective is to define and share a common vision of the maritime world through implementation of an agenda of strategic research to drive the maritime innovation effort necessary for the European economy.

Of a more institutional nature, the **JPI Oceans** (Joint Programming Initiative) is a joint initiative on the oceans involving 20 member States and partners who, through a Strategic Agenda of Research and Innovation and an implementation plan, generate investments in the marine sciences covering all European sea basins.

This initiative is due to be reinforced by a **KIC Marine** (Knowledge and Innovation Community) under the supervision of the European Institute of Innovation and Technology which European stakeholders have been campaigning for since 2010. The long-term objective will be the availability of reliable high-quality information to enable the creation of a complete database financed by European public investment.

These projects and initiatives – the list is not exhaustive – are a sign of the vitality of maritime Europe and are supplemented by the numerous collaborative projects between industries, laboratories, clusters and research platforms in the maritime sectors, especially MRE and the marine biotechnologies. France has sufficient advantages to place it in the lead in this movement, as are many member entities of the CMF heavily involved and active in Blue Growth.

The "blue" economy represents
5.4 million jobs and a gross value added of
€ **500** billion per year.



Maritime clusters in Europe

The European Network of Maritime Clusters (ENMC) is an active confederation currently made up of national clusters that have already been formed or are in the process of being formed. The work of the organisation has traditionally focused on the exchange of good practice, but

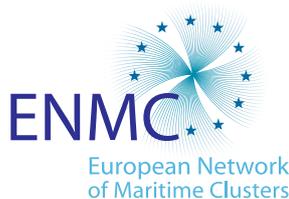
now includes important pan-European initiatives designed to make "The Maritime Voice" heard loud and clear by the powers that be in Brussels. **The march towards a true European Maritime Cluster has begun!**

The European Union has the largest EEZ in the world with more than **25** million km². It also has the world's leading merchant fleet.



European Network of Maritime Clusters

www.enmc.eu



Belgium:
Flanders' Maritime Cluster
www.flanders-maritime-cluster.be



Bulgaria:
Marine Cluster Bulgaria
www.marinecluster.com



Denmark:
Maritime Development Center of Europe
www.maritimecenter.dk



Finland:
Meriliitto
www.meriliitto.fi



France:
French Maritime Cluster
www.cluster-maritime.fr



Germany:
Bundesministerium für Wirtschaft und Technologie
www.bmw.de



Italy:
Italian Maritime Cluster
www.federazioneilmare.it



Ireland:
Irish Maritime and Energy Resource Cluster
www.imerc.ie



Luxembourg:
Luxembourg Maritime Cluster
www.cluster-maritime.lu



Iceland:
Iceland Ocean Cluster
www.sjavarklasinn.is



Norway:
Maritimt Forum
www.maritimt-forum.no



Poland:
Polski Klaster Morski
www.klastermorski.com.pl



Portugal:
Fórum Oceano
www.oceano21.org



Spain:
Spanish Maritime Cluster
www.clustermaritimo.es



Sweden:
Sjöfartsforum
www.maritimeforum.se



The Netherlands:
Nederland Maritiem Land
www.maritiemland.nl



United Kingdom:
Maritime UK



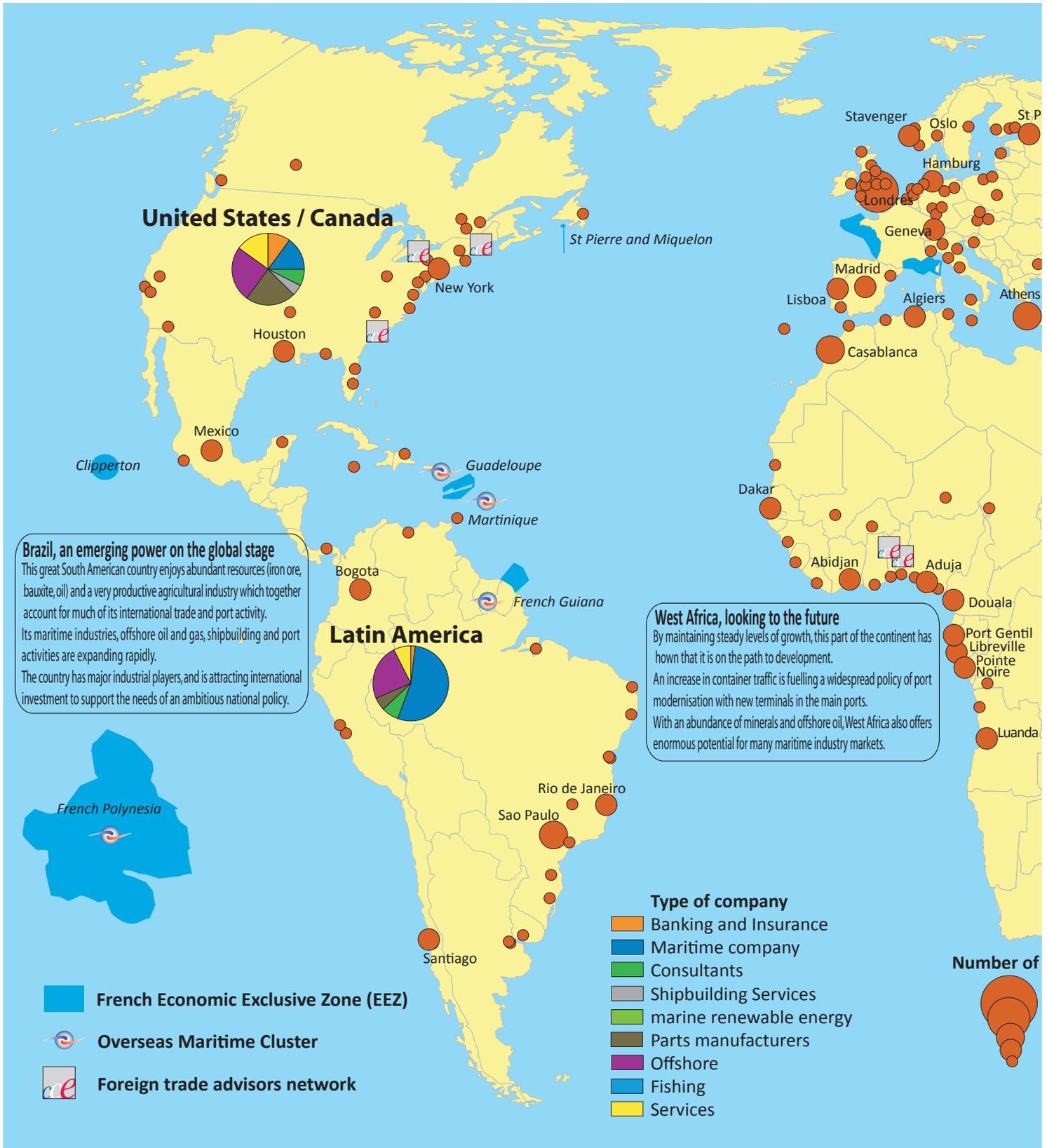


Cluster Maritime Français

Le Faire-Savoir Maritime
The Maritime Voice

Members of the French Maritime

French companies of the CMF, foreign trade advisors



Our thanks to the companies who supplied the data for this map: Alstom, Aquimer, ASV, Axa Corporate Solutions, AXS Marine, BNP Paribas, Bourbon, BRS, Bureau Veritas, Cegelec/Vinci Energie, CGG, CMA-CGM, Crocean, Daher, Dassault Systèmes, DCNS, DCI Navfco, Département de la Charente-Maritime, EDF EN, Eolfi, Ernst & Young, Filhet Allard, ENGIE, Grand Port Maritime de Bordeaux,

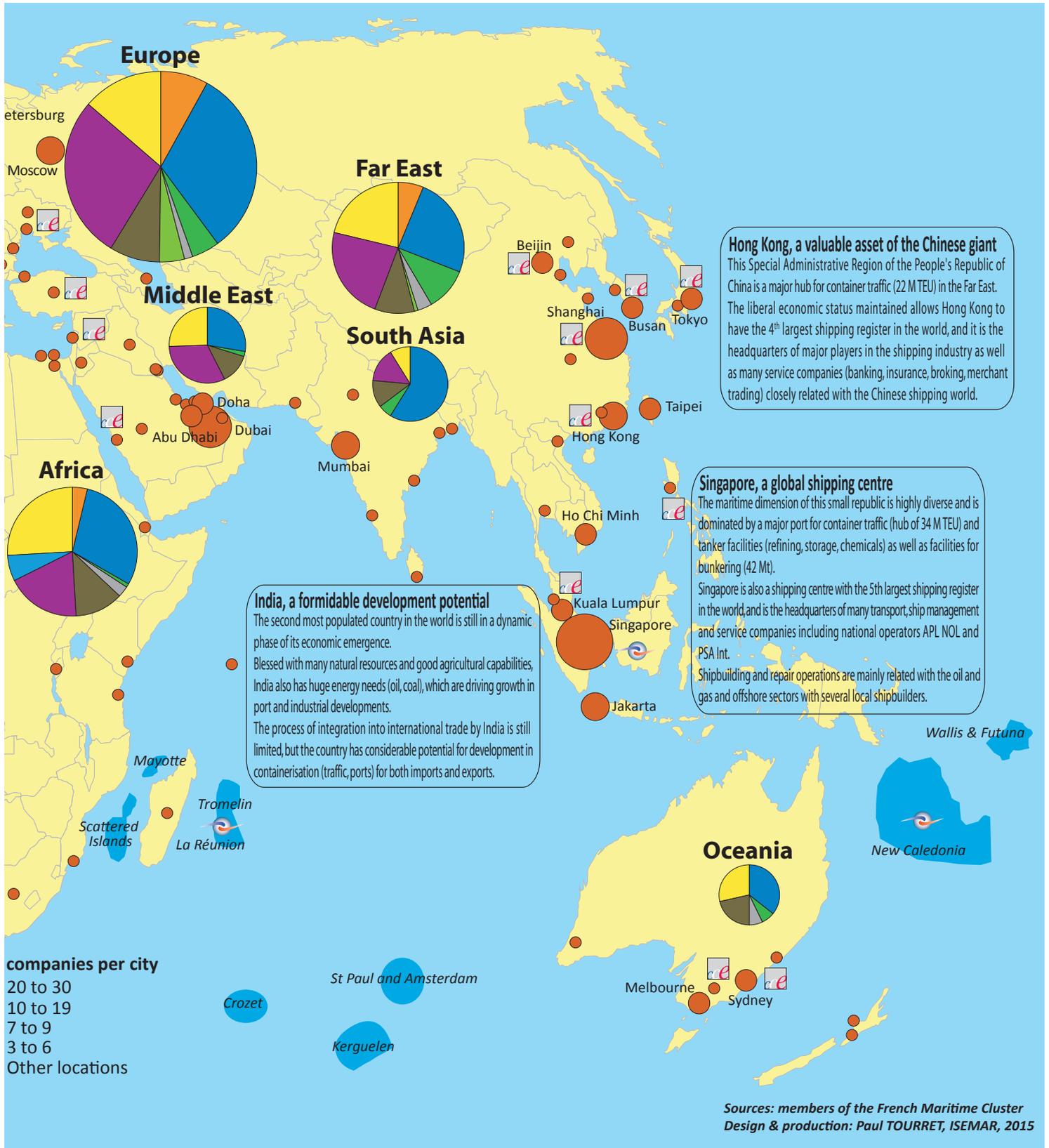
Cluster around the World

network, Overseas Maritime Cluster



ISEMAR

INSTITUT SUPÉRIEUR D'ÉCONOMIE MARITIME
NANTES - SAINT NAZAIRE



Grand Port Maritime de Nantes St Nazaire, Helvetia, Groupe Eyssautier, Gaz Transport Technigaz, Haropa, Havre Développement, Ifremer, Jifmar, JLMD, LOUIS DREYFUS ARMATEURS, Necotrans, Piriou, Raets Marine, Région des Pays de la Loire, S2F Navispec, Sagem, Seaowl, Shom, Socatra, Surtymar, Technip, Thales, Total, UAPF, Zodiac Milpro, Worms.

Overseas and international

Because of the DOM-COM (Overseas Regions and Collectivities), France possesses the second largest maritime zone in the world today. Its overseas territorial interests account for 97% of its Exclusive Economic Zone (EEZ) of 11 million km² - including 55,000 km² of coral reefs and lagoons - or around 10% of the total area of the planet, and give it a presence all over the world. What other country today can boast of being an "empire on which the sun never sets"?

In 2009 the first meeting of the Interministerial Overseas Council (CIOM) was held (since then, this CIOM has not met again). A number of measures adopted then relate to the sea, a natural extension of the DOM-COM and an essential resource for them. These measures are aimed especially at developing the maritime economic activities already in existence, and promoting the "seaward"

approach to which the Overseas Ministry aspires. Continuing this approach, the current Overseas Minister together with the Minister of State for Transport, the Sea and Fisheries, co-chaired a round table entitled "Marine Biodiversity, Seas and Oceans" at the 2nd Environmental Conference held in September 2013, placing special emphasis on the Overseas Regions and Collectivities.

The sea presents real opportunities for the Overseas Regions and Collectivities:

- energy resources (development hub for Marine Renewable Energy),
- biological resources (medicines, health, ...),
- food resources (fisheries),
- commercial resources (sea route stopover and distribution centre),
- tourism resources.

90% of the resources of France's EEZ are in the DOM-COM (oil, gas, rare earths), with important deposits in French Polynesia and Wallis-et-Futuna.



The overseas expectations merit careful examination: general rules on the functioning of the European Union should be adapted to the Overseas Territories as being special cases, and its policy decisions with an impact on economic life should, at least, be relayed to local stakeholders.

In this regard, the French Maritime Cluster believes in the maritime development of the Overseas Territories and, on a proportionate scale, continues to initiate with local stakeholders the creation of "matching structures" that can influence their local

economies and policies.

Thus the first clusters were created officially in **Guadeloupe** (May 2011), and **La Réunion** (September 2011), followed by **French Guiana** (May 2012) and **Martinique** (June 2013), and finally **French Polynesia** (June 2014) and **New Caledonia** (August 2014). They are now hard at work fostering cooperation among local maritime stakeholders, promoting their projects and developing the maritime sector overseas.



Cluster Maritime Guadeloupe

Email: contact@clustermaritime-guadeloupe.com
25 members



Cluster Maritime Martinique

Website: www.clustermaritime-mq.com
Email: contact@clustermaritime-mq.com
16 members



Cluster Maritime La Réunion

Email: clustermar.reunion@gmail.com
25 members



Cluster Maritime Polynésie Française

Website: www.cluster-maritime.pf
Email: contact@cluster-maritime.pf
33 members



Cluster Maritime Guyane Française

Website: www.cluster-maritime-guyane.fr
Email: contact@cluster-maritime-guyane.fr
32 members



Cluster Maritime Nouvelle-Calédonie



La Voix du Maritime

Website: www.clustermaritime.nc
Email: secretariat@clustermaritime.nc
52 members

International

THE FRENCH MARITIME CLUSTER
COMMITTEE IN SINGAPORE
[www.fccsingapore.com/committees/
French-Maritime-Cluster](http://www.fccsingapore.com/committees/French-Maritime-Cluster)



© MBS and Merlion (CF)

Asia is an engine for world growth and an area on which a resurgence in the economic growth will depend in years to come (cf. Senate Report of 14 July 2014).

By 2030 Asia will be the prime centre for wealth creation and scientific and technical innovation, and will account for more than a third of global GDP.

Asia is Europe's top trading partner and France has strategic interests there as a 'resident' power in the Indian and Pacific Oceans.

The importance of the maritime zones and communication routes that cross it from the Yellow Sea to the Persian Gulf is unquestionable. The lifeline of world trade goes through South-East Asia. With traffic of more than 50,000 ships per year, it is estimated that 40 to 50% of world trade passes through the Strait of Malacca. This applies not only to merchant shipping (and airline routes), but also underwater cables and the ports that mark out this strategic maritime highway.

Singapore, the Maritime hub

Several aspects make Singapore a key maritime trading centre or "hub":

Naturally, because of its strategic location on the Europe-Asia route, its history and its economic and political stability, this island micro-country has made maritime transport and industry a key sector of its development.

This status is also down to the performance of its port, which has become a major centre for container traffic, the second largest in the world (31.6 M TEU in 2012) and for refining and petrochemicals and soon gas. The cruise ship market sector is expanding fast as well.

More than 5,000 companies operate in the maritime sector in Singapore, generating more than 100,000 jobs and 7% of GDP (turnover of US\$ 16 Bn).

Its reputation is also honed by its many specialised port, marine and naval activities (specialising in

ship repair and conversion for oil exploration and production, and in offshore engineering); by its financial market and services (banking, insurance, broking); and also by the many foreign businesses located there, in particular those operating in the transport and shipping industries.

The French Maritime Cluster Committee in Singapore

In June 2014, the Cluster created the "French Maritime Cluster Committee" (FMCCS) in association with the French Chamber of Commerce of Singapore (FCCS) in order to reinforce links between businesses in the French maritime sectors or simply to support the French maritime economy in South-East Asia.

The FMCCS is a forum for discussion, exchange, networking and lobbying and a tool for promoting these businesses. It has a cross-sector approach and operates like a business club in relation with the sector committees of the FCCS. For a year the FMCCS has been extremely active and has organised numerous site visits, business meetings and networking events, as well as meetings with project leaders and with maritime and port institutions in Singapore.

In 2015 a study by a group of students from the ESSEC business school in Singapore tasked with mapping out the French maritime industries in Asia for the FMCCS catalogued more than 80 French businesses in the Association of Southeast Asian Nations (ASEAN), including more than 50 located in Singapore. This study also analysed 5 growth sectors in the ASEAN:

- shipyards, contractors and suppliers of systems and solutions,
- offshore engineering, suppliers of systems and solutions, marine renewable energy,
- transport and logistics,
- defence industries, suppliers of surveillance technologies and defence systems,
- peripheral services (IT and telecommunications, banking, broking, insurance, certification).

On the basis of these analyses, the FMCCS will enter its next phase in 2015-2016 when, with support from the influential local associations of the maritime industry, it will undertake:

- a study of Singapore's strategy for its maritime sector and how it has evolved;
- a study of the major City-State maritime partnerships in the world;
- the analysis and strategic vision of Singapore of this industry over the medium term.

Armed with this knowledge, the FMCCS will be better able to promote the products, services and capacities on offer from the French maritime industry in South East Asia.

Clipperton, an isolated atoll of
1.7 km² in the middle
of the Pacific, provides
France with an EEZ of
440,000 km²
or nearly the area of continental
France.

Major projects

The sea provokes dreams which its protagonists seek to turn into reality through a continuous quest for innovative technologies giving them the full benefit of the wealth and opportunities the sea provides. The visionary ideas of great maritime projects are pushing back the boundaries of speed, of the open sea, of the ocean deeps and of knowledge. Today, whether completed or still in progress, they are also the portents of developing markets and tomorrow will be key sectors, and decisive factors for giving France a competitive edge. They are a rallying call for all of France, reflecting the excellence of its companies and the boldness of a community of professionals carrying the symbols of success on to the international stage.

"Green is good. Blue is better":
The urgency of threats to the environment has given rise to a new movement in architecture which is attempting to build ecological cities on new islands. Blue architecture aims to conquer the seas!



HYDROPTÈRE

www.hydroptere.com

The fastest trimaran in the world is an amalgam of dream and advanced technology. This extraordinary yacht skims over oceans at very high speed and combines state-of-the-art technology in aviation and marine engineering. The *Hydroptère* is a unique groundbreaking project that conveys an unusually powerful combination of technological and human values. Its aim is to demonstrate the ocean-going potential of "flying" yachts. In 2009 Alain Thébault, its designer and skipper, held the world sailing speed record over a nautical mile (50.17 knots or an average of 95 km/h). Now, Alain Thébault, Anders Bringdal, Philippe Perrier and Boris Prat are working on the *iDroptere*, a high speed sailing project with the goal of exceeding an average speed of 80 knots! The first prototype of the new generation is due to launch next spring.



Hydroptère © Francis Demange

THE NEW FRANCE CRUISE SHIP

www.lenouveaufrance.com

The world of cruises has never experienced such rapid expansion. 33 new cruise ships are planned for construction by 2019, mainly for the mass market sector. With 600,000 French cruise passengers in 2014, the national market is constantly growing. It is thus the right time to take this opportunity to offer to the fellow citizens a new national emblem, the heritage of the prestigious French transatlantic past.



© Nouveau France

The new *FRANCE* offers a different cruise experience.

This floating ambassador of the "French touch", which can accommodate 800 passengers, has a revolutionary design, inspired by the mythic chimneys of the old France. The outline of its powerful hull slope set the back into successive terrace sending in a marina allowing passengers direct access to the sea.

It also brings together the talent of great French interior designers with the gastronomy of Alain Ducasse.

Hugely innovative, it also boasts ecological qualities that will be the privilege of vessels of the future.

Take the time, enjoy the space, rediscover the sea: the ambition of this cruise ship is to fly high the colours of France and its many talents.

NEOLINE

www.neolinetransport.com

The Neoline project was initiated by a multidisciplinary group of French Merchant Navy professionals who set up a joint work structure – the Neoline Association – to promote the novel and ambitious idea of planning and building a mostly wind powered cargo ship – a nonpolluting,



efficient means of transport complying with the most stringent environmental standards.

The *NEOLINER*, a 5,300 ton ro-ro ship fitted with innovative duplex rigging and equipped with an electric diesel auxiliary propulsion system, will offer shippers a freight service in line with market regularity and efficiency standards. Thanks to its objective of a 90% reduction in hydrocarbon consumption, the Neoliner will be able to meet stringent requirements in cost control and environmental excellence.

The Neoliner prototype will sail on the transatlantic route, linking Northern Europe to Quebec. Success with the Neoline project should make it possible to commission a fleet of ships adapted to different sea routes.

OCEAN FRESH WATER

www.ocean-fresh-water.com

The DEEP SEA WATER issued from 2000 years old ice melting cycle constitutes an endless source of cold water of an exceptional quality emanating from the high depths of our oceans. The particularity of DEEP OCEAN WATER is in its unmatched purity and high content in minerals and trace elements. Its therapeutic virtues are largely acknowledged by international scientific studies.

In order to profit from the richness of our oceanic depth, Ocean Fresh Water has developed an innovative industrial concept consisting in the production of DEEP OCEAN WATER, exceptional water drawn 300 meters deep by its factory-ship.

The objective of Ocean Fresh Water is not only to produce but also to commercialize this unique and luxury water widely targeted by a population concerned by its health, under its brand NEREE DEEP OCEAN WATER.



Today, the DEEP OCEAN WATER market keeps growing undeniably, since it is already commercialized abroad. What distinguishes Ocean Fresh Water from its competing suppliers is the very innovative production process. Indeed, NEREE DEEP OCEAN WATER bottles will be manufactured on-board of the ships rather than onshore, thus able to produce 375 million liters of bottled DEEP OCEAN WATER per year. This production quantity is non-negligible since it facilitates the delivery process and will present considerable economic consequences over the margin of the products, but also on ecological aspects, different from classical desalination plants process.

“Voilier du Futur” brings together **22** innovative projects in the leisure boatbuilding industry with the aim of creating a demonstrator cruising yacht of the future which will incorporate eco-innovations in materials, energy, waste water treatment, rigging, superstructure, ergonomics and safety.



SeaOrbiter is the brainchild of marine architect Jacques Rougerie, and is the only vessel of its type in the world. It represents a new concept in continuous 24 hour manned underwater observation. It will provide scientists with a unique opportunity to study marine phenomena, especially those involved in global warming, and add to our knowledge of the rich diversity of resources in the oceans and on our planet as a whole in order to conserve them.

It is also an authentic platform for communication, accessible to education, and the vehicle of a new adventure offered to researchers around the Mediterranean, Europe and the world.

It is, finally, an innovative technical project, an advanced platform designed to test cutting edge technologies in multiple fields, especially those associated with renewable and sustainable marine energy.

The pressurized laboratory at the heart of the vessel is an authentic space simulator that will allow a crew of 6 to 8 astronauts from NASA or ESA (European Space Agency) to train for future manned space flights and carry out unrestricted extra-vehicular activity in the surrounding subsea environment, making observations and doing experiments similar to those carried out in space.



© Jacques Rougerie Architecte

© SeaOrbiter © Jacques Rougerie

Multi-purpose Offshore Platforms

The shift of industrial activities to offshore environments responds to 21st century needs: exploitation of energy and mineral resources, MRE, fresh water, fish farms and offshore ports against congestion on coasts, etc. Multi-purpose offshore platforms represent an original option for accommodating these activities.

Comprised of concrete floatation chambers joined together by flexible links using a modular adaptive architecture, MPOP will be large infrastructures that can withstand large swell conditions. Modularity will make the tasks of movement, assembly and maintenance much easier.

The first contracts planned are for offshore ports and offshore logistics support, support for

MRE farms and fish farms, then development of the marine bio-resources, before accommodating other activities (pleasure boating, desalination plants, etc.)

Several projects are under study in Europe and in other parts of the world, and the advantages of French industry (naval, offshore, Public Works) place it in the front line for the development of these multi-purpose offshore platforms.

This development requires the active collaboration of everyone in the maritime economy (marine and civil engineers), whether they are the designers, the builders or the future users, in a joint effort to meet the numerous challenges that will arise (economic, technical, environmental, socio-cultural, legal, etc.).

As this project, supported by the CMF and the CORICAN, is still at the exploratory stage, the R&D work is awaiting public support.



© DCNS

Pôle Mer, Sea innovation and business cluster

The 70 Clusters of Competitiveness are levers for stimulating innovation and encouraging growth and job creation. Among their numerous missions, they develop innovative collaborative projects, mount export operations and oversee aid and finance destined for SMEs. Building on their success and responding to the expectations and

needs of the maritime sector, the Mer Bretagne Atlantique and Mer Méditerranée Clusters have in recent years extended their radius of action and increased their links with other sectors of the economy and other clusters of competitiveness to create a true ecosystem generating growth from all businesses with a maritime dimension.

THE MER BRETAGNE ATLANTIQUE AND MER MÉDITERRANÉE CLUSTERS OF COMPETITIVENESS

www.pole-mer.com



© Franck Mazaes - Fotolia

Profile in figures:

- **6** Strategic Business Areas
- **715** members (60% SMEs)
- representing **100,000** jobs
- More than **470** labelled projects representing a total R&D budget of **€ 1.4 billion** of which:
 - **125** projects have been completed involving total public funding of almost € 500 million
 - **23** structural development projects promoted or supported for a total budget of € 1.2 million.

Created in 2005, the Mer Bretagne Atlantique and Mer Méditerranée Clusters have been the focal point of investment in research and development into new techniques and technology applied to the maritime world.

These two clusters and their members have the shared aim of sustainable development in the maritime and coastal economy. This aim translates into three strategic goals:

- to play a pivotal role in establishing an integrated maritime policy,
- to be an international benchmark for the coastal and maritime sector and enhance the status of cluster members and regions through the "Pôle Mer" brand,
- to intensify business competitiveness.

In 10 years, € 1,4 billion of public and private funds have been invested in more than 470 collaborative projects undertaken by an ecosystem of more than 700 members, 60% of them SMEs, representing 100,000 jobs.

The Clusters also attract around 90% of France's research and training effort in marine science and technology.

This innovative model of two closely coordinated Clusters, with strong regional roots and covering France's two seaboard (Channel/Atlantic and Mediterranean) in a complementary manner, connected with the Overseas Territories and developing a network with an international reach, has largely been proven valid by experience.

The maritime and coastal activities, united by sharing the same environment, are extensive and diversified. These two clusters have formulated a development plan based on 6 strategic business areas, with parameters and key issues common to both regions:

- Maritime safety and security,
- Naval and yachting,
- Marine mining and energy resources,
- Marine biological resources,
- Marine environment and coastal planning,
- Harbours, infrastructures and shipping.

Their status as legitimate and relevant intermediaries has been acknowledged through their involvement with all authorities related with the maritime environment nationally as well as at European level, and their achievement in future investment is testament to their success.

Pôles Mer Projects:

■ STATIONIS:

Field: "Marine mining and energy resources".
Optimisation software for the architecture of seabed-to-surface linking of a floating wind farm. The project aims to develop a decision-making tool for rapidly determining the anchoring and electrical architecture of a floating wind farm. The tool developed as part of Stationis will be applied to two floating wind turbines on the market at two promising sites, one in the Mediterranean and one in the Atlantic. Its 3D graphic interface will allow quick configuration of the parameters of a floating wind farm.

■ SERENITE:

Fields: "Shipbuilding and leisure boatbuilding", "Marine biological resources".
A safer, cleaner, more economical coastal fishing vessel.

The SERENITE project involves building a demonstrator coastal fishing boat of under 12 metres with the aim of launching an innovative, flexible vessel on the market by 2015, which will provide ship owners with a safer, more economical and environmentally sound equipment than is provided by the existing fishing fleet.

The innovations relate to the boat's architecture, the use of organically sourced materials and the inclusion of a hybrid diesel/electric engine.

■ MCGS:

Field: "Marine environment and coastal planning".
Centre of expertise producing information on the maritime sector.

Processing centre for data from space and oceanographic services.

MCGS' objective is to provide environmental information tailored for the marine environment from the Sentinel satellites in the COPERNICUS programme, operational monitoring, optimisation of human and materials resourcing, and respect for offshore and coastal regulations. It corresponds to the ESA/EU requirement to build collaborative data processing centres within the COPERNICUS programme (formerly GMES) for the provision of personalised services for local and national parties, both public and private, involved in the marine environment.

There was a rise of
23% in R&D related
jobs in SME and MSE
within competitiveness
clusters between 2006
and 2009.



Maritime transport and shipping services

Turnover (Maritime and coastal transport)

€ 14.6 billion

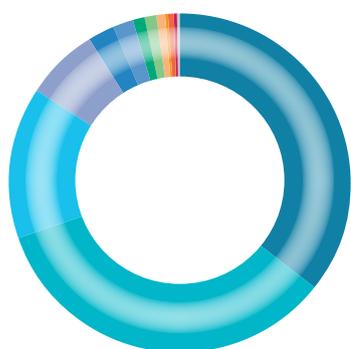
Direct French jobs in shipping companies

16,000 sea-going
6,000 shore

Source: Armateurs de France

The french flagged merchant fleet as at 1st January 2015

In thousand GRT



1,814,233 Container ships

1,726,529 Tankers

728,455 Ferries

359,704 Gas carriers

120,026 Cable layers

97,437 Research vessels

63,535 Roro ships

49,004 Cruise ships

37,324 Tug boats

25,069 General cargos

18,551 Marine aggregates dredgers

12,080 Other passenger vessels

9,403 Other types of ships*

2,215 Pilot boats

2,035 Multipurpose dry bulk carriers

TOTAL **5,065,600**

*Excluding service vessels

Source : Ministère de l'Écologie, du Développement durable et de l'Énergie / Armateurs de France

A relatively new fleet and a full and diversified range of services

In 2015, there were around a hundred French shipping companies operating 1,000 vessels, 517 of which under the French flag. A significant asset of the French shipping industry with an average age of 7 years, the fleet is one of the newest and most diversified in the world.

Concerned about environmental and safety issues, at the forefront of the technological innovation, French shipowners rally to continuously improve the operating conditions onboard their ships. They lean on well trained seafarers, whose skill is recognized internationally.

So many key points which place in a recurring way the French flag at the top of the "white List" of the international classification of the "Memorandum of Paris on the control of ships by the State of the Port". Through this classification, it is the excellence of the French flag that is recognized regarding safety and social and environmental standards which is distinguished on the international maritime scene.

In short sea shipping as well as in long-distance trip, the French shipowners are present all around the world and transport quite a large variety of goods. Under French flag, they ensure the strategic and energy supplies of our country. Well represented in the passengers transport, they also serve the French islands and Europe. For several years, French shipowners have been very present on service activities: oceanographic research, installation of cables, oil offshore, renewable marine energies, etc.

With world champions but also a very dense tissue of small and medium-sized enterprises from the coast and the ultramarine, the French shipowners are in the outposts of the globalization and assure the link between France and the rest of the world.



© Renan Donovan / LOUIS DREYFUS ARMATEURS

ARMATEURS DE FRANCE

www.armateursdefrance.org

Armateurs de France, the trade organisation for French shipping and maritime services companies, represents 54 French companies.

Armateurs de France is tasked with:

- Protecting and promoting the interests of French shipping companies.
- Representing these companies when dealing with French, Community and international authorities.

- Assuming a public relations role and promoting the image of French shipping and maritime services.
- Negotiating collective bargaining and industry-wide agreements.
- Providing information and advice to its members.

The French merchant fleet is ranked foremost in the world for quality and safety (PSC rating), and on 1st January 2015 included **179** vessels of more than **100** UMS.



The main areas of activity of shipowners:

Containers

CMA-CGM

www.cma-cgm.com



Jules Verne © CMA CGM

A French group making history, third in the world in container transport.

- Turnover of US\$ 16.7 billion in 2014.
- 465 ships, 89 of which are company-owned.
- 12,2 million TEU transported in 2014.
- Extensive geographic coverage: 655 agents served in 16 countries
- 22,000 employees including 4,700 in France.

MARFRET

www.marfret.fr

A family owned SME, Marfret operates as both a sea carrier and shipowner. The company employs 150 people and has a turnover of €190 million. With its 5 regular lines, Marfret has a strong territorial presence in three main geographical areas: Europe and the Mediterranean, America and the Caribbean, and the South Pacific.



© FOTOFITTE - Marfret Guyenne

Drybulk

Solid bulk transport is especially well represented by **Louis Dreyfus Armateurs** (see page 18) and:

ABCRM

www.abcrm-shipping.com

ABCRM is a subsidiary of SMO, a family-owned company for more than 25 years. ABCRM offers services for the carriage of goods by sea and on the river with premium quality vessels whilst taking advantage of ongoing investment in order to comply with its clients' needs. The fleet operated by ABCRM is comprised at the moment of 4 vessels: *André Michel 1*, *Laguêpe*, *Frelon* and *AM Larafale*.

3 vessels are operated on the Rhone-Mediterranean trade. *AM Larafale* is operated in the Bay of Biscay and around the Iberian peninsula. They transport

all types of products: bulk, general cargo, project cargos. The annual freight volume represents more than 300,000 MT.

Its office at Port-Saint-Louis du Rhone is in charge of the operation of the above vessels and ship agency for their calls on the Rhone river.

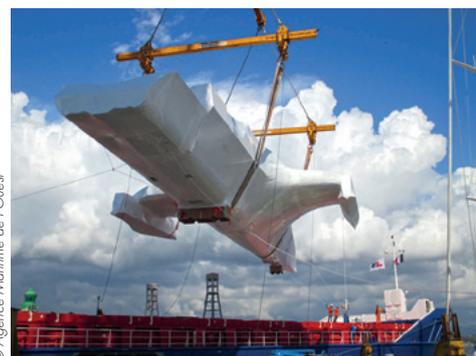
ABCRM also acts as shipbrokers in order to enable its clients use of their knowledge and their extensive network.

The company also organizes river transports on all inland waterways.

AGENCE MARITIME DE L'OUEST

www.amo-ship.com

Founded in 1912 in Paimpol in Brittany, the company was specialized in short sea transport.



© Agence Maritime de l'Ouest

Gradually, it has expanded its activities and is now acting as ship owner, ship manager, operator, ship broker, stevedore and freight forwarder. Conventional and dry bulk transport, project cargo, towing and marine projects is the core business of the company, which has subsidiaries in Hamburg and Rotterdam. Moreover, it has three joint ventures in conventional chartering, heavy lifting and towing sectors.

**COMPAGNIE ARMORICAINE
DE NAVIGATION**

Compagnie Armoricaine de Navigation (CAN) is a sand-dredging operator, a subsidiary of the Roullier group. CAN operates two sand dredgers, "Côtes de Bretagne" and "Côtes d'Armor", registered in Paimpol. They extract marine calcium amendments and siliceous materials from proprietary and third-party deposits along the coasts of northern Brittany and the Atlantic Ocean. These two ships also operate on maritime projects such as re-sanding beaches and hydraulic embanking.



© CAN

**DRAGAGES – TRANSPORTS
ET TRAVAUX MARITIMES**
www.groupe-libaud.fr/activites.html



© DTM - André J. Flying focus

DTM, together with its subsidiaries SDO and Sablimaris, is a sand dredging ship owner that specializes in extraction, transportation, treatment and sale of marine aggregates. DTM operates along the French West Atlantic coast between La Rochelle and Brest. DTM operates two trailing suction hopper vessels that supply the four sand terminals of Sablimaris and his clients GSM and LAFARGE. Gaining sand at sea requires accurate and extensive preliminary studies undertaken by specialist consultants. This activity is part of the sustainable management of the sand resources and is organized within the frame of tough regulations and formal administrative authorization procedures.

**LOUIS DREYFUS
ARMATEURS**
www.lda.fr

LOUIS DREYFUS ARMATEURS group (LDA), founded more than 160 years ago, is a French family-owned Group active in maritime transportation and services.

Offering a worldwide presence with over 2,000 staff and 60 vessels, LDA group is organized around two core businesses:

- Dry Bulk & Logistics: dry bulk transportation with LD BULK; industrial projects, offshore transhipment and port logistics for dry bulk with LD PORTS & LOGISTICS.
- Industrial services: transportation of heavy and specialized cargoes with FRET-CETAM for AIRBUS; cable laying and maintenance with ALDA MARINE (partnership with ALCATEL-LUCENT SUBMARINE NETWORKS), submarine cable installation/protection and services

dedicated to marine renewable energies with LOUIS DREYFUS TRAVOCEAN; seismic research with GEOFIELD Ship Management Services (partnership with CGG).



© LDA / P. Roy



The large regional towns in China, India and Latin America account for more than a third (**38%**) of the rise in emissions due to passengers transport.

Liquid bulk

French shipping companies are present in liquid bulk transport with more than 60 tankers carrying raw and refined bulk cargoes. These shipping companies compete actively in a rapidly expanding global shipping market carrying goods for the most demanding international companies including **Total** (see page 25). Among shipping companies specialising in petroleum products, chemicals or liquefied gas are:

GAZOCEAN
www.gazocean.com

Founded in 1957, Gazocean, subsidiary of the ENGIE group (see page 51) and of the Japanese Ship Owner NYK line, is one of the oldest shipping companies in the liquefied gas



industry. Its expertise has been built up over more than fifty years of activity in this sector.

Pioneer in the use of innovative technology in the highly specialized field of Liquefied Natural Gas (LNG) shipping, Gazocean is in charge of the crew and technical management of a fleet of last generation of LNG Carriers.

Based on its operational experience, Gazocean can offer consultancy, expertise and training services for shipping businesses.

GEOGAS MARITIME
www.geogas.com

Based in Paris, the shipping company Geogas Maritime SAS ("Geogas") is successor to the Gazocéan Group, a pioneer in the transport and trading of LPG in the 1950's. Geogas employs its fleet in the service of its Swiss sister trading company Geogas Trading SA and, excluding chartered vessels, operates a fleet of ten ships, the five largest of which under the French flag: *Summit Terra* (78,500 m³), *Lapérouse* (22,500 m³), *Surville* (35,000 m³), *Verrazane* (35,000 m³) and *Philippine* (3,000 m³). It has another two ships under the Maltese flag, *Albane* (8,600 m³) and *Forbin* (5,000 m³) and one registered in Panama, the *Astrid* (5,000 m³). The *Pénélope* (9,000 m³), currently under construction in Korea, will join them.

At the beginning of March 2014 this specialist LPG carrier took delivery of the *Surville*. A sister ship to the *Verrazane*, which entered service last October, it is also registered under the French flag. The new ships allow Geogas Maritime to continue modernising its fleet (still very young incidentally) by replacing the *René* (2002) in particular, which was sold two years ago and taken back by the

company under bareboat charter until delivery of the *Verrazane* in order to retain the crew.

Ship renewal is set to continue as Geogas Maritime has placed an order for two VLGC (Very Large Gas Carriers) of 84,000 m³, to be delivered by Hyundai Group's Samho shipyard in 2015 and 2016.

For its French registered fleet, Geogas Maritime employs around sixty French officers while the crews are Romanian. The vessels are managed by a joint venture company formed between Geogas Maritime and V.Ships.



SOCATRA
www.socatra.com



Socatra is leading provider of seaborne transportation service for crude and petroleum products. Its current fleet of 14 modern double-hull tankers with an average age of 4 years.

The group also operates two ro-ro barges designed to carry oversized components for the Airbus A380 on the Garonne River.

In addition, with five depots situated on the Atlantic coast, the group has a significant presence in the oil storage market.

Socatra group is also prominent player in the river leisure cruise business in Paris (Vedettes de Paris).

Passenger transport

French shipping companies include large ferry operators. **Brittany Ferries** (see below), Corsica Ferries and SNCM are the largest.

On October 2014, the French ferry fleet was comprised of:

	Ferries	High Speed Vessels	Ro-Ro	Local service
French flagged	25	1	10	93
Foreign flagged	13	2	4	-
Total	38	3	14	93

[Source: le marin August 2014]

BRITTANY FERRIES

www.brittany-ferries.fr

Specialising in passenger and freight transportation, Brittany Ferries operates from France, Great Britain, Ireland and Spain.

- 2,400,000 passengers (85% of these are British), 780,000 cars and 154,000 freight vehicles carried in 2014,
- € 376.5 million total turnover,
- 10 passenger/freight ships serving 11 ports in 4 countries,
- 2,450 employees (of which around 70% are seagoing). All are French nationals.

Bringing to life the 'motorways of the seas' concept along the Atlantic Arc, Brittany Ferries is the largest employer of French seafarers, and makes a strong contribution to the tourist economy of the regions of northwest France (generating 8.5 million bed-nights and € 530 million spending).



POINT AVEN © Brittany Ferries

Over the last few years, Brittany Ferries has further developed its latest 'motorway of the sea' between Great Britain and Spain, helping unblock French roads, whilst capitalising on the popularity of Spain amongst British holidaymakers.

PONANT

www.ponant.com

The world's only French-flagged cruise line and top cruise line worldwide in polar expeditions, PONANT has been an integral part of France's great maritime tradition for over 25 years.

The company currently has 5 distinctive and intimate vessels, embodying the essence of a private luxury yacht with fully bilingual crew:

- *le Ponant*, a three-masted sailing yacht (32 staterooms)
- and 4 luxury yachts (122 to 132 staterooms & suites), *le Boréal*, *l'Austral*, *le Soléal* and *le Lyrial*.



© Lorraine Turci

Sea transport accounts for **40%** of intercommunity trade and **90%** of trade with the rest of the world.



Sail-Shipping

**TOWT -
SAIL-SHIPING**
www.towt.eu

TOWT is a cargo-broker, commissioner import-export trading and certification company, which solely uses sailing ships to transport goods. At this day, over a dozen of tall ships have shipped over 450 tonnes of cargo for TOWT, for 320 tonnes of CO₂ saved. Despite their apparent anachronism, TOWT regards tall ships as a leverage to develop a business whose needs can be met by new builds only. TOWT is currently undertaking an ambitious R&D project on a modern cargo sailing ship and is preparing the legal framework that will support future ventures.



© TOWT

Offshore services

BOURBON
www.bourbonoffshore.com



© BOURBON

Operating in more than 50 countries, with a modern and standardized fleet of more than 500 vessels and 29 operating affiliates, BOURBON meets the needs of the most demanding clients by offering a wide range of marine services to the offshore oil and gas and wind turbine industry. The Group deploys its strategy for attaining operational excellence through: the competence & commitment of its crews, vessel integrity in all aspects - from design to standardization and maintenance - and the application of rigorous standards at all levels within the company.

BOURBON prides itself on its commitment to local recruitment policies. 60% of the company's workforce is hired locally, making proximity with clients one of the company's key assets. The company's global network of ship managers, BOURBON Training Centers and BOURBON Repair Centers make it possible to intervene anywhere in the world with the same level of quality and safety.

Strong performance by the Group's Marine Services and Subsea Services offers has positioned the Group as a leading *service provider* in the international market for offshore oil and gas production.

Marine Services ensures:

- offshore installation supply,
- offshore installation anchor handling, towage and positioning,
- offshore oil and gas production and storage terminal support,
- personnel Transport,
- assistance, salvage and pollution,
- remediation.

Subsea Services ensures:

- offshore operations engineering, supervision and management,
- offshore field and wind farm development support,
- subsea Inspection, Maintenance and Repair (IMR).

COMEX
www.comex.fr



© Marc DELAIZE - COMEX

Created in 1961, COMEX led the way in industrial deep diving and became the world leader in manned and robotic underwater engineering, technology and interventions, crisscrossed the world's seas.

From the 90's, COMEX has implemented a resolute spin-off policy concerning its technological and industrial know-how and the holding has now refocused on marine/subsea engineering and undersea services.

COMEX owns a fleet of research vessels equipped with exploration and working tools down to 2,500 m. Vessels and tools are operated by a permanent team of experts.

The engineering business unit is involved in all operations that need design and conception of new tools that can all be qualified in COMEX pressure chamber or water tanks.

This mix between engineering, test facilities and operations gives a fantastic reactivity and assures to its clients a quality of works and results.

Safety and confidentiality remain the two major aspects of COMEX operational or engineering projects.

IROISE EVASION
www.iroise-evasion.com

Created in 2010, Iroise Evasion offers the capability to perform a wide range of sea based services on behalf of large organizations.

Operating in various environments, these include:

- all maritime operations ...
- surveys/data gathering relating to renewable energy,
- environmental studies,
- oceanography ...
- the transportation of personnel,
- the safety of waterways,
- nautical races transporting media and others parties to the starting point,
- nautical services for business seminars ...

The company possesses 2 large inflatable vessels: one measuring 11m in length with 2 x 200 hp engines and the other measuring 10m with

2 x 250 hp engines. Both boats are professional tier 3 certified and one is transportable in land-NUC.

Based in Camaret sur Mer, Iroise Evasion is present in Brest, at Sea Iroise and can be present at all over the other French coast and beyond.



© Iroise Evasion

JIFMAR OFFSHORE SERVICES
www.jifmar.fr

JIFMAR Offshore Services is the leading French company offering turnkey maritime solutions.



© Jifmar Offshore Services

Operating a modern fleet of vessels with highly qualified personnel, JIFMAR provides assistance to:

- offshore wind farm operators,
- marine construction & engineering firms,
- offshore oil & gas community,
- the defence community.

JIFMAR provides offshore terminal management integrated Inspection-Maintenance-Repair (IMR) services combining project management, project engineering, workboats, multipurpose vessels, personnel transfer vessels, state-of-the-art ROV's, and specialized tools and protocols to increase productivity and safety when working at sea above and below water.

PROLARGE
www.prolarge.com

Since 2009 ProLARGE has developed its service of maritime project engineering and management. As prime contractor of all the means necessary for a project (sea vessels, aircraft, divers, etc...) the company is specialised in logistic and operational support for sea trials (70% of turnover) and marine surveying (20% of turnover).

ProLARGE also participates in maritime related studies, for the most part in preparation for subsequent project management (10% of turnover). Services provided:

- advice and study on the marine based aspects of a project;
- selection and chartering of the vessels and aircraft required for the project;
- implementation of peripheral equipment (measuring devices, AUV, current meters, etc...)
- establishment and management of a project team including deep-sea divers, engineers, experts, lawyers, crews, etc...;
- operation and coordination of the necessary means;



© ProLARGE

- management of the administrative environment and safety issues specific to a marine setting.

The company began marketing its services abroad in 2011.

The aim of ProLARGE is to facilitate the development of its clients towards maritime issues.

Oil tankers carry **60%** (or around **2 billion tonnes**) of the oil consumed in the world.





Although followed closely by Asia, Europe remains the world leader in sea transport, controlling **40%** of the world fleet (with nearly **23,000** ships).

SEAOWL

www.seawowlgroup.com



© VN Parisisan Seaowl

The SeaOwl Group is a service provider specialised in a wide range of asset management, training and manpower supply services for the Maritime, Defence and Oil & Gas industries.

The group provides professional staff, processes, technology and management expertise to clients requiring customized solutions to help grow and protect their business interests:

Oil & Gas activities

- marine manpower management & training services

- Oil & Gas manpower management services
- drilling engineering manpower services
- turnkey facility management services
- ROV Manpower management services
- subsea ROV Inspections works

Defense & security activities

- marine defense training
- helicopter & military equipment qualification services
- targets and drones (UAV, UUV) management
- integrated security & surveillance solutions

THOMAS SERVICES MARITIMES

www.tsmgroup.eu

Shipowner TSM operates service vessels in marine renewable energy, offshore and deep-sea towage and harbour towage.

TSM's current fleet consists of 15 tugs stationed at different points on the Channel and Atlantic coasts. TSM is an experienced operator and works closely with its customers during their projects using its specialised vessels especially in the following fields:

- transport and personnel transfer to offshore wind farms,
- barge and platform towage,
- vessel assistance.



© Thomas Services Maritimes

VDC OFFSHORE

www.vdc-offshore.com



© VDC Offshore

VDC Offshore specializes in workboat and crewboats chartering and the achievement of any types of mission at sea. VDC Offshore provides watch dog services on behalf of the French Navy, but also survey campaigns for offshore industries and different other missions like personnel transfer, goods transfer or support in maritime works. VDC Offshore is located at Cherbourg and Lorient and can operate on all the French coast and in the both sides of the Channel.

Communication services

EUTELSAT COMMUNICATIONS

www.eutelsat.com

Established in 1977, Eutelsat is one of the world's leading and most experienced operators of communications satellites. The company provides capacity on 37 satellites to clients that include broadcasters, pay-TV operators, video, data and Internet service providers, enterprises and government agencies. Eutelsat is also among those who pioneered the operational validation of Automatic Beam Switching with a 1m dish antenna in Ku-band, enabling a vessel to automatically switch satellites.

Eutelsat provides satellite coverage extending from the Americas to Asia-Pacific. Our company is also renewing its fleet, with capacity on three new satellites put into service in 2014 and four satellites to be launched by the end of this year.

The Maritime sector benefits from such advanced technology that aims at offering a flexible and adaptable multi-regional solutions to maritime service providers thanks its teleports around the globe.

Headquartered in Paris, with offices and teleports around the globe, Eutelsat represents a workforce of 1,000 men and women from 32 countries who are experts in their fields and work with clients to deliver the highest quality of service.

Submarine network solutions

ALCATEL-LUCENT SUBMARINE NETWORKS

www.alcatel-lucent.com/fr/solutions/reseaux-sous-marins



© ALCATEL LUCENT

Undersea fiber optic cables connect most of the world's people, businesses and institutions, not satellites. Lying on ocean floors, these submarine cable systems carry the vast majority of our international communications and data. Together, they form the backbone for the data centers powering the world wide web.

Alcatel-Lucent is the world's only fully integrated provider of turnkey submarine network solutions. Alcatel-Lucent brings all of the products and know-how needed to design and build optical communications links across the world's oceans.

From new deployments to network upgrades, regional links to transoceanic infrastructure, Alcatel-Lucent provides everything – starting with route selection and survey, through system design, manufacturing, installation and maintenance.

Key facts

- more than 150 years of submarine cable system experience
- 25 years of fiber optic expertise
- a range of solutions with multi-terabit capacities for all applications
- more than 550,000 km of cable laid
- more than 300,000 km of cable under maintenance
- more than 200 fiber optic cable systems delivered
- more than 100 upgrades completed
- more than 6,300 repeaters manufactured
- a fleet of 7 fully equipped cable ships

ORANGE MARINE

www.orange.com/OrangeMarine

Orange Marine is specialized in the field of submarine telecommunications from the initial design and engineering, to installation of intercontinental and regional links, and maintenance of existing cables.

In operation since the mid-nineteenth century, the submarine cable industry FCR – France Cables and Radio - became a 100% subsidiary of Orange Group in 1999.

Orange Marine offers a global service of submarine cables installation, providing them an experienced fleet and excellent knowledge of offshore operations.

Besides its traditional activities of laying and maintenance of telecom cables, Orange Marine develops service offers on new markets, such as offshore and renewable energies.

In numbers:

- 6 cable ships (15% of the global fleet),
- 3 cable storages,
- 175,000 km of cable laid,
- 500 repairs.



Pierre De Ferman - © H. Valderhaug

Engine optimization

EFFICIENCY ENGINE

www.ency-engine.com



© Efficiency Engine

French innovative company, has developed a new technology that allows optimization of diesel/gas engines and power generators. This innovative technology, *Concept EE (world patented)*, by the analysis of the measures of engine data from the combustion gases and parameters monitored (T° , P_{max} etc.), allows a new very precise vision of the engine operating. It allows to visualize all the stages of combustion, to associate one or several malfunctions and thus define the Real Signature of any diesel / gas engine.

Thanks to its mobile scientific laboratory performing its measures in situ (material IMO) the *EE Concept* also allows to act immediately on a found defect and thus limit see Delete derivatives, cases, premature wear mechanical and of course the

over-consumption and pollution resulting.

In its approach to optimal research of efficiency, maintenance in operational condition (OCM) and preventive maintenance, Efficiency Engine established for each study unit 3-specific reports with recommendations: mechanic report (management of the efficiency chain of the combustion), environmental report (emission reduction), energy report (reduction of energy derivatives).

Efficiency Engine, with the professionalism of its teams, acts on all the oceans.

Marine lubricants

DEXTER OIL

www.dexteroil.com

DEXTER OIL specialises in the distribution of marine lubricants to international shipping companies. The company is distributor of marine lubricants for the CHEVRON group in French-speaking countries (France, Francophone Switzerland, Francophone Africa, the Overseas Regions and Territories). It is also a specialist in logistic services in marine lubricants for ships stopping in France and Morocco.

DEXTER OIL is part of the international supply chain network of CHEVRON MARINE LUBRICANTS.

DEXTER OIL is the exclusive agent of CHEVRON in the promotion and marketing of marine lubricants to international shipping companies in its zone of responsibility.

The French registry for commercial vessels

THE FRENCH FLAG RIF

www.rif.mer.developpement-durable.gouv.fr

The French flag RIF is the French registry for commercial vessels. The Guichet Unique is the special point of contact for shipping companies and agents for any transactions or questions regarding the

French Flag or the management of vessels and their crews. It brings together the administrative divisions of customs and maritime affairs in one single office. A multi-disciplinary team stands ready to listen and respond to ship owners' needs.



More than **90%** of the excess heat accumulated in the climate system over **50** years due to anthropogenic global warming is stored in the ocean (**15 to 20** times more than in the low atmosphere and on land).

Charterers and agents

ASSOCIATION DES UTILISATEURS DE TRANSPORT DE FRET (AUTF)

www.autf.fr

Freight Transport Users Association represents the French shipper and numbers among its members, and actively furthers the interests of, several companies of the sector.

AMCF

AMCF (Agents Maritimes and Consignataires de France - Shipping Agents and Freight Forwarders of France) is the outcome of a merger between FACAM and SNAM. The FACAM is a federation

of port associations, shipping agents and freight forwarders. SNAM is a syndicate representing shipping agents.

TOTAL

www.total.com

With operations in more than 130 countries, TOTAL, a leading international oil company and a world-class operator in natural gas, refining and petrochemicals, plays a predominant role in both the French and the International Maritime Industry.

Total helped to pioneer the LNG industry and is today a leading player.

The group employs a fleet of Gas Carrier under time-charter or through its participation in a large number of LNG projects.

TOTAL is primarily involved in the seaborne transportation of hydrocarbons:

- more than 3,000 voyages carried out annually by the group's chartered fleet,
- approximately 115 million tons of hydrocarbons shipped annually,
- a fleet of around 50 vessels under time-charter,
- more than 100 vessels at sea at any given time.

Offshore oil and gas service and supply industries

Turnover	Jobs in France	Share of exports
€ 17.55 billion*	~ 32,000**	More than 90%

Source: *GEPAFTP – 2014 / ** estimate CMF

The French offshore oil and gas service and supply sector is a world leader and the 2nd largest exporter of offshore extraction support services (with more than 90% for export), a position which it shares with Norway and the United Kingdom. Turnover has risen from € 3.5 billion at the end of the 90's to around € 17.55 billion today.

The sector alone accounts for more than a quarter of the value of production in the maritime economy.

It has also a particularly strong, acknowledged reputation in deep and ultra-deep offshore operations. The offshore oil and gas service and supply industry consists of a group of companies

with specially designed fleets performing the important survey and construction tasks necessary for the exploration and exploitation of oil and gas deposits at sea. It includes equipment suppliers and service providers, particularly ship owners and operators, and engineering and design firms.

In the coming years, developments in deep and ultra-deep offshore are likely to be the main source of growth in offshore oil and gas production, and there are also plans to use certain methods for subsea mineral exploration and exploitation, the next great challenges in offshore subsea extraction.

The leading French companies

CGG
www.cgg.com

CGG is a fully integrated Geoscience company providing leading geological, geophysical and reservoir capabilities to its broad base of customers primarily from the global oil and gas industry. Through its three complementary business divisions of Equipment, Acquisition and Geology, Geophysics & Reservoir (GGR), CGG brings value across all aspects of natural resource exploration and exploitation.

With a fleet of 11 3D vessels, CGG delivers a complete range of marine seismic services, principally in the Gulf of Mexico, the North Sea, offshore West Africa and Brazil, as well as in the Asia-Pacific region and frontier areas such as the Arctic basin, offshore Eastern Africa and in the Black Sea.

CGG employs over 8,500 people around the world, all with a passion for geoscience and working together to deliver the best solutions to its customers.

2014 revenue: \$3.095 billion.



© CGG

COFELY ENDEL
www.cofelyendel-gdfsuez.com

Cofely Endel is the French leading global industrial services provider around its core business of metal specialists, for environments requiring security, safety and quality.

The company operates in three main areas: Erection, Maintenance and Dismantling and on the following sectors: nuclear, Oil & Gas, steel industry, aeronautics and space industry, naval...



© Cofely Endel

Cofely Endel teams master a full set of industrial skills such as managing complex projects, engineering, new build and logistics.

Cofely Endel has developed a real expertise in naval sector, especially with Defense actors (DCNS, the French Navy, the Defense Infrastructure Service, and the General Directorate of Armament) and also with actors in the Civil sector (Thalès, DAMEN, STX, SNCM...): contracts for operational maintenance, complex shutdowns services or new build.

Cofely Endel has 30 areas of intervention in the world, with historical contracts in the French overseas departments and territories like Kourou space center in Guyana and the seaport of Reunion Island. The group continues its international expansion, especially with DCNS in Saudi Arabia.

Key figures: 6,000 employees - € 700 million turnover in 2014 - More than 140 sites - More than 2,500 customers.



© Technip

Technip is a world leader in project management, engineering and construction for the energy industry.

From the deepest subsea oil & gas developments to the largest and most complex offshore and onshore infrastructures, the 38,000 people of Technip are constantly offering the best solutions and most innovative technologies to meet the world's energy challenges.

Present in 48 countries, Technip has state-of-the-art industrial assets on all continents and operates a fleet of specialized vessels for pipeline installation and subsea construction.

2014 adjusted revenues: € 10.7 billion.

There are currently nearly **700** offshore platforms in service.



For technical facilities

Saipem (see page 56) engages mainly in offshore oil activities (construction of rigs, seabed-to-surface connections, floating production systems and pipelines), LNG and drilling.

Doris Engineering specialises in technical studies, project management and assistance for the oil and gas industry.

For offshore services

BOURBON (see page 21) is a specialist in offshore maritime services among others, where it has become one of the world leaders.

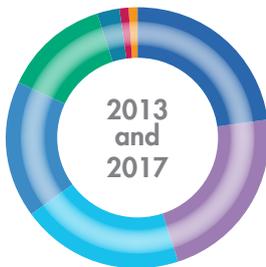
COMEX (see page 21) and Subsea 7 are pioneers in sub-sea engineering, technology and services by divers or remotely operated vehicles.

An innovative industry

World firsts such as the first deep water platforms for harsh environments (Arctic), the first jack-up platforms and firsts in smart drilling, electromagnetic data transmission and new devices for laying gas and oil pipelines in deep water have all been produced by French technology and expertise.

With the prospective formation of a new industrial sector of "deep sea mineral exploration/exploitation", French companies which have honed their skills in oil and gas and offshore activities are coming to the fore in terms of both R&D and new technologies, such as **Technip**, **ERAMET**, **DCNS**, **COMEX**, **Fayat Travaux Sous-Marins**, and even **Louis Dreyfus Armateurs**, **BOURBON** and **CRÉOCÉAN**.

Demand for subsea constructions between



- 23%** North-West Europe
- 22%** West Africa
- 20%** South America
- 17%** Asia Pacific
- 13%** North America
- 3%** Mediterranean Black Sea
- 1%** Central America
- 1%** Caspian Sea

Sources: IFFPEN, IHS



© dafira - Fotolia.com

Shipbuilding and repair

The largest cruise ship in the world "Harmony of the Seas"

(**362** m long,
227,700

tonnes UMS) is under construction at Saint-Nazaire!



The French shipbuilding and repair industry, from shipyards to all associated equipment and service companies, employs more than 42,000 people directly. It is ranked 6th in the world and 2nd in Europe in the global civil and military market. This industry offers recognized skills and technologies

that often extend beyond the "shipbuilding" niche, while a large part of its revenue comes from exports. Very innovative, our industry is also proud to be present in all technological segments needed for maritime industry projects.

2014	Total turnover in 2014 (million of €)	Jobs	Share of export %
Construction of merchant ships, service vessels & fishing boats	700	3,000	80
Repair of merchant ships, service vessels & fishing boats	150	1,000	60
Construction of warships	2,000	7,500	30
In-service support	1,000	5,000	-
Marine product and equipment suppliers	2,200	10,000	60
Others suppliers and subcontractors	2,500	15,000	40
Total (incl. cross purchases)	~8,500	42,000	-

A versatile and innovative industry

The success of France in this industry is due to the adaptability of its human resources, their capacity for innovation (the French shipbuilding industry having a leading edge) and its business efficiency. French shipyards are building the most complex units: cruise liners and other passenger vessels, research and other specialized vessels, frigates and power projection warships, support vessels and submarines. This expertise is also deployed in offshore sectors, particularly marine renewable energy. French shipyards and equipment suppliers build all kinds of high value-added vessels, up to 400 m in length.

A growing export-orientated systems integration industry

A large ship is like a small town! On a ship under construction, a large number of products and parts are brought in and fitted on board. This is called systems integration. The subcontractors and equipment or service suppliers are located throughout France, but mainly on the coast.

This global network, with the support of regions, local clusters, and "Pôles de compétitivité", is the foundation of our industry.

GICAN
(FRENCH MARINE INDUSTRY ASSOCIATION)
www.gican.asso.fr

With more than 160 members, GICAN is the professional sectoral body representing the French naval and maritime industry, from shipyards, prime contractors to system-integrators, to equipment makers and service providers, which together make up this industry for ships, but also for all structures needed for the exploitation of offshore resources, first-of-all marine renewable energies, and for maritime security, safety and environment.

The industry represented by GICAN has more than 40,000 employees, and a turnover of €8.5 billion.

GICAN brings together the skills of all of its members, from large companies to SME's. It is responsible for their promotion in France and abroad, their strategic positioning within Europe, and recognition of the high technology which characterizes the industry. GICAN represents the

naval sector in national (ministries, parliament, national associations...) and international bodies (SeaEurope, EU-Commission European parliament, European agency for defense...). In particular, GICAN is partnered with the relevant French ministries (economy-industry and ecology-energy) to lead the CSFN (French strategic committee for the shipbuilding industry), and CORICAN (Council for research and innovation). Also, GICAN has been tasked by the government to manage the project "Oceans 21" for boosting the industry.

GICAN, with its subsidiary SOGENA, organizes the world leading exhibition for naval-defense and security, EURONAVAL, and the EUROMARITIME-EUROWATERWAYS business show, covering all maritime and inland waterway economic affairs (see page 125).



"A ship that has not tasted wine will taste blood": this proverb illustrates the tradition of breaking a bottle on the hull of a new ship to baptise her!

The leaders in shipbuilding

DCNS

www.dcnsgroup.com



© DCNS

DCNS is a world leader in naval defense and a global player in marine renewable energies. The group designs, builds and maintains submarines and surface ships. It also provides a full range of services to naval bases and shipyards. DCNS offers services in engineering, construction, installation, maintenance and overall prime contracting of marine renewable energies. The Group works on the development of MRE technologies which are now at different stages of maturity, and has already formed strategic partnerships to develop pilot projects in France

and abroad. Aware of its corporate social responsibilities, DCNS has signed the United Nations Global Compact. DCNS Group reports annual revenues of € 3.1 billion and employs 13,130 people.

STX FRANCE

www.stxeurope.com



© Bernard Biger - STX France, Saint-Nazaire

STX France SA is a large shipbuilding group majority owned (66.6%) by STX Europe (a subsidiary of the Korean group STX Offshore and Shipbuilding), with a minority stake (33.4%) held by the French government. Its two shipyards at Saint-Nazaire and Lorient possess the industrial expertise and facilities for designing and building a wide range of sophisticated vessels including passenger ships, warships and specialised vessels, as well as complex marine installations.

Especially active in Research and Development, STX France, via its programme ECORIZON®, provides its customers with innovative technical solutions for vessels offering greater economy and a reduced environmental footprint.

For several years, STX France and its subsidiary STX France Solutions have been expanding into offshore energy markets: oil and gas fossil fuels and marine renewable energy. Foundations and metal structures, offshore electricity sub-stations, service and installation vessels, marine energy generation structures and systems, and offshore accommodation platforms are all currently either in the design stage or form part of development projects.

STX France Solutions on the other hand provides engineering services in both shore and offshore infrastructure markets, and has an important subsidiary in Brazil.

Finally, through its Services business, STX France provides in-service ship maintenance and retrofit operations (civil and military).

CMN

www.cmn-group.com



© CMN

Constructions Mécaniques de Normandie, a privately owned shipyard located in Cherbourg, France, employs around 340 people.

CMN designs and builds vessels in steel, aluminium alloy or composite material.

CMN is the sole European fast attack craft builder to provide, either through its own staff or through the various other companies of the Group:

- design and integration of weapon systems,
- expertise in Stealth design, studies of RCS, EMI / EMC,

- integrated Logistic Support-ILS (SIJ - Sir Joseph Isherwood LTD),
- training of crews and maintenance technicians (CMN Support Services Ltd),
- the CMN Group is fully experienced in assisting overseas countries by Transferring Technology to develop their own naval shipbuilding and maintenance capacities.

PIRIOU

www.piriou.com

- Sales of € 160 million in 2014,
- More than 400 ships built,
- Companies located in France, Poland, Nigeria and Vietnam,
- 1,100 people employed worldwide.

French group PIRIOU, a global company with an international focus, successfully combines

shipbuilding, repair and naval engineering. PIRIOU specializes in producing medium sized vessels with high added value through a combination of high-performance engineering and a global network of industrial sites in Europe, Africa and Asia, employing a 1,000-strong workforce. The group makes its expertise available to public and private, civil and naval owners of vessels up to approx. 120 m in length, from ship design to ship construction and repair, also including in-service support during operation. With more than 400 ships built and delivered worldwide since 1965, PIRIOU offers a wide range of efficient vessels for small-scale or industrial fishing, offshore oil and gas service, offshore wind service, towing, public service, patrol duties, expedition vessels...



© Piriou

Every year **10** billion tonnes of ballast water are moved around the planet and offloaded in foreign waters, or **6** times the tonnage of the ships.



Other entities have skills in shipbuilding, including the following: **CERVVAL** (see page 108), **Cofely Endel** (see page 26)...

Ship repair and maintenance

CEGELEC DÉFENSE

www.cegelec.com



© Cegelec

CEGELEC Défense is a provider of solutions and services for the design, installation and maintenance of systems or sub-systems for industry and the infrastructures and services sectors. With a foothold in some 30 countries, CEGELEC Défense provides customer support at every stage of local and multi-site projects worldwide. CEGELEC Défense is a subsidiary of VINCI Energies, an international group with a

turnover of €9 billion and a global workforce of 64,000 employees.

Expertise: multi-technical works onboard submarines, protection and surveillance of critical land, sea and onboard infrastructures, global maintenance of port and naval infrastructures, ships, patrol boats, surveillance frigates, patrol class vehicle/personnel landing craft, etc.

CHANTIER NAVAL DE MARSEILLE

www.cndm.eu

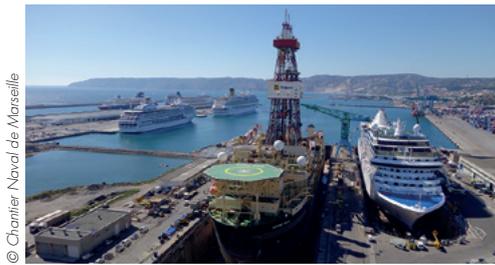
Chantier Naval de Marseille (CNdM) is a ship repair, refitting and conversion yard for all types of merchant vessels. The shipyard was founded in 2010 by the Italian shipyard San Giorgio del

Porto to operate drydocks n°8 and 9 in the port of Marseille.

Strategically located, the shipyard can welcome all types of vessels without any draft restrictions and takes advantage of a favorable climate for ship repairs activities. The shipyard is certified ISO 9001:2008.

As from March 2016, the shipyard will be the exclusive operator of drydock n°10 (465mx85m), the biggest drydock in the Mediterranean Sea.

The shipyard is also a member of "Genova Industrie Navali" group composed of 3 shipyards and several companies operating in several segments of the maritime market.



© Chantier Naval de Marseille

DAMEN SHIPREPAIR BREST

www.damenshiprepairbrest.com

Damen Shiprepair Brest is a well-established repair yard with modern facilities. It has three graven dry-docks and a number of repair berths. The largest dry-dock measures 420 x 80 meters and is one of the biggest in Europe, allowing the yard to accommodate almost any ship in the world.

workforce is particularly well-known for its LNG tanker expertise.

The shipyard offers a broad range of services for any vessel type, including LNG tankers, oil tankers, semi-submersibles, shuttle tankers, FPSO's, offshore construction vessels, jack-up rigs, ro-ro vessels and ferries. The highly skilled



© Damen Shiprepair Brest

DAMEN SHIPREPAIR DUNKERQUE

www.damenshiprepair.com/dunkerque/

Damen Shiprepair Dunkerque is the only operator for repair and conversion in the port of Dunkirk (3rd largest port in France). It has two graving docks, one floating and three repair berths. Its largest dock can accommodate vessels up to 295 m in length and a beam close to 48 m. It also has a modern well equipped 22,000 sqm

workshop, situated very close to the docks. Its spacious facilities with crane capacity allow the handling and storage of heavy equipment used for conversion and offshore projects.

Its experience dates back to the 19th century and is the origin of the yard's high level of 'in-house' expertise and a significant network of specialized subcontractors nearby.

Its strategic position, close to the English Channel and main European trading routes, makes the yard an ideal place for dockyard work.

The yard can offer a full range of services for passenger and ro-ro vessels, dredgers, specialized offshore vessels and cargo vessels.



© Damen Shiprepair Dunkerque



Over the past **5** years, French naval defence has been the driver of French exports of defence equipment accounting for more than **30%** of all such exports.

EIFFEL INDUSTRIE MARINE
www.eiffel-industrie.com

Located in the heart of a region recognised for its expertise in shipbuilding and ship repair, Eiffel Industrie Marine is a highly skilled operator in project management for the shipping industry:

- studies for the integration and assembly of machinery on new ships,
- complete ship fitting at dockside or in dry dock, scheduled maintenance work and breakdown repairs,
- ship refitting, conversion and integration of new equipment,
- expertise and repairs on board and at sea in France and abroad.



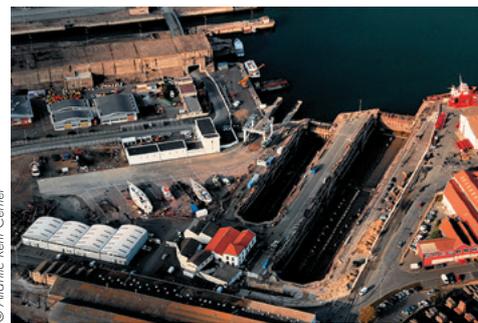
© Eiffel Industrie Marine

Yacht refitting

ATLANTIC REFIT CENTER
www.atlanticrefitcenter.com

The Atlantic Refit Center is the only shipyard on the Atlantic seaboard between Calais and Gibraltar exclusively devoted to superyacht

and megayacht refitting. Able to accommodate yachts up to 150 m long and 21 m wide, the Atlantic Refit Center marshals a substantial network of French companies on the Atlantic seaboard as well as European companies specializing in the large yacht market.



© Atlantic Refit Center

Established in 2006 in the Large Sea Port (Grand Port Maritime) of La Rochelle, its medium term objective is to become THE premier refit center on the European Atlantic seaboard, with services including a marina for winter lay-up of up large units over 70m.

Subcontractors and equipment suppliers

ACCO
www.acco44.com

ACCO is a leading European company specialising in sheet metal working and aluminium and steel construction.

With 30 years of experience, sales of €3 million, a workforce of 30 and an industrial site of 3 hectares, ACCO specializes in aluminium sheet and stamped products for custom steel and aluminium production.

Located in the Bordeaux region of northern France, known for the construction of both prototype or standard design ships, ACCO builds superstructures and hulls for merchant and defence vessels, yachts, sailing boats, pleasure craft, semi-rigid boats, ferries, river boats, fishing boats, pollution skimmers and harbour boats in a

range from 6m to 35m.

Our company has led the way in innovation by developing an aluminium floating platform called "TRIPORTECH", designed to accommodate a range of uses such as harbour offices, sailing schools, first-aid posts and event organisers.

ACCO is a member of Apportech Industries, a cluster that joins local businesses with complementary activities such as general mechanical engineering, thermoforming, joinery, metal working and design. Apportech Industries offers turnkey projects, i.e projects that encompass multiple skills. ACCO is also member of Neopolia St Nazaire cluster.



AXANTHA II © B. Stichelbaut - JFA

ADTS
www.adts-technicalsupplies.com

Technical expertise and tailor-made solutions: a specialist in marine valves and pipe fittings. ADTS is a French consulting and trading company.

Surrounded by well-known partners, ADTS guides its customers through the process of designing and finalising their new projects and maintaining their equipment.

ADTS serves and supplies repair yards, ship owners, fuelers and maintenance companies, guaranteeing a first class service.

ADTS' strengths:

- technical expertise and know-how on a wide range of products,
- innovative and up-to-date solutions,
- long-term support and follow-up,
- a personalized comprehensive approach to solve the most diverse and complex problems: qualifications, deadlines, certifications, warranties...



© ADTS

45% of the turnover of the oil and gas service and supply industry is generated offshore (a turnover of € **39** billion in 2013).



AMERIS FRANCE

www.ameris.net

Since 1994, Ameris services its customers with a global expertise in naval supply chain: sourcing and procurement management, MRO, technical assistance, kitting, co-packing, assembly and international logistics for complex technical environments.

Thanks to its proprietary database of more than 70,000 parts from 7,000 providers, Ameris

procures on-the-shelf and engineered parts to shipyards, ant the defence, offshore energy and transport industries.

Ameris Group operates across the 5 continents, through its subsidiaries in France, Spain, the Netherlands, Slovakia, Chile, New Zealand & French Polynesia, and a network of more than 20 international representatives.

BRETAGNE PÔLE NAVAL

www.bretagnepolenaval.org

The BPN association has 125 members from the naval, marine renewable energy and offshore oil and gas sectors.

These three sectors of excellence represent more than 20,000 employees in the Brittany region.

A creative force, from design engineering to construction and the maintenance of finished units, BPN's companies form a complete chain of expertise and skills for naval, MRE and oil and gas projects.

The main goal of BPN is to boost the economic development of companies through its promotional actions and help to develop their resources and facilities.

BPN provides complete tailored solutions and can handle the most complex projects in France and abroad.

CIRANOE

CIRANOE, the holding company of Jean-Pierre Le Goff, operates in the maritime field through two subsidiaries: MAURIC, a very well known naval architect and engineering office, and SIBIRIL

Technologies, a naval shipyard specialized in 12m to 20m meter long composite boats, with its prestigious professional references such as SNSM and Harbour Pilots.

CNIM

www.cnim.com

The CNIM Group designs and produces turnkey industrial solutions with high technological content and provides research and operational services in the fields of energy, defence, industry and environment.

The CNIM Marine Systems division covers the following areas:

- Design and construction of specialized vessels with high technological content for civil and military markets
- Design and manufacturing of equipment for eco-friendly ships
- Design and manufacturing of machinery and components for MRE systems.



© CNIM

d2M ENGINEERING

www.d2m-group.com

For more than twenty years, d2m has been a leading French company, specialising in naval architecture for merchant and defence vessels, and also in marine engineering, in services for ship owners and in marine renewable energy systems. This fully independent company provides assistance to ship operators, oil & gas companies and engineering and offshore companies throughout their new build or conversion investment projects.

The d2m group employs around 90 engineers. In 2012, its turnover amounted to € 12 million and is steadily increasing: d2m provides engineering studies and construction supervision to numerous major international customers through its affiliates

and partners.

d2m works on the initial concept and definition of ships and platforms (forms, stability, structural design, propulsion, marine systems, living quarters, weight reports,...) as well as on classification aspects. d2m is capable of meeting very diverse needs throughout the design and construction stages, and also throughout the ship's entire life cycle, on maintenance, modifications or conversions. d2m also offers special expertise in safety and security aspects and in operating cost reduction using methods and tools developed internally to bring solutions to ship owners.

DGA TECHNIQUES
HYDRODYNAMIQUES
www.defense.gouv.fr/sites/dga

DGA Hydrodynamics is the test and evaluation center of the DGA (Direction Générale de l'Armement) and specialises in naval hydrodynamics and hydroacoustics, and in the evaluation of the behaviour of ship's hulls in waves and of submarine trajectories. DGA Hydrodynamics also designs propellers for submarines, surface

ships and other equipment, evaluates them and qualifies their designs. The centre uses numerical and high performance model test facilities (B600 and GTH), often unique in their capabilities. DGA Hydrodynamics carries out ship instrumentation for sea trial measurements and for in-service monitoring.

FIXTURLASER
www.fixturlaser.fr

Supplier of laser measurement instruments dedicated to specific adjustment operations during assembly, installation or maintenance of machines.



Expertise:

- Alignment of rotating machines (shafts, shaft line, cardan shaft, half bearings, bearings, etc.)
- Machine positioning and setting geometry (straightness, flatness, perpendicularity, parallelism, concentricity, etc.)
- On-site expertise with acquisition or realignment
- Training in alignment and geometric measurements.

It applies simplified and optimized alignments to increase the reliability of machines in operation and guarantee the quality of production.

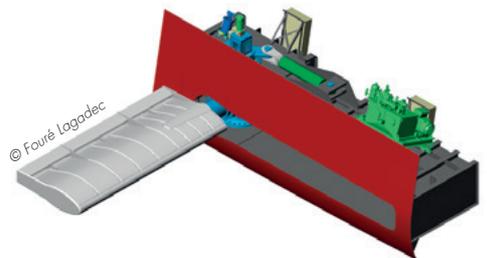
FOURÉ LAGADEC MARINE
www.fourelagadec.com

In 2003, Fouré Lagadec acquired the business of ACH Engineering and created a Marine Department (FL Marine) in order to pursue a 90 year old tradition.

A group employing around 2,000 people worldwide, Fouré Lagadec focuses its core activities on industrial metal fabrication and industrial maintenance. Within this group, FL Marine specialises in the design, sale and maintenance of complex assemblies for the shipbuilding industry.

The Marine Department operates its new construction activity by relying on feedback from the maintenance of existing equipment.

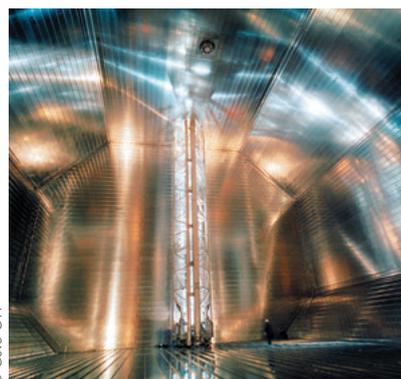
The varied skills available within the company enable it to provide complete solutions, including pre-project, design, assembly and follow-up of installations, involving all trades.



GAZTRANSPORT ET TECHNIGAZ
www.gtt.fr

GTT is a French engineering company specialising in membrane containment systems for liquefied natural gas (LNG) containment

and storage. The three main areas of expertise are LNG carriers, offshore structures and land storage tanks.



With more than 90% of the on-order world LNG carrier fleet equipped with its technologies, GTT is a recognized world leader.

Its expertise and ability to innovate to meet customer requirements and international regulations allow GTT also to provide solutions for the whole LNG chain. As ships turn to greener fuels like LNG, GTT's time-tested technologies offer designs for vessel fuel tanks, on-shore and off-shore storage, as well as feeders and barges. GTT has a key role in this future development.



© Cuve GTT

80% of marine pollution originates on land.

Ships emit **5** times less CO₂ (in the transported ton) than road transport, and **13** times less than air transport.



GROUPE HERVÉ
www.groupeherve.com

Present in France, Switzerland, Belgium and Morocco for four decades, the diversified and complementary businesses of the HERVE Group are organized around three core activities : Energy Services, Industry and Digital technology, which work together to provide one of the most original and coherent service offers on the market.

Its naval activities are represented by the companies Chouteau Atlantique, CTL, Métalform, SN-Hydro, Onex which are partners with ship and submarine builders with specialities in hull and structural assembly and fluid networks. These companies also operate in sheet metal working, offshore welding in steel, aluminum and stainless steel, and marine quality bespoke metalworking.

HONEYWELL MARINE
www.honeywellmarine.com



© Honeywell Marine

Honeywell Marine is part of Honeywell Process Solutions (HPS) and is specialized in the production and sale of precision level measurement systems for marine applications, a market in which it has built a substantial share in recent years. It has a production and service facility in Bourges. Sales are handled and supported by a network of distributors and agents all around the world, together with teams of company's specialists based in key countries for the marine industry. Honeywell Marine SAS offers full automated tank gauging solutions for cargo, ballast and service

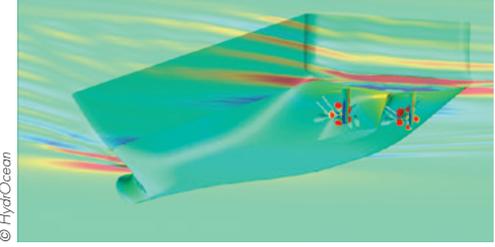
tanks incl. monitoring of temperature and inert gas. As a proven leader in the marine equipment industry the company has the capability to offer complete system engineering, equipment, installation, commissioning and support solutions anywhere in the world.
 Type of solutions:

- cargo tanks level measurement systems,
- safety, overfill and gas detection systems,
- wide range of sensors for tank gauging and safety control.

HYDR OCEAN
www.hydrocean.fr

HydrOcean is a world leader in marine computational fluid dynamics. Through a complete digital towing tank, HydrOcean

provides hydro and aerodynamic performance evaluation and optimization services for the marine, offshore, renewable energy and sailing industries. These services provide increased performance and reduce design risks in vessels and marine structures. HydrOcean provides its services worldwide notably through a partnership arrangement with Bureau Veritas. HydrOcean is also distributor of the software, developed in partnership with the Ecole Centrale Nantes.



© HydrOcean

NEOPOLIA MARINE
www.neopolia-marine.com

Nepolia Marine is a cluster of 55 companies from the Pays de la Loire region, specialising in shipbuilding and ship repair (aluminium and steel) for commercial development and improvement of performances. This cluster contains highly experienced companies possessing all the technology necessary for the construction of all types of vessels and floating building.

Neopolia Marine offers a synergy of all skills, recourse to the expertise of specialists, compliance with the constraints of coordination, and overall management of technical and financial projects. For this, the cluster relies on the expert services of a specialised technical and commercial engineer, who works closely with customers in their projects and thereby promotes the development of the member companies.

NEXTER ELECTRONICS
www.nexter-group.fr/fr/filiales/nexter-electronics

Nexter Electronics, a Nexter group subsidiary, is an expert in embedded electronic systems operating in harsh environments. A company with long experience in the design, implementation and operational maintenance of embedded equipment in land defence systems, Nexter Electronics implements a range of innovative, competitive and sustainable solutions developed for system and on-board network control (from solid state power controllers to Safety Integrated Level computers and fuel cell generators).



ASMX2 pour drone scubardin



© Nexter Electronics



The Great Barrier Reef, measuring **2,600** km in length, is the biggest living structure on Earth. It can be seen from the Moon.

PALFINGER FRANCE

www.palfinger.fr



© Palfinger France

Part of the Vincent Group and leader in the French classic loader cranes market, Palfinger France also handles sales and service (spare parts / on-site support) for Palfinger Marine's business units such as:

- Palfinger Marine [Marine Cranes]
- Palfinger Dreggen [Offshore and Marine Cranes]
- Palfinger Wind [Wind Cranes]

2014:

- €76 million in turnover,
- 1,031 cranes sold,

- 734 hooklift units sold,
- 27 distributors and 85 customer service locations.

Palfinger Marine is the leading global manufacturer of highly reliable, innovative and customized marine, offshore and wind cranes as well as launch and recovery systems. For more than ten years, Palfinger Wind has produced wind cranes for nacelles, platforms and substations/accommodation platforms and is present on the main European wind farms.

PRÜFTECHNIK FRANCE

www.pruftechnik.fr

The French subsidiary of international group Prüftechnik AG (world leader in the laser optical alignment industry), Prüftechnik France specialises in preventive maintenance and offers the following services:

- shaft alignment and geometrical measurements by laser optical,

- propeller shaft torque measurement,
- online particle distribution counter monitoring wear debris in oil,
- vibration analysis by portable systems or monitoring systems,
- vibration analysis by telemonitoring.

SAFT

www.saftbatteries.com



© Saft

Saft is a world leading designer and manufacturer of advanced technology batteries for industry. The Group is the world's leading manufacturer of nickel batteries and primary lithium batteries for the industrial infrastructure and processes, transportation, civil and military electronics' markets. Saft is the world leader in space and defence batteries with its Li-ion technologies

which are also deployed in the energy storage, transportation, marine and telecommunication network markets. More than 3,800 employees in 18 countries, 14 manufacturing sites and an extensive sales network all contribute to accelerating the Group's growth for the future. Saft's batteries are designed for industry.

SAMES TECHNOLOGIES

www.sames.com

65 years of know-how, innovation and customer assistance have given SAMES a solid international reputation for performance and quality in electrostatic spraying.

SAMES develops and installs automated and robotic application solutions for paint, sealants, thick or fluid products for automotive, general industry, wind, oil, plastic or shipbuilding markets.

SAMES provides its customers with complete solutions, from pumps to product application systems.

Each customer is able to match the quality of finish required on its production lines anywhere in the world, thanks to SAMES expertise and support.

SCHOTTEL FRANCE

www.schottel.de/fr/



© Schottel France

Schottel is an innovative group of companies specializing in the development, design, production and marketing of azimuthing propulsion and manoeuvring systems, as well as complete propulsion systems with power ratings of up to 30 MW for vessels of all sizes and types.

High product quality and a real commitment to local presence are the hallmarks of its success. A long tradition forms a major part of its corporate culture.

With a high level of investment in research and development, Schottel optimizes its existing

products and implement innovative system solutions. The goal of these activities is to improve still further the efficiency and reliability of all its propulsion and manoeuvring systems – for the benefit of its customers.

Thanks to close cooperation with shipowners, yards, consultants and internationally renowned independent research establishments, Schottel has been able to achieve this goal consistently.

Schottel (France) turnover € 1.5 M

Schottel (Deutschland) turnover € 300 M

WENEX EQUIPEMENTS

www.wenex-equip.com

Wenex Equipment is a representative of equipment manufacturers in the fields of shipbuilding, offshore, renewable, energy

generation and specialized industries. Turnover of € 1.5 M and a staff of four.

Classification

Classification societies help companies comply with quality and safety standards in the course of their business. They play a predominant role in maritime transport by ensuring that ships are built and operated according to satisfactory safety standards.

The **AIS** (automatic identification system) is a system for exchanging messages automatically between ships by VHF radio.



BUREAU VERITAS
www.bureauveritas.com



© Bureau Veritas

Bureau Veritas is one of the world's leading classification society and offshore safety and verification bodies.

With 2,550 marine experts in over 90 countries (more than 180 survey offices), BV classifies 11,200 sea-going ships (107m grt), more than 750 offshore units and 2,000 inland navigation vessels.

Bureau Veritas has recognized technical expertise in all segments of maritime transport and offshore facilities for the exploration and development of both onshore and deep-water oil and gas fields. BV holds a leading position in the market for highly technical ships (liquefied natural gas (LNG) or liquefied petroleum (LPG) gas carriers, FPSO/FSO offshore oil platforms, cruise ships, ferries, and specialized ships).

Bureau Veritas is involved in a number of European research programs, and also in a

large number of joint industrial projects with the oil industry. With this investment, BV has been able to develop areas of expertise such as hydrodynamics, vibration phenomena, and structural tools to analyse the behaviour of ships and offshore structures. In other areas, various simulation and analysis tools have also been developed, regarding, for example, fire propagation on board ships, firefighting, or passenger evacuation.

DNV GL
www.dnvgl.com

DNV GL, one of the leading classification societies. Driven by its purpose of safeguarding life, property and the environment, DNV GL enables organisations to advance the safety and sustainability of their business. DNV GL provides classification and technical assurance along with software and independent expert advisory services to the maritime, oil & gas and energy industries. It also provides certification services to customers across a wide range of industries. Combining leading technical and operational expertise, risk methodology and in-depth industry knowledge, DNV GL empowers its customers' decisions and actions with trust and confidence. The company invests 5% of annual revenues in research and collaborative innovation to provide customers and society with operational and technological foresight.

Originated in 1864, DNV GL operates globally in more than 100 countries with its 16,000 professionals dedicated to helping their customers make the world safer, smarter and greener.



© DNV GL



Lloyd's Register is a leading provider of marine classification services around the world, ensuring that internationally recognised safety and environmental standards are maintained at every stage of a ship's life. But Lloyd's Register is not just about surveying ships; Lloyd's Register is dedicated to helping our clients achieve the best possible performance from their fleets and operations. Through customised solutions, LR helps owners and operators implement the newest technologies and innovations and achieve greater design, operational and cost efficiencies.

Research and innovation underpin everything LR does, and are key to helping us ensure a sustainable future for shipping. The new Global Technology Centres in Southampton, UK, and Singapore, are the cornerstones of LR's global research and technology network, drawing together the engineering excellence of Lloyd's Register, academic institutes, and other industrial collaborators to deliver innovation.

Key areas of expertise:

Naval ships

Through its classification and consultancy services, LR helps the world's navies ensure their ships perform optimally. LR provides specialist support on all technical areas, such as propeller optimisation, hull damage, ice strengthening and shock protection.

Gas as fuel

One of the key areas where LR has been helping shipping innovate is gas as fuel. As well as leading developments in gas-fuelled ship design – with delivered projects including Viking Grace and Argonon, and newbuild projects including three ferries for STQ and two PCTCs for UECC – LR is helping make safe LNG bunkering possible. LR has been assisting ports and port operators to understand the steps involved in addressing bunkering risks and has helped develop the world's first practical operational procedures and standards for bunkering in the Port of Singapore.

Training services

Its award-winning Marine Training Services Team offers a wide range of courses tailored to the shipping industry. Lloyd's Register recognises that every organisation has unique requirements, and will work with customers to anticipate, understand and fulfil their training needs. All its trainers are Lloyd's Register experts.

Mount Everest, while the highest point on the surface of the Earth at **8,848** metres, is surpassed by the Challenger Deep, which is the deepest point ever measured in the oceans at **10,900** metres deep.



*"Brest, plateforme de forage en construction"
Michel Bernard ✎, Official Navy Artist*

Maritime safety and security industries



The international distress call was CQD until 1906, then it became SOS until 1929, now it is Mayday, an English corruption of the French phrase "venez m'aider" meaning "come and help me".

Increasing globalisation is presenting all the maritime activities with new challenges and threats, which are:

- monitoring sea transport to prevent and protect against threats such as terrorist attacks, piracy and illicit trafficking;
- supervising maritime activity to protect marine resources, preserve the environment and provide assistance to people and goods.

Against this background, which is provoking the introduction of stronger legislative and regulatory measures as well as increased government action at sea in pursuit of a global approach to maritime and environmental challenges, French manufacturers have developed solutions, systems and equipment specially for these fields.

Most of these manufacturers are members of the GICAN Maritime Security, Safety and Environment Committee (see page 28).

To combat piracy, a work group initiated in 2010

by the **French Maritime Cluster** with the members of the **GICAN** and **Armateurs de France**, established a project for the self-protection of ships, a non-lethal self-defence system using automatic subsystems installed on board vessels.

As an additional anti-piracy measure, the **French Maritime Cluster** formed a task force in 2010 made up of equipment suppliers, the industry association **Armateurs de France**, equipment designers and users, and the **French Navy**, which has resulted in the launch of a ship self-protection project, BlueDome. This relates to a non-lethal system of self-defence using automated subsystems fitted on board vessels that provide an effective, modular, simple to use, economic system of protection.

A consortium of nine companies has been set up to develop this project. **The self-protection system, currently in demonstration phase, is due to market early 2015.**

Most of these manufacturers include the leaders of the Defence and Security sectors

2ITRONIC
www.2itronic.fr

2itronic is developing RoSafe, a man over board management device. The personal beacon is so small that it can be hidden in every life jacket. As an option, it is possible for the beacon to be inserted in a foam vest. On board,

the receiver is compatible with NMEA2000 devices and PC driven road map. The system can even trigger automatic actions from alarm to vessel guidance.

AIRBUS GROUP
www.airbusgroup.com

Airbus Group' status in the aerospace industry is well-known; however, how many people know that the Group is the world leader in the maritime surveillance sector? This is thanks to the maritime surveillance aircraft and helicopters manufactured by Airbus Defence & Space and Airbus Helicopters.

The sea has become strategic: it covers 70% of the Earth's surface, draws 65% of the world's population to within 100 kilometres of the coast and accounts for 90% of world trade. What was once a simple transportation route has now become a kaleidoscope of challenges and threats, a source of conflicts and claims on its resources.

This brings together all the facets of Airbus



© Airbus Group

Group' maritime surveillance solutions and services portfolio, ranging from traditional radar surveillance of coastal regions to the most sophisticated deployment of observation satellites for the deep sea, or the use of manned or unmanned aircraft in maritime zones.

AUTOMATIC SEA VISION
www.automaticseavision.com



© ASV

Automatic Sea Vision (ASV) provides video analytics for physical security information management (PSIM) and supervisory control and data acquisition (SCADA) software to perform waterbody surveillance.

ASV software is the only solution to seal the permeable frontier of critical infrastructures: airports, harbors, waterways, oil & gas, power plants, nuclear plants, desalination plants, fish farms, or wastewater plants.

DECREATION
decreation.free.fr

From 2002 Bernard Decré, the founder of DECREATION, helped to develop a company making twin-turbine helicopters for the French emergency medical services SAMU with the team from Franklin Devaux and Proteus Airline: Proteus Hélicoptères.
With the same team and building on their success, he is currently developing a maritime entity: HELICOS'Guard with twin-turbine 'marinized' helicopters to undertake all maritime activities.

Its aircraft will be offered to customers on 6 to 8 year contracts at a rate of 400 flying hours per year in France, in Europe and in some countries with a high volume of sea traffic.
In single-turbine, a subsidiary called HELI'Archipels will support expansion and services in the Islands and Archipelagos.
Finally a structure HYDRAVIATION: "SKIP'Air" is working on two amphibious aircraft projects.

LACROIX
www.lacroix-defense.com

Lacroix is a recognized French expert in pyrotechnic systems and related services. In the naval field, the company provides solutions for naval platforms self-protection against all types of naval threats, malevolent acts, piracy and drug traffickers, during navigation, mooring and while docked at port.
The product range offers a wide variety of effects enabling a graduated response adapted to the various situations encountered and its system can be used in stand-alone mode or interfaced with detection and/or designation means.



© sea cougar / Lacroix

MOBILIS
www.mobilis-sa.com



© MOBILIS

Since 1990, MOBILIS has designed and produced AtoN equipment for maritime and river safety. All the products are manufactured in France and distributed all over the world. Nearly 90% of this is for export.
MOBILIS opts for the long-term client relationship with our enthusiasm to provide the right products of high performance and technical skills.
In 2011, we started PE production by Rotomolding on our own. And in 2014, we integrate manufacturing of aluminum elements with the acquisition of

aluminum machine shop for the construction of pylons, towers and masts.
MOBILIS proposes a large variety of materials: floating beaconing, fixed beaconing, mooring buoys, pipes floats, data buoys. For data buoys, we now have our own resource completely dedicated to this.

OCEANPLUS
www.oceanplus.fr

OCEANPLUS design and manufacture products for marine safety: man overboard device, fenders, buoys.
These devices are made of PCV and foam.
Its products equip vessels of all types: rescue boats, French navy ships, fishing boats, sailing boats, yachts. All the products are made in France.



© OCEANPLUS

SAGEM
www.sagem-ds.com



© SAGEM

Present across the globe via Safran's international network, Sagem has designed and developed comprehensive self-protection systems adapted to all types of threats and vessels, military or civilian, covering navigation, warning, surveillance, reconnaissance, engagement and self-defense requirements. In

particular, Sagem offers a complete and modular range of solutions dedicated to ship and port safety and security: infrared surveillance system, remotely controlled dazzler and water cannon. Its technologies are used on more than 350 surface vessels and submarines deployed by 35 navies worldwide.

Pirates were hung "high and short": high to let everyone see, and short to save on rope which was more valuable than the lives of the buccaneers.



SEAPROVEN
www.seaproven.com

SeaProven goal is to provide maritime organizations, governments, private companies and NGOs with enhanced capabilities to monitor and protect coastal and marine areas as well as a rapid, effective rescue to people at sea through Unmanned Surface Vehicles (USVs).

Marine robotics, is becoming a reality, there is an ever growing demand from the civil and military marine sectors that has been ignited by budget cuts, safety concerns for goods, personnel, the environment, industrial installations in volatile settings, and an increasing need for search and rescue at sea.

SEAREKA
www.seareka.com

Seareka is an electronic company, specialized in marine personals safety. After, being Laureate of the contest for innovative entrepreneurship setting up by the Ministry of Research and several years of R&D as well as field experiment, a new product for man over board was born. This system named "Divansi MOB" is used to trigger an Alarm, give a GPS position in real time on an intuitive interface of the person fold at sea. It is a quick answer matched to working conditions on board ships. This product meets the regulatory requirements of mercantile marine.



SOFRESUD
www.sofresud.com

SOFRESUD is a French SME specialized in maritime self-protection and security systems. Based on 15 years of experience in visual defense against asymmetric threats as the supplier of QPD target designation device for major navies, SOFRESUD developed a range of equipment and solutions for surveillance and self-protection of offshore maritime platforms.

In particular, SOFRESUD is offering VMAS system for fleet monitoring and alert rising in sensitive offshore field, AMS system dedicated to merchant ships self-protection and also WRS, an autonomous/remote controlled water repelling system to prevent maritime assaults.

THALES
www.thalesgroup.com

Thales is a global high technology leader for the defense, security, space, aerospace and ground transport markets. With 61,000 employees in

56 countries, Thales generated revenues, in 2014, have been of 13 billion euro and the orders have been of €14.2 billion. In the naval domain, Thales equips approximately 500 ships of many type, in about fifty navies in the world, as well as fighting aircraft and maritime patrol or surveillance aircraft. Thales proposes global technico-logistic support services for naval equipments, too.



© Thales

With 20% of its revenues invested into R&D, Thales offers a unique capability to design, develop and deploy equipments, systems and services that serve the needs of critical decision chain of his customers. His exceptional international footprint allows him to act as closely as possible to his customers all around the world.

ZODIAC MILPRO
www.zodiacmilpro.com

Zodiac Milpro is a French former company of the Zodiac group, specialized in the development of high added value solutions for military and professional organizations in the maritime sector. Well-known and worldwide recognized by its reliable and innovating products such as the ZODIAC HURRICANE® rigid inflatable boats range or the MILPRO™ accessories range, Zodiac Milpro also provides a full range of services, from operational training to diversification in the Maritime sector or Integrated Logistic System (ILS), thanks to its certified worldwide network.



© Zodiac Milpro

Other actors specialized in providing services

ADVANCED TRACK & TRACE
www.att-fr.com



© Advanced Track & Trace

Advanced Track & Trace® is an expert in the development and implementation of identification, authentication, data encryption and products' secure traceability technologies. Located

in France, the United States, Switzerland, and Hong-Kong and Shanghai since 2013, ATT protects the products, packaging and ensures the supply chain's security in all the world regions and all sensitive activity sectors, in order to fight efficiently and durably illicit trades. ATT is also a major player in digital technologies applied to the protection of banknotes, documents and governments.

AGENCE SURTYMAR
www.surtymar.com

A leader in maritime and Port security for more than 10 years in France, Morocco and Congo, SURTYMAR Agency and SURTYMAR Engineering in Morocco provides ISPS compliance and security systems engineering for ports, port facilities and ships in France and abroad. SURTYMAR Agency is a Recognised Security Organisation (RSO) and

an official Maritime Security Training approved by French "Affaires Maritimes" for maritime and Port security. In addition, for more than 10 years, the Surtymar Agency has operated services providing specialised operational security personnel for ships and port "oil & gas" facilities for french and international companies.

**BATAILLON DES MARINS
POMPIERS DE MARSEILLE**
www.marinspompiersdemarseille.com



© Bataillon des Marins Pompiers de Marseille

Established in 1939, the navy fire department of Marseilles had ever since been assigned not only

to safety of the 2nd biggest city in France, but also to France's 1st harbour and 5th airport.

Those missions, guaranteed by 2400 men and women, give this French Navy's elite unit the unique capacity of been both a naval and civil safety expert. Therefore, the crew is frequently spread out of its territorial authority area.

The unit training centre, up-to-date and ecofriendly, offers to its clients, private and public, French and foreigners, a range of trainings and courses nationally and internationally certificated, as a guarantee of quality and recognition for its teaching in firefighting, hazardous materials control, rescuing and open sea survival.

**CENTRE D'ÉTUDE
ET DE PRATIQUE DE LA SURVIE
(CEPS)**
www.ceps-survie.com

The only training centre of its kind on the Atlantic Coast, the CEPS (ISO 9001 and 29990 certified by Lloyd's Register - LRQA) is located at Lorient and provides a wide range of maritime safety training courses accredited by STCW, OPITO, ISAF, BZEE, GWO, etc.: for the merchant navy, offshore O&G, wind farms, aircraft, fishing, sailing, sea rescue, first

aid, fire fighting...

The CEPS has a large range of facilities including a helicopter crash simulator, heated pool, davits, lifeboats, fast rescue craft, smoke containers, fire pits, survival suits, classrooms, etc.

With a staff of 6, the CEPS trains 1,200 persons on every year.



The ocean is the most important medium for the globalization of trade, as **90%** of goods transported go by sea. Protecting the ocean, it is to guarantee the sustainability of the maritime activities as a whole.

C-TECHNOLOGIES

www.c-technologies.fr

C-Technologies designs, develops and commercializes innovative and scalable solutions to enhance the safety of storage and transport of equipment and goods. The objective of C-Technologies solutions is to guarantee the integrity of containers.

The patented solutions by C-Technologies can address theft and degradation issues. They consist of a range of mechanical boxes which over-latch the closure system of containers and trailers, boxes that can integrate or not electronic

security modules to ensure the detection, the tracking in real time and the communication of events: What events? When? Where?



© C-Technologies

GALLICE PROTECTION

www.gallice-security.com

Founded in March 2007, GALLICE Group works alongside countries to reinforce their sovereignty and modernize of their security apparatus (Gendarmerie, Police, Army), by implementing to their benefit missions of analysis, consulting, engineering and training in National Defense and Security.

GALLICE also advises national and international industrial companies on global security related to risk management. The company offers on-board security on a worldwide basis and its service offering to shipowners has turned Gallice into the French leader in maritime protection.

GEOS

www.groupegeos.com

Historical leading risk management provider, the GEOS group is dedicated to supporting all kinds of organizations in risky environment worldwide. Nowadays GEOS MARITIME is dedicated to supporting the shipping industry and offshore organizations through covering a wide scope

of services such as designing and running security / safety solutions, HSE supervision, ISPS implementation, interface with local institutions and economy, coordination of logistics and operations, etc.

GROUPE PRORISK

www.groupe-prorisk.com

The ambition of the holding Groupe Prorisk is to provide all around the world, in favour of public institutional organisations and private companies, a global response to the issues of mastering and safeguard of maritime areas. This holding company owns at 100% three subsidiaries which provide complementary services:

- Kargus Sea Interconnection (KSI): Recognised Security Organisation and Approved Training Centre in the field of port and maritime security, ISPS Code and Private Activities of Protection of Vessels (recognised by French State). Engineering and consulting for activities relating to State Action at Sea and security;

- Prorisk International SARL: Project management and client's representation in the field of subsea works, mine warfare and UXO/EOD/IED. Private Company for Protection of Vessels (recognised by France State);
- Prorisk International LTD: Private Maritime Security Company (recognised by United Kingdom) and Private Company for Protection of Vessels (recognised by France State). Deployment of Security Managers offshore and onshore.

FRENCH INSTITUTE OF NAVIGATION (IFN)

www.ifnavigation.org

The French Institute of Navigation (IFN) is the French association formed by various actors and people working in the field of navigation or interested in it. IFN is contributing to prospective studies, in relation with industry (including service providers) and with the official French

and international organisations in the field. A special effort is made on "e-Navigation" which is expected to use the most modern techniques in order to improve the safety and security of maritime navigation. IFN publishes a quarterly magazine, "Navigation".

NATIONAL INSTITUTE OF PROFESSIONAL DIVING

www.inpp.org

The Institute is an association under the French Act of 1901 and was established to support and promote the development of activities related

with professional diving, safety and working in aquatic and hyperbaric environments.

PELAGOS

www.pelagos.biz

A consulting company specialising in transportation. Since 2005 its maritime security department, one of the leaders in France, has conducted security studies in relation with ISPS Code conformity for

more than 25 ports and 60 port facilities in France and abroad. Since 2009 its consultants have assisted companies to obtain certification by Customs as an Authorised Economic Operator (AEO).

SECURYMIND
www.securymind.com

Securymind is a consulting firm in security strategies, dedicated to the protection of property, people and projects, both in the public and the private sectors. Since 2009, Securymind has been developing its Maritime Department relying on complementary internal competences, and is a Recognised Security Organisation (RSO) by the French Ministry in charge of the sea and

transportation within the framework of the ISPS code implementation. Securymind performs missions of consultancy, evaluation and training (ISPS awareness training sessions, PFSO training...). Since 2012, Securymind established a partnership with Bureau Veritas to deliver the reference of private maritime security companies proposing ship's protection against piracy.

**YACHTING & CRUISES RISK
MANAGEMENT**
www.ycrm.fr

Analysis and protection services against terrorist threats.

Dedicated benefits to the cruise Industry and the yachting sector.

Other state organisations selling French solutions abroad

DCI - NAVFCO
www.groupepci.com

The mission of DCI - NAVFCO, naval component of the Defense Conseil International group, is to transfer French Navy know-how to friendly foreign naval forces.

DCI - NAVFCO provides a wide range of tailored training - in French and in English - in the following fields:

- academic training of military naval officers and engineers,
- maritime and operational training: navigation and safety/security, conduct of operations in all warfare fields,
- technical training: In-service support and operational logistics,
- operational training for surface vessels, submarine and aircraft crews, coast guards and Special Forces.



© Sébastien Dupont

With its unique experience acquired over more than 30 years, DCI - NAVFCO continuously adapts its services, stamped with the "French armed forces" label, to the requirements and specificities of the naval forces of friendly countries.

ODAS
www.odas.fr

ODAS was set up at the request of the French government to promote international sales of defence, security and other advanced technology products and services. The company focuses on

both government-to-government and commercial contracts. ODAS's shareholders include the French state and the country's leading defence and security contractors.

The first semaphores were created under Napoleon 1st (now they provide an aid to navigation by visual markers, radio and radar all along our coasts).



"Le Mutin, manœuvre"
Jacques Rohaut, Official Navy Artist



Maritime sector and sustainable development

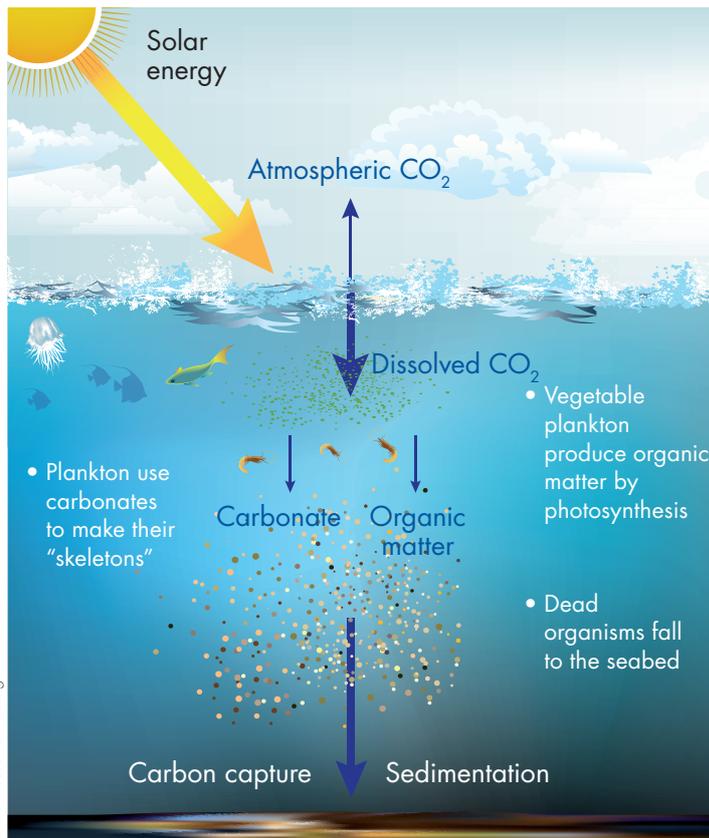
Every year the ocean absorbs around **50%** of the CO₂ emissions produced by human activity, which increases its acidification.



France plays host to the 21st United Nations Climate Change Conference from 30 November to 11 December 2015. This conference presents an ideal opportunity for those in the maritime economy to seek greater recognition of the ocean's role in the climate system. Its notable absence from most discussions on climate change has

prompted the formation of an alliance between scientists, business networks and non-governmental organisations within the **Ocean and Climate Platform**, resulting in the production of scientific reports and educational brochures all aimed at placing the ocean at the forefront of climate negotiations.

Biological carbon pump



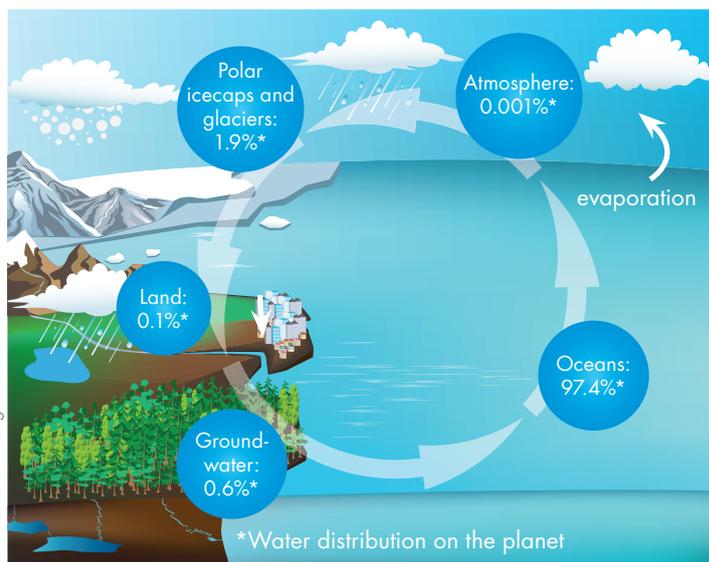
The Ocean, the lungs of our planet

Plankton play a vital role in marine ecosystems, being the very first link in the marine food chain and accounting for more than 95% of the marine biomass. It is a remarkably diverse organism yet much remains to be discovered, as was revealed in the work published by **TARA** in June 2015 following its scientific campaign.

In the climate system, vegetable plankton (or microalgae) are of fundamental importance as they act through photosynthesis to absorb carbon dioxide (CO₂), while producing more than 50% of the oxygen in the air that we breathe.

In addition, the calcareous shell species of plankton also play a part in carbon capture by storing it in their shells in the form of calcium carbonate (CaCO₃) (see illustration).

Water cycle



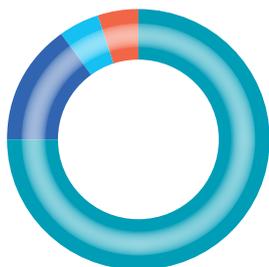
The Ocean, earth's climate controller

Under the effect of the sun's rays, the water in the ocean (which makes up 97% of the water on the earth) heats up, evaporates into the atmosphere, falls as rain over land or sea, and ends up back in the ocean (see illustration).

However, under the effects of climate change and pollution from mainly land based sources, damage is being done to the ocean with sometimes disastrous consequences: rising sea levels (forecasts of 18 to 59 cm by 2100), rising temperatures and acidification (+30% in 250 years).

The water cycle is also accelerating, increasing the trend towards more climatic events considered as extreme: fierce rain storms, long periods of drought, frequent cyclones...

Origin of pollution in the world's oceans



75%

Land

15%

Sea

5%

Air

5%

Oil slicks
deballasting
degassing

The recent warming of the ocean mainly affects the surface layers (the first **300 to 500** metres) but can reach deep layers in regions situated at higher latitude.



The Ocean, an environment to be preserved

Healthy oceans and their biodiversity are essential for the ecological and climatic balance of our blue planet.

The stakeholders of the maritime economy, who are the hardest hit by these changes, know full well that the sea is a promising but fragile environment. So they have rallied together in a quest for

constant innovation to reduce the impact of their activities and also to find solutions for preserving or restoring ecosystems. They believe that it is possible to find a balance between economic development and ecological sustainability, which will allow an equitable exploitation of the oceans and their resources by present generations, without endangering these resources for future generations.

Environmental organisations and campaign groups

AGENCE DES AIRES MARINES PROTÉGÉES

www.aires-marines.fr

The Agence des Aires Marines Protégées is a national public entity under the Ecology Ministry's supervision.

Its aims are to support public policies in the field of MPA, to give technical and administrative support to the network of MPA managers and to manage the human and financial resources allocated to the marine nature parks implemented by the Agence. The Agence is also an essential agent for spatial management of the French maritime zone and for defining a marine strategy in France.

It enhances France's capacity in international negotiations related with the sea. MPA are marine nature parks and public maritime property under the jurisdiction of the coastal conservatory, national parks, nature reserves, Natura 2000 sites and areas under biotope protection orders, as well as those designated made under international conventions.

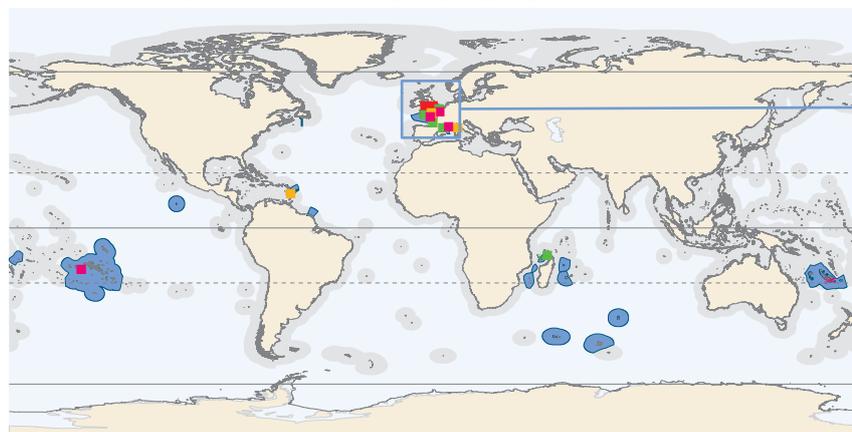
These areas have boundaries determined on the basis of their natural heritage value, the significant ecological functions they perform and the uses made of them.

Their objective, usually combined with the aim of sustainable use, is to protect the environment. France, as the second economic and maritime power, is particularly concerned about these issues.

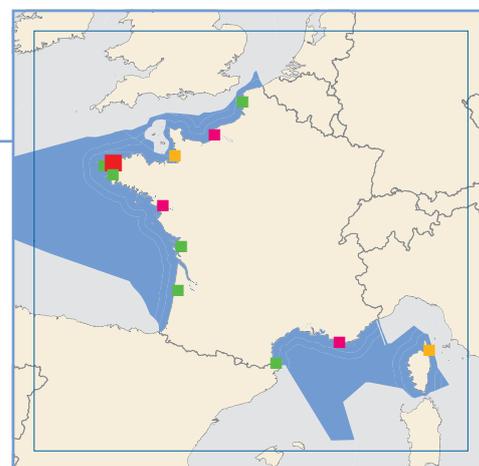
France's Grenelle de la Mer Round Table, instigated by the French government, has made it a target to implement 20% of French seas under MPA before 2020, including ten marine nature parks, and at least two overseas by 2015. To date, seven marine nature parks have been created: in the Iroise sea, in the Mayotte and Glorieuses islands, in the Mediterranean, in the North Sea, in the bay of Arachon, in the estuary of the Gironde and the Pertuis sea. Three preliminary investigation units have been set up: one in the Normand Breton gulf, one in Martinique and one in Corsica.

At present the Agence employs 194 agents, a number likely increase to several hundred with the expansion of the marine nature parks as planned by the Grenelle.

French Marine protected areas Agency - geographic locations - 2015



- Waters under French jurisdiction
- Other waters under national jurisdiction
- Headquarter
- Local antenna (with associated staff)
- Marine nature park
- Study mission for the creation of a marine nature park



© Agence des aires marines protégées

EXPÉDITION 7^e CONTINENT

www.septiemecontinent.com

"Understanding and reducing this plastic pollution to protect our health and our planet."



© Expédition 7^e Continent

80% of the plastic in the sea comes from the continents ... no part of the ocean is free from the massive presence of plastics. 8 to 10 million tons per year are discharged. These plastics carry endocrine disruptors, heavy metals and other pollutants. They are an impairment to biodiversity and have an impact on human health. The time has come for understanding, explanation and action. Therefore 7th Continent Expeditions, is on a mission to preserve the ocean through a combination of scientific, educational and media know-how, backed by a commitment to action and the implementation of solutions.

INSTITUT OCÉANOGRAPHIQUE

www.oceano.org

The Oceanographic Institute, founded in 1906 by Prince Albert 1st of Monaco, supports sustainable ocean management, biodiversity preservation and economic activities that can coexist with healthy marine ecosystems.

The Oceanographic Institute uses its two establishments, the Oceanographic Museum of Monaco and the Oceans Centre in Paris, to act as mediators between the scientific community, marine industry leaders, political decision-makers and the public.

The main priorities of the Oceanographic Institute include most notably: the Mediterranean Sea, the deep seas, jellyfish and shark protection.

A sea job forum held every year presents a wide variety of training courses and opportunities in the maritime sector. The Oceans Centre also



Institut Océanographique © T. Ameller

gives themed lectures every 2nd Wednesday of the month which are open to the public.

The Oceans Centre as well as the Oceanographic Museum can also accommodate any maritime event.

PLANÈTE MER

www.planetemer.org

Planète Mer is a NGO of public interest that aims to "preserve marine life and the associated human activities". It is a major challenge of the 21st century



Planète Mer © Laurent Debos

to reconcile a balanced ecosystem with economic and social development. The programmes of our NGO focus on the management/restoration of living marine resources, the improvement of knowledge and the involvement of every citizen. Its fundamental principle is to develop realistic pilot projects, test them, adjust them and finally deploy and disseminate them. Resolutely forward looking in its search for solutions, Planète Mer intends to sustain its life preserving projects in the coming years.



The Blue Flag is an environmental award given each year to communities and marinas that make a special effort to manage their environment and which meet very specific criteria in waste management, the general environment, water management and environmental education (**166** communities in 2015).

The acidity of the oceans has increased by **30%** in **250** years, a phenomenon which is intensifying.



TARA EXPEDITIONS
www.taraexpeditions.org



© F. Laroche - Tara Expéditions

Tara Expeditions is a French non-profit organization working since 2003 to save the environment. A legendary schooner built for extreme conditions, *Tara* is the platform for high-level scientific research missions. Tara Expeditions developed from their passion for the sea, and their humanistic, engaged vision.

The missions of Tara Expeditions focus on 3 main themes:

- Ocean & Mankind
- Ocean & Biodiversity
- Ocean & Climate.

For 10 years Tara has been constantly on the move. The schooner has traveled 300,000 kilometers across all the world's oceans. It has completed 10 expeditions to study and understand the impacts of climate change and the ecological crisis on the ocean, with concrete results. Tara Expeditions works daily to increase environmental awareness among the general public and young people. Through its special consultative status at the United Nations, Tara Expeditions is also developing a long-term advocacy plan to mobilize civil society and encourage politicians to act concretely on the solutions we all need for the planet.

RÉSEAU OCÉAN MONDIAL FRANCE
www.worldoceannetwork.org

Founded in 2013 the French delegation of World Ocean Network (WON) is part of a worldwide organization (513 members and partners). It aims to implement actions toward a Blue Society on a national scale. WON France supports Mr.Goodfish (a responsible seafood consumption program) spreading the word throughout France and promotes the World Ocean Day.

Since 2012, WON France has been involved in the European Sea For Society project. WON partners are working together to raise public awareness of ocean biodiversity and encourage public participation. WON members and

participants are at the crossroads of several converging sectors: political, scientific, economic, mass media and the general public.



Réseau Océan Mondial © Katy Masseur/Nausicoo

Engineering consulting firm and service providers

CRÉOCÉAN
www.creocean.fr



© CRÉOCÉAN

CRÉOCÉAN is a French company created by the merger of CREO, founded in 1948 and ECOCEAN, founded in 1987. An IFREMER subsidiary until 1997, now part of KERAN (500 employees, project management and planning), CRÉOCÉAN (64 employees, €8.7 M turnover in 2014) offers a comprehensive range of services focused on the protection, development and management of coastal and marine areas with a constant emphasis on integrated and sustainable management. Its expertise includes geology, geophysics, hydrodynamics, sedimentology, biology and ecology, and management of environmental data. The major advantage of CRÉOCÉAN lies in its ability to deal, in an integrated way, with all aspects of oceanography from the early stages of on-site measurements to the completion of projects.

This multidisciplinary offer of services is organized in four groups of experts each managed by a Program Director:

- coastal development (coastal and port construction, development and restoration projects, marine engineering, dredging management, sea wastewater outfalls and sea pumping, coastal flooding and coastal erosion)
 - offshore projects/geosciences (renewable marine energies, oil & gas industry, aquaculture, extraction of marine aggregates, submarine cables and other infrastructure)
 - environmental studies in the Atlantic, English Channel and North Sea,
 - environmental studies in the Mediterranean and Tropical Zones.
- (Environmental sensitivity maps, sediment analysis, heritage and marine resources inventories, master and management plans, monitoring of sea outfalls, regulatory studies).

Marine Life Care is a service company specialising in the protection of marine mammals while preserving industrial interests. Its areas of expertise are:

- the acquisition of seismic survey data,
- pile driving (e.g. on offshore wind farms),
- the use of explosives (e.g. excavation or demolition),
- and all other operations that risk polluting the sub aquatic environment with noise of anthropogenic origin.

Marine Life Care supplies companies with MMO (Marine Mammal Observers) and PAM (Passive Acoustic Monitoring). The firm's objectives are:

- to protect marine mammals and endangered species from noise of anthropogenic origin.
- to optimise the cost-effectiveness of operations.
- to help promote a positive image of the customer.
- to engage with international regulatory authorities in the exchange of data.

Several members of the French Maritime Cluster offer innovative, high value-adding solutions,

equipment and services for pollution control, waste treatment, etc.

Environmental protection and waste treatment



Main activity:
Building and operating recycling plants for pre-processing ship-generated oily waste into marine fuels.

Created in 2009, ECOSLOPS offers a unique, innovative solution to process ship petroleum residues and oily waste water combining environmental benefit and financial profitability, and providing mariners and ports with an extremely effective service.

The OW2P (Oil Waste Processing Plant) technology combines an innovative petroleum refining process (P2R) with an appropriate clean water regeneration scheme.

After water and sediments separation, hydrocarbons are recycled into two valuable recycled marine fuels in accordance with ISO8217:MDO (Marine Diesel Oil) and IFO (Intermediate Fuel oil)

The concept, which is compliant with international standards such as ASTM & API, is totally environmentally-friendly.

OW2P offers a real benefit to all the stakeholders: port authorities, residue collectors, terminal operators, and bunker suppliers.

The world's first plant of ECOSLOPS was officially inaugurated on June 27th 2015 in the port of Sines, Portugal in the presence of the Portuguese vice Prime Minister.

Passive Safety

Based in Paris, the JLMD Ecologic Group is a global leader in on-board systems designed to avoid accidental oil spills. On the emerging Salvage Friendly ship concept, it has developed innovative Fast Oil Recovery systems (FOR), which are emergency circuits providing permanent access to bunker and cargo tanks. In an accident, they facilitate the work of salvage operators, accelerating pumping operations to remove oil and other liquid noxious substances.

This equipment has already been installed by European, Chinese and Korean shipyards. It safeguards ship-owners from ecological and economic disasters while adding to their reputation all year long.



Cleanup

BIO-UV

www.ballast-water-treatment.com

In the last two or three centuries, sea levels have risen at the rate of 0.5 mm per year. In the 20th century, the rate accelerated with +18.7 cm between 1901 and 2011, and +6.7 cm between 1993 and 2014, i.e. **3.2** mm per year.



BIO-UV, an ultraviolet water treatment specialist for almost 15 years, designs, manufactures and offers worldwide reliable and innovative UV water disinfection systems for ballast water treatment, through its BIO-SEA system, in accordance with G8 IMO Guidelines and USCG regulations. The BIO-SEA range of skids can be incorporated on new builds or on existing vessels in modular versions.

ECOCEANE

www.ecoceane.com

Ecoceane is a company created in 2003 and working exclusively in the area of research,



© Ecoceane

development and construction of three ranges of patented vessels designed for the collection of hydrocarbons and solid waste at sea:

- CATAGLOP Range: port and coastline maintenance
- WORKGLOP Range: large ports / rivers / coastline / oil industry
- SPILLGLOP Range: to fight an endemic oil spill (Classified as Oil Recovery Ship by Bureau Veritas)

THOMSEA

www.thomsea.com

Established in 2003, Thomsea is the leading European company in the design and development of Marine Spill Trawls, patented systems for cleaning up oil spills and other marine pollution at sea and on waterways and lakes (crude and light oils, floating waste, etc.).

Using its growing expertise, Thomsea also provides training for crews and operators of small craft in the use of Thomsea trawls on oil spills and emergency cleanup operations at sea, in coastal areas and ports, and on rivers and lakes.



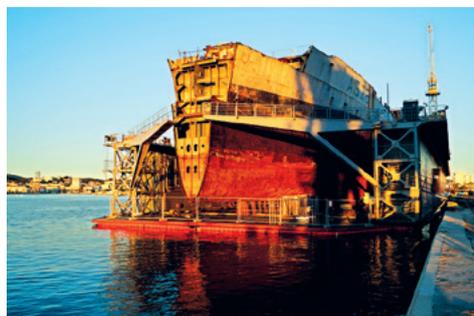
© Thomsea

Demolition of contaminated structures

TOPP DECIDE

www.topp-decide.com

TOPP DECIDE is an engineering company that delivers consultancy and management services



© TOPP DECIDE

to industry for the rational dismantling of civil and military ships, oil platforms and other complex industrial infrastructures. TOPP DECIDE holds in-depth knowledge of good practice in all aspects of dismantling: technology, health and environmental safety, industrial organization, economics, law, government policy and communication. The TOPP DECIDE team has accumulated extensive experience in navy ship deconstruction, and has been awarded a majority of its tenders through international competition over recent years. TOPP DECIDE develops its international business with industrial partners from both France and abroad.

Marine renewable energy, storage and services for MRE



6 GW: that is the potential power that could be harnessed in Brittany and Normandy from tidal currents.

Maritime France has many advantages it can bring to bear in the development of industrial sectors exploiting renewable energy technologies: the world's second largest maritime zone (EEZ) offering opportunities for all types of renewable energy (wind, current, tidal, wave and ocean thermal energy), an advanced research capability and powerful diversified naval and maritime industries.

Under the Kyoto protocol, France was given a target of generating at least 23% "green energy" by 2020, 6 GW of which in marine renewable energy (MRE).

The Energy Transition Law which was passed in August 2015 set an even more ambitious target of 40% renewable energy in our electricity mix by 2030.

The contribution from marine energy will be essential if we are to reach this target, and its share will be set in the long-term energy plan to be negotiated in the second half of 2015.

Offshore wind, the most mature technology, was first put out to tender in two calls for bids covering six wind farms for a total output of nearly 3 GW, but this is still a long way off the target of 6 GW (incidentally the total offshore wind potential in France is 80 GW!)

In Europe France is lagging behind. The European Wind Energy Association (EWEA), in its half-yearly statistics, reported a total of 82 farms installed in 11 different countries, accounting for more than 10,393 MW on July 1st. The 584 wind turbines

that entered service in the first half of 2015 were located in three countries: Germany primarily, with 406 turbines and 1,706 MW, way ahead of the United Kingdom with 140 units for 522 MW, although the country still leads in total capacity, and the Netherlands with 38 units and 114 MW).

New projects are due to be launched in France. Renewable energy lobbying organisation SER has proposed the following by 2030: 15,000 MW of bottom-fixed offshore wind installed capacity; 6,000 MW of floating wind capacity; 3,000 MW of tidal stream capacity. But the projects will only be realised if manufacturers can lower costs. A reduction of 25% is targeted from the next tendering process for bottom-fixed wind turbines, which will be for 3000 MW. This target can be achieved by adopting the best European practices. Taking the example of Denmark, the Horns Rev 3 project was awarded in 2015 at a low price of € 103 /MWh for electricity, achieved mainly through a process of competitive dialogue.

As regards the other MRE technologies, France has recently taken a big step forward in floating wind turbines. In August, a call for proposals was launched by the French environmental and energy management agency ADEME for pilot farms of floating turbines on four sites, three in the Mediterranean and one in Brittany. Manufacturers will be able to test their technologies in order to position them as an important component of the Energy Transition process.

SYNDICAT DES ÉNERGIES RENOUVELABLES (SER)

www.enr.fr



© EWEA/Derivaux

SER brings together 380 members, representing a turnover of € 10 G and more than 75,000 jobs. It is the only French professional organization which deals with all renewable energy sectors: biomass, wood, biofuels, biogas, wind power, marine energies, geothermal, hydroelectricity, heat pumps, photovoltaic, thermal and concentrated solar power. Its mission is to promote the interests of French industrials and professionals of renewable energy, and to defend French interests in the main European programs of the sector.

SER promotes renewable energy through development of the activities covered by its members.

To this end, SER represents them with public, national, European and local authorities and with regulatory authorities. SER promotes the results of these activities with the public and in the media. Its Marine Renewable Energies Commission and the Offshore Wind Power Pole of its Wind Power Commission are each constituted by several 50 members working together to make efficient proposals to help the expansion of the marine renewable energies.

MRE committee of the GICAN

The development of marine renewable energies requires knowledge and know-hows that are specific to our marine environment.

GICAN, as the professional body representing shipbuilding-marine industries branch (see page 28) set up in 2011 its MRE-Industry committee to bring together and provide a technical framework for manufacturers from the French

maritime industries, that invest and innovate for MRE developments.

Besides construction, maintenance of field installation and service vessels, manufacturers in the naval and marine sectors also engage themselves in building parts or whole of energy-generators, support structures, electricity sub-stations, etc.

Of the € **1,500** billion generated by the maritime economy in the world, € **190** billion comes from sectors that did not exist ten years ago. Marine Renewable Energy is one of these.



FRANCE ÉNERGIES MARINES
www.france-energies-marines.org

France Énergies Marines is a research institute devoted to Marine Renewable Energies. The Institute supports the growth of this new industrial sector and covers the whole range of MRE,

namely fixed and floating offshore wind, tidal current energy, wave power and ocean thermal energy conversion.

Built around a large public-private partnership, France Energies Marines enhances synergies between academics and industrial players through multi-disciplinary research teams. Its R&D activities aim at derisking projects for a better confidence of investors, at lowering the levelised cost of energy of these technologies, and at enhancing the benefits of the feedback of French and European experiences, in close relationship with the trial sites at sea.



© France Énergies Marines

Mesure courantométrique sur le site de Paimpol Bréhat

Project developers for marine renewable energy (fixed offshore wind turbines)

EDF ÉNERGIES NOUVELLES
www.edf-energies-nouvelles.com

EDF Énergies Nouvelles is a market leader in green electricity production. The company ensures the development and construction of renewable energy projects as well as their operation and maintenance, for own account and for third parties. Mainly operating in Europe and North America, the company is focused on wind and solar photovoltaic energy.

EDF EN take part in the development of an industrial sector of marine energies through several projects:

- The offshore windfarm of Teesside in the United Kingdom, commissioned in 2013 and entirely realized by EDF EN.
- The offshore wind projects of Fécamp, Courseulles-sur-Mer and Saint-Nazaire, with a total power of 1,400 MW.



TEESSIDE EDF EN © Paul Moritins

EDF EN is also the winner, in partnership with DCNS, of the ADEME call for expression of interest for the implementation of a pilot tidal turbine array off the French coast of Normandy.

EDF Energies Nouvelles is a subsidiary of the EDF Group dedicated to renewable energy.

ENGIE
www.engie.com

As the number one independent power producer worldwide, ENGIE puts the responsible growth at the heart of its businesses. The group has a large experience and know-how which is fully recognized in the field of renewable energies.

In France, its installed capacity of more than 10,000 MW is made up for more than 50% from renewable energies. Leader in onshore wind with an overall capacity of 1,345 MW, ENGIE also has strong ambitions in solar, in tidal power and in offshore wind projects. The group has recently been successful in two offshore wind projects as a part of the second round of the public call

for tenders organized by the French government, *Dieppe-le Tréport* and *les îles d'Yeu et Noirmoutier*, for a total power of 1,000 MW. ENGIE was also selected by the French Agency for the Environment and Energy Management (ADEME) for the construction of its tidal turbine project at *le Raz Blanchard (Manche)*. The group continues working on a tidal turbine project situated in the zone of *le passage du Fromveur (Finistère)*.

ENGIE employs 152,900 people worldwide for a turnover of €74.7 billion in 2014.



GDF Eoliennes © Dikabk



GDF Alstom tidal turbine © Cyril Abod

LA COMPAGNIE DU VENT

www.compagnieduvent.com

The French pioneer in wind energy, La Compagnie du Vent, subsidiary of ENGIE, is today one of the leading renewable energy players. At the end of 2014 La Compagnie du Vent has generated around 35 installations (including wind farms and photovoltaic parks) either already in service or being installed, generating nearly 500 megawatts. La Compagnie du Vent has also initiated the Tréport zone offshore windfarm project for which the consortium ENGIE, EDP Renewables and Neoen Marine has been selected by the

French government. La Compagnie du Vent is still implicated in this project ensuring local consultation and obtaining administrative authorisations. La Compagnie du Vent has initiated a successful diversification in solar photovoltaic energy, with 5 photovoltaic plants in operation, one of the largest on "trackers" in France (Langelé – Landes). By 2016, La Compagnie du Vent will have built seven new photovoltaic plants and will reach 100 MWp of installed capacity.

NEOEN MARINE

www.neoen.fr

Neoen is a French Independent Power Producer owned by IMPALA and OMNES Capital the former Credit Agricole Private Equity Renewable Energy fund. Already active in France and Portugal with a portfolio of assets exceeding 200 MW, neoen targets 1,000 MW for 2017, establishing its foothold on high potential markets in Central and North America as well as Africa and Australia. Neoen's develop-invest-hold approach is key to a long-term commitment to its stakeholders. Neoen Marine, a subsidiary of La Caisse des Dépôts and Neoen, is specialized in the development of Marine Renewable Energy projects. Neoen Marine has built a unique

expertise in the management of environmental and technical challenges of offshore wind projects. In 2012, during the first French offshore wind tender, Neoen Marine has been awarded the project zone of Saint Brieuc bay together with its partners Iberdrola and EoleRES. In 2014, Neoen Marine associated with ENGIE and EDPR has been awarded the two zones of Yeu-Noirmoutier and Le Tréport in the second offshore wind tender launched by French Government. These successes confirmed Neoen Marine as a key player in the French offshore wind market.

WPD OFFSHORE FRANCE

www.wpd-offshore.fr

Independent Renewable Power Producer (IRPP), the wpd group is a major actor in renewable energy covering all aspects of the projects. His French subsidiary, wpd Offshore France is actively engaged in designing and developing offshore wind farm projects off the French coasts since 2007. In the first French offshore tender, wpd Offshore France has been co-awarded the development, the construction and the operation of future windfarms off Fécamp (Seine-Maritime) and Courseulles-sur-Mer (Calvados), with his partners (EDF Energies Nouvelles and DONG Energy). Established in 1996, the wpd group is actively engaged in 17 countries and has already set up more than 1700 wind turbines in the world for a total capacity of more than 3GW. With the financing, the construction and the operation of more than 100 renewable energy plants throughout the world, the wpd group has built up an unequalled expertise in onshore and offshore wind power through its subsidiaries:

Deutsche Windtechnik (service provider for maintenance and service for the wind industry), wpd Windmanager (service provider for technical operating and commercial management of wind farms), and wpd offshore solutions (service provider for project and construction management of offshore wind farms). Active since 2000, wpd offshore is one of the pioneers of offshore wind development, including the construction of the first commercial wind park in Germany, Baltic 1 (48MW). With a strong portfolio of around 6.5 GW, the group is one of the major players in the industry. wpd offshore has 9 wind farms authorized for a total capacity of 3,802 MW, including 1,500 MW under construction in the North Sea and the Baltic Sea. Actually, during the summer 2015, wpd offshore finished the construction of the Butendiek wind farm (288 MW) and has just secured the financing of the Nordergründe project (110 MW), construction should begin in March 2016.

The European Union has a target of reaching **10%** renewable energy in transport by 2020.



Marine renewable energy also includes

In addition to fixed offshore wind turbines, marine renewable energy includes:

- floating wind turbines,
- hydrokinetic power,
- ocean thermal energy conversion,
- osmotic energy,
- tidal power,
- wave power.

AKUO ENERGY www.akuoenergy.com



Akuo Energy is the leading French independent power producer of renewable energy. With subsidiaries in 8 countries, the Group's know-how covers all the green energy production value chain: development, finance, construction and operation. Today, the Company has nearly 400 MW-worth of projects in operation, more than 200 MW already funded, and a goal of 3,000 MW of installed capacity in operation within five years.

Akuo Energy operates all renewable resources: wind, solar, hydro, biomass and marine energies. Akuo Energy's pioneering approach to islands was strengthened as of 2012, when the results of an exploratory mission to study the marine energies led to forge a technological partnership with DCNS. The first applications to emerge from this cooperative venture concern Ocean Thermal Energy Conversion (OTEC), a disruptive technology for land located within the inter-tropical convergence zone.

GUINARD ENERGIES

The company Guinard-energy (SAS) is an engineering company developing hydrokinetic systems, MegaWattForce® and MegaWattBlue®, intended to capture the energy of tidal currents and transform them into electrical energy. The original concept, covered by patents, is characterized by high energy efficiency.

The wind energy sector generates:
11,000 jobs now
and potentially
60,000 in 2020.



IDEOL www.ideol-offshore.com

Located near Marseille since 2010, IDEOL's highly experienced and pluridisciplinary team of engineers has developed an award-winning floating foundation for the offshore wind industry.



Its patented and particularly competitive « damping pool » technology is at the heart of France's first offshore wind turbine (construction scheduled in 2015), has been selected by the Japanese government for its second generation of offshore demonstrators (construction and installation scheduled in 2016) and will equip pre-commercial windfarms before 2020.

Manufacturable in concrete or steel and compatible with all standard offshore wind turbines, IDEOL's solution is by far the most competitive floating solution on the market, guarantees the highest level of local content and has as such been recognized as a real industry changer.

HYDROCAP ENERGY www.hydrocap.com

Hydrocap Energy is an independent company based in France. It is leading a collaborative project aimed at building and testing "SEACAP", a Wave Energy Converter. The company has validated its concept, achieved several satisfactory computer simulations and virtual reality demonstration, as well as a preliminary project with an international shipyard. Tank test on a 1/20th scale model

have been successfully done in September 2013, confirming previous numerical results. The company now studies the realization of an oceanic demonstrator with a European consortium and is seeking a utility company to join the team. One of its specificities is the production of clean Hydrogen on its platforms.

Offshore energy storage



According to a UK report, world demand for energy will rise **36%** by 2030.

The corollary of renewable energy development is the storage of energy. Renewable energy (water, wind, sun) is a fluctuating resource, unlike energy from fossil fuels (coal, gas, oil). Their development may eventually compromise the balance between generation (supply) and consumption (demand) on electricity grids. Of course this eventuality is anticipated well in advance, but studies show that by 2040/50 more than half of world energy consumption will come from renewable sources, which will result in a consequent need to store the energy generated at certain times of the day for consumption at other times.

Currently only 3% of the electricity consumed in the world is stored. And more than 99% of this is in the form of pumped-storage hydroelectric schemes. This is the most competitive technology. Others, still of marginal importance, are more costly. Despite its competitive advantage, pumped-storage hydroelectricity has the drawback of a high environmental impact since entire valleys need to be flooded. Moreover, the best sites, that is to say those with a significant height differential, have already been developed.

Hence the idea of moving offshore where energy storage can take place in areas of deep water far away from coasts, therefore at lower cost and with less environmental damage. No scheme exists at the present time, but two technologies are currently being studied and supported by members of the French Maritime Cluster. An underwater compressed air storage technology (the AGNES system developed by **EOLFI**), and a gravity storage technology using weights that move between the bottom and the surface (the MGH process developed by **MGH S.A.S.**). These two processes represent the first steps towards an industry called Deep Sea Energy Storage (DSES), by analogy with Deep Sea Mining from which it borrows a number of technological building blocks.

The DSES market is a global market estimated to be worth around €200 billion by 2040/50, which is good reason for manufacturers and producers to get together in a consortium to share the risks and benefits of a nascent technology with huge potential.

Development, Services, financing, systems and products for Marine renewable energy

B-Bornemann Conseil (see page 126) publishes an international newswatch at the www.marine-renewable-energy.com portal.

CORROSION

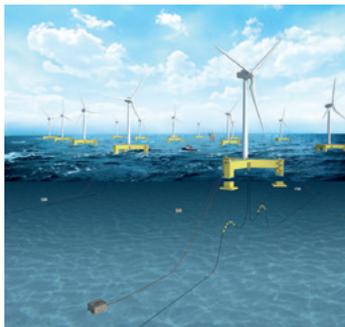
www.corrosion-france.fr

Corrosion is the world leader for manufacturing solutions of corrosion protection for offshore structures by impressed current (wind, oil & gas, tidal turbines fields). We also supply vessels with ICCP, ICAF, MGPS and Sacrificial anodes (corrosion and fouling).

Corrosion France grows along with the RME markets and its target is to open in France a study and production yard for windmills and tidal turbines.

EOLFI

www.eolfidev.com



© EOLFI

General view of Spinfloat. Source: EOLFI.

Created in 2004 and active in France (Paris and Marseille), Poland and Taiwan, EOLFI has become the first international developer of floating offshore projects since 2012. EOLFI's offshore portfolio includes 3 GW in Europe and 2 GW in Asia.

EOLFI also develops other activities covering the whole value chain of renewable energies:

- onshore wind and solar projects development in France and internationally,
- asset management through EAM, a French registered investment fund management company dedicated to wind and solar power infrastructures,
- development of technologies:
 - > SPINFLOAT project, design of a floating vertical axis offshore wind turbine with pitched blades,

- > BLIDAR project, metocean data measurement buoy, which consortium has been subsidized by the FUI (French Single Interministerial Fund),
- > STATIONIS project, a decision support software for the bottom-surface linking (anchoring and electrical system) of a floating wind farm, which consortium has been subsidized by the FUI,
- > AGNES, design and project development in the field of underwater compressed air energy storage (UW-CAES).

Until 2013 EOLFI was the wind subsidiary of VEOLIA ENVIRONNEMENT. Since its independence, its business strategy has been focusing on marine renewable energies.

The United Kingdom's planned **250** wind farms could meet the electricity consumption of the population of Scotland.



ÉCOLE CENTRALE DE NANTES - LHEEA

www.ec-nantes.fr



© École Centrale de Nantes

The LHEEA is a research laboratory associated with the CNRS. It studies marine and oceanic engineering problems using a combined approach: computer simulation and experimental simulation, aided by the unique experimental facilities available in France.

WEST NORMANDY MARINE ENERGY

www.west-normandy-marine-energy.com

WNME, the key contact for all MRE projects in Basse-Normandie.

WNME was launched in 2012 by three local authorities: Basse-Normandie Region, Department of Manche and Urban Community of Cherbourg. WNME develops and manages all activities around MRE, regarding supply chain, research and human resources and training.

Basse-Normandie has fantastic assets for the development of tidal and offshore wind energy:

- an industrial offshore project in Cherbourg,
- an offshore wind farm in Courseulles-sur-Mer,
- the 1st worldwide exploitable tidal potential,
- a high capacity energy grid.

WNME build relationships with companies involved in MRE, as well as players in research and innovation, outsourcing. It ensures the development of human skills to meet the needs of manufacturers. WNME assumes the role of attracting companies to settle in Basse-Normandie.

SOPER

www.soper.fr

SOPER is the personal holding company of Jean-Michel Germa. With about €250 M in assets, SOPER is in charge of managing a 41% equity stake in La Compagnie du Vent, pioneer company in the onshore and offshore wind industry, founded in 1991.

SOPER also explores some investment and/or development opportunities in the fields of renewable energies, energy savings and environmental protection.

In this context, SOPER is particularly interested in:

- offshore large-scale energy storage by gravity, through the company MGH®;
- industrial energy performance via utilization renewable energies (particularly solar thermal) and implementation of energy efficiency strategies, through the company SUNTI®.

Turbine design, manufacturing, installation and maintenance for offshore and other Marine renewable energy

ADWEN

www.adwennoffshore.com

Adwen is the AREVA-Gamesa joint venture dedicated to offshore wind. It is responsible for the design, manufacturing, installation, commissioning and services of offshore wind turbines. Combining both Gamesa and AREVA wind expertise and extensive track-record, Adwen is ideally positioned to become a leading player in the offshore wind segment, with the objective of garnering a market share of close to 20% in Europe by 2020.

Adwen benefits from a technology proven at sea since 2009 and a 630MW installed base offshore offering an invaluable return on experience for further development.

In France, Adwen already has a 1.5 GW project portfolio, comprising the Saint-Brieuc, Yeu-Noirmoutier and Dieppe Le Tréport projects. The joint-venture, pursuing the commitments initiated by AREVA, plans the creation of factories in Normandy and the implementation of a network of suppliers and partners throughout the country.



© ADWEN



Haliade™ 150 - 6 MW wind turbine



Alstom Oceade™ 18 - 1.4 MW tidal turbine

With 30 years of experience in wind power, Alstom delivers comprehensive solutions, from wind farm design and supply to wind turbine installation and maintenance. Alstom offers a wide range of onshore wind turbines with a capacity of 1.67 MW – 3 MW. To date, the Group has installed 3,700 wind turbines in more than 300 wind farms, with a total capacity of more than 7 GW.

Also active in the area of offshore wind power, Alstom is currently building the Haliade 150, the first next-generation offshore wind turbine with a capacity of 6 MW. With the Haliade™ 150 - 6 MW, Alstom has become the exclusive supplier of the consortium led by EDF EN for projects located on the western coast of France in Saint-Nazaire, Courseulles-sur-Mer and Fécamp, encompassing a total of around 238 wind turbines. The concrete implementation of an industrial plan to create a French sector of excellence in offshore wind power has started with the installation of 4 plants in Saint-Nazaire and Cherbourg in the coastal region of Brittany. It will be supplemented from September 2013 by an Alstom engineering and R&D centre based in Nantes dedicated to Marine Renewable Energy. These resources are

complemented by an engineering centre located in Nantes and dedicated to Renewable Marine Energies (offshore wind and tidal power), the only one of its kind in France.

Devoted to the development of tidal power technologies (harnessing the potential of tidal currents), and following the successful trials on a 500 kW turbine, Alstom tested a 1 MW tidal turbine⁽¹⁾ in different operational conditions since 2013 which successfully injected over 1.2 GWh of electricity to the grid. Building on this extensive experience, Alstom developed an efficient, cost-effective and easy to maintain tidal technology: the Oceade™ 18 - 1.4 MW and has been chosen in December 2014 to supply four of the turbines, as well as an Alstom electrical subsea hub, for a tidal energy pilot farm at Raz Blanchard.

Pioneering the way in the development of complete tidal power solutions, Alstom has extended this offering to a unique Oceade™ tidal platform concept which helps you maximize the use of tidal stream resources according to local conditions.

⁽¹⁾ Part of the ReDAPT (Reliable Data Acquisition Platform for Tidal) consortium project, implemented and co-funded by the Energy Technologies Institut (ETI).

Saipem is a leader in the execution of turnkey contracts (engineering, management, procurement, construction and installation) for large offshore and onshore projects in the area of energy and maritime infrastructures, with unique capabilities in design and construction and a fleet of specialized vessels. Renewables energies represent a new area of

development. Saipem has conducted numerous feasibility studies and participates in tenders for offshore wind farms. Saipem is also a partner of the tidal turbine project Sabella.

The group employs over 40,000 people including 2,500 in France (in its headquarter of Saint-Quentin-en-Yvelines and in regional offices through its subsidiary Sofresid).

Establishing an industry creates an opportunity for a country. This is the angle of approach being adopted by numerous maritime players, such as: **Ameris France** (page 32), **Bretagne Pôle Naval** (page 32), **Bureau Veritas** (page 36), **CERVVAL** (page 108), **CRÉOCÉAN**

(page 47), **DAHER** (page 68), **DCNS** (page 29), **Les pôles de compétitivité mer** (page 15), **Louis Dreyfus Armateurs** (page 18), **Neopolia** (page 34), **SDI** (page 64), **STX** (page 29), **VDC Offshore** (page 23), etc.

A study by the Boston Consulting Group

has found that **70%** of the wealth from the oceans (fauna and flora, transport, tourism and sea-related activities, carbon capture) depend on healthy seas.



Ports, activities and services

At 329.6 MT (excluding bunkering and provisioning), global goods traffic through continental French ports in 2014 rose by 1.05% on the previous year (326.2 MT).

The total level of traffic in 2014 was attributable to a 4.94% rise in container traffic to reach 4.4 million TEU, a sign of the positive effects of reform in the large seaports, especially Le Havre and Marseille. Bulk liquids fell by -1.69% as did dry bulk by -1.73%.

Passenger traffic in continental France grew by 0.40% to a total of 28.9 million passengers. Cruise ships accounted for around 6 million passengers.

In 2014 France's maritime policy for its ports continued to be based on three complementary pillars:

- reform of the autonomous seaports begun through legislation in 2008, which has transformed seven of them in continental France into Grands Ports Maritimes (Large Sea Ports); this process was completed in 2012 in the overseas departments with the creation on 1st January 2013 of the four Large Sea Ports of Guadeloupe, Guyane, La Réunion and Martinique,
- the transfer of port railways to the port authorities, which gives them more opportunity to expand into high volume freight transport and to develop short-haul port railway operators such as OFP Atlantique,
- government backing in the form of an investment programme for 2009–2013, which will continue over the period 2014–2020.

The national strategy for French ports launched by the Ministry of Transport on May 24th 2013 is aimed at winning back market share. It is divided into three main components: logistics performance, support for industry and re-industrialisation, and sustainable development. It is in line with European policy on ports which acknowledges the role of the main French ports as nodal points and gateways to the trans-European transport networks.

It is now a question of means...

French commercial sea ports handle around 85% of France's external trade by volume and 66% by value.

They can be divided into:

- ports operated by the State, with the eleven large sea ports in continental France and overseas,
- decentralised commercial ports and fishing ports: around forty ports under regional administrations (some since 1983, others since 2007), the great majority of which are operated by chambers of commerce. These ports handle 71.4 MT of goods, 22.3 million passengers and around 200,000 tonnes of fish products,
- autonomous ports in the Overseas Territories (Polynesia and New Caledonia).

The authorities administering these ports are federated in the **UPF** (Union des Ports de France - see separate feature page 58) which represents them at national and European level.

More than
1,200 commercial
sea ports operate on the
70,000
kilometres of coasts of the
European Union.



2014	Turnover *	Direct jobs in ports*	Goods traffic	Passenger traffic
Port authorities	Around €900 million, including 645 M for the 7 GPM and more than 250 M for the other decentralised or overseas ports	State operated services: 3,000 Port establishments: 6,000	329.6 million tonnes for the ports in continental France including 258.6 for the 7 GPM. More than 11.8 million tonnes for the 4 GPM overseas ports	28.9 million passengers in continental France, including 17.5 million on the North Sea – Channel – Atlantic seaboard, 11.4 million in the Mediterranean and 1.7 million in the DOM.
Port trades	€ 3.5 billion	30,000		
Total	€ 4.5 billion	39,000	341.4 million tonnes	30.6 million passengers

* Source: UPF

**AIVP – WORLDWIDE
NETWORK OF PORT CITIES**
www.aivp.org

AIVP is the only international organisation that, for 25 years, has been bringing together all the development stakeholders in port cities. Today, the Association includes 185 ports, cities, businesses and public organisations in a network spanning 46 countries. AIVP is the privileged witness to the developments under way in the cities and ports all over the world. It supports their members in the

implementation of new strategies that allow them to more effectively face up to the changes that impact economic, social and environmental development in port cities: urban-port integration, global reorganisation of economic routes, the challenge of societal integration, the climate change, the energy transition, the development of the cruise industry, etc.

L'Union des Ports de France (UPF) is the trade association representing French port operators. Its 44 active members comprise the administering bodies of French commercial and fishing ports and some fish auction markets in continental France and the overseas departments and territories: Large Sea Ports, the ports of Paris and Strasbourg, chambers of commerce, semi-public companies and port operating companies.

The Association has three missions:

- to represent French port establishments in labour negotiations in the sector in liaison with the UNIM (the French association of cargo handling companies and terminal operators) and the trade unions, mainly for negotiating the unified collective agreement for port workers and cargo handlers,
- to uphold the interests of French ports with French

government authorities, European authorities and the media, particularly within the European Sea Ports Organisation (ESPO),

- to operate networks for sharing good practice and exchanging experience in the various activities involved in port operation.

Merged with the French Ports Development Association (ADPF) since 1st January 2013, the UPF has established three interchange forums:

- An interchange forum for port professionals bringing together the professionals involved in the development of port trade.
- An interchange forum for decentralised port authorities.
- An interchange forum for the Chairmen and Vice-Chairmen of the supervisory boards of Large Sea Ports.

The advantages of French ports

An exceptional seaboard and an ideal position for providing rapid service to the greater part of Western Europe.

A system of large sea ports centrally positioned in Europe, with now enough links to main roads, motorways and railways as well as to the main navigable waterways (Seine, Rhône).

A network of decentralised ports which are valuable assets for promoting regional economic development and which complement the network of large sea ports;

A strategic geographical position for handling the production and distribution of goods imported or exported by Europe:

- facing the Channel and North Sea, **Le Havre** is the gateway to the "Seine Axis" along with Rouen and Paris, thanks to the GIE HAROPA (an economic interest grouping of the Paris Seine-Normandy ports). With **Dunkirk**, it is one of the first large North European ports of call for imports,
- situated on the Atlantic seaboard, the large sea ports of **Nantes - Saint-Nazaire**, La Rochelle and **Bordeaux** are the entry points for large international trade flows. These are now organised in a system of Atlantic inter-port cooperation. Brest also has this role of general cargo port while at the same time being the most important French site for civil ship repair,
- on the Mediterranean coast, **Marseille-Fos**, the largest port in France and indeed the Mediterranean, is situated at an important meeting point of trade routes and acts with Medlink as the gateway to the Mediterranean,
- France's overseas ports in the Indian Ocean, in Polynesia, in New-Caledonia, in the Caribbean and in South America are entry points into the EU aided by the overseas clusters being developed there: four of them, those in Martinique, Guadeloupe, French Guiana and La Réunion were transformed into Large Sea Ports (GPM) in 2013.

Added to these advantages are:

- exceptionally good access enabling the ports to accommodate the largest vessels to serve the hubs, such as 18,000 TEU container ships, 400,000 tonne tankers and large LNG carriers of 270,000 m³ (QMax) as well as flagship cruise liners;
- high quality infrastructures, including berths and terminals,
- modern efficient equipment,
- reserves of land still available,
- areas reserved for storage and distribution logistics operations,
- an interconnection of regular shipping routes, short sea shipping and waterway services ,
- efficient road and bulk transport services (rail, navigable waterways),
- dynamic port communities with enterprises providing efficient services for ships (piloting, towing and mooring) and the handling of goods,
- advanced computerised trading platforms within port communities, providing efficient high value-added logistics services, with e-customs services about to be introduced for each port,
- high standards of safety, security, sustainability and environmental protection.

Several major projects are under way

They encompass:

- extensions of capacity: completion of Port 2000 at Le Havre, completion of the new container terminals at Fos 2XL and a study for a gas terminal, a project to extend the port of Calais (Calais Port 2015) designed from a perspective of collaboration with the ports of the Nord-Pas de Calais Region, excavation of the Baltic and Pacific harbour basins at Dunkirk, deepening of the approach channel to Rouen over the 120 km distance from the mouth of the Seine to Rouen (scheduled for 2012-2016); at Nantes-Saint Nazaire, works to accommodate QMax (LNG) vessels, extension of the container



95% of fish catches in the world are caught near to the coast.

210,000

TEU are handled each day in the main ports of the EU. The blockage of this export route would result in a loss

of more than € **243** million per day for European companies!



terminal and preparation of marine renewable energy zones; the project to extend Port La Nouvelle; and the project at Brest to stabilise and extend the polder for the marine renewable energy industry coupled with the deepening of the access channels to the commercial port.

■ the construction of new terminals, especially an LNG terminal at Dunkirk; construction of the new Grattequina terminal for aggregates and wind turbine traffic at Bordeaux; construction under way of the new Anse St-Marc 2 terminal beside the 35 ha site for La Repentie at La Rochelle.

■ the development of new systems of organisation at port terminals to increase their productivity and make French ports more attractive to private operators and investors.

■ the improvement of land links to high volume transport (rail and waterway): multimodal terminal and improved waterway access to Port 2000 at Le Havre, the combined transport terminal at Marseille, development of La Rochelle and Nantes port railway operator OFP Atlantique, cooperation between sea ports and inland ports;...

■ continued development of the French marine renewable energy sector with offshore wind farms (at Cherbourg, Le Havre, Saint-Nazaire, Bordeaux, Dunkirk and Brest); floating wind turbines (at Marseille, Brest and Saint-Nazaire); tidal turbines (at Cherbourg and Brest); river turbines (at Bordeaux); wave energy converters at Brest and ocean thermal energy conversion in the overseas ports.

■ the development of short sea shipping routes and motorways of the sea.

■ the development of synergies among industrial firms to ensure the long-term development of the VASCO project initiated by the Port of Marseille/Fos to produce solutions for CO₂ capture, storage and treatment through a programme of R&D.

■ the creation of a single electronic portal to simplify and standardise all declaration procedures for ships in keeping with the Community directive now in its transposition phase and due to become effective on 1st January 2015.

GRAND PORT MARITIME BORDEAUX

www.bordeaux-port.fr



GPM Bordeaux © PAT

Terminal multivrac Bassens

Set on Europe's largest estuary, the Atlantic Port of Bordeaux benefits from a prime location right on the Atlantic seaboard. At the gateway to Bordeaux, soon to be home to a million inhabitants, the Atlantic Port of Bordeaux is the focal point of a dense multimodal communication network offering a prime opportunity to reach out to a vast European market.

Activities at the Port of Bordeaux take place at 7 specialized terminals and follow principles of sustainable development.

With more than 500 hectares available for industry and logistics, the Atlantic Port of Bordeaux offers economic stakeholders facilities directly next to its terminals. Generating more than 15,000 jobs in Aquitaine, the Port is sustained by a growth policy pursued in conjunction with its public and private partners.

GRAND PORT MARITIME DUNKERQUE

www.dunkerque-port.fr



© Grand Port Maritime de Dunkerque

Dunkerque is:

- 3rd port of France
- 1st european energy hub
- 1st french port for fresh produce imports by containers
- 1st largest rail freight hub in France
- 1st largest inland waterway port in Nord-Pas de Calais

Located on the North Sea, just 90 minutes' sailing time from the world's busiest seaway (600 ships every day), the Port of Dunkirk offers excellent accessibility to shipping and has vast land reserves. Its facilities enable it to handle all types of cargo and accommodate the largest ships.

accessible to ships with draughts of 14.2 metres (the Eastern Port), and the other to the west, which can accommodate ships with draughts of up to 22 metres (the Western Port). The port district covers 7,000 hectares and includes ten towns: Dunkirk, Saint-Pol-sur-Mer, Fort-Mardyck, Grande-Synthe, Mardyck, Loon-Plage, Gravelines, Craywick, Saint-Georges-sur-Aa and Bourbourg.

Located 40 km from the English port of Dover, 10 km from the Belgian border, near the city of Lille and in the centre of the Brussels-London-Paris triangle, Dunkirk is the ideal platform for goods consolidation and redistribution in Europe

The port extends along a frontage of 17 km and has two entries for shipping: to the east, which is

Dunkerque-Port handled 43.57 million tonnes of traffic in 2013.

GRAND PORT MARITIME LA ROCHELLE

www.larochelle.port.fr

Single deep-water port on the French Atlantic shore, Atlantic Port La Rochelle is the 6th Great Maritime Port ("Grand Port Maritime") of France with 5 terminals (242 ha of land surface) and 4,464 metres of berths connected to the rail network. Due to the presence of the islands of Ré and Oléron, it enjoys a safe and fast maritime access (45 minutes piloting). With a global traffic of 9,401,419 tons, Atlantic Port La Rochelle is the 1st French port for import of forest products and pulp and the 2nd for export of grains.



© GPM La Rochelle

GRAND PORT MARITIME LE HAVRE

www.haroports.com



© Port du Havre Port 2000

Le Havre is the 2nd biggest French port with 67.5 million tonnes handled in 2014:

- #1 French port for external trade and container traffic (2.5 million TEU in 2014),
 - elected "Best Green seaport in the world" (by Asian professionals, readers of Cargonews Asia newspaper),
 - a partner in the EIG formed by the ports of Le Havre, Rouen and Paris, HAROPA, the 5th biggest North-European port complex,
- 2nd biggest French port for the crude oil supply of France,
- #1 French hub for import/export of new vehicles, development of the traffic of second-hand vehicles,
- around 6,000 calls in 2014,
- truly remarkable shipping conditions: accessible around the clock by the largest vessels in operation,
- a strategic location as the first main port of call in Northern Europe on import and the last one on export,
- a safe and secure port with the ISO 28000 certification of the Port Authority as regards security management and ISO 9001,
- around 32,000 port jobs.

Development works:

Through its strategic plan, the Port of Le Havre defines major development lines, such as containers, but also all activities in the other trades. It works to provide an adequate estate offer for the settlement of new logistics and industrial business and aims at significantly increase river and rail transport within the scope of a process of continuous improvement of the performance of port operation. This strategy of growth will be carried out while respecting the environmental functions of the Seine estuary.

- multimodal terminal: a tool for mass transport, coming-on-stream in June 2015,
- ro-ro terminal: 100 hectares available and possibility for extension over 20 hectares,
- Port 2000 Phase 3: 700 m of additional quay, launching of the call for expression of interest as well as for Asia and Osaka quays,
- storage of liquid bulks: Port of Le Havre has launched a new call for interest,
- project of direct river access to Port 2000: cooperative approach,
- construction project of new logistics warehouses: PLPN2 (76 hectares), PLPN3, Port 2000 and the 'Parc Frigo',
- wind energy offshore and associated activities.

GRAND PORT MARITIME MARSEILLE-FOS

www.marseille-port.fr



© collection GPM

Ideally situated on the northern shore of the Mediterranean Sea, the Port of Marseille-Fos is the natural gateway to Southern Europe. The port of Marseille-Fos has become a major player in the Euro-Mediterranean zone because of its land and maritime infrastructures which allow it to accommodate the latest generation of ships and to follow market developments.

The Port of Marseille, the largest port in France, in 2014 generated annual global traffic of 78.5 million tones in cargo. The steel industry, containerized goods, GNL and cruises (with 1,300,000 passengers) were the growth drivers of the port of Marseille Fos, these activities having increasing between 5 and 12% over the year.

Activity linked to the Port of Marseille-Fos generates over 43,500 jobs in total, including 18,000 in the Marseille Provence Metropole area.

The port complex extends over more than 10,000 hectares of land, listed as part of the public maritime domain, and is distributed over two geographical sites:

- the East Docks: Marseille,
- the West Docks: Fos, Lavéra, Caronte, Port Saint Louis du Rhône.

With its strategic plan 2014-2018, the port of Marseille-Fos aims to increase its market share in all business segments to strengthen its leadership in the Mediterranean Sea. It is also pursuing diversification and energy transition in conjunction with regional policy to generate regional employment.



The area of land occupied by the GPM (grands ports maritimes or ports officially designated as Major Sea Ports) is estimated at **35,000** hectares.

GRAND PORT MARITIME NANTES - SAINT-NAZAIRE

www.nantes.port.fr

NSNP © André Bocquel



Nantes – Saint Nazaire ranks fourth among Metropolitan France's major seaport authorities and is the leading port on France's Atlantic Seaboard. The port facilities are located on the 65 kilometre long Loire Estuary, between Nantes and Saint Nazaire. Near of 3,000 calls, 1,200 merchant trains and about 240 transfers by river barges are made each year at the Nantes – Saint Nazaire Port Authority's facilities.

The port of Nantes Saint-Nazaire generates nearly 25,000 jobs in the Grand Ouest area, including nearly 3,000 professionals employed in the "Grand Port Maritime" and the numerous ship and goods handling facilities (pilot services, tugs, line handling, cargo handling, warehousing, trading...). Already developed sites and those being developed for future activities represent a total surface area of 1,350 hectares. The port areas, including terminals, logistical facilities and industrial

premises, are linked up to the national road and rail networks. An inland waterway link is already provided on the Loire Estuary for solid bulk cargo and industrial heavy-lift consignments.

For import and export companies in the regions of Greater Western France, the Port of Nantes – Saint Nazaire provides doorstep services that serve to optimize supply and distribution chains. For all types of traffic, the Port proposes an added-value logistical service offer (notably warehousing, packing into bags and order preparation) and a statutory service offer (including customs, veterinary services and phytosanitary services).

For container traffic, the Port has direct liner services to the West Indies and the West Coast of Africa. In addition, several feeder services connected to Northern Europe's main transshipment hubs link the Port to over 400 ports on all five continents. Regular ro-ro services are also provided to and from Spain and Mediterranean Sea.

GRAND PORT MARITIME GUYANE

www.portdeguyane.fr

© Grand Port Maritime Guyane



The Large Sea Port of French Guiana (Grand Port Maritime de Guyane), a port for Europe at the crossroads of the Americas, is a state-run public institution created on 1st January 2013 by the Law of February 2012 on port reform in the Overseas Territories. It is administered by a Board, which is the port authority's executive body. Supplementing this governance is the Supervisory Board and the Development Board. Some fifty staff are employed in operating and promoting the port.

The perimeter of the GPM-Guyane extends to the commercial port of Dégrad-des-Cannes (Rémire-Montjoly) and the port of Pariacabo (Kourou),

which specialises in receiving components for the European spaceport (CNES-CSG).

Handling more than 95% of the goods traffic of French Guiana, the GPM-Guyane is a major logistics facility of the Guyanese economy. Its strategic development has been mapped out in a 5-Year Plan (2014 - 2018) in keeping with the requirements of the laws on transport. This strategic plan has been approved by the Supervisory Board and aims to *increase its economic and social competitiveness and promote the development of French Guiana*.

PORT DE BAYONNE

www.bayonne.port.fr

© CCI Bayonne Pays Basque - ASP



The Port of Bayonne, 9th largest commercial port in France:

Situated at the mouth of the River Adour, halfway between the ports of Bordeaux and Bilbao in the corner of the Bay of Biscay, the Port of Bayonne is ideally situated in relation to the main urban sites and busiest industrial areas in South West Europe. It is a major freight zone at the crossroads of the Spain-Toulouse-Bordeaux motorway network.

The Port de Bayonne – some facts and figures:

- 9th busiest commercial port in France, 2nd busiest regional port after Calais (1st when passengers are excluded),
- annual traffic from 4 to 4.5 M tonnes (mostly bulk cargo),
- 2,000 ship movements per year,
- all areas have rail links: SNCF's 5th largest port client,
- 3,500 jobs (direct and indirect), economic impact of € 530 M in Aquitaine.

PORT DE BREST

www.brest.port.fr

Leading port in Brittany, the port of Brest is managed by the Brest Chamber of Commerce and Industry, which was founded in 1851.

The port handled more than 2.8 MT of cargo in 2014 via different terminals: general cargo, agri-bulk, multimodal, oil and gas...

The port of Brest, which is ISO 14001 certified, is also a leading ship repair centre in France as well as a port of call for cruise ships.

3 weekly feeders provide worldwide connections to the port.

The port possesses significant land reserves, including a reclaimed area of 42 hectares scheduled for major investments in connection with marine renewable energy.

The port is linked to the railway to Paris as well as the European motorway network.



Port de Brest © CCI Brest



Bulk liquids accounted for **50%** of the annual volume of goods through French ports in 2013. Containers only made up **13%**.

PORT DE CALAIS

www.calais-port.com

Calais: 4th busiest port in France for cargo.

Located on the busiest straits in the world for international shipping, the Port of Calais alone handles 1/3 of all ro-ro traffic between continental Europe and the United Kingdom.

The port of Calais offers 24/7 - 364/365 solutions and sees 50 departures per day. It provides high quality facilities suited to all types

Port de Calais
© CCI Côte d'Opale - HAPPY DAY



of traffic: Ro-Ro, bulk (import and export of industrial and quarry products), and specialised traffic (export of new cars, submarine cables and bagged sugar).

Moreover, the port of Calais is a key logistics platform directly connected to the French and European motorways (A 16, A 26 for France and M 20, M2 for the United Kingdom).

Port of Calais facts and figures:

- Continental Europe's leading port for rolling cargo,
- Leading port in France and 2nd busiest port in Europe for passengers,
- 4th busiest port in France for cargo,

In 2013:

- 41.1 million tons of cargo,
- 10.3 million passengers,
- 1.6 million freight vehicles,
- between 3,000 and 7,000 trucks/day.

PORT DE SÈTE, SUD DE FRANCE

www.sete.port.fr

The port of Sète, medium sized port but versatile is suitable for all kind of traffic and offers a complete multimodal connection for all operators. From Multi-bulk agri-business to the container through the Heavy-Lift, Livestock, Ro-Ro and passenger traffic, the Languedoc port is capable of responding to all requests with speed and reliability. In 2013, the port of Sète handled 3.4 million tons of cargo and welcomed 172,000 passengers, which puts it at the 9th place in all metropolitan ports. The significant investments and exemplary public/private partnerships that have been implemented so far with local players begin

to make it attractive and competitive, prior to local and national economic development.



© Port de Sète, Sud de France

PORTS NORMANDS ASSOCIÉS

www.pna-ports.fr

PNA is the authority, owner and manager of the ports of Caen-Ouistreham and Cherbourg. With a traffic of nearly 5 million tons of goods and 1.5 million passengers, PNA has a leading position among French ports.

In fact, PNA is the 11th largest commercial port complex in France.

It sustains key economic activities in the territory with its 4,000 direct, indirect or resulting jobs and its € 180 M added value.

The ports of Caen-Ouistreham & Cherbourg offer complementary assets: Caen-Ouistreham is a multipurpose regional port in the hinterland, while Cherbourg has a rare nautical feature at the heart of the Channel seaboard.

A wide range of activities -such as bulk, yachting, fishing, cross-Channel traffic, sailing, shipbuilding and repair, seafood processing, industry- lean on port infrastructures in order to develop their activities. PNA's vocation is to provide all these industries favourable infrastructures and environment for their development.

Particularly involved in the Marine Renewable Energies, PNA has been investing more than € 100 million to welcome the activities linked with this promising MRE sector.

Ports Normands Associés © Stéphane Deve - SY Laisney



PORTS TOULON PROVENCE



Ports Toulon Provence © TPM/DSIG - ScOTPM

This young Port Authority based in Toulon manages 18 ports in the Toulon urban area, from the Iles d'Or to the Embiez archipelago, with 6,000 yachting berths.

The commercial and industrial installations, in a deep water bay allowing access to the biggest ships, are well protected by an exceptional geographical position and their proximity with the military infrastructures of Toulon's naval base.

In addition to a very tight knit port community Ports Toulon Provence, base for the Pole Mer Mediterranee and the Riviera Yachting Network

can boost an annual turnover of € 200 M and 2000 direct jobs. One of the current development areas for Ports Toulon Provence is the superyacht facilities (185 superyacht calls in 2013).

Toulon is the leading ferry port for Corsica (1.2 M pax pa) and has confirmed its position as the third French cruise port (540,000 pax in 2013). The port is also home for the only non-subsidized "Motorway of the Sea". This "Autortoute de la Mer" links Pendik to the Bregailion port area which has recently renewed its stevedoring facilities.

Chinese ports alone handle **1/3** of world's trade by sea.



Marine Works and Port Facilities

ARTELIA

www.arteliagroup.com



© Artelia - Port Conakry

Artelia is an independent engineering, project management and consulting group that operates in the following nine markets: building construction, water, energy, environment, industry, maritime, multi-site projects, transportation and urban development. In 2014, the group's consolidated turnover amounted to € 366 million. The share of turnover related to international business is 30% with subsidiaries in 37 countries.

Maritime and port activities represent a significant part of Artelia's turnover. For many years, Artelia Maritime has been ranked as one of the world's leading consultants in this field of studies by the Engineering News-Record. Artelia Maritime can no doubt claim to be the only maritime consultant to possess a unique range of facilities to support its project teams: a numerical modelling unit focusing mainly on hydrodynamics, a world-renowned physical modelling laboratory, a navigation

simulator and a shiphandling training centre (Port Revel). Artelia provides services to private clients (industrial groups, building contractors, operators, etc.) as well as to public clients.

Artelia is certified ISO 9001, ISO 14001 and ISO 8001.



© Artelia - Tanger Med

BOUYGUES TRAVAUX PUBLICS

www.bouygues-tp.com



© Bouygues Travaux Publics

With constant growth in global trade, the demand for harbor and coastal infrastructures – an essential need for import and export businesses – is sustained. Bouygues Travaux Publics has therefore developed over several decades specific expertise as a builder of large infrastructures in marine environment: harbors, rivers undercrossing, bridges. The company also possesses know-how regarding river dams and development of inland waterways. Landmark projects in the domain include the Chatou dam (France), ports in Monaco, Pusan (Korea), Tangiers (Morocco), Caucedo (Dominican Republic), Beyrouth seafont development (Lebanon), N'Kossa barge (Congo), the Hong Kong Zuhai Macao Bridge (HK) or New Tyne Crossing (UK).

EMCC

www.emcc-construction.com

A subsidiary of VINCI Construction France, EMCC is the leading company in France for marine and fluvial construction works. Its experienced male and female staff share a culture which embraces safety, exacting standards, environmental performance and innovation. EMCC is a specialist in marine, port and fluvial structures, dredging, rock excavation, underwater works and the treatment of sludge and sediment. The expertise of its engineering office and its integrated methods enable it to meet every challenge worldwide using the best technical options. Its extensive fleet of machinery gives the company the capability to adapt to the particular

requirements of each site and to fully respond to the needs of each customer.



EMCC © HAPPYDAY - Jean-Louis Burnod

ETMF - EIFFAGE TRAVAUX MARITIMES ET FLUVIAUX

www.eiffagetravauxpublics.com/genie-civil

FRABELTRA is now ETMF (EIFFAGE TRAVAUX MARITIMES ET FLUVIAUX) and continues to work in multiple fields, such as dock construction, bank protection operations (sheet piling, retaining walls, riprap, etc.), flood barriers, dolphins, dams and locks, piers, fish passes, RORO

bridges, boat ramps and docks, solid and pile wharfs, strengthening of the foundations of artworks, dredging, sludge, sheetpile driving, underwater network crossings and sea outfalls with stronger human, material, commercial and scientific resources thanks to the new ties with ETMF.

ETMF is able to fully design and carry out all of these operations, and works for well-known clients such as major seaports, VNF, and departmental and regional ports, and also for private clients in the grain, oil and transport industries in both river and sea environments. Thanks to its facilities, ETMF has a strong national presence, but is also nurturing its international ambitions through collaborations with other branches of the group.



© ETMF

FAYAT TRAVAUX SOUS-MARINS

www.fayat.com

4th construction & civil engineering trades group in France and the leading independent Group, Fayat has been operating in underwater works for over 30 years. FTSM (Fayat Travaux Sous-Marins), one of its subsidiaries, offers services for excavating works on shallow-water fields down to 100m depth and develops technology for deep sea mining projects.



© Louis Perez / Fayat

SDI - SOCIÉTÉ DE DRAGAGE INTERNATIONAL

www.deme-group.com

SDI is a marine and waterways contractor active all over France. SDI realizes very diverse projects, varying from maintenance dredging works in the ports of Bayonne, Gravelines, La Réunion or on the Gironde river, to beach replenishment works in Pyla, or more specific dredging works as the realization of the foundations for the Bacalan Bastide bridge in Bordeaux or the dike consolidation works for the Nice airport. After having realized the first phase of the deepening of the Seine river, SDI is now executing the second phase for the account of the port of Rouen. The SDI fleet worked all over the world for the account of its sister companies: from the Persian

Gulf to Panama and Europe. In 2013, SDI realized a turnover of € 53 M and employed about 100 staff and crew.



© reuvelle.atholus.fr

DAM PALLIETER – Deepening of the Seine

Port activities and services

CHAMBRE NATIONALE DES COURTIERS MARITIMES DE FRANCE

The National Chamber of Maritime Brokers of France (customs house shipbrokers), formerly "Courtiers Maritimes Interprètes & Conducteurs de

Navires", act for ship-owners or their agents and handle the customs formalities (ship's clearance) required from ships entering French ports.

DELOM PORTUAIRE www.delom.com

Heir to the ship operating business, it has been a specialist since 1987 in port activities in the port of Sète. It is especially active in cargo handling operations and the transit of goods vehicles,

containers, live animals and heavy lifts. Delom Portuaire also operates as a freight forwarder and charter broker.

ECONAVIA-CEP www.econavia.fr

Econavia-CEP has been successfully addressing the issues specific to port management for more than 20 years. In close partnership with local authorities, it implements tailored operational solutions and proactively helps to develop the

economic and tourism potential of ports. It also works alongside the private sector in providing the industry with specialist expertise in shipping-related logistics and ecology issues.

FRENCH FEDERATION OF MARITIME PILOTS www.pilotes-maritimes.fr

© Eric Hourri



A major player in the field of maritime safety on the seven seas, French maritime pilots safely conduct inbound and outbound ships through inshore waters ensuring safe ship handling, coastal environmental protection and economic efficiency on ship movements in French ports. *338 pilots, more than 100,000 operations per year, 31 pilot stations, 3 helicopters and over a hundred pilots cutters.*

GROUPE LHD www.groupelhd.fr

© Groupe LHD



Group LHD is in charge of mooring operations for vessel who call at the port of Nantes Saint Nazaire. It also provides other maritime services such as crew transfer, logistic (receipt of goods, storage under custom controlled warehouse, delivery by vessel or truck), personnel hire, chartering of nautical equipment, provision of nautical equipment to achieve marine works. Group LHD is available for its customers 24h/24 and 365 days/year

SCHNEIDER ELECTRIC www.schneider-electric.com/fr

Schneider Electric is the global specialist in energy management and automation. In 2014, the company has a revenue of €25 billion with 170,000 employees in over 100 countries. With more than 90 years' experience in the maritime industries and over 5,000 vessels equipped, Schneider Electric has a broad range of solutions for vessels electrical distribution, automation, electrical propulsion and secure power. Schneider Electric is also the leader in shore connection technology, to plug ships at berth into the grid.



© Schneider Electric - LV ShoreBox

SDLP - SOCIÉTÉ DU DÉPÔT DE LA PALLICE

SDLP is jointly owned by SPD - Société Pétrolière de Dépôts / Socatra Group (48%), Total France (34%) and Bolloré Energie (18%). The facility covering 12 ha is located on the French Atlantic Coast, within the harbour zone of La Rochelle, for a total capacity of 245,000 cu.m.



© SDLP

SOGET www.soget.fr



SOGET provides fluidity to port operations, by coordinating intelligent, instant and shared management of logistics information between public and private stakeholders. As partner and facilitator of Port Communities, SOGET offers innovative turnkey solutions, by combining expertise in business processes, technological excellence and proximity with its clients and partners.

Headquartered in Le Havre since 1983, SOGET is the leading operator in France and Africa, and aims to become the global leader and a reference for single window systems. A founding member of the International Port Community Systems Association (IPCSA) and of the SEFACIL Foundation, SOGET acts as an expert consultant to many international organizations. In 2015, SOGET launches SOONE, the next-gen single window.

SYNDICAT PROFESSIONNEL DU LAMANAGE www.lamanage-syndicatpro.fr

In France, Boatage companies are grouped in a trade union, the SPLMNA (Boatage Professional Association of the English Channel, North Sea and Atlantic ports).

The mooring is an activity that requires control and precision. The evolution with the launches from the ship, tugs and dock can be dangerous depending on water and weather conditions encountered.

Exchanges are permanent and shared experiences for the development of different structures. Approximately 300 boatmen plying their trade across the Atlantic coast to the North Sea.

UNIM – UNION NATIONALE DES INDUSTRIES DE LA MANUTENTION DANS LES PORTS FRANÇAIS www.unim.org

UNIM is the French association of cargo handling companies and terminal operators located in all French seaports. Its member companies are responsible for operating terminal loading and unloading facilities such as container cranes,

gantries and all other equipment required at terminals (straddle carriers, forklifts...). They employ dock workers as permanent salaried company employees on long-term contracts.

UMPF – THE MARITIME AND PORT UNION OF FRANCE

The Maritime and Port Union of France – UMPF – is an association under the 1901 Act and was established on the 8th of April 2004. Its objective is to unite professional bodies such as

the Maritime Unions of French ports, to give them greater clout in representing and standing up for the interests of these ports and their professional communities at national level.

WORMS SERVICES MARITIMES www.worms-sm.com

In France, WORMS has offices in 10 ports, and a total workforce of 100 people, including 20 in Le Havre and 50 in Marseilles. Every year they act as agents for more than 1,000 general cargo vessels, which makes them one of the

largest independent shipping agents in France. Representing several shipping lines serving all 5 continents, the Worms Shipping Agency network can handle all types of cargo (containers, Ro-Ro, conventional etc.).

Maritime logistics

Intra-European freight transport (UE 28) in 2012



1,696 billion (tonnes/km)
Road

1,401 billion (tonnes/km)
Sea

407 billion (tonnes/km)
Rail

150 billion (tonnes/km)
River

115 billion (tonnes/km)
Pipelines

3 billion (tonnes/km)
Air

Source: BP2S/Eurostats 2014

Three quarters of the very large urban complexes on the planet are situated on the coast.



These days, **90% of world trade is transported by sea**. This goods traffic passes through seaports, an inescapable route for all shipments. These ports are now much more than transit points. They provide added value for which there is a real demand, such as the processing of products, financial breaks in free-trade zones, specialised packaging methods, etc.

Supply chain logistics (transport of raw materials usually in bulk) accounts for two thirds of shipping traffic, while distribution logistics (manufactured products usually transported in containers) accounts for the other third.

French companies are increasingly turning to logistics service providers offering a complete integrated service: 3PL (Third Party Logistics), 4PL (Fourth Party Logistics), freight forwarding and transport organisers, etc.

For the last 10 years, shipping represented nearly 40% of the intra EU transport.

About 70% of French ports activity towards European and Mediterranean ports is to be identified as shortsea shipping related.

Nowadays, the European Union carries on actively supporting transportation of goods by sea, mostly through the CEF Transport (Connecting Europe Facility 2014-2020), a part of the wider TEN-T (Trans-European Network Transport) program, which core network is to be achieved in 2030, and its comprehensive network at horizon 2050.

The projects selected in that regard in 2015, which got financed up to €13 millions, put the emphasis on multimodal corridors and Motorways of the sea.



© Thomasleclercphoto - Fotolia.com

**BP2S BUREAU DE PROMOTION
DU SHORTSEA SHIPPING**
www.shortsea.fr

The SPC France (Shortsea Promotion Centre) is an association for government authorities, professional organisations and transport companies of all sectors (shippers, freight forwarders, road hauliers, ports, ship owners and shipping agents) established to promote Shortsea Shipping and intermodal sea transport.

Its main activity is providing easy access to information via its website and blog updated daily, a weekly newsletter and a monthly news bulletin, plus theme-based and summary data sheets, etc.

The SPC France also organises meetings, workshops and conferences for its members.

On intermodality, SPC France identifies freight that can be switched from road to a logistics system with a sea leg, and takes part in feasibility studies (economy, bottlenecks and good practice), etc.

The SPC France is also a forum for networking and support for initiatives promoting shortsea shipping and intermodal logistics in France and in Europe.

It also provides guidance for its members in seeking national and European funding.

**CERCLE POUR L'OPTIMODALITÉ
EN EUROPE**
www.optimodality.eu

The European Optimodality Forum has more than 60 members among economic contractors and entities which, since the Optimodality® Charter was signed on March 6, 2007, have shared the common aim of building

a new approach to the transport chain, one which seeks to optimize the economic, technical, environmental and societal benefits of each mode of transport, and all effective combinations of these modes.

CRYSTAL GROUP
www.crystalgroup.fr

For 25 years, Crystal Group's mission has been to devise and implement personalized logistics solutions to meet the expectations of businesses operating internationally.

We are a close-knit, independent group which has acquired financial stability, allowing us to invest in and manage every link of the logistics chain.

The group covers all sectors of activity thanks to its niche products (such as Aerospace, Automotive, Oil&Gas), and it does this through our specialized subsidiaries, all with the same objective: satisfaction of the customer and end user:

- Qualitair&Sea is present internationally, either directly or by way of joint ventures, in the UAE, Morocco, Brazil, Mexico, Japan, China, USA and Turkey.
- Altus provides services for the oil industries.
- Set Cargo is geographically present in the French Overseas Departments (DOM).

Each of the subsidiaries of Crystal Group deploys specific skills in order to find the solutions that meet the needs of its clients, whether in international ocean and air transport, management of administrative and physical flows, customs operations, or management of logistics supply bases.

DAHER
www.daher.com

Daher is an equipment supplier developing integrated Industrial Systems for aerospace and advanced technologies.

By linking its know-how in industrial manufacturing, product and process engineering, logistics and transport, and industrial services, Daher designs and develops value-added solutions for its industrial partners, who benefit from this convergence of industry and services. Daher has established itself as a leader in 5 fields of activity: aircraft manufacturer, aerostructures and systems, integrated logistics, nuclear services, and valves. Driven by bold innovation ever since it was founded in 1863, Daher has established itself today as one of the major players of the 3rd industrial revolution



Daher has been consistently facing the most testing and severe logistical challenges throughout over 150 years of industrial history. It has developed a range of tried-and-tested tools and methodologies to support our customers through the performance of large-scale operational services (transport, logistics, industrial services, lead logistics & services provider). Daher's offer allows customers to secure and optimize the supply chain to their plants and to the largest worksites and projects. Daher provides a range of services in project transport and the management of complex projects:

- transport & customs engineering,
- on-site logistics,
- shipping ("ro-ro" and heavy lift ships for military and civil projects),
- handling and transport tools & jigs,
- multimodal,
- heavy and oversized items,
- emergency and AOG expertise,
- industrial expediting,
- surveys, tests and controls.

Daher posts turnover of nearly a billion euros, and its order book stands at around three and a half years of turnover.

NCT NECOTRANS
www.necotrans.com

Created 29 years ago, the Necotrans group is a key player in international logistics with a turnover of over 950 million EUR and 3,500 employees in 126 branches.

Present on 5 continents and in 42 countries, Necotrans operates in the following activities:

- port activities (Ports & Logistics),
- freight forwarding (Freight Forwarding),
- oil & gas logistics (Oil & Gas),
- equipment distribution (Automobile & Equipment).

The complementarity and synergies of its activities form a unique network of logistic skills.

Key figures:

- 2013 turnover: €954 M
- 3,500 employees
- 126 branches
- 42 countries



In 2010, more than **150** million containers were transported, double the number shipped in 2000.

Defence and Government Action at Sea

Secretariat General of the Sea (attached to the Prime Minister's office)

The Secretariat General of the Sea has interministerial responsibility for the monitoring, evaluation and long-term planning of maritime policy. It is involved in mapping out public policies regarding the sea and coastline and coordinates government action at sea through the Maritime Prefects in mainland France and through government representatives overseas. It is attached to the Prime Minister's office and also serves the minister with responsibility for the sea in matters concerning him.

The Secretary General 'of the Sea' chairs the Executive Committee of the coastguard function which is made up of all administrations with maritime activities. This committee helps to determine the policies conducted for the coastguard function, and to identify priorities for action and the resulting organisational measures.

France has a Coastguard Operations Centre (CoFGC) which operates under interministerial authority. Placed with the Secretariat General of the Sea, the CoFGC keeps a round-the-clock watch on maritime events, maintains a record of the latest developments in international maritime affairs, provides a central base to help monitor crises with a maritime dimension and carries out analyses in order to propose changes to the organisation of the coastguard function. The CoFGC is one of the natural points of contact for the centres of other countries or European or international institutions providing the same services.

The Maritime Prefect

Under the decree of 6 February 2004 on government maritime related operations known as l'Action de l'État en Mer (AEM), the Maritime Prefect, who is a government delegate and direct representative of the Prime Minister and of each minister, is vested with State authority over all areas covered by the AEM.

With powers of coordination in a crisis situation, he is today the chief authority in all maritime spheres, notably in defending the sovereign rights and interests of the nation, maintaining public order and protecting people and property. He has the resources of the French Navy (**Marine nationale**) at his disposal, as well as those of the Maritime Gendarmerie, the Department of Maritime Affairs (DAMGA), Customs, Civil Defence and the assistance of the **Société Nationale de Sauvetage en Mer** (see page 72).

Maritime Gendarmerie: government action at sea, maritime protection and fisheries police

A specially trained division of the National Gendarmerie, placed under the Chief of Staff of the French Navy, the Maritime Gendarmerie is a fully-fledged operational component of the Navy. A service firmly focused on the sea, it is stationed

over the entire coast of mainland France and overseas, and also at Naval facilities and some large civil ports.

With a complement of 1,089 service personnel, one third of which have the rank of criminal investigation officers, the maritime gendarmerie is made up of:

- three groups placed under the maritime prefects;
- a search and rescue section;
- a national training centre;
- 72 units, 33 of which with sea-going capability, providing full cover in continental France and the overseas territories.

The diversity and complementarity of the facilities allow the gendarmes to operate up to 200 nautical miles offshore to protect the environment, preserve the fisheries, combat all kinds of illicit trafficking, and provide maritime security for large ports in addition to their normal defence operations. The only force vested with a general policing authority at sea, the Maritime Gendarmerie carries out administrative policing operations under the authority of the Maritime Prefect and also important, often sensitive criminal enquiries under the responsibility of the magistrates.



© Marine nationale - Patrick Nosselle

Direction générale des douanes et des droits indirects (Customs and Excise)

The action of Customs helps to prevent illegal activities at sea, notably smuggling and illicit trafficking of goods and people. Its functions also include navigation control, coastal surveillance, protection of the marine environment (marine pollution prevention), control of the legal status of ships and protecting and assisting people in distress.

Customs, with 16,665 agents (37.5% female) including 597 seagoing personnel, has 2 coastguard cutters of 43 m, 18 coastguard launches of 19 to 32 m, 17 inshore surveillance craft of 10 to 14 m, 3 training vessels, 18 aircraft including 2 fitted with a remote marine pollution detection system (POLMAR) and 9 helicopters (including 5 EC135).

Civil Defence

Civil Defence participates in coastal and offshore life-saving operations with 35 EC145 helicopters at 24 bases and up to 7 detachments in continental France and overseas. Of the 24 bases, 15 are located near the coast and have trained personnel and special equipment for carrying out sea rescue operations.

In 2014, SNSM sea rescuers were called out

4,925
times and rescued
7,155
people.





© Marine Nationale/Moël Pigent

The Navy operates:

24 hours a day, 365 days a year, in all the oceans and seas of the world, with 35 ships at sea, at least 1 missile launching nuclear submarine at sea, 5 aircraft in the air, and marines and commandos deployed; or nearly 5,000 sailors on, under and above the sea serving France and the French people.

39,000 men and women including 3,000 civilians

10 submarines

72 combat and support vessels

nearly 200 fighter, patrol and reconnaissance aircraft and helicopters

15 marine and commando units

Every year the French Navy recruits and trains up to 3,000 young people from 16 to 29 years of age, from 9th grade up to postgraduate level. (www.etremarin.fr)

Its remit is:

- **Prevention:** A presence in every sea to prevent a crisis arising.
- **Knowledge and anticipation:** Observation from the sea of the strategic movements taking place in the world.
- **Protection:** Safeguarding the population against sea-borne threats.

■ **Intervention:** Dispatching a naval force to restore peace.

■ **Deterrence:** The threat of a total response against anyone who would attack France's vital interests.

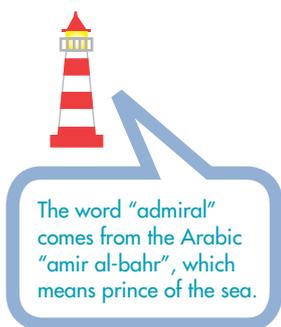
As part of the defence strategy of France, the missions of the French Navy fall into three main categories:

- By maintaining a continuous presence in every sea in the world, it makes a decisive contribution to deterrence, possesses the knowledge of theatres necessary for anticipation, and helps in crisis prevention. The Navy also protects the national territory and its maritime approaches and is present in zones where France has a strategic interest. It safeguards maritime flows and resources in particular.
- As the armed division of Government Action at Sea, it engages in the fight against illegal trafficking (narcotics, terrorism) and marine pollution, defends the maritime zones under French sovereignty and participates in search and rescue operations.
- Finally, it takes part in the external operations in which our armed forces are engaged, alone or in coalition, such as those currently under way over Iraq (Chammal), Mali (Barkhane), in the Gulf of Guinea (Corymbe) and in the Indian Ocean (Enduring Freedom).

Mission areas	Flight hours
Search and rescue - SAR	785
Maritime safety (including assistance to ships in difficulty and policing of shipping)	73
Maritime security	250
Sovereignty and protection Presence and intelligence gathering	2.797
illegal immigration	2
Combating drug trafficking at sea	531
Combating arms trafficking at sea	0
Fisheries control and policing	167
Surveillance and preservation of protected areas, and control and prevention of marine pollution	47
Mine clearance (on land and under water)	/

Hours at sea	Comments by COFGC* (excluding GDM)**
106	1,545 people assisted or rescued, 678 of which by the Navy alone
28,550	23 cargo ships assisted including 5 incidents involving tugs
13,667	Including 7 law and order operations at sea
27,579	4,680 ships checked at sea 313 customs and excise infringements identified Protection of 35 civil vessels by on-board protection teams
1,911	169 vessels 2,876 immigrants 169 smugglers intercepted
3,085	8 vessels intercepted 5 flag checks 1.588 kg of narcotics seized
10	by the Maritime Gendarmerie
15,794	1,756 boats inspected 1,789 fines imposed 59 boats diverted or escorted
1,017	45 infringements 18 pollution incidents detected 1 anti-pollution operation
1,142	2,831 devices neutralised / 31.9 t, incl. 12.3 t of active material. Channel: 29% Atlantic: 49% Mediterranean: 22%

*Coastguard Operations Centre
 ** Maritime Gendarmerie



The word "admiral" comes from the Arabic "amir al-bahr", which means prince of the sea.

Materiel (on 30 June 2015)	Nber
Combat and support vessels	73
Missile launching nuclear submarines	4
Nuclear attack submarines	6
Aircraft carriers	1
Amphibious assault ships ¹	4
First rank frigates (destroyers) ²	16
Surveillance frigates	6
Offshore patrol vessels ³	18
Southern Ocean patrol ship ⁴	1
Minesweepers	11
Logistics support vessels	3
Overseas support vessels ⁵	3
Barges and landing craft	19
15 (equipment transport barges), 4 EDA-R (fast amphibious landing craft)	
Maritime Gendarmerie	30
Gendarmerie patrol vessels and launches ⁶	
Oceanography and Hydrography	4
Oceanographic and hydrographic vessels	
Mine clearance, channel surveillance	7
Mine clearance diving support tenders, sonar towing vessels	
Fleet auxiliaries	13
Assistance, salvage, support and anti-pollution vessels and ocean-going tugs ⁷	
Instruction and training	14
Training and sail training ships ⁸	
Scientific and experimental vessels	4
Test and experimental vessels	

Materiel (on 30 June 2015)	Nber
Carrier Air Wing	58
Rafale	38
Upgraded Super Etendard	17
Hawkeye – E2C	3
Maritime patrol aircraft	23
Atlantique 2	
Maritime surveillance	12
Falcon 50 (4 F50 Mi – 3 F50 Ms)	7
Falcon 200	5
Combat and rescue helicopters	52
Caiman Marine	13
Panther	16
Lynx	20
Dauphin Pedro	3
Public service helicopters	10
EC225	2
Dauphin SP	8
Maritime support aircraft	45
Alouette III	21
Falcon 10	6
Xingu	11
Cap 10	7

1 – 3 from July 2015 after the TCD Sirocco is decommissioned.
2 – 2 air defence destroyers, 2 anti-aircraft destroyers, 6 anti-submarine destroyers, 5 Lafayette class destroyers, 2 FREMM multi-mission destroyers
3 – 9 avisos or corvettes, 4 P400, 5 public service patrol vessels
4 – 0 from July 2015 after the Albatros is decommissioned.
5 – 2 light transports and 1 anchor handling tug supply vessel (AHTS)
6 – 6 inshore patrol boats (including 2 surveillance patrol boats for the sites transferred in July 2015), 24 coastal patrol craft.
7 – 4 salvage tugs, 2 ocean going tugs, 3 regional support vessels, 4 oil-spill control vessels.
8 – 8 training ships, 2 naval instruction vessels, 4 sailing ships.

In 2014, only **2** pirate attacks were recorded off Somalia **176** in 2011. In 2015 no attack has been recorded so far. This shows the effectiveness of actions such as Operation *Atalanta* against piracy.



On 1st June 2014,
13.7%
 of those employed in
 the French Navy were
 women.



Maritime Affairs Administration

The Department of Maritime Affairs (DAM), an official government department within the General Directorate of Infrastructures, Transport and the Sea of the Ministry of Ecology, Sustainable Development and Energy (MEDDE), formulates and implements government policies and laws on a range of issues relating to sailors and their profession, such as training, health and employment law, as well as ship safety and security, shipping surveillance and maritime signalling, and control of maritime activities, the merchant fleet, yachting and nautical leisure activities.

The Department of Maritime Affairs is supported by a network of Interregional Directorates for the Sea (DIRM), which operate along the seaboard to ensure that the government's maritime policies are implemented in a coherent and integrated manner. At the level of France's administrative 'departments', the sea and coastal agencies (DML) within the county land and sea directorates (DDTM) implement these policies. These services, at the heart of the maritime sector, have the traditional responsibilities of ship safety, the health and welfare of seamen, vocational training, etc. as well as those of surveillance and control (fisheries policing, ship movement surveillance, search, rescue and assistance at sea, pollution surveillance and reporting). They also have a pivotal role in new measures such as the Marine Strategy Framework Directive and marine spatial planning.

The system of control and surveillance consists of ocean going vessels (two patrol boats of 46 and 52 metres based in France and a third of 54 metres at La Réunion; 3 regional cutters) and 60 smaller vessels spread over 21 coastal units. These units are deployed mainly on fisheries protection, coordinated by the National Fisheries Protection Centre (CNSP), and environmental policing duties at sea under the aegis, on a trial basis, of the Marine Environment Surveillance Operational Centre (COSMM)

2,000 maritime affairs agents are distributed on the coast in the branch offices, in the 7 CROSS (regional operational surveillance and rescue centres) and 2 MRCC (maritime rescue coordination centres), as well as in the 16 CSN (ship safety centres) responsible for vessel inspections.

The Department of Maritime Affairs provides the following specialised services:

■ Navigation Aids: lighthouses, marker buoys and beacons

The system of aids to navigation on the coasts of France and its overseas territories comprises around 6,500 maritime signalling establishments (lighthouses, signalling towers, buoys, etc). This service is responsible for providing and maintaining a beaconing system enabling navigators to locate their position and avoid hazards.

■ Security, surveillance, search and rescue: CROSS

The 7 regional operational search and rescue centres (CROSS) use the naval and air resources of the administrations and bodies engaged in Government Action at Sea.

The 2 MRCC (Maritime Rescue Coordination Centres) in Papeete and Nouméa complete the system, enabling France to fulfill its life-saving obligations in the immense areas of the Pacific under its responsibility. As part of the plan to introduce the Community maritime traffic monitoring and information system, DAM has introduced the TRAFIC 2000 system, the national entry and exit point to the European Union's network SafeSeaNet.

TRAFIC 2000 is also associated with the French Navy's SPATIONAV programme, which monitors sea traffic by AIS (automatic identification system) off French coasts.

CROSS centres also have operational responsibility for the sea pollution surveillance system CleanSeaNet and the European Long Range Identification and Tracking (LRIT) data centre established by the European Maritime Safety Agency (EMSA).

In more general terms, the Department of Maritime Affairs is making a special effort to develop its information systems, to enable the CROSS's, the maritime safety centres and the maritime signalling services to fulfil their missions of search and rescue at sea, supervising sea traffic and hazardous goods, monitoring pollution, tracking ships and overseeing maritime signalling establishments.

The management and quality system of the ship safety inspection services and the 5 mainland CROSS's are EN ISO 9001/2008 certified.

Sea Rescue

Together with the Navy, the merchant navy, the fishing fleet, pleasure craft, and inshore service craft, the **SNSM** (see below) is the "6th component" of France's "navies". Although not under direct State control, it does play a key role in public safety.

SNSM

www.snsm.org



© Philip Ribson

The French lifeboat service SNSM is a "Public Utility" established under the French law of associations of 1901. It operates on the basis of volunteers committed to saving life at sea. Around 18% of its budget of €24.7 M comes from State subsidies and 82% from private donations.

The SNSM fleet is made up of 215 lifeboats and over 107 rigid inflatable boats operated by:

- 4,400 lifeboat crew volunteers,
- 1,200 volunteers in lifeboat stations and lifeguard training centers,
- 1,400 summer lifeguards on beaches,

- and more than 70 employees working mostly in the Paris headquarters.

SNSM has a very close-knit network of 187 permanent maritime stations plus 32 Lifeguard Training Centres training over 500 new lifeguards every year. The results speak for themselves: over 50% of life-saving operations in Metropolitan France is carried out by the SNSM, 27% of these at night!

Maintaining the capacity and resources of the SNSM is an important challenge for the nation.

French nautical industry and service providers



Fournaine Pajot © Gilles Martin Rogel

French Nautical sector



- 33%**
Trade & maintenance
- 22.3%**
Boatbuilders & importers
- 10.7%**
Marinas & related services
- 9.5%**
Services
- 8.6%**
Equipment
- 7.9%**
Engines
- 5.7%**
Rental
- 1.4%**
Boardriding
- 0.9%**
Outdoor

Source FIN

The French boating industry is a sector in which France still enjoys leading global positions: in sailboats and boardriding sports. It is also the world's fourth largest producer of motorboats. It continues to make a positive contribution to the country's balance of trade, with export levels up again in 2013/2014 to a record high of 72.4% (against 71.6% in the previous year).

In 2013, **the French boating industry** comprised some 5,109 companies, representing 39,699 jobs and €4.26 billion in turnover. Trade, maintenance, boatbuilding and importing alone generated over half of the industry's total turnover and accounted for more than 50% of the industry's workforce.

More than ever the emphasis is on export, which accounts for 72.4% of its turnover. **The French nautical industry** continued to hold out in 2013/2014 as in the previous year, both in terms of turnover and workforce, despite the difficult current environment.

After a decline of almost 5% in 2012/2013, the turnover stabilized in 2013/2014 (-0.1%) sitting at €739.4 million compared to €740.3 million the preceding year.

- After a drop of 5.8% last year, sailboat production, spearheading the French industry, reports a turnover of €441.5 million (76.5% of which is exports). The habitable monohull and multihull segment, of which France is the world leader, contributed to these performances.
- Motorboat production represented a turnover of €286.1 million. The nautical year was highlighted by a stronger French presence internationally with export sales representing 67.8% of turnover.

In 2013/2014, the turnover in **exports** increased to €535.6 million.

- Non-EU export (to the American continent, Asia and Middle East) reached a turnover of €306 million and now represents 41.4% of production.
- Europe grew by 3.2% to €226.8 million after a fall of 12.0% in 2012/2013. Sales on the French market continued to decline: -3.0% to €203.8 million.

In 2013/2014, despite a more difficult context, the **second hand market** increased, recording 62,078 units. 80% of ownership transfers were for motorboats and 63% were for boats under 6 meters. The number of recreational sailing permits issued recorded a slight decrease (-2.30%), after three years of increase from 2009 to 2012 (+27%).

In water sports, activities such as Stand Up Paddle, sea kayaking and kite surfing are seeing a sharp hike in interest and enthusiasts are now more than ever adapting their sport to the weather conditions they might encounter.

Sea and river rentals are also attracting ever more impressive numbers. France, with its long and diverse coastlines, large network of navigable waterways and increasing range of rental options, is ideally suited to meet the expectations of demanding pleasure seekers.

The French nautical industry and service economy

- 5,109 businesses,
- 30 categories of businesses,
- 39,699 jobs,
- total turnover of €4.26 billion,
- 44,580 boats produced,
 - representing a turnover of €739.39 million,
 - with 72.4% produced for export.

Key figures for sailing

- 9 million occasional sailors,
- 4 million regular recreational sailors,
- 12,814 new registrations:
 - 68% motorboats and 46.5% boats under 6 meters,
- 62,078 second-hand sales:
 - 80% motorboats and 62% boats under 6 meters,
- more than 1,000 sailing schools,
- more than 200 motor school boats,
- 84,323 recreational sailing permits issued.

Facilities

- more than 370 marinas,
 - with 252,500 berths,
- 38 hard standing facilities
 - with 11,248 berths.



© BENNETEAU

It is estimated that
270,000
tonnes of plastic waste
are floating on the surface
of the oceans.



© ARCOA ACM

Institutional bodies

CONSEIL SUPÉRIEUR DE LA NAVIGATION DE PLAISANCE ET DES SPORTS NAUTIQUES

www.csnpsn.developpement-durable.gouv.fr

The Supreme Council of Boating and Water Sports consists of 46 members representing the widest range of skills in the sector.

Its aims cover design, coordination, consultation and impetus for the sector.

Its actions in boating affect all areas of our society in terms of economy, development,

environment, employment, security, tourism, education, recreation and sport.

Its work contributes to the structuring and development of water activities, helps to develop the legislative and regulatory framework, promotes good practice and boosts the sector. It seeks to support change.

FÉDÉRATION FRANÇAISE DE VOILE

www.ffvoile.fr

Every year sailing is taught in nearly

500 clubs affiliated to the French Sailing Federation, which accommodates around **450,000** trainees per year.



The French Sailing Federation was established in 1946 to encourage, promote and develop the sport of sailing in all its forms, whether in competition or for leisure, educational or corporate purposes or tourism. It also provides guidance, training, organisation and control within the limit of its remit.

The Federation has four main missions:

- responsibility for the regulatory and statutory framework of the discipline,
- development of a nationwide network of clubs and licence holders,
- organisation of sailing events,
- structuring of the French teams.

Key figures of the French Sailing Federation:

- 289,524 licence holders
- 1,075 clubs including 605 with official approval
- 1,066,239 members
- 6,765 events scheduled.



© Fédération Française de Voile

FÉDÉRATION FRANÇAISE DES PORTS DE PLAISANCE

www.ffports-plaisance.com

Established in 1979, the French Federation of Marinas is an association serving its member ports in continental France and Overseas: sea, river and lake ports and hard standing facilities. As the sole official spokes-organisation and recognised representative body, the FFPP promotes marinas as key contributors to regional development, pursues its missions of protecting the interests of its members, advises them in all technical, legal and social matters, and provides training courses to match their various professional needs.

The FFPP is active in promoting the water sports sector through the work of the CODCAP (Yachting Accommodation Capacity Development Committee) which it co-founded with ANEL (National Association of Coastal Local Authorities) and chairs the Odyssey European Cooperation Grouping. It also participates in the work of the Marinas Committee of ICOMIA (International Council of Marine Industry Associations) which represents the economic interests of marinas at an international level.

FÉDÉRATION FRANÇAISE MOTONAUTIQUE

www.ffmotonautique.com

The French Motorboating Federation comprises:

- 892 annual permit-holders covering all disciplines (speedboat, jet ski, hovercraft, leisure),
- 65 affiliated clubs,
- 9 regional committees.

It organises:

- inshore: 2 world championships – 4 rounds for the French championship,
- offshore: 4 rounds for the French championship,
- jet ski: 1 world championship in Guadeloupe, 1 speed and endurance championship in France, 1 regional championship in Martinique, Guadeloupe, Corsica, Grand Est, Normandy,

Provence-Alpes-Côte d'Azur, and Languedoc-Roussillon,

- hovercraft: 2 European championships.

It also:

- adapts boats specially to enable people with reduced mobility to go sailing,
- organises sessions for obtaining the professional qualification certificate of assistant motorboating instructor.

FRENCH NAUTICAL INDUSTRIES FEDERATION (FIN)

www.french-boating.com

FIN, the French Nautical Industries Federation, works to defend, represent and promote the interests of the different sectors of France's boating industries both at home and abroad. FIN currently has about 600 members drawn from eight boating industry and service activities.

As part of its commitment to strengthening its regional presence alongside professionals in the leisure marine industry, and providing them with close support and advice, FIN is rolling out a network of local partners. It is also developing regional dialogue with local communities and coastal institutions. By doing so, FIN aims to play a driving role in the growth of nautical activities, particularly by identifying solutions to the shortage of marina berths, and by working to promote sailing all along the country's coastline.

FIN is contributing to the development and practice of water-based leisure activities, by making them accessible to the widest possible public. It has initiated events such as the "National Get Afloat Day" (Fête du Nautisme) and owns "Nautic - the Paris International Boat Show and Yachting Festival of Cannes".

Aiming at enhancing the significant global presence of France's leisure boating industry, FIN is intensifying its efforts in the international arena to promote exports and French expertise, open its trade shows up to a wider international audience and attract overseas clients to France. FIN is a founding member of EBI (European Boating Industry) and an active member of ICOMIA (International Council of Marine Industry Associations).

YACHT CLUB DE FRANCE

www.ycf-club.fr

The search for excellence at sea

The Yacht Club de France was founded at the end of the nineteenth century to contribute to the development of pleasure boating and boatbuilding. Based in Paris, it is a partner to every major organization tasked with designing and implementing pleasure boating policy in France. It also acts as an interface for its network of thirty allied Yacht clubs located on France's seaboard.

Its five hundred members share a common approach to the sea which combines tradition and modernity, initiative and innovation. They work together to promote this approach to all who practice recreational boating in the broadest sense, whether on board sailing ships, motorboats, traditional yachts or using the wonders of technology that now fly over water.

The Yacht Club de France is also partner in a network of twenty allied Yacht Clubs in Europe, America and Asia.

It is the sponsor of the French challenge by "Team France" for the 35th America's Cup.

France is the world's second largest builder of pleasure craft and number **1** in Europe.
More than **63**% of production is for export.



Pleasure boat building and services

CHANTIER NAVAL COUACH

www.couach.com

Couach: innovation and French 'Yacht Couture' for more than 100 years.

Since 1897 on its site on the Arcachon Bay, the leading French shipyard Couach, has been designing made-to-measure yachts constructed by over 250 craftsmen. Besides yachts, the Couach shipyard designs military patrol and surveillance boats in composite materials. The globally recognized qualities of its military range and the reliability of its yachts rest on 4 generations of naval know-how. The company is now a mature brand. In the post-war years, Couach launched the industrially built boats whose exceptional marine qualities made the yard's reputation. Gradually, the yard has developed different ranges of boats and its production is now focused on two types:

- patrol boats and coastguard vessels for French and foreign naval administrations,
- yachts, with models ranging from 23m-yachts to 50m super yachts.



Chantier Naval Couach © Jérôme Kelégopian

CORSICA YACHT SERVICES
www.cys.fr



© Corsica Yacht Services

Corsica Yacht Services is a maritime agency covering the entire Corsican Island from three offices in Calvi, Ajaccio and Bonifacio.

As the representative of yacht owners as well as captains, its first mission as maritime agent consists of representing vessels in dealings with the authorities.

With constantly evolving regulations becoming more and more strict, Corsica Yacht Services can assist its clients with Customs, Taxation, Official Port Control, Frontier Police, National Security, Sanitary Services and other formalities.

Apart from administrative formalities, Corsica Yacht Services provide and organise a full range of tailor-made

top-level logistic services indispensable to yachts as well as ocean liners.

- All services in port and at anchorage,
- berth reservation,
- coordination with Port Authorities,
- coordination with Maritime Pilot Stations,
- general assistance and representation,

- administrative and customs formalities,
- dispatch and reception of parcels and courier service documents,
- bank services,
- fuel delivery,
- provisioning,
- technical assistance and support,
- medical assistance,
- car Rental,
- transport, travel and excursion organisation,
- organisation of sporting and leisure activities,
- private on-board concert organisation,
- and much more ...

Corsica Yacht Services is a founding member of European Economic Interest Grouping AGents, a network of maritime agents established throughout France (St Mandrier, St Tropez, Cannes, Calvi, Ajaccio, Bonifacio), in Monaco, in Italy (Imperia, Genoa, Portofino, La Spezia, Venice), in Spain (Barcelona), in Croatia (Rijeka), in Greece (Athens), in Dubai, in Singapore and soon in Turkey.

FONTAINE PAJOT
www.fontaine-pajot.com

Founded in 1976, the Fontaine Pajot shipyard, based across two large covered sites in Aigrefeuille and La Rochelle, released its first



Fontaine Pajot © Gilles Martin Roget

cruising catamaran in 1983 followed by its first power catamaran in 1998.

Ever since, the shipyard has constantly innovated to satisfy the requirements of an international clientele, regularly updating both its ranges (Fontaine Pajot Catamarans and Fontaine Pajot Motor Yachts) and continuing its research and development in terms of innovation and production techniques.

With over 2,500 boats sailing throughout the world, this leading global company for cruising catamarans now employs more than 400 people across both its sites.

IGUANA YACHTS
www.iguana-yachts.com

Iguana Yachts has designed a new mobility system enabling its boats to be launched without using other equipment. No need anymore for trailers or moorings, as the Iguana Mobility System can clear the last hundred meters between the sea and the closest dry mooring or can access a remote beach.



© Iguana Yachts

The largest yacht in the world is the Azzam. It is

180 metres long, belongs to Sheikh Khalifa ben Zayed Al Nahyane and is estimated to have cost \$ **400** million.



Marine scientific and oceanographic research



© Ifremer / S. Bessette

Observation of symbiotic microbial communities associated with the deep sea shrimp (*Rimicaris exoculata*)

250,000

marine organisms have so far been recorded. This is only

13% of the number of species thought to exist.



France's oceanographic research has been a pioneer in exploring the maritime spaces and ocean deeps for almost 50 years. Its expertise in this field and especially in deep sea exploration is recognised the world over. **Ifremer**, in addition to being a research institute, is one of only three institutions in the world to have a fleet of research vessels and several deep sea vehicles which can operate at a depth of up to 6,000 metres, including the manned submersible Nautilie, the ROV Victor 6000 and the new HROV Ariane. France also has international expertise in satellite oceanography (water temperature, currents, water colour and salinity), especially important for the study of climate and fish.

To make this French expertise more visible and more readable internationally, the French Ministry of research decided in 2011 to create the French Oceanographic Fleet TGIR (Very Large-scale Research Infrastructure). It integrates all marine assets belonging to these bodies: ocean going vessels, coastal vessels and station tenders, their

related heavy equipment (submersibles, Victor 6000 ROV, seismic capabilities) and standard movable equipment (gliders, core samplers...) of the French institutes CNRS, Ifremer, IPEV and IRD. The TGIR fleet occupies a front rank position internationally with a range of vessels and equipment giving it access to all the world's oceans, achieved by integration of all French naval assets belonging to the four founding organisations.

Another grouping is the National Alliance for Environmental Research (AllEnvir), created in 2010 with 12 French research bodies, and including 16 partners concerned about the environmental research. A theme entitled "Programme Mer" has been developed within this alliance, with the objective of gaining greater knowledge of the marine environment and producing a strategy for the maritime spaces, based on principles of integrated management of the sea and coastlines.

Civil* and military marine research by the principal organizations in 2014.

	Total expenditure in € M	Staff
Ifremer**	214.2	1,432
CNRS-IRD Universities	150	1,500
IPEV	10.12	9
CEDRE	1	7
IRSTEA	13.3	153
Total civil	388.6	3,101
SHOM	55.8***	520
Total civil and military	444.4	3,621

* Sourced from each organisation

** excl. internal operations

*** excl. hydro-oceanographic fleet used by the French Navy

Scientific research and services organisations

CEREMA

www.cerema.fr

www.eau-mer-fleuves.cerema.fr

CEREMA - CENTRE FOR STUDIES AND EXPERTISE ON RISKS, ENVIRONMENT, MOBILITY, AND URBAN AND COUNTRY PLANNING

Cerema is a public agency of the Ministry of Ecology, Sustainable Development and Energy, and the Ministry of Housing and Territorial Equality.

DTecEMF - TECHNICAL DIVISION FOR WATER, SEA AND WATERWAYS

The DTecEMF deals with research, engineering and technical expertise. Working in the fields of sustainable development and risk prevention, it provides solutions of public interest for the national community (State, public agencies, local authorities...). Its international reputation is reflected in its involvement in several European research programs and international networks: knowledge-sharing platforms, scientific societies, trade associations and international conferences.

It has 3 main missions:

- R&D,
- engineering and methodology,
- safety and intelligence.

In 5 fields:

- port engineering,
- navigation safety,
- inland waterways engineering,
- coastal engineering,
- telecommunications.

For the benefit of:

- the French state,
- local authorities,
- ports,
- Voies Navigables de France (inland waterways authority),
- and the whole maritime and inland waterways community.



More than **30,000** species of microalgae have now been catalogued. More than **200,000** could exist.

CORRODYS

www.corrodys.com



© Corrodys

Corrodys is a technical center for corrosion, marine corrosion and biocorrosion (Microbiologically Influenced Corrosion - MIC).

Their multidisciplinary team assesses and studies all aspects of the corrosion phenomena.

Services:

- expert assessments: identification of the origin of corrosion damage and recommendation of corrective action,
- applied studies: validation, qualification tests of materials, protective coatings, biocides (customized or standard tests).

In the laboratory (reactors), testing hall (testloop in renewed environment) or on site.

- consultancy: design of structures - choice of materials, their assembly, their protective treatment (anti-corrosion, anti-fouling), risk assessment,
- analyses: metallographic, physicochemical, microbiological.

Research & Development:

- collaborative R&D study programs on the interface between material, biofilm and fouling,
- research tax credit authorized.

A number of organisations contribute to marine scientific research, for example the company **CRÉOCÉAN** (see page 47), or tool development, carried out by the **Laboratoire de Recherche en**

Hydrodynamique, Energétique et Environnement Atmosphérique de l'Ecole Centrale de Nantes (see page 55) together with the company **HydrOcean** (see page 34).

IFREMER

www.ifremer.fr



© Ifremer/Olivier Dugonny

Set up in 1984 and operating with an annual budget of €214,2 million and a staff of 1.432 people spread over 25 locations in continental France and overseas, Ifremer is a publicly owned Industrial/Commercial Establishment (EPIC). It is placed under the dual administrative supervision of the Ministry of Education and Research, and the Ministry of Ecology, Sustainable Development and Energy.

Through its work and expert investigations, Ifremer contributes to our knowledge of the oceans and their resources, monitoring the marine environment and coastlines and the sustainable development of maritime activities. In pursuit of these ends, it designs and operates tools for observation, experimentation and surveillance.

To perform these missions, Ifremer has 8 ships including 4 ocean going vessels, one manned submersible *Nautilie*, the ROV *VICTOR 6000* remotely operated vehicle capable to dive

to 6,000 metres, the new Hybrid Remotely Operated Vehicle *Ariane* and 2 (autonomous underwater vehicles). Since 2008 the naval facilities of Ifremer have been part of the Very Large-scale Research Infrastructure (TGIR) fleet. The French oceanographic fleet is managed within a joint UMS with CNRS, Ifremer, the IPEV and the IRD.

Ifremer is a partner in several Competitiveness Clusters dealing with issues related with the sea and coastline. The Institute is also a member of AllEnvi, the National Research Alliance for the Environment, and Ancre, the French National Alliance for Coordinating Energy Research.

With regard to future investment, Ifremer is coordinator of Equipex NAOS2, a partner of Laboratoires d'Excellence LabEx MER3, CORAIL4, COTE5, and of the Institute for Energy Transition dedicated to marine renewable energies France Énergies Marines.

MERCATOR Océan

www.mercator-ocean.eu

marine.copernicus.eu



© Mercator Océan

Modelled global ocean currents [source: Mercator Océan 1/12° global ocean model]

In real time or in deferred time, on the surface or at depth, Mercator Ocean's numerical models and systems describe, analyze and predict the physical and biogeochemical state of the ocean at any moment, whether on a global scale or for a specific zone: temperature, salinity, sea-surface height, ice thickness, currents, chlorophyll, phytoplankton, etc. A highly sophisticated French service provider of ocean information, Mercator Ocean is a non-profit company whose funding organisations, CNRS, IFREMER, IRD, Météo-France and SHOM, are its primary users. Mercator Ocean has been selected by the European Commission to implement the EU's Copernicus Marine Environment Monitoring Service (2014-2021). This service provides an open and free access to regular and systematic reference Ocean information (Observations and Models) for the global ocean and the European regional seas.

NEOTEK

www.neotek-web.com

Neotek provides and integrates a wide range of high-tech marine and positioning equipment, offering a complete range of leading edge products for data transmission, monitoring and analysis in the following areas:

- marine acoustics,
- oceanography,
- bathymetry,
- meteorology.

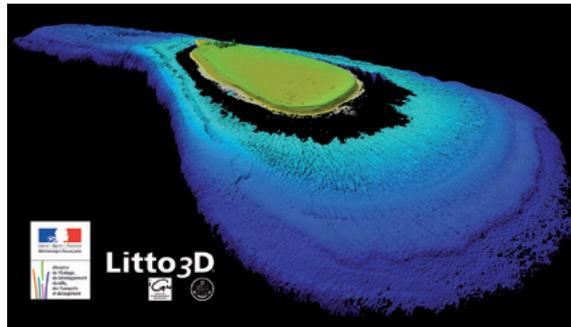
Neotek's value:

- 25 years of involvement in this branch of business,
- privileged and exclusive relationships with leading manufacturers,
- an outstanding capacity to integrate high technology products (sensors, electronic systems...).

SHOM

www.shom.fr

SHOM (Naval Hydrographic and Oceanographic Service) has the task of ensuring the availability of accurate data on the marine, coastal and ocean physical environment, which it carries out by coordinating the collection, archiving and dissemination of information to meet public, military and civilian requirements cost effectively.



3 major missions:

- national hydrographic service: General hydrography for the benefit of all seafarers; charts and nautical publications.
- defence service: SHOM provides defence expertise and supports operational requirements in the maritime environment.
- support for government maritime policies: operational oceanography; delimitation and maritime boundaries; management of tidal observatories; in cooperation with IGN, establishment of a high resolution littoral elevation and hydrodynamical model (Litto3D®), ...

The national Litto3D® programme, a joint project between SHOM and IGN (French National Institute of Geographic and Forest Information), is a seamless altimetric model to support coastal zone management. It forms the essential database for implementing government policy on the sea and coast: risk prevention, coastal protection, delimitation of maritime boundaries, land use planning,...
Tromelin Island - Scattered Islands.

SINAY

www.sinay.fr

SINAY is a company specializing in the marine and coastal environment. SINAY supports the development of maritime activities by offering services and innovations in the field of marine environment, underwater acoustic, fisheries, geophysics and geotechnics.

Some numbers:

- the team is composed of 18 employees,
- SINAY have achieved 1,922 days at sea, 1,021 socio-economic surveys, 90,120 km transects,
- SINAY have observed or measured : 72,832 fishes, 3,533 cetaceans, 35,000 birds, 820 turtles and 905 sharks.

Some of the services and innovations:

- impact studies on the marine environment,
- marine mammals, birds, fish and benthos survey,
- scientific observation of fisheries,
- monitoring the quality of water and sediment,
- study of the socio-economic impacts of maritime activities,
- modeling and acoustic mapping: www.oceannoisemap.com,
- sonobuoy for real time monitoring of noise and cetaceans,
- advice and expertise.

SINAY's activities applies to the areas of MRE, harbour, scientific research, seismic exploration and fishing.



The Living Planet Index, which gives an indication of the state of the world's biodiversity, recorded a decline of **39%** in marine species between 1970 and 2010.



© SINAY

Operational team with a CPOD and an AURAL M2 during an acousting survey in Cherbourg.

Marine resources

Access to marine resources is an economic imperative and a major technological challenge. The ocean is a reservoir of strategic resources, essential for both industry and our way of life and consumption. A rise of 30% in energy needs by 2030 and high expectations from marine mineral and biological resources have resulted in a race among States to prospect on the ocean floor, and numerous conflicts over the appropriation of maritime areas. Access to the deep and ultra-deep offshore resources is encouraging innovation and creating markets in which many French companies are seeking to position themselves.

Indeed, France has world leaders in this field: **CGG** for prospecting especially by seismic methods, **Technip** and **Saipem** for designing platforms, floating units, subsea equipment and marine works, **COMEX** for deep-sea robotics, **BOURBON** for offshore services, **Ifremer** for research; and also operators and charterers - **Total** and **ENGIE** as well as **ERAMET** for mineral extraction. Start-ups, SME, ISE, local clusters – **Neopolia**, **BPN** – and the **Pôles Mer**, are also developing technological solutions and skills essential for exploiting all marine resources.

In addition to these, there are others in the maritime sphere, particularly in shipbuilding, **STX** and **DCNS**, and in shipping with **Louis Dreyfus Armateurs**. Altogether they make up a comprehensive network of excellence in the offshore industry.

So France has all the means to implement a strategy for the deep ocean and the sustainable exploitation of the marine resources.

Marine mineral resources

Technological and scientific advances have triggered a race to explore the deep seabed and to exploit its mineral resources, such as nodules, incrustations and sulphides. Major elements have been found there: barium, cobalt, copper, iron, manganese, nickel, lead, silica, zinc as well as precious metals, diamonds and the famous rare metals earths.

The presence of strategic metals for industry (especially aviation, motor vehicles, high value added technologies) is especially interesting at a time when reserves and deposits on land are reaching critical level and when technology is demanding more and more of these resources. The possibilities of exploitation of these resources are very erratic as the costs involved – for access, extraction technologies, processing, etc. – are still too high to allow a profitable economic scheme to be created.

A total of 19 mining exploration licences have been granted by the International Seabed Authority, on 6,000 km of mid-ocean ridges, or 7.5% of all mid-ocean ridges. These licences are subject to an initial entry payment of \$500,000, and then an annual royalty of \$50,000.

France for its part is exploring in its Exclusive Economic Zone at Wallis & Futuna, and is awaiting regulatory measures to allow it to extract the resources. It has also obtained two exploration licences for international waters: a first in 2001 and up to 2016 for polymetallic nodules over 75,000 km² in the Clarion-Clipperton zone (the renewal of which is under study); a second in August 2012 for polymetallic sulphides along the Mid-Atlantic Ridge. At every level the environmental protection is a major concern of the French professional actors.

Microalgae could be the 3rd generation key to biofuels. Start-ups and commercial partnerships are already being launched in this field.



Sectors	Turnover (€M)	Jobs
Energy resources	see table p. 26	
Marine aggregates	70	650
Algalculture (value of production)	426	1,600

ERAMET

www.eramet.com

ERAMET is a french mining and metallurgical group and a world leader in its businesses, particularly alloys and upscale metallurgy. ERAMET has also begun exploring or implementing major projects centered on strategic metals. Its expansion is supported by a responsible and sustainable development policy. Thanks to its innovative technologies, ERAMET

is an expert in every stage of metal processing. From stainless steel and energy to motor vehicles, civil and military aircraft, transport and tooling, the group serves a wide array of markets. All of its customers are uncompromising on quality.

€ 3,162 million in turnover

14,000 employees in 20 countries on 63 sites.

Mineral resources also include a closely related family represented by the unconsolidated seabed sediments and siliceous and calcareous materials. Siliceous sands and gravels are used mainly in the building industry by companies such as Lafarge or Ciments Calcia. In France the share of granulates from marine sources is only 1%, while in other countries the proportion is much higher (15% in Great Britain).

The greater pace of urbanisation, new routes such as the new railway lines and their renewal have

made marine granulates an increasingly more strategic resource. 30,000 tonnes of granulates are needed for 1 km of motorway, 10,000 tonnes for 1 km of railway, 300 tonnes for a house. Demand will no doubt result in the resources being extracted beyond the current depth of 30-45 m, which will present technological and environmental challenges requiring know-how few operators possess. The **UNPG** is the representative body for these operators, among which is the **Compagnie Armoricaine de Navigation**.



A report by the OECD estimates that biotechnology in Europe could make € **2,000** billion in turnover and create **22** million jobs.

UNPG -
UNION NATIONALE DES
PRODUCTEURS DE GRANULATS
www.unpg.fr

The National Union of Aggregate Producers (UNPG) is the trade body representing sand and gravel producing companies. Out of an annual production of 360 million tonnes of aggregates (2012), 7 million are siliceous and calcareous aggregates of marine origin. About a dozen companies extract marine aggregates using around fifteen sand dredgers which supply some twenty French ports. The

activity employs 650 people both at sea and ashore (sand terminals). It generates a turnover of around €70 million. The task of the UNPG is to look after the collective interests of its members. Its role also includes assisting them and providing information in fields as varied as access to the mineral resource, legislation, environmental protection, product quality, the economic climate, etc.

Resources in biology and biotechnology

Exploiting marine bioresources

Marine bioresources are the products, co-products and by-products of fishing and multi-trophic aquaculture, marine organisms, fungi and halophytes.

The exploitation of these products, from production to processing, gives rise to many applications: human and animal nutrition, agriculture, healthcare, cosmetics, chemicals, etc., which are industries undergoing expansion. Their exploitation generates a high degree of innovation and collaboration as new opportunities emerge.

Although marine bioresources still represent a small part of our maritime economy, their markets are set to expand in the decades to come to meet the challenges of the 21st century. Therefore coordination among the stakeholders, producers and users of bioresources is an essential condition for satisfying these markets and for making the sector competitive, especially in the value chain.

Biotechnology

Biotechnology is a fast-expanding specialist area. It depends on both knowledge and availability of the prime resources, whether fish co-products, algae or other vegetable or animal organisms. The prospects in biotechnology are inducing companies – start-ups and SMEs as well as large groups – to invest to determine the economic potential of the resources.

The world biotechnology market will reach \$320 billion in 2015 and already in France the consolidated turnover is €261 M.

Biotechnology in its various forms has multiple industrial applications. It is not easy at present to determine what part marine resources will play in the biotechnology industry, because companies are associated with the market where the applications of biotechnology are found. The estimates and calculations tend to see marine biotechnology representing a market estimated to be \$4.1 billion by 2015.

Algae culture

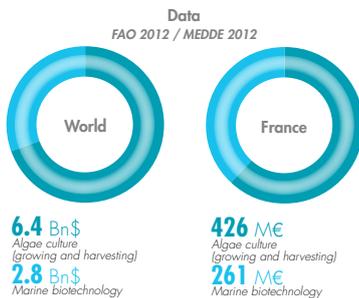
Marine biological resources have a growing part to play in biotechnology, especially in the case of algae, one of the principal marine resources exploited on a large scale for biotechnology and being used more and more in human nutrition. Although algae culture is a recent sector in France and in Europe, it is already expanding rapidly. There are nearly 80 companies generating a production value of €426 M. France produces 60,000 tonnes of algae and imports 55,000 tonnes of it, 80% of which is for colloids and 20% for fine chemicals. A number of structuring projects have been set up to develop this industry, with the aim of achieving 1,000 hectares of algae culture by 2015.

With numerous innovative companies, such as **Aleor**, cutting edge research operators like **CEVA**, **Ifremer**, and those engaged on projects such as the **Pôles Mer**, the **Pôle Aquimer** and other specialised clusters, France has the means to be a leader in biotechnology markets.

With such an important scientific and economic opportunity at stake, it is important to implement without delay a proper strategy for structuring and sustaining a maritime branch in biotechnology.



© cultimage - Fotolia.com



NOTE: the seafood processing industry represented €4.8 bn in turnover and 16,000 FTE jobs in 2012 (FR).

ALEOR
www.aleor.eu

Aléor is an industrial enterprise that specialises in developing products and expertise in marine algae. Using new methods of cultivation and drying, Aléor supplies a consistent, graded, high quality raw material. Its technologies enable it to provide traceability at all stages in its production. Thanks to cutting edge research and development

in algae husbandry, reproduction and growth, Aléor provides services enabling industrial developments to take place using algae, a raw material under pressure that offers great promise in terms of value creation.

CENTRE D'ÉTUDE ET DE VALORISATION DES ALGUES

www.ceva.fr

The CEVA (Center for Study and Promotion of Algae), located at Pleubian in the Côtes d'Armor (France), is a private research organization and a technical center of the ACTIA network, labeled as Agro-Industrial Technical Institute (ITAI) by the French Ministry of Agriculture and Fisheries.

Located in the most productive European region for algae, and bordering an important alga field on a territory favorable to their culture, the CEVA is the only technical center in Europe dedicated to the study and promotion of algae.

Created in 1982 with the support of local Brittany groups and industrials of the alga field, it organizes a research applied on algae (macro & micro), seagrass and marine biotechnologies. In particular, it ensures the transfer of scientific knowledge from the academic world to the industry field.



© CEVA

The CEVA has 25 permanent staff members. Among them, 18 have a college degree (technicians, engineers, PhDs in sciences). It owns a high-performance tool adapted to the identification, the production, the characterization and the transformation of algae:

- laboratories (1,330 m²),
- a technological hall (1,000 m²) for the development of industrial preproduction,
- means of intervention on the field (remote-detection, cartography),
- a ground platform for culture of macro and microalgae,
- a sea farm.

In addition to the provision of technical assistance or research & development for industrials, the CEVA participates to R&D projects of the public collaboration type, on a national, European and world-wide level.

The various projects of the CEVA are often labeled with the following competitive clusters : Mer Bretagne, Valorial, Trimatec, Fibres, I.A.R, Vegepolys and Axelera.



It is estimated that **39,000** km² (**10%** of the area of Germany) of algaculture would be sufficient to replace all the oil used in the United States.

Fish and sea products

Globally, sea products have provided more than **1.5 billion** people with nearly **20%** of their average needs in animal proteins.



65%
Fresh and frozen fish
33%
Shellfish farming
2%
Marine fish farming



74%
Fresh and frozen fish
26%
Shellfish farming
1%
Marine fish farming

The fishing industry – from boat to consumer – is an important sector both for the economy and for regional development. Ranked 4th among sea fisheries in Europe, with 9% of community catches, continental France has 63 fishing ports, 38 fish markets, 12 producers' organisations and 608 wholesale and processing companies.

This forward-looking industry relies on ever more innovative technologies for better knowledge and management of the resource: identification and targeting, selectivity, etc. Projects for future fishing boats – especially those by **Breizh Marine Consult** – respond to key issues such as energy saving, adaptability, ergonomics and safety in particular, which will allow fishermen to be even more competitive to meet the growing demand for sea produce.

Indeed, with a world population estimated at 9 billion people in 2050, fishing and fish farming will make a significant contribution to meeting food requirements. Forecasts by the OECD and the FAO stress the importance of fish as a source of proteins, which will spur the economic growth of the sector.

Apart from catching and farming, advances in R&D open up prospects for developing new fish and aquaculture products, co-products and by-products. The **Pôle Aquimer** is a leader in this field and accommodates a cluster of specialised industries. As a result, structured around these new developments is a complete value chain from production through processing and industrialisation to distribution, which responds to the needs of different markets: human and animal nutrition, cosmetology, health, etc.

In this spirit of innovation and sustainable development in fishing and aquaculture, France has contributed a budget of € 588 M for the period 2014-2020 (70% more than for the previous period) as part of the FEAMP (European Fund for Maritime Affairs and Fisheries) aimed at boosting growth in the sector and this is now awaiting the operational programmes for its implementation.

The structuring of this sector, in part by the professional organisation of sea fishing and fish farming (**CNPMEM**), was altered following the law on the Modernisation of Agriculture and Fishing (LMAP) passed in July 2010.

French headline data

- 7,121 vessels representing 8% of the European Union fleet,
- fleet composed mainly of boats less than 12 metres, with 18% made up of 12 to 24 metre vessels in continental France,
- turnover (fresh and frozen fish): around € one billion,
- Brittany accounts for 44% of landings in mainland France by value, followed by the regions of Pays de Loire (13%), Lower Normandy (13%), and Nord-Pas-de-Calais (8%),
- in frozen fish, tropical tuna (skipjack and albacore) is the number one species.

Diversified fisheries and extensive fishing grounds

In France four types of fishing are prosecuted:

- distant-water fishing prosecuted by vessels over 1,000 GRT, and vessels over 150 GRT making trips of more than 20 days,
- offshore fishing, carried on by vessels making trips lasting between 4 and 20 days,
- inshore fishing, with trips of 1 to 4 days,
- small-scale fishing, with trips of less than 24 hours.

The fishing grounds are located off the French coast, in the waters around Scotland and Ireland, between Iceland and Greenland, off Spain, and from the Gulf of Guinea to the Indian Ocean (tropical tuna) and as far as the Antarctic (Chilean sea bass).

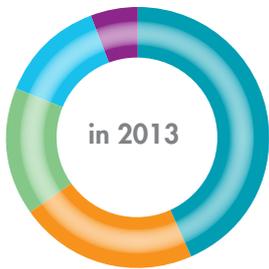
Sales and consumption

- the principal fish markets by value are Le Guilvinec, Lorient, Boulogne-sur-Mer, Les Sables d'Olonne, Erquy, Saint-Jean-de-Luz and Oléron. In 2014, nearly 209,200 tonnes were sold there by French and foreign boats,
- in 2013, French households bought, for home consumption, 33% of their seafood products fresh, 32% as chilled prepared products, 20% as frozen products and 15% as tinned products. Average annual consumption per person is 35 kg,
- in 2013, restaurants spent € 1,135 million, of which € 603 million was on fresh products, € 431 million was on frozen products, € 57 million was on chilled prepared products and € 44 million was on canned products.

Type of production	Turnover (millions of euros)	Jobs	Tonnage
Fishing fresh and frozen	1,095	21,631	460,000
Marine aquaculture	Shellfish farming	546	17,715 (8,574*)
	Marine fish farming	37	648 (602*)
Total – Fish and Aquaculture	1,678	39,994	625,000
Wholesale	1,932	4,584	-
Seafood processing industry	5,095	16,465	-

Sources: les cahiers de FranceAgriMer / Les filières pêche et aquaculture en France / Edition avril 2015 - l'emploi à la pêche en 2013 de l'observatoire prospectif des métiers et qualifications de la pêche
* Full time equivalent

Number of fishermen



9,387

Small-scale fishing

4,744

Aquaculture and small-scale fishing

3,444

Offshore fishing

2,847

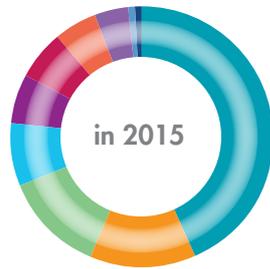
Inshore fishing

1,209

Distant-water fishing

Sources: l'emploi à la pêche en 2013 de l'observatoire prospectif des métiers et qualifications de la pêche

€806 million products by our regions



351 M€

Brittany

104 M€

PdL

101 M€

BN

62 M€

NPCP

51 M€

PC

48 M€

HN

43 M€

LR

33 M€

Aq

7 M€

PACA

6 M€

Corsica

Sources: les cahiers de FranceAgriMer / Les filières pêche et aquaculture en France / Edition avril 2015



Mariamagdalena © Stéphane Grangier



© CNPME

National bodies

CNPME

www.comite-peches.fr



© CNPME - couverture diague

The CNPME (National Committee of Maritime Fisheries and Marine Fish Farms) is a private body with public service responsibilities, which represents all professionals in the production sector of maritime fisheries and fish farming. Apart from the CNPME headquarters in Paris, this professional body is now organised along the coast of mainland France and the Overseas Territories in 14 Regional Committees and 12 Departmental or Interdepartmental Committees. More and more of the work of the CNPME is devoted to ensuring the responsible and balanced exploitation of the marine resources and achieving recognition of the value of the jobs and the men and women in the sector. It is responsible for regulating the maritime fisheries and actively participates in drawing up French

and European regulations for the industry. All of the matters dealt with by the CNPME pursue the same objective: to gain recognition at all levels of French, European and international decision-making for the commitment and responsibility of the professionals of the sector, especially as an example of a "responsible fishery and sustainable development".

"French Fisherman, a legitimate responsible occupation, serving the great majority and resolutely forward-looking."

COOPÉRATION MARITIME

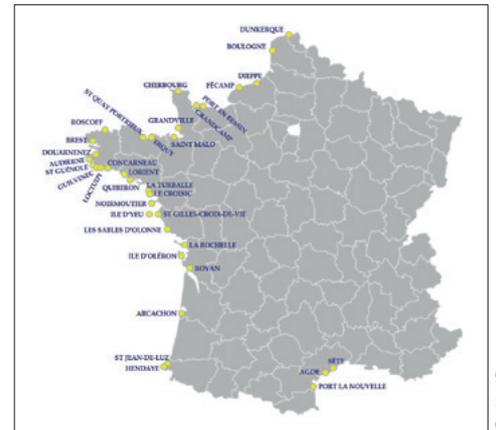
www.cooperationmaritime.com

Coopération maritime, an association under the 1901 Act, has been the umbrella organisation for French small-scale fishing cooperatives for more than a century. With six branches of activities, it covers around 1,230 fishing boats and more than 150 cooperatives or subsidiaries of cooperatives: operation-management cooperatives, producers' organisations, provisioning cooperatives, regional maritime cooperative credit banks, marine and mutual insurers, marine farming. It represents a total turnover of €800 million, more than half of which is generated by the fishing boats

themselves. A quarter of this turnover comes from provisioning cooperatives and their affiliates under the brand "Comptoirs de la mer". A leading player in the social and solidarity-based economy in the maritime world, it is implementing a number of projects on behalf of the fishing industry in two key areas: financial engineering and tax optimisation related with the French solidarity wealth tax "ISF" via a special mechanism; energy savings and optimisation of the use of diesel fuel by boats at sea.

**ASSOCIATION DES DIRECTEURS
ET RESPONSABLES DES HALLES
À MARÉE DE FRANCE**

The Association of Directors and Managers of French fish markets aims to facilitate relationships between its members, in order to optimize and enhance the running of fish markets. The Association is a privileged interlocutor of State departments (DPMA, DGAL...) in the implementation of regulatory rules. The Association is member of the Board of Directors of France Filière Pêche, as well as participating to the Specialized Council for Fishing and Agriculture for France Agrimer. The 36 French fish markets organize the marketing for 220,000 tons of fish products for a total value reaching € 660 million.



© HAMIF

CRPMEM BRETAGNE
www.bretagne-peches.org

With more than 6,000 fishermen and a fleet of almost 1,500 ships, the CRPMEM de Bretagne represents a third of the French profession. It is the essential link between the fishermen and the other actors of marine economy. Source of proposal, this organization is totally involved in a sustainable exploitation of marine resources. Its role is to inform the entire Brittany fleet on national and European measures and to provide assistance to the fishermen for their activities. It also carries out research work, experimentation and

socio-economic studies and participates in the promotion of marine resources.



© CNRPMEM

**FRANCE PÊCHE DURABLE
& RESPONSABLE**
www.francepechedurable.eu

France Pêche Durable & Responsable (France Sustainable & Responsible Fishing) is the interim association of a national foundation intended to act as a focal point for views and actions designed to help sustain small -scale and industrial businesses in the fishing industry in France and to develop the fishing economy. It was established in 2008 by a group of single-minded individuals from diverse backgrounds, all with long experience in the fishing industry or

having carried out high-level mandates in French and European representative organisations and sharing the desire to promote the much-needed development of fishing within an independent, innovative and collaborative framework. France Pêche Durable & Responsable has initiated several high value-added technology projects aimed at identifying innovative technical solutions, especially in fuel-efficient propulsion systems and sustainable fishing gear.

ORTHONGEL
www.orthongel.fr



© Orthongel

Orthongel (French frozen and deep-frozen tuna producers' organisation) is responsible for seeking and managing licenses giving access to the waters of third countries where vessels operate, representing, defending and promoting the interests of tuna shipowners, contributing to the management of the fishery and promoting the adoption of sustainable and responsible fishing methods. It is therefore a key contact of the DPMA and the DG MARE of the European Commission. The fleet operated by Orthongel's members includes 22 tuna purse seiners of 60 to 90 m divided

among 3 shipowners: Compagnie Française du Thon Océanique (13 seiners) Saupiquet (4 seiners) and SAPMER (5 seiners) operating in the Atlantic (9 vessels) and Indian Ocean (13 vessels). French shipowners employ around 400 French crewmen and 550 crewmen mainly from countries with which fisheries agreements exist. The production is mainly composed of yellowfin and skipjack (98% of total tuna) and is used for canning. In recent years, French global production accounted for around 100,000 t of which two thirds came from the Indian Ocean. The annual turnover is between € 110 and 140 M.

**UAPF -
UNION DES ARMATEURS
À LA PÊCHE DE FRANCE**

The Union des Armateurs à la Pêche de France (UAPF) is an organisation representing French fishing vessel owners. Its members operate deep-sea and distant-water fishing boats in the North East Atlantic as well as in the waters of French Guiana, the Central East Atlantic, the Indian Ocean and the Southern Ocean.

The UAPF represents and promotes the interests of French fishing vessel owners with public authorities, community authorities, regional and international fisheries management organisations, and other national and community professional organisations. It also helps to build relationships between its members and Fisheries Research Institutes.

Sea fishing shipowners

FRENCH PELAGIC FISHERIES

FRANCE PELAGIQUE is a French fishing company created in October 1988. From the very beginning, all vessels managed by FRANCE



© France Pelagique

PELAGIQUE have caught only pelagic species such as mackerel, herring, horse mackerel, blue whiting and sardine.

FRANCE PELAGIQUE operated two freezer trawlers: *Prins Bernhard* and *Sandettie*, both registered in Fécamp (France).

The company employs around 70 people, including 5 in its Paris headquarters, the remaining 65 being fishermen working on board the two vessels.

All catches are frozen on board and unloaded at the company's cold stores in the Netherlands. Its annual turnover is between 20 and €24 million, 100% of sales being made abroad.

SCAPECHE

www.scapeche.fr



© Scapêche

Les Mousquetaires invested more than 20 years ago, in a fishing company, *Scapêche*. With 23 ships and 250 sailors and officers, *Scapêche* is now the largest fresh fishing company in France and makes a significant contribution to the French and European fishing industry.

Administrative, technical and commercial divisions of *Scapêche*, comprise 30 employees, are based in Lorient with premises in Le Guilvinec and La Réunion.

The fleet operated by *Scapêche* comprises:

- 1 55-meters frozen longliner (Patagonian toothfish),
- 1 33-meters longliner (fresh fish),
- 16 trawlers from 24 to 46-meters (fresh fish),

- 3 16-m purse seiners (sardine),
- 2 18- and 24-m pot vessels (crab).



Scapêche © BOUGAINVILLE - Yves ROUX.

Aquaculture

Aquaculture today represents more than a half of world fish production, against only 9% in 1980. This is a major transformation, and a vital extra contribution to the drive for responsible fishing. However, in 15 years production in France has dropped to less than 50,000 T, while Norwegian production has passed the 1 million tonne mark. Consumption of aquatic products is growing, but this increase is being fed by imports (87% in 2012).

Yet going by its wealth of resources, France has numerous advantages for developing diversified high quality production (Charte Qualité-Aquaculture de nos Régions®, LR, AB, IDAQUA® sustainability indicators) which it supplies to consumers in a committed sustainable approach:

- 35,000 T of trout sold for consumption or live for recreational fishing,
- with 7,000 T, pond fish farming is in free fall due to exponential predation by cormorants (a protected species),
- in marine fish farming, hatcheries produce nearly 93 million alevins, around 90% of which are sold for export as the sector has been prevented from expanding due to problems of access to sites and tight regulatory and environmental restrictions: only 4,500 T on 15 ha over 5,000 kms of metropolitan coastline!
- finally, with a Sturgeon caviar production of 19 T, this French fishery is one of the two world leaders.



© Luczkiewicz

Out of all European halieutic stocks assessed, the proportion of European stocks exploited in a sustainable manner rose from

6% in 2004 to
61% in 2012.



In future, the real challenge for aquaculture will be to increase production sufficiently to meet the world's food and nutritional needs without increasing pressure on the aquatic resources for fish feed, and without losing control of the environmental impact.

In France and Europe, many are taking a stand in favour of aquaculture development, but this has translated only partially into concrete action.

There needs to be a change in the regulations, especially those on the environment, to take account of the difficult issues faced by this young industry in order to boost development and provide a clear field of play for the professionals. On this aspect there are in fact positive developments. Although implementation of the regional marine aquaculture development schemes (SRDAM) is

sometimes proving difficult, specific examples, such as the introduction of a Plan for Progress for continental fish farming show that dialogue can produce solutions which are viable and profitable for everyone.

Under the CFP (Common Fisheries Policy), France works on a national long-term strategic development plan for aquaculture. This involves translating the political will expressed by the government into specific action based on the strategic orientations of the European Commission (simplifying administrative procedures, coordinating land-use planning, boosting competitiveness in aquaculture, creating conditions of fair competition). This is a new impetus for developing sustainable aquaculture in France!



© Scapêche

SFAM - SYNDICAT FRANÇAIS DE L'AQUACULTURE MARINE ET NOUVELLE

The SFAM groups together the great majority of French producers of marine and new species (sea-bass, gilt-head sea-bream, sturgeon, meager, salmon, turbot and sole). The production of the sector represents over 90 million juveniles (of which more than 70% are for export), nearly 5,000 tons of table-fish and over 20 tons of caviar. With its offices near Bordeaux, the SFAM participates in the work of all bodies concerned

with the sector and pushes for a sustainable growth because, at present, the products of French aquaculture represent a mere 2% of the consumption in France of aquatic food products. The sector is still going through difficult times and is waiting for the firming up of the expressed political will to implement the necessary tools to secure the present activity and promote further development.

FERME MARINE DE CAMPOMORO www.gloriamaris.mobi

Campomoro site is located in Campomoro bay in the extreme southwestern Gulf of Valinco, southern Corsica, on an exceptional environment.

It enrolled in the approach of quality desired by Gloria Maris group. Campomoro site products 150 tons of bio seabass and bio seabream per year.



© Ferme de Campomoro

Campomoro aquaculture site has strict specification, guaranteeing an efficient and 100% natural feed, long farming cycles for ideal growth, densities below national standards and artisanal production. All that grants to fish very good growth and authentic taste approved by famous Michelin chefs.

With 4,000 tons of production of high quality, Gloria Maris group confirms its national leadership position in high quality aquaculture market in French aquaculture market.

LES POISSONS DU SOLEIL www.groupeaqualande.com

Created in 1975, Les Poissons du Soleil (a subsidiary company of the Aqualande group) produces juveniles of fish destined for Mediterranean farmers and delivers them by sea directly on its customers offshore cages. It is based in Languedoc-Roussillon with 4 production sites and 50 employees, including a unit on the Port of Sète - Frontignan allowing industrial development of marketing by sea.

The quality of its juveniles is recognized internationally through its know-how and its R & D investment, in particular in terms of genetic selection.

The export represents 88% of production, mainly in Europe and North Africa.



© Les Poissons du Soleil



France is the top producer of oysters in the EU with **130,000** tonnes per year, but is outstipped on a global scale by China with around **3.7** million tonnes.

Development of sea products

PÔLE AQUIMER

www.poleaquimer.com



© Pôle Aquimer

Founded in 1999 and labelled as a Competitiveness Cluster in 2005, AQUIMER specialises in the promotion of aquatic products.

• The role of AQUIMER: to facilitate the emergence of R&D ideas and projects, from their origin to the search for funding and right up to their market launch.

• The aim of AQUIMER: to encourage the competitiveness of businesses, to help them to continue and develop their activities on a long-term basis through innovation and collaborative projects.

PORT DE PÊCHE LORIENT KEROMAN

www.keroman.fr



© Hervé Cochamer

SEM Lorient Keroman operated and manages the fishing port of Lorient, property of the Brittany administrative region.

The Port of Lorient Keroman is one of the most dynamic fisheries trading centers in Europe and as a leading port of France, Keroman invests regularly in infrastructures and ultra-modern equipment.

- 7,000 m² of chilled fishmarket floor space,
- access to the catalogue and the auction via the web live for all type of sale,
- vivier tanks for shellfish,

- automatic supply of ice,
- production of clean sea water,
- automatic distribution of diesel fuel 24h a day,
- 7 ha high-equipped ship repair area,
- ship lift with a capacity of 650 tons,
- logistic platform with 36 loading bays.

Lorient Fishing port key-numbers:

- 100,000 T / year of seafood products handled in Lorient,
- including 26,000 T directly sold by the port,
- 3,000 jobs.

ALD - ATLANTIC LIMPET DEVELOPMENT

www.lacrepidule.com



© ALD - FHA-Crepidules

Crepidula is the number one shellfish in France, and probably in Europe. Fished in Brittany, on the Emerald Coast of France, this is a small iodine pastel, ready to be cooked and eaten. Crepidula has her own unique personality; nevertheless, she does share some characteristics with her marine cousins. She is shelled and is completely cleaned, raw and frozen to allow the chef's imagination to roam freely. The flesh is aimed at the food-processing market (Europe, Asia, North America). A sustainable and renewable resource, the shell is made of a high-

quality sea limestone (soil-enriching agent, water treatment). This weak impact on the environment and the virtuous nature of our fishing program has resulted in crepidula being acclaimed by the Mister Goodfish program which promotes sustainable fishing.

A complete industry from fishing to processing has been established in cooperation with the local shellfish producers' union supported by institutions and Breton politicians. Its approach is one of commitment to a green and circular economy.

Communication and lobbying

BLUE FISH

bluefisherurope.org/fr

NGO for sustainable development, Blue Fish, the European association for the promotion of sustainable and responsible fisheries, is an NGO working on sustainable development.

Created in 2013 upon the initiative of the ports of Lorient and Boulogne-Sur-Mer, Blue Fish is developing in the main fishing ports of Europe and works towards sustainable development objectives for the sector, from an environmental perspective as well as economic and social ones.

Blue Fish is committed to disseminate good

practices developed by the European fishing sector and its scientific partners, and supports sustainable development projects. It informs the public and fosters trust and dialogue with policy makers and elected representatives at national and European level.

Its actions and broad membership make Blue Fish an NGO unique in Europe and an influential voice in debates on sustainable and responsible management of fisheries, at national level and with the European institutions.

Consultants

COFREPECHE FRANCE AQUACULTURE

www.cofrepeche.fr

COFREPECHE – is a worldwide fisheries consultancy company established in 1980 jointly by professionals of the fisheries sector and Ifremer, the well known French Marine Research Institute (Institut français de recherche pour l'exploitation de la mer). In 1994, COFREPECHE took control of France Aquaculture, a former subsidiary company of IFREMER. The sustained deployment of special French then Spanish purse seiners in the Indian Ocean during the 80's was their first success story. Since then, experts from

COFREPECHE have travelled all over the world to carry out studies and assessments and to provide technical assistance and engineering supervision aimed at sustainable management of the sector and job creation. With significant experience and 'know-how' gained in several countries, COFREPECHE has become a key international partner in fisheries and aquaculture consultancy. In 2009, COFREPECHE created a subsidiary company in Morocco, "COFREPECHE Maroc".

Marine insurance

With a market share of 4.8% in 2013*, French marine insurance companies were still among the leaders of a large independent international market (turnover of 34.2 billion dollars in 2013 - source: IUMI), insuring transporters and operators in international trade against the financial consequences of incidents involving their ships ("hull") and the goods they carry ("cargoes").



© Nature Today - Fotolia.com

TURNOVER FOR HULL AND CARGO (Excluding Energy, and P&I)

Turnover (hull)	518.6
Turnover (cargoes)	908.7
Total	1,427.3

Source: FFSA (2014 figures in millions of €)

In 2013, French marine insurance maintained the same percentage of premium income for goods transported (5.1%) and was relatively steady in hull insurance (4.1% in 2013 against 4.5% in 2012). Unlike some major markets, i.e. "protected" directly or otherwise (USA, Japan), or with large domestic fleets (Scandinavia, Italy,...), French insurers have expanded their underwriting activities abroad.

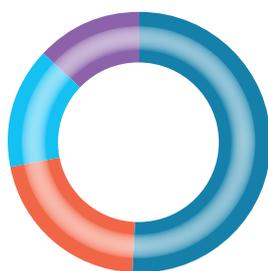
The activities of French marine insurance companies, which actively support the international development of their French customers, extend well beyond the domestic market. These companies help to provide cover for nearly a quarter of the tonnage of the world's merchant fleet.

The French insurance market is:

- **internationally focused:** risks underwritten abroad represent 80% of the total.
- **quality conscious:** the fleets covered are selected with extreme care. And no new policy is accepted if there is any doubt as to the quality of management.
- **powerful:** full loss cover up to € 150 M per unit.
- **reliable and creditworthy:** the legal solvency ratios required are among the highest in the world, and are strictly monitored by the authorities.
- **creative and flexible:** governed by French marine insurance law which gives the parties flexibility and protection (favourable to the insured as the burden of proof regarding exclusions is on the insurer), the French international hull insurance package gives ship owners many advantages.

Contribution of the different categories in 2013

Source: FFSA



51%
All cargoes
21%
Hulls
15%
Yachting
13%
3rd Party, Transporters

75 to 96% of sea transport casualties are attributed to "human error".



*figures for 2014 were not published yet by IUMI, during the preparation of the 2015-2016 CMF brochure.



Piracy is estimated to cost **7** billion dollars.

ADAM ASSURANCES

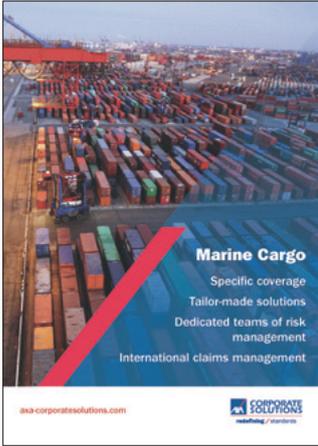
www.adam-assu-mar.com

Established in 1833, Adam Assurances S.A.S. is a marine insurer based in Bordeaux, an underwriter acting for first class insurance companies on the

French market and a specialist in marine and transport insurance throughout the world.

AXA CORPORATE SOLUTIONS

www.axa-corporatesolutions.com



With 1,500 employees and a global network that covers up to 150 countries, AXA Corporate Solutions is AXA's entity dedicated to providing large corporates with Risk management and insurance for Property & Casualty and Specialty markets - marine, aviation, space - as well as international claims management and associated services.

Proximity to our clients is key wherever in the world. We serve our clients through subsidiaries, entities and dedicated teams in the Arabian Gulf, Australia, Austria, Brazil-Latam, the Benelux, China, France, Germany, Hong-Kong, Italy, Malaysia, Morocco, Singapore, Spain, Switzerland, Turkey, the UK and United States.

We are focused on diversifying our activities in terms of

- geography: emerging and mature markets
- segments: large and corporate, and various trade sectors
- products & services: innovation in enlarging our offer through Parametric Insurance, A.R.T./Captives and Cyber risk cover, etc.

GENERALI

www.generali.fr

Set up in Trieste in 1831, the group has expanded across all insurance areas to now support more than 65 million clients worldwide.

Corporate clients enjoy three specific dedicated structures Global Corporate & Commercial, Generali Employee Benefits (GEB) and Europ Assistance-Global Corporate Solutions which provide customised insurance solutions to over 1,000 multinational companies.

Today, Generali is one of the main international financial services groups. In Europe, the group positions itself as the first Life insurance company. Generali operates through different types of insurance intermediaries: tied agents, salaried salesforce, brokers and partners, but also direct sales companies in Italy and in Germany.

Generali is also financially strong as recognised by the main rating agencies:

The group offers in addition an international coverage for assistance products through its subsidiary Europ Assistance.

- Moody's Baa1
- Fitch A-
- AM Best A

HELVETIA

www.helvetia.fr



Helvetia France is part of Helvetia Group, a Swiss insurer active in the life, property and casualty and reinsurance business and operating in 5 European countries. With over 7,000 employees, Helvetia Group insures more than 47 million clients in 6 markets: Switzerland, Germany, Austria, Italy, Spain and France. The Standard & Poor's rating for Helvetia has been upgraded in 2013 from "A-" to "A".

With a turnover of EUR 207 million at the end of 2014, Helvetia France is clearly positioned as a specialist on the Marine and Transport market, mainly thanks to an organization based on 8 fields:

- ship owners,
- port activities,
- fishing,
- inland craft,
- pleasure craft,
- cargo,
- carriers and logisticians,
- casco.

RAETSMARINE FRANCE

www.raetsmarine.com

RaetsMarine group, founded in 1993 and present in France since 1999, is a specialist P&I insurer with a strong focus on client relations, risk management and claims services. RaetsMarine offers Shipowners' P&I, Charterers Liability, MultiModal Liability and Marine Defence at fixed premiums. RaetsMarine has a global client base with head office in Rotterdam and subsidiaries in Paris, London and Singapore.

RaetsMarine has a total staff of 120 employees and operates as a P&I center of competence within Amlin Group.

RaetsMarine has endeavored to exceed its clients' expectations by:

- investing time and energy in getting to know their business in depth,

- taking a holistic, 'full service' view, providing not only tailor-made insurance but also free advice on how to minimize or avoid risk,
- dealing with claims flexibly, pragmatically and efficiently,
- working transparently, with fixed premiums and firm agreements,
- acting proactively and decisively in the client's interest,
- responding to all enquiries within 24 hours,
- providing all clients with an equal level of service and attention.

It is this approach that has enhanced its clients' commercial success, enabling RaetsMarine to be a valued partner throughout the shipping industry.

CESAM

www.cesam.org

Economic Interest Group providing services to member companies, bringing together French and foreign companies in the marine and transport insurance business.

CESAM is a unique professional organization with no equivalent anywhere else in the world. Its aim is to help its members to develop their

economic activities by providing them with technical, administrative and financial services supported by IDE system "Optiflux®". CESAM is also heavily involved in the management of events dedicated to the Marine and Transport Insurance Market such as the annual "Transport Insurance Forum".

If all the ice sheets on the planet were to melt, the ocean level would rise by

66 metres.



The 7th Rendez-Vous de L'Assurance Transports held in Paris on 5th and 6th May 2015 at the Maison de la Chimie, which brought together over 600 delegates from 40 countries, discussed the major infrastructure projects evolution and new international trade routes. Several representatives of major international industrial groups, investing in transport infrastructure, exposed the economic and logistical issues associated with these projects and their impact on international trade.

Insurance professionals, specialized service providers and shippers involved found again the opportunity to meet and talk about this issue and its impact on the tomorrow's transport.

Photographies and videos of speeches are on line on CESAM Website.

The French market offers a "hull" package which was developed by the **FFSA**, in close collaboration with **Armateurs de France (ADF)** and the **Union des Courtiers d'Assurance Maritime et Transports (UCAMAT)**. This package, updated on 1st January 2012, is available in a French version and an

English version. The "hull" package is aimed at all merchant ship owners and operators throughout the world. It offers clear and extensive guarantees and has been designed to reinforce the French model of claims management.

FÉDÉRATION FRANÇAISE DES SOCIÉTÉS D'ASSURANCES

www.ffsa.fr

French marine insurers belonging to the FFSA (French Federation of Insurance Companies) meet under the Transport Insurance Committee

(COMAT). They are constantly improving the insurance terms they offer in France and abroad, and play a key role in risk prevention.

P&I

A P&I policy is a third party policy which covers ship owners (and charterers) for liabilities they may incur in regard to the ship's crew and other third parties, and for ship owners' liabilities related with

goods transported, oil spills, collisions, damage to fixed and floating objects, fines by the authorities, etc. The policy includes legal assistance provided by P&I Correspondents such as:

FRANCE P&I

www.francepandi.com

Acting as correspondent for hull underwriters and P&I Clubs all around France and in French Speaking African countries, France P&I is more specifically a service company specializing in prevention, legal/contractual counsel and analysis, as well as the handling of maritime disputes of all sorts for the account of French and

foreign maritime operators, marine underwriters and P&I Clubs. Founded almost 15 years ago and composed with in-house lawyers with experience and proficiency in both French and English maritime laws, France P&I is the only French service provider offering specialized legal outsourcing in maritime law and transports law.

McLEANS SA

www.mcleangroup.fr

Member of the McLEAN group, McLeans SA is the P&I Correspondent acting for the P&I Clubs of the International Group and other P&I Insurers in France and the French overseas territories. Through its subsidiaries the Group has an important P&I activity in the Maghreb countries (McLEANS-TMCS, McLEANS-ALPIS, McLEAN

MARITIME MAROC, McLEANS MAURITANIA), in Africa (WAMS) and is also present in Greece (SHIPSERVE INTERNATIONAL). With its strong team of maritime lawyers, the Mclean group has been a major player in the Marine & Transport Insurance Industry since 1973.

Marine Insurance Broking

Marine insurance brokers negotiate risk cover with insurance companies. In particular, they negotiate ship related risk cover on behalf of ship owners, and cargo related risk cover in behalf of shippers. They act as an intermediary placing risks on behalf of customers (hull of course and risks associated, in terms of volume and accidents, mainly with relatively high cost high frequency goods transport) and sometimes even on behalf of the insurer.

The French market is composed of some major players who are also CMF members, most affiliated to **UCAMAT, the Union of Maritime and Transport Insurance Brokers** (see below).

UCAMAT

www.ucamat.com

UCAMAT is the professional body for marine and transport insurance brokers. UCAMAT stands up for and promotes the special interests of the profession. It exercises a consolidating function through joint projects and undertakings.

UCAMAT holds discussions with all professional organisations of the marine sector with the principal aim of helping to innovate and improve insurance guaranties. It is the representative body of marine and transport insurance brokers with public authorities.

Marine Insurance Brokers

ASCOMA MARITIME

www.ascoma-maritime.com

A leading insurance broker in Monaco and throughout Africa, long-established in 23 countries, the ASCOMA Group develops insurance solutions tailored to the requirements of the shipping and yachting communities.

The European operation *Atalanta* against piracy costs **300** million dollars per year.



The number of sea rescue call-outs has been rising steadily for 14 years.

For example, **1,021** operations were led by CROSS CORSEN in 2014

against **834** in 2013 and **601** in 2000.



CAP-MARINE

www.cap-marine.com

Cap-Marine is a leading marine and cargo insurance broker.

The company produces approximately €70 million of premium.

Placings for the account of its clients are made with the main marine insurance markets: French, English, Norwegian, Swedish, Danish, Russian, Korean, Japanese markets.

Its customer portfolio consists mainly of shipowners, operators of specialised vessels, leading industrial or distribution firms, trading companies, freight forwarders, private and mutual insurance companies for which Cap-Marine is placing reinsurance.

CREWSECURE

www.crewsecure.com

Crewsecure is an insurance broker specializing in the provision of insurance solutions for seafarers and sea-workers in line with the MLC2006. It was set-up in Marseille-France in 2008 and it is also established in Geneva-Switzerland since 2012. Its clients are ship-owners, crewing companies, industrial companies with offshore activities. It offers risk management services and

insurance programs including for employers' liability, professional liability, D&O, employees' health, life, salary compensation, repatriation, K&R. This offer extends to international retirement plans. Crewsecure works with leading insurers and claims management companies to provide security and first class services to its clients and policyholders worldwide.

FILHET-ALLARD MARITIME

www.famarit.com

- French leader in Marine and Transport Insurance,
- 90% of the turnover comes from our international activity,
- premium income: € 80 million / Revenues in 2014: € 13 million,

- over 80 employees between Bordeaux, Geneva, Abidjan, Angola and Asia,
- experience and expertise since 1895.

GROUPE EYSSAUTIER

www.groupe-eyssautier.com

The Groupe Eyssautier is a French marine insurance broker established since 1816 and independent again since 2013 with worldwide offices strategically located (Paris, Marseille, Geneva, London and soon Dubai). They make available to their clients a team of 55 professionals specialized in marine & transport insurances. In 2014 they produced EUR 72.8 million in premiums and in total EUR 10.4 million brokerage on all lines of marine related business.

The pragmatism and solution focused approach of Groupe Eyssautier allows them to solve any Marine and transport related challenges faces by their clients. This "client orientated" strategy has

allowed the company to establish strong long-term relationships with them.

Being specialized in Marine and transport insurance and built upon their reputation Groupe Eyssautier has also access to all major insurance markets worldwide, including the Lloyd's of London since 2005 with a unique broker accreditation.

Whether you seek insurance for very large operations on a worldwide basis or if you have more specific local needs for smaller business, Groupe Eyssautier commits himself to providing you with the same exceptional service, regardless of your size.

GUIAN

www.guian.com

The full range of marine and transport risks are covered by GUIAN, backed up by specialists in hull, cargo and related liabilities and a long tradition of brokerage.

Among its traditional capabilities that have earned it an excellent reputation are:

- blue and brown water,
- fishing industry, hull, cargoes and liabilities,
- construction risks,
- logistics, ports and terminals,
- gas industry: hull and cargoes,
- offshore and subsea activities.

It provides a full range of brokerage, administrative and claims handling services worldwide.

SEASECURE

www.seasecure.fr

SEASECURE, dedicated Marine Insurance Broker, is established in Marseille and Geneva since 2008.

It provides innovative, reliable and competitive insurance solutions designed for the Shipping, Chartering and Trading industries. Its offer

includes the following lines: P&I, Hull and machinery, Loss of Hire, War Risks and Piracy, Marine Cargo and Professional Liability. SEASECURE develops solutions with leading insurers to meet the needs of each client.

Ship broking

France has around 30 companies with nearly 200 brokers, not counting international ones, operating over the whole maritime transport sector in chartering, purchase/sale and orders for new ships on the international market.

A ship broker is an intermediary between the supply and demand sides of the ship chartering, shipbuilding, and sales and dismantling markets. In these markets, the broker assists its clients (charterers, shipping companies or shipyards) in finding a counterparty, negotiating deals and preparing commercial documentation.

Brokers: an interface between charterer and shipping company and between shipping company and shipyard

AGENCE MARITIME PIERRE LAMBOT

www.maritime-lambot.com

Based in Les Sables d'Olonne, Vendée on the Atlantic Coast of France, the agency has roots there that go back some 90 years. Agence Maritime Pierre Lambot is an independent company covering following shipping activities:

- The sale and purchase, second hand or as new builds, chartering and brokerage of all types of vessels (cargo ships, workboats, offshore vessels, barges, fishing boats, passenger ships, etc...) in France and overseas. With its experience, l'Agence Maritime Pierre Lambot has developed a wide network of correspondents all over the world to satisfy its customers.

- Shipping agency: Agence Maritime Pierre Lambot acts for owners of cargo ships calling at the commercial port of Les Sables d'Olonne. It has strong lines of communication with industrial and commercial businesses, importers and exporters, etc.

In addition, Agence Maritime Pierre Lambot, in its capacity as shipping agent in proximity to customs offices, carries out all compulsory inward and outward formalities on behalf of ship owners.

ATLANTIC MARINE SERVICES

Atlantic Marine Services SAS, founded in 1987 by Jean-Pierre Millet, a French shipbroker since 1973, and his 6 professional employees, is exclusively dedicated to the sale, purchase,

new-build and chartering of all types of ships and floating equipment (tankers, dry cargo ships, passenger ships, offshore vessels, fishing vessels, barges, service vessels, etc.).

BRS - BARRY ROGLIANO SALLES

www.brs-paris.com

The BRS group ranks among the world's very top shipbroking companies.

- more than 150 years experience: company founded in Marseille in 1856,
- more than 400 people employed, 100 in the group's Paris headquarters,
- offering all shipbroking operations: chartering, sale and purchase and shipbuilding, and market intelligence,
- ten departments: crude oil, petroleum products, chemicals, gas, dry bulk, liner, offshore oil and gas, passenger ships, sale and purchase and newbuilding,
- an international presence in Brazil, China, Dubai, Germany, Greece, India, Luxemburg, Monaco, Norway, Singapore, Spain, Switzerland, the UK and the US,
- over 3,500 transactions per year.

The BRS group also provides customers with a wide range of additional broking services including market analysis, business opportunities, tender management, ship valuations, feasibility studies and contract drafting.

In addition, the group offers related activities such as freight derivatives, yacht brokerage (YPI), web-based maritime information (AXSMarine, Alphaliner, Alphabulk) and marine insurance brokerage (Cap-Marine).



© ERANJIAN

CHAMBRE SYNDICALE DES
COURTIERS D'AFFRÈTEMENT
MARITIME ET DE VENTE DE
NAVIRES DE FRANCE
www.french-shipbrokers.org

Established in 1917, the French shipbrokers association is the sole professional organization in France to represent the global interests of its members whether in the field of chartering activities or the sale and purchase of tonnage as brokers or intermediaries. Over the years, its role and influence in maritime circles has grown significantly.

The French Shipbrokers' Association arranges forums for professionals, particularly in the form of its highly regarded networking matinees. It also has representation in various national and international organizations which enables it to monitor developments in major economic and legal issues concerning the profession.

MIT CHARTERING
www.mit-chartering.com



© MIT Chartering

MIT Chartering is a broker specialized in maritime transportation of heavy cargos by oceangoing ships or barges. MIT Chartering is also the representative in France and Spain of the European ship-owners MULLER, ROLLDOCK and OCEAN7 who operate a modern and versatile fleet meeting the standards of the most demanding transport requirements. MIT Chartering is present in France through its headquarters in Versailles and its branch office in Marseille.



"Le barreur"
Anne Smith , Official Navy Artist

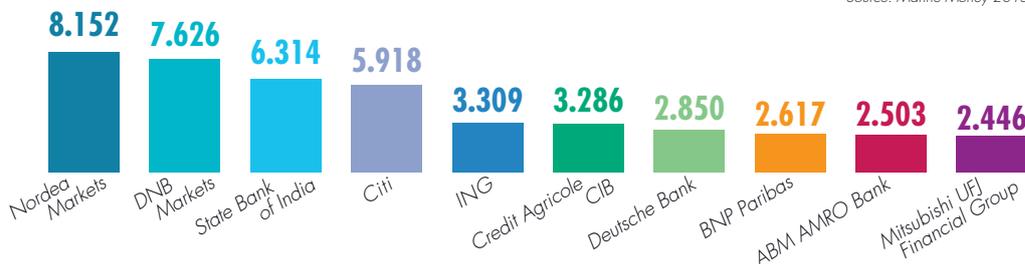
Containers account for **16%**
of world flows today against
10% in 2000.



Shipping finance

Top 10 Bookrunner table – syndicated marine finance loans in € billion

Source: Marine Money 2015



The world's oceans would contain nearly **20** million tonnes of gold.



The experts appear to agree that activity in the maritime sector is recovering (rise in goods traffic), allowing a resurgence in ship building and infrastructure projects seen as having investment potential.

While the problems with finance and overcapacity are no inconsiderable, the maritime sector must

also confront a very diverse set of challenges, such as the need to invest in skills development and staff to ensure the availability of personnel in sufficient numbers to support its growth, and the obligation to provide funding solutions and new sources of finance in the face of tighter sector regulation.

BNP PARIBAS

www.shipping.bnpparibas.com



© BNP Paribas

- A portfolio of 1,500 ships for 14 billion \$US
- 300 shipping company customers in the world among which are the top 20 in every shipping sector.

The Shipping Finance Group covers the financial needs of shipowners worldwide.

The Shipping Finance Group offers genuine expertise in the sector (70 staff) through the BNP Paribas international network.

CRÉDIT COOPÉRATIF

www.credit-cooperatif.coop

Crédit Coopératif finances companies operating in a wide variety of sectors.

Its finance operations in the maritime sectors (transport, exploitation of marine resources, services, upstream network and downstream) has been an important activity of the company since 1947. Its expertise has earned it a valuable consultancy role with national authorities, notably the Ministry of Agriculture, Food and Forestry and the European Commission.

Crédit Coopératif provides financial, commercial and technical assistance to companies in the sector, either through its specialised maritime department or through its agency network in all regions. Its Sector Committee enables it to keep a close watch on developments in the sectors and to adapt its services.

A cooperative bank, Crédit Coopératif is a member of the BPCE Group and combines the advantages of a small accessible bank with the resources of a large group. Since 2011, Crédit Coopératif has been investing in the Atalaya fund.

INGEPAR BPCE

www.bpce.fr

Dedicated to financial engineering, INGEPAR is a subsidiary of BPCE banking Group (Banques populaires et Caisses d'Épargne). Providing

shipowners with a combination of expertise in both finance and shipping, INGEPAR arranges structured finance packages for all kinds of vessels.

SOCIÉTÉ CENTRALE DES CAISSES DE CRÉDIT MARITIME MUTUEL

www.creditmaritime.fr

Credit Maritime is administered mainly by the professionals of the maritime sector.

The Societe Centrale des Caisses de Credit Maritime Mutuel is the key structure of the Credit Maritime network.

The network includes 6 regional federations, 5 in mainland France (Region Nord, Bretagne-Normandie, Atlantique, Littoral du Sud-Ouest and Mediterranee) and one in the Overseas Territories.

With a total of 135 branches and a staff of 650, Credit Maritime has been part of the Banque Populaire network since 19th October 2004, with BPCE as its central body.

Credit Maritime provides finance for the whole fishing and fish farming sector, and has accumulated wide experience as a finance provider for commercial ports, yachting, camp sites and businesses in coastal areas.



Thirty years ago offshore drilling took place in water up to **300** metres deep, now it is **2,000** and **3,000** metres deep.

SOCIÉTÉ GÉNÉRALE CIB

www.sgcib.com



© SGCIB

For over 30 years, Société Générale Corporate & Investment Banking (SGCIB) has been a major shipping finance provider with a large international arrangement and advisory capability.

Having its teams of asset finance experts present in the main international financial centers, especially Paris, London, New York, Madrid, Singapore, Hong Kong, Milan, Tokyo, Sao Paulo, ... has allowed SGCIB to acquire a detailed knowledge of local environments enabling it to support its customers in their development.

Particularly active in the container ship, gas carrier and offshore sectors, SGCIB has developed close relations with more than a hundred international shipping companies, leaders in their markets, providing them with innovative solutions that meet their specific needs. The range of products offered by SGCIB draws on all of the bank's specialized financing methods including standard mortgages, limited recourse finance, leasing, export credit, derivatives, merger and acquisition advice, etc.

Other leading companies specializing in asset based finance and advice for the shipping sector:

CHALUS CHEGARAY & CIE

Chalus Chegaray & Compagnie supports the companies it invests in by providing services that empower them to focus on their strategic core businesses.

With a comprehensive product offering including communications, human resources, marketing, digital marketing, piloting of information systems, accounting, legal, and management control, the investment company Chalus Chegaray & Cie brings to businesses what they need in order to develop.

Longstanding experience in maritime insurance has placed its senior managers firmly on the map in logistics and maritime transportation. As partners to talented entrepreneurs for over 20 years, Chalus Chegaray & Compagnie has built impressive skills which it provides to SMEs that join its network.

Proximity, dynamics and strength... more than a mere financial investment, a long-term commitment!

FIMAR



© Fimar

A financial analysis and financial engineering company, FIMAR specialises in shipping finance (more than 70 vessels, merchant ships, cruise ships and ferries, sea-river ships):

- Structured tax-lease products
- Finance packages for the Overseas

- Syndication of investors, corporates and individuals
- Management (back-office) of nominee companies created for each vessel.

FIPROMER

www.fipromer.fr

Subsidiary of BRED Banque Populaire Group, FIPROMER offers to maritime actors tax leverage

solutions of financing, such as tax lease or French overseas tax advantage.

THALOCEA CAPITAL PARTNERS

www.thalocsea.com

Thalocsea Capital Partners is a firm of consultants (advice on investment funds, portfolio management, M&A), which also provides information and strategy papers on subjects

linked to the various opportunities offered by the marine economy (marine resources and marine renewable energies).

Apart from organisations that finance structured assets, there are those that manage funds specialising in the development of companies providing value-added maritime services:

ACE MANAGEMENT

www.acemanagement.fr

Specialising in high technology sectors with applications in the aerospace, marine and maritime industries, defence and safety, ACE Management, a private equity company established in June 2000, manages 7 investment funds representing around €450 M: Aerofund (I, II and III), Sécurité, Financière de

Brienne and the Atalaya fund dedicated to investing in Maritime sector. This fund launched in July 2010 is invested in by industrial leaders (DCNS, Louis Dreyfus Armateurs, GICAN) and institutional investors bpifrance, Crédit Coopératif, SOPER and French Regions (Pays de la Loire, Aquitaine).

Maritime training and employment

In 2014, the **Ecole Nationale Supérieure Maritime (ENSM)** trained more than **1,100** people on around twenty certificate courses.



Training seafarers



© Marine nationale

Education is one of the mainstays of the economy. The skills that are needed for all of the activities in the maritime industries take in the vast panoply of options in formal education – from the CAP (national vocational certificate) to the Doctorate – and then on to continuous education. Colleges, training centres and educational institutions, together with their associated research facilities and laboratories, give young people and professionals alike the chance to acquire essential knowledge, a fundamental element in coping with the advances taking place in technology, tools, materials and processes. These two aspects of education are inseparable from the transmission of expertise which then continues throughout a career in a company or industry. Nautical training starts in Primary with nautical awareness instruction. The “Teach about the sea!” operation launched by the Education Department and supported by the CMF has resulted in the introduction of numerous lessons in all school programmes from Primary to Senior Secondary. To underpin this action,

in September 2013 the **Maud Fontenoy Foundation**, in partnership with the CMF and the CNRS, launched a 100% Océan Pack, designed as a learning guide for primary and secondary pupils and also for teachers to learn about the sea and its occupations. The promotion of courses about the sea and its occupations among young people affects the whole sector. Several stakeholders play an important role, for example the **Institut océanographique** or the **IFM** whose web sites give information on training courses and occupations in the maritime industries. So there is increasing momentum among the key maritime players, such as Campus Naval France (CNF) created in October 2012 as an umbrella organisation to coordinate the various public and private institutions involved in initial and continuous education in the naval sector. Thanks to the CNF, supported by Océans 21, new training courses are to be created to match the needs of manufacturers, aimed especially at preserving key skills from across the sector.

To train fishermen and merchant seamen, France relies on a network of 12 vocational maritime colleges and numerous training centres, such as the **École Nationale Supérieure Maritime** located on four sites spread over France, and the **École navale**

and the Centre d'Instruction Navale de Manche, Atlantique, Méditerranée for the French Navy. The maritime colleges also provide training in water-based sports and marine farming, new skills to cater for the new needs of activities at sea.

ÉCOLE NAVALE

www.ecole-navale.fr

The naval graduate college (Grande école de la mer) has trained all officers of the French Navy in Brest for 180 years. Benefiting from its perfect setting and purpose-built infrastructures, the college offers advanced theoretical and practical teaching, open to students from abroad, in three main fields

of education: human sciences and military training, seamanship and training in the various branches of engineering. Depending on the course selected, the college enables students to obtain qualifications up to Masters level (bac + 5): ingénieur de l'école navale or master professionnel.

ENSM - ÉCOLE NATIONALE SUPÉRIEURE MARITIME

www.supmaritime.fr



© ENSM

The National Maritime College of France (ENSM) provides advanced training in maritime and paramaritime occupations and trains merchant navy officers.

ENSM is a Nautical Institute and IMCA accredited for its DP center. The Training Center of ENSM in Sea Rescue, called ENSM-CESAME, in St-Malo, trains seafarers, fishermen, ocean race sailors (ISAF, International sailing federation) and young apprentices in abandoning ship, sea survival and sea rescue, in accordance with the STCW convention. Last year, ENSM registered more than 2,000 trainees.

LYCÉE DE LA MER PAUL BOUSQUET

www.lyceedelamer.fr



Les Bousquets

The Lycée de la Mer Paul Bousquet is the most important establishment within the French maritime schools network belonging to the Ministry of Ecology. This comprehensive vocational centre has a unique location in Sète and is equipped with its own private harbour on the Thau lagoon. Not only do we have an ideal location but we also have a range of very modern and up to date equipment for training and providing the continuous professional development necessary to update skills throughout a seafarer's career. The Lycée Paul Bousquet is the only college in France to possess the complete range of equipment

necessary for safety training courses such as: PST, CAEERS, CQBLI, and CQALI. (COST - SAT – PSSR – Fire Prevention and Advanced Fire Fighting - First Aid.) The maritime school Paul Bousquet, a unique public maritime establishment on the French Mediterranean coast, has developed a wide portfolio of training services ranging from maritime training courses in professional education (officers excluded) as well as secondary school education, and operates a block release training course (school course combined with experience) of CAP Merchant Seaman and BTS Aquaculture Production (postgraduate programs).



Calculated in the same way as GDP, the annual Gross Marine Product would place the oceans **7th** among world economies with an estimated annual production of goods and services of US\$ **2.5** billion.

DCI-NAVFCO, a naval component of Défense Conseil International, transfers the expertise of the French Navy to foreign navies through technical and operational training, instruction and assistance especially in the field of maritime security and safety (cf. page 43).

The creation of NavOcéan, a joint venture with the Chantiers Piriou, led in September 2013 to the launch of the Almak, a training vessel for the cadets of foreign navies, undoubtedly a model of interest to other sectors for acclimatizing professionals to life at sea.

Training for yachtsmen

GLENANS SAILING SCHOOL
www.glenans.asso.fr

© Ecole de voile des Glénans



Glenans sailing school, the first of its kind in Europe, was established in 1947 in the Glenan group of islands off the coast of Brittany. For many years it has been recognised as the world leader in sailing instruction and caters for more than 15,000 students and instructors every year. Cruisers, catamarans, dinghies, wind and kite surfing and kayak, Glenans offers training

courses for everyone from beginners to seasoned sailors. The courses are held at 5 sailing bases (3 in Brittany and 2 in the Mediterranean). In cruising, Glenans also holds training courses in the West Indies, Greece, Italy and Croatia. It is a charitable organisation under Law 1901 and approved by the Ministry for Sport.

Training the professionals of the sea

BERLITZ CULTURAL CONSULTING

Berlitz International, created in 1878, is one of the foremost service providers offering a range of language and intercultural training options to the public and private sectors, as well as to non-profit organizations. Since 2001, Berlitz International, based in Princeton, New Jersey, has been a subsidiary of the Japanese company Benesse. Our worldwide activities are divided into several departments:

Berlitz Cultural Consulting, Berlitz Education, English Language Services (ELS), Educational Services, Berlitz Study Abroad and Berlitz Translation. Berlitz Consulting France is accredited and recommended for intercultural training by the Magellan Network (professional networking group for international human resources professionals).

CENTRE ATLANTIQUE DE SHORT SEA SHIPPING EUROPÉEN
www.case-optimodal.eu

A new training programme in multimodal transport from the Atlantic Centre of European Short Sea Shipping (C.A.S.E) from November 2013 for transport and logistics professionals and shippers. The aim of this programme, backed by the EU's Marco Polo Programme, is to demonstrate the economic and ecological benefits of transferring

freight to alternative means of transport: rail, river and short sea shipping. An original, specific and dynamic programme which combines courses given by professionals on board ferries with visits to ports and rail networks. Courses last 1, 2, 3.5 days.

CENTRE EUROPÉEN DE FORMATION CONTINUE MARITIME
www.cefcm.com

© CEFM



The European Maritime Training Center (CEFCM) is today, with 2,500 trainees per year, the largest French organization totally dedicated to lifetime training of sailors and staff of shipping companies. The CEFCM operates on all major professional fields of maritime activities: freight and passengers, offshore oil and marine renewable energy, fishing and shellfish, development of nautical and coastal tourism, shipbuilding and repair.

The CEFCM consists of three training institutions based in France, specializing in three distinct areas: navigation and general training, technical training and maintenance training, security and safety. It shares qualifying training in partnership with the Brittany network of maritime schools: customized training and demand in all major French ports, on ships or in companies; national and international partnerships; a network of 150 trainers, able to respond quickly and effectively to all matters relating to the development of jobs and maritime skills.

EUROSAE

www.eurosa.com



© EUROSAE

EUROSAE is a leading provider of short, professional development courses focusing on advanced technologies such as aeronautics, space science and maritime technologies. EUROSAE has been at the forefront of continuing education for professional development for over fifty years. Our programmes offer an invaluable way of keeping up-to-date with the latest technological

developments and regulatory evolution. Courses are delivered by subject specialists at EUROSAE and external practitioners. Tailor-made training and development programmes can also be provided in-company. In order to keep up with the latest developments, EUROSAE offers now a whole set of trainings devoted to Cybersecurity.

PORT REVEL

www.portrevel.com

Inventor of the concept and recognised as a world leader, ARTELIA-Port Revel provides ship handling training for harbour pilots, captains and officers using 1/25 scale models of 11 ships and 4 tugs on a 5 ha lake equipped with a DGPS tracking system and many shallow water areas with currents. Latest additions to the fleet: a container ship of 8,500 TEU, a Q-Max gas carrier of 265,000 m³ and a cruise ship of more than 300 m. In 2014, Port Revel confirmed its DNV certification standard 3.201 - Learning Programmes - (SeaSkill™).



© Sogreah

Schools and universities

ÉCOLE DE MANAGEMENT DE NORMANDIE - IPER

www.em-normandie.fr

EM Normandie offers advanced higher education programmes in Le Havre, the leading frenchport for containers and a unique showcase for performing logistics and industrial development:



© Bizien Michel - G.P.M. Havre

an MSc in Supply Chain Management, an MSc in International Logistics and Crisis Management (with english as the language of instruction), as well as an Executive MBA with a Maritime, Transport and Logistics option. As a centre of expertise for port, maritime and logistics training programmes, Institut Portuaire d'Enseignement et de Recherche (IPER), supports training schemes for professionals in the international maritime and port community by offering a portfolio of over 30 seminars in Le Havre, together with customised programmes, both in France and abroad, whether in french, english or spanish. As regards research, the *Métis* laboratory at EM Normandie thanks to a « Logistics-Land-Sea-Risk » research focus, specialises especially in maritime and port management, and supply chain management.

ENSTA BRETAGNE

www.ensta-bretagne.fr



© ENSTA Bretagne

ENSTA Bretagne, it's:

- more than 700 students,
- 85 PhD students,
- and almost 200 Engineers graduate each year.

ENSTA Bretagne of Brest, a public higher education and research establishment created in 1971, is a provider of excellent training programmes and a leader in maritime research activities. The Institute trains engineers for the

most innovative sectors, especially the maritime sector: offshore engineering, naval architecture, marine renewable energy, defense, and IT industries.

Research activities: the LBMS laboratory aims to improve knowledge of the mechanical behavior (in terms of life span) of materials and structures. The IT department focuses on ocean sensing and mapping, electro-magnetic sensing and passive acoustics.

ESSEC BUSINESS SCHOOL

www.essec.fr

Created in 1907, ESSEC BUSINESS SCHOOL is an Academic Institution of excellence which has always been characterized by its pioneering spirit. In both higher and executive education, ESSEC proposes a wide range of programs to all those wanting to strengthen their talent, express their leadership and become high-level managers. The internationalization of ESSEC is strengthened by the building of a new, 6,500 sqm campus in Singapore and the implementation of development projects in Africa and Latin America.

ESSEC, aware of the tremendous growth potential of maritime sector, creates the Chair "Oceans", with following objectives:

- Train young generations to develop cross disciplinary skills in order to invent tomorrow's Ocean.
- Offer a space for dialogue on oceans gathering academic community, companies, NGOs and public institutions.
- Elaborate new training and research programs, fulfilling the needs and stakes of the chair partners.

Key Figures:

- 3 campus in Cergy, Paris, Singapore,
- 4,400 students,
- 5,000 managers in executive education,
- 46,000 alumni.

KEDGE BUSINESS SCHOOL

www.kedgebs.com

Kedge Business School is now among the top 10 French university level management schools or 'grandes écoles' and the top 20 European business schools. It is a member of the few businesses schools in the world (1%) to possess triple accreditation (EQUIS, AACSB and AMBA). It offers 3 advanced training programmes for the maritime industry:

- M.Sc. in International and Logistics Maritime Management,
- Master of International Maritime Management, in partnership with the Merchant Marine Academy,
- The prestigious Kedge BS MBA with its Maritime Management Track, a degree of international calibre, ranked 5th in France and 61st among the Top 100 Executive MBA worldwide by the Financial Times.

UBO - EUROPEAN INSTITUTE FOR MARINE STUDIES (IUEM)

www-iuem.univ-brest.fr

A leader in the Global Campus of the Sea at the tip of Brittany, IUEM is a multidisciplinary research and training institute dedicated to the ocean and coasts. It aims to help societies meet the challenges of blue growth and sustainable development, for healthy and productive oceans. Its potential stretches from earth and life sciences to human and social sciences, and his master's and doctoral programs are fully dedicated to the field of marine and coastal sciences. Open to society, IUEM is an actor of innovation and public policy. Open to the world, IUEM develops international cooperation in Europe and beyond.



© Paul TREGUIER / CNRS

UNIVERSITÉ DU HAVRE – FORMATION CONTINUE

www.fc.univ-lehavre.fr

The University of Le Havre, the Ecole Nationale Supérieure Maritime (ENSM) and the Union Professionnelle des Experts Maritimes (UPEM) have pooled their skills to develop a course called 'expert maritime' (Maritime Expert). The "Diplôme d'Université Expert Maritime" (bac+5) prepares seafaring professionals for a career change, qualifying them as consultant engineers.

The programme covers the law of the sea, maritime law, marine insurance, regulation, ISM/ISPS codes, structure and stability, surveying, offshore, fishing, yachting. Course lasts 300 hours (10 modules of 30 hours) and is given by qualified teachers and lecturers.

In August 1858, the Empress Eugénie, on a visit to Brest, offered her handkerchief as a bandage to a sailor who had injured the top of his head when saluting her. This handkerchief became the red pompom on sailors' berets, supposed to cushion knocks to the head on decks with low ceilings.



- Bachelor and Masters degrees in Shipping and Trading: the IUP Maritime Finance, Banking, Insurance and Logistics centre (I.E.M.N.-IAE) of the University of Nantes offers a 3 year course in transport, shipping and port logistics, commerce and international finance.
- Bachelor and Masters degrees in international maritime finance and logistics:

In March 2010, the Vice-chancellor of the University of Nantes, the director of the Ecole Centrale de Nantes, and the Director of Maritime Affairs, on behalf of the future Ecole Nationale

Supérieure Maritime (ENSM), signed an agreement to establish a programme of mutual interest in higher education and research. This agreement allowed for the introduction of Bachelor and Master's degrees in international maritime finance and logistics at the ENSM in Nantes in September 2010. This Master's degree is included in the Fédération de Recherche Pôle Mer Littoral of the University of Nantes (FED-4111), a multi-disciplinary research organisation with around 270 researchers in 8 laboratories, and with some twelve Masters specialities in maritime sectors.

Young Entrepreneur School is the first school in France which offers programs oriented exclusively towards entrepreneurship. Inspired by Anglo-Saxon and Finnish methods, its programs and pedagogy incorporate various differentiating elements, such as: learning by doing, 100% by professionals and entrepreneurs, 50% in English, travel and internships abroad, smart specialization and cross fertilization, group and individual coaching, sport and creativity. Its credo is to enable each student to create his or her future, through practical learning of entrepreneurship. It offers a graduate training program dedicated to the maritime field: The "Blue Entrepreneurship program", sponsored by Jacques Rougerie and the Sea Orbiter, in partnership with the French Maritime Cluster, the Mediterranean Sea Pole, business angels (Sophia Business Angels), companies and entrepreneurs (Monaco Sophia Business Hub, Business Club 06 ...) The first edition was scheduled for November 2014 in Sophia Antipolis.

Duration: 1 year (November 2014 - June 2015)
Bachelor Entrepreneur, mention "Blue Startup"
Admission: from Bac+3 (exceptionally admission from Bac+2, according to the applicant's academic record)



© Young Entrepreneur School

Training fund collection and management organisations



The first private administrator of vocational training funds in France, AGEFOS PME has a network covering 21 regions with over 500 vocational training advisers who support the development needs of more than 375,000 firms and 50 separate professions. AGEFOS PME acts as the registered collection agency (OPCA, Organisme paritaire collecteur agréé) for the maritime industry as well and works hand in hand with maritime companies and their employees across France.

For twenty years, the OPCA Transport Services has been the training partner of Transport and Operational Services sectors. It has been acted for the shipping companies since 1996 but also for the harbors, port handling, river transport of goods and passengers.

- 2014 key figures for all professional branches:
- 43,000 member companies,
 - 1,100,000 employees with more than 1 out of 4 beneficiary of training.



© OPCA Transports

Recruitment

DIVEINTAR MARINE www.marine.diveintar.com

Diveintar Marine Recruitment Services is a global recruitment agency dedicated to the international Marine Industry:

- offshore Renewable Energy,
- shipbuilding,
- shipping and Commercial Marine,
- harbour Management,
- shipchandling,
- Oil&Gas,
- leisure Marine,
- maritime works.

The Diveintar team is a mix of 5 experienced consultants and recognized experts of the Marine Industry, with experience in both the navy and as head of corporate HR departments. Diveintar Marine also offers a range of managerial training courses specially designed for seafarers, on shore and offshore. In 2013, Diveintar's Team successfully handled 30 recruitment assignments for operational jobs, and 70 for support positions, in France, Singapore, Africa and USA.

HORTON INTERNATIONAL www.hortoninternational.com

Founded 25 years ago, Horton International was established as one of the first executive search and management consulting firms. Horton International provides outstanding executive search services that help its clients

achieve their strategic staffing objectives. At group level, Horton International has developed specialty practices in various sectors, in particular a "Maritime practice" which has carried out many assignments in different activities.

INTER PÔLE www.inter-pole.fr

Firmly based in the local economy, Inter Pole has created a spin-off company, Inter Pole Naval and Industry, whose agencies specialize in naval engineering jobs in Brest, Concarneau,

Lorient and Saint-Nazaire. Temporary staffing, recruitment, training courses and human resource solutions. Its agencies provide unique expertise in the region!

Employment and retraining organisations

CLIC&SEA www.clicandsea.fr

This leader in the French market is an employment web site that specialises in the naval and maritime sectors. A true ally of HR departments,

Clic&Sea offers three types of services: the publication of job adverts, a targeted CV bank and contact facilities...

LA TOULINE www.latouline.com

A unique association in the shipping sector and state-approved since July 2010, La Touline has given nearly twenty five years of service to seafarers in the areas of employment, guidance, training including validation of experience, and the promotion of maritime trades. Through its

network of partners and its highly regarded expertise, the team of employees and volunteers provides advice and personalized monitoring throughout working life, from the classroom to retraining where necessary.

Maritime occupations: for those passionate about the sea!

Young people are the future of our sector, and who better than them to tell us about the dynamism and diversity of maritime occupations? So the Cluster decided to film young professionals from all sectors of the maritime economy. With 4 clips in 2013 for the launch, plus 4 more clips in 2014, these profiles are a living record of the skills essential for our economy!

Visit our webTV:

www.youtube.com/user/ClusterMaritimeTV



Business law, maritime law and law of the sea

As early as **1604**,
Hugo Grotius in his "mare
liberum" laid down the
principle of the freedom of
the seas and the basis of a
"borderless" law of the sea.

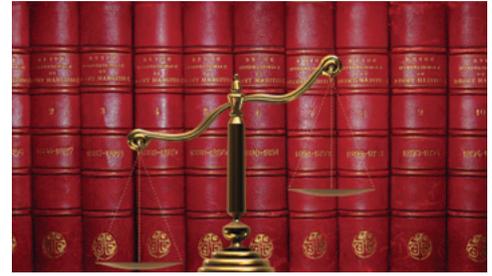


The law relating to activities at sea is based primarily on Maritime Law and the Law of the Sea. **Maritime Law** is the law of things, activities and events related with the sea. Specifically, it deals with matters concerning seagoing personnel, ships and other seagoing vessels, charter contracts and ocean transport, ship ownership and sales, maritime safety, incidents at sea and marine insurance.

The **Law of the Sea** on the other hand is the law of maritime space, it defines its zones as well as the rights and obligations of States in these zones, especially in regard to environmental protection and law and order at sea.

While Maritime Law is a dominant speciality of specialised law firms, the Law of the Sea is indispensable for the development of activities at sea, such as the exploitation of resources or the installation of structures in the open sea.

Apart from Maritime Law and the Law of the Sea, professionals also make use of the multidisciplinary expertise of law firms, combining the classics of **business law, civil law and community law with more specialised branches** (insurance, contract, environment, tax, criminal, intellectual property).



The basic task of lawyers is to inform and advise, act on behalf of clients, draft legal documents, reach compromises and finally defend their clients. Most jurists, lawyers and practitioners of Maritime Law are members of the **French Association of Maritime Law (AFDM)** which acts as coordinator and consultant at national and international level.

**ASSOCIATION FRANÇAISE
DE DROIT MARITIME**
www.afdm.asso.fr

The French Maritime Law Association (MLA) has a membership of around 400 professionals in maritime law (academics, maritime lawyers, in-house lawyers from maritime companies or

organisms). Its objective is to study all matters concerning maritime law and law related to maritime activities in general in all its aspects (domestic and international, private and public).

**CHAMBRE ARBITRALE MARITIME
DE PARIS**
www.arbitrage-maritime.org

Dispute resolution by arbitration or conciliation can be carried out through the Chambre Arbitrale Maritime de Paris (Maritime Arbitration Court of Paris), which can provide companies of all sizes

with the necessary facilities. Its services are as effective as similar Anglo-Saxon jurisdictions and are quicker and less expensive.

Law Firms

CABINET BMC
www.bmc-avocats.com

Specialised in maritime issues, the law firm BMC Lawyers is established in Paris and Marseille. Loyalty, responsiveness, cost-efficiency, and privacy are the promoted qualities in the firm that assists members of the shipping community (ship-owners, insurers, P&I, banks, shipyards, brokers, fishermen...) whether in amicable issues (contract drafting, sales & registrations of ships,

negotiations...) or disputes (collisions, chartering, cargo claims, fire, hidden defects and warranties, pollutions, customs claims, ship arrest and sales on auctions,...) Recognized for its skills, the law firm BMC Lawyers is listed in Legal500 and in Chambers and Partners directories. BMC is also a referenced service provider for numerous insurance companies.

CABINET DOLLFUS
www.dollfuslaw.com

Franck Dollfus formed his own independent maritime and transport law practice Cabinet Dollfus in Paris in 2011. He represents and advises a wide range of national and international clients

including ship owners, managers and operators, cargo and liabilities underwriters, salvors, brokers, recovery agents, logistics and transport operators, and overseas lawyers.

CABINET NOMOS

www.nomosparis.com

NomoS was founded in 1998 by partners coming from large Parisian business law firms. The firm gathers today 37 lawyers endowed with specific and complimentary legal skills in the subject matter of law responding to the principal needs of its clients : Competition/Distribution/Consumption, Intellectual Property/Medias/New technologies, Social law, Mergers and Acquisitions/Corporate, Tax law.

NomoS is conceived as a partner firm in the long term for its clients assisted generally for their entire legal lifespan, whether it be in everyday business, exceptional operations or litigation.

Although of purely French origin, NomoS has always favored a strong international opening. Its clients comprise about 70% of companies

belonging to anglo-saxon groups or multinationals companies whose 30% are French ones.

NomoS considers that the understanding of the practices and sectors of activity of our clients, coupled with the perfect mastering of our legal specialties, constitutes a supplementary token of excellence. NomoS therefore follows closely what's happening in our clients' sectors in order to ensure the constant understanding of their needs and to anticipate the legal evolutions. The profiles of lawyers whose NomoS is recruiting are diverse and several of them come from businesses.

NomoS takes care that the balance of men-women is not just a stated goal. Five out of 10 partners of NomoS are women.

CLYDE&Co LLP

www.clydeco.com

An international law firm established in Paris since 1992, specialising in insurance,

transport (maritime, air, road, rail), construction, commodities, industrial risks and arbitration.

FAVAREL & ASSOCIÉS

www.favarel-associes.com

The Favarel law firm has been providing its experience in maritime law and international affairs since 1997. Composed of a team of multilingual lawyers specialising in maritime law and transport, international arbitration, company law, banking law and insolvency law, it acts

regularly in cases arising from environmental disasters and industrial accidents on board ships, drafts international contracts to build luxury yachts and has developed a global network of exclusive partners.

GICQUEL ASSOCIÉS

www.gicquel-associes.com

Gicquel Associés, a firm of international business lawyers, includes among its partners people with

knowledge of the complexities of maritime tax law and sustainable development.

HOLMAN FENWICK WILLAN FRANCE LLP

www.hfw.com

HFW has one of the longest established, largest and best known maritime law practices in the world, widely recognised by clients and competitors alike. Founded in 1883 in London and based in France since 1977, the firm is a recognised market leader in every aspect of maritime law, from high profile casualties

(collisions, salvage, wreck removal, pollution and other environmental issues, hull insurance, actual and constructive total losses and personal injury claims), through the carriage of goods by sea to the purchase, finance and insurance of maritime assets, as well as port infrastructure and development matters.

INCE & Co FRANCE

www.incelaw.com

Part of international law firm Ince & Co since 2002, their historic links with the players of the maritime sector and the French insurance market

go back several decades. Their offices in France practise French law and English law in the fields of advice, litigation and arbitration.

Article **136** of the Montego Bay Convention states that the deep seabed, controlled by the International Seabed Authority, is the common heritage of mankind.



KRAMER LEVIN
www.kramerlevin.com

Present in Paris, New York and Silicon Valley, Kramer Levin is an international law firm with more than 375 lawyers. Its global, creative and personalized approach allows for highly efficient work on both advisory and litigation matters.

Practices:

- infrastructure & energy (project finance, project management & engineering, construction, sub-contracting);
- construction litigation & Industrial risks;

- data protection, business secrecy & cybersecurity;
- public law (public procurement, use of public land, concessions, regulatory, environment);
- other: litigation & arbitration, corporate M&A and restructuring, tax, employment, banking & finance, insurance.

LE BERRE ENGELSEN WITVOET
www.lbew-avocats.fr

A team of 5 Paris based lawyers with an international network, LBEW is specialised in all maritime and transport activities, and provides

its foreign and French clients with expertise in litigation, arbitration and advice.

LEWIS & CO
www.lewiscolaw.com

Lewis & Co AARPI solicitors and avocats provides a full range of international services in shipping, international trade insurance and commercial law. Its lawyers have been involved in some of the highest profile major maritime casualties

over the years as well as day-to-day commercial disputes arising under shipping contracts. An Anglo French practice, the firm specializes in shipping, international trade and insurance, and advises on both English and French law.

NORMANDS & ASSOCIÉS
www.normand-associes.com

An international law firm created in 1950 specialising in all strategic branches of maritime law, particularly for clients such as shipbuilding and repair companies and their subcontractors and suppliers, as well as shipping companies, institutional maritime players and insurance companies, and offering services both in consulting and litigation (judicial, administrative and arbitration).

Normand et Associés assists its clients at all stages of their business (from drawing up contracts to handling litigation and enforcement of legal decisions), but also with regard to industrial and professional risks (insurance law, labour law, criminal law, etc.).

NORTON ROSE FULBRIGHT LLP
www.nortonrosefulbright.com

A pioneer in the shipping sector, Norton Rose Fulbright LLP is a leading international legal practice at the forefront of innovative structures implemented in this area whether in shipping finance (mortgage loans, tax leasing, export credit), corporate and capital markets, marine

insurance, competition and regulation, tax, admiralty, infrastructure, energy and shipping litigation, and regardless of the type of ship (gas carriers, cruise ships, oil tankers, bulk carriers or container ships...).

REED SMITH
www.reedsmith.com

Reed Smith is a global relationship law firm with teams specialising in shipping and maritime law, as well as international trade, insurance and arbitration all across Europe (Paris, London and Athens), in the United States (Washington, New York), in Asia (Hong Kong, Shanghai, Singapore) and in the Middle East (Abu Dhabi,

Dubai). Reed Smith's strength in these practice areas is a result of its global presence - and especially its long presence in Greece and Asia - and its network of experts, and, as far as the Paris office is concerned, of the team of lawyers dedicated to maritime law led by Luc Grellet.

**RICHEMONT NICOLAS
ET ASSOCIÉS**
www.richemont-nicolas.com

An international law firm established in Paris since 1945, specializing in transport law (road and air) and particularly maritime law in all of its aspects, as well as insurance and arbitration law.

The firm's lawyers handle cases in France and abroad, especially in French-speaking Africa, directly and through a network of specialist correspondents.

SHUBERT COLLIN ASSOCIÉS
www.shubertcollin.com

Shubert Collin Associés is an international business law firm, with particular expertise in advising French and foreign clients with respect to international operations.

In the area of maritime law, this "boutique" firm (twelve lawyers) operates essentially in the area of tax law (tonnage tax, VAT, business tax, tax litigation, etc.).

STEPHENSON HARWOOD
www.shlegal.com

International law firm specialising in maritime and transportation law; practices in all fields of maritime law and in particular the purchase and sale of vessels, financing of vessels (including Loi Girardin, mortgage loans, tax leasing, export credit); structuring ownership; flagging; port

development; concessions and public tenders; European aid and subsidy issues; all tax aspects relating to transactions. In addition, Stephenson Harwood assists its clients in the arrest of ships, enforcement of securities, insurance claims and commercial litigation.

TRILLAT & ASSOCIÉS
www.trillatetassocies.com

Trillat & Associés Law Firm is dedicated to the business activities of its clients as advisor and litigator in court or in arbitration. The firm has expanded significantly particularly in the international fields (contract management, merger – acquisition, etc.) especially in Germany and China.

In addition, Trillat & Associés Law Firm benefits from a solid reputation in industrial accidents (pollution, Mont Blanc tunnel fire, AZF plant explosion in Toulouse, collapse of the QUEEN MARY gangway in Saint-Nazaire, Channel Tunnel fire, etc.) where it handles the insurance and criminal aspects.

VILLENEAU ROHART SIMON
www.villeneau.com

The first maritime law firm established in France (Paris - Marseilles), and recommended by Chambers, it specialises in litigation, arbitration

and mediation in maritime law (Admiralty, carriage, C/P, marine insurance, shipbuilding, yachting, pollution...).



At the International Maritime Organisation, France is one of the top three States to have ratified the most international conventions on the prevention of accidental oil spills.



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Computing and electronic services

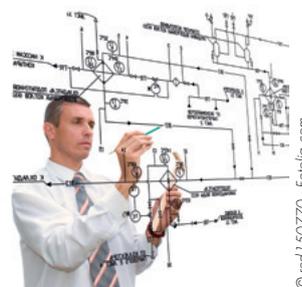
The French word *marétique* (Mare (in latin) + [informa] tique) refers to the computing and electronic systems used to control and automate operations to do with sea, river and port activities.



Electronics and information technology make up a key over-arching sector of the maritime economy. Expertise in the field of electronics helps to bind our naval, offshore and marine renewable energy (MRE) industries together. Computer tools, along with software publishing, simulation centres and virtual platforms, are essential for ship design and construction, ship control, weaponry, defence and self-protection systems, the development of MRE, and even educating and training seamen or qualified workers.

For that reason, the creation of a "marétique" cluster (i.e. one for new marine technology) with the @Marrer Association which were actively supported by the CMF, is a major venture for

our whole sector, demonstrating the visionary, innovative and enterprising spirit of its specialist electronics and information technology companies.



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@MARRER
www.seagital.com

@Marrer association is launching to be transformed into a Cooperative Company of Collective Interest (SCIC) with the following objectives:

- support Seagital projects that aim to develop and market new digital services for maritime and river-based actors,

- involve in the company's governance:
 - maritime and river-based actors,
 - digital actors,
 - pole of competitiveness and Innovation's players,
 - public authorities,
 - experts,
 - private and other professionals.

ATOOL DÉVELOPPEMENT
www.atool-dev.fr

ATOOL Développement edits, maintains and markets the software "Sémaphore, Voir pour prévoir", an operational tool for events management. Sémaphore monitors the maintenance of strategic

assets (CMMS), as well as regulatory and contractual monitoring to reduce risk and prevent any loss of amenities or operating losses.

AXSMARINE
www.axsmarine.com

AXSMarine is one of the leading global providers of online software solutions and databases to the international shipping industry. Since its creation in 2000, AXSMarine's solutions have been adopted by more than 800 companies worldwide. Its products deliver noticeable efficiencies to many commercial vessel and cargo chartering processes in Dry, Tanker and Containers. They provide a suite of modules which allow shipping executives to fully analyse their commercial and operational activities. Because they are Internet-based, services are available from any computer, anywhere; there is almost nothing to download or install. AXSMarine online tools are secure, fast and easy to use. AXSMarine is the first and only company

in the market providing a software system coupled with an in-house database, which makes its product unique and very complete.



AXSDRY ALPHALINER AXSOFFSHORE AXSS&P AXSTANKER

© AXSMarine

CERVVAL
www.cervval.com

CERVVAL, with 15 people is a specialist in:

- assistance in the design and optimisation of multidisciplinary systems,
- training materials, assistance with marine operations and "serious games",
- project management and planning optimisation,
- help and support in strategic decision making,
- human behaviour in simulations.

In the maritime economy, these methods are applied in the following fields:

- transport, operational methods at sea, chartering,
- marine renewable energy, the energy mix, storage facility management,
- multimodal transport analysis, simulation of the port of the future, ...

These methods are also applicable in planning large projects, shipbuilding and offshore activities...

DASSAULT SYSTÈMES
www.3ds.com

Innovative and reliable concepts, excellent quality, on-time delivery, compliance with safety standards, eco-friendly ships and offshore platforms, optimized operations; these are the challenges that the Marine and Offshore industries have to deal with nowadays, in order to bring customers added value and at the same time an unforgettable travel experience. Dassault

Systèmes' *Industry Solution Experiences* will help you drive sustainable innovations to create the best consumer experience for your product.

Dassault Systèmes, the 3DEXPERIENCE Company, provides business and the public with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 190,000 customers of all sizes, in all industries, in more than 140 countries.

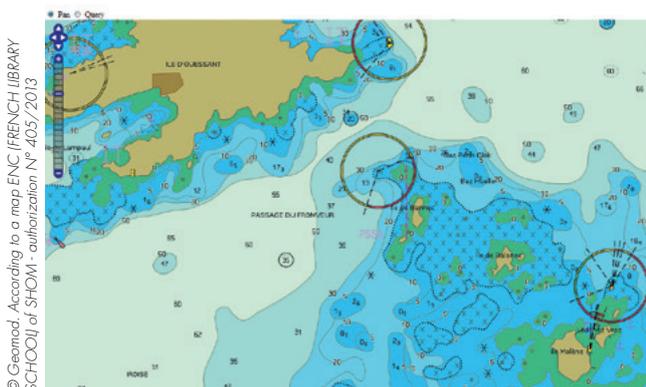


GEOMOD
www.geomod.fr

Geomod is a major player in software development for marine products including official marine cartographic products (ENC, AML). Based in Brest, the experts at Geomod's marine activities are actively involved in international work groups developing IHO standards. In particular, the software solutions

developed by Geomod are embedded in the military applications of DCNS and also in the applications of IFREMER and GENAVIR.

Geomod publishes software solutions in Java: KarMor SDK (API providing a cartographic core and standardized cartographic services: S52 image, ECDIS warning), MARINE WMS Server (web server advantageously exploiting ENC: high quality image, queries), ePilot Book (web application displaying ENC and real-time information for Pilots), ULHYSES (automatic bathymetric chart creation-ENC/bENC/CLB - from bathymetric surveys). Geomod is also a PRIMAR distributor of encrypted ENC.



By-products proposed and developed from the digital products stemming from sea charts of the SHOM, are not usable for the sea navigation. They do not replace the official products of a hydrographic service department. These by-products were not checked on behalf of the SHOM.

MATRA ÉLECTRONIQUE
www.matra-electronique.com

MATRA Électronique is able to define, design, manufacture, integrate, accept and maintain hardened electronic equipment in operational conditions. Our expertise is available in a variety of fields (microelectronics, coating, metrology ...) for the manufacture and test of ever more complex

integrated functions. In addition to ship wiring, MATRA Électronique is established today in other fields where equipment requires great reliability on very long life cycles, such as civil and military aeronautics, oil research, and space.

LiFi is a new optical wireless communication system using LED lighting to send numerical data. OLED COMM France LiFi designs, manufactures and markets a complete solution allowing you to communicate on land and under water with simple LED lighting. LiFi opens up a new era in the world of wireless data without electromagnetic pollution and without saturating bandwidth, at a much lower cost than WiFi. LiFi enables communication where WiFi is not allowed or where it is disrupted by a surrounding metal framework, and also of course underwater.

Key facts: € 600 K in 1st year income
Staff of 24



© OLED COMM



© PARSYS Station Télémédecine -
Hardcase - Télécardio - Beurer - Foracore

PARSYS Télémédecine is a manufacturer of systems and devices allowing doctors to make a remote diagnosis anytime, anywhere. It equips many merchant ships and fishing boats in Europe and abroad with wireless electrocardiographs or videoconferencing medical stations allowing Medical Assistants to make a precise remote diagnosis via satellite communication on seafarers who are unwell.



© S2F Network

S2F Network provides wireless and video surveillance solutions. With the advantages of its geographical location in Le Havre and its experience with numerous ports, S2F Network has established R-marina, a service especially for Marinas, and R-port, for Commercial Ports, wireless solutions for the centralised and secure operation of ports. R-marina and R-port both include modules to manage remotely and wirelessly all equipment that needs to communicate: access control, intercom, electricity, water, dynamic display to access real-time information related with local tourism or safety, and of course strong Wi-Fi anywhere.

Transas is a world-leading provider of high tech equipment, software applications, integrated solutions and services for the maritime industry: Transas has over 35% of the ECDIS world market share, around 25% of VTMS installations and over 45% of the maritime simulation market. Transas offers best-in-class navigation systems and integrated bridge solutions, recognized training and simulation solutions, well-known

VTMS and coastal surveillance systems, shipping company and port management systems, onboard and individual decision support systems for professional crew and pilots, as well as popular applications for leisure and the marine mass market. Transas operates more than 20 own regional offices as well as its global network of partners serving Transas customers in more than 120 countries.



In 2015 there were
1.2 million kilometres
of fibre-optic cables on the seabed.

The deep ocean begins at around **200** metres below the surface, where sunlight does not penetrate and there are no variations in temperature, and extends down to the ocean floor at a maximum depth of **11,000** metres. This environment makes up more than **98** % of marine waters in volume.



Consulting

Among the services that are essential for companies, engineering design offices and consultancy firms provide specialised services at all levels of economic activity. Engineering design offices are to be found in all branches of marine engineering (shipbuilding, offshore, MRE and port operations), providing services in project management, architecture, design or even environmental studies, and are of growing importance in most maritime related projects. Consultancy firms, for their part, possess other expertise essential for business development,

in areas such as strategic analyses and studies, communication and the media, institutional relations and management of organisations.



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Engineering consulting firms

AVELAJ

www.avelaj.com

AVELAJ is a marine engineering company. Its corporate purpose is to provide its customers in the maritime economy (shipowners, private companies, public administrations and local authorities, builders of fishing vessels and work boats, large yachts, passenger ships) with its experience in managing complex projects,

involving several companies providing different technologies.

AVELAJ is fully committed to energy efficiency and offers solutions in optimized hybrid and electric propulsion.

BREIZH MARINE CONSULT

© Breizh Marine Consult



Founded in 2012 by shipowner Yannick HEMEURY from Paimpol, Breizh Marine Consult (BMC) is a business consultancy with maritime technical expertise based in Paimpol (22). The main project of this company is an ultra-modern multi-purpose vessel under twelve metres called *Sérénilité*. The firm's ultimate aim is to bring to market by 2016

a versatile and innovative coastal fishing boat, which will be for its owners a greener more efficient operating tool, and safer than boats currently available through the integration of three major new technologies: innovative architecture, diesel-electric propulsion and the use of bio-based materials (incorporation of flax fibres).

CONEXNAV

© Conexnav



CONEXNAV provides engineering, administrative and contractual consultancy services to shipowners, mainly in newbuilding and refitting of commercial ships.

Its specialist fields generally cover: preliminary studies, preprojects (by themselves or in partnership with naval architects), preparation or adaptation of specifications and contracts, management of bids for tenders, close follow-up of design, building, trials, delivery, warranty. CONEXNAV also offer technical and administrative assessment of existing ships.

Its strength lies in offering a small number of customers at the same time a tailored service with full availability, so as to work with them in the spirit of an in-house service.

Their service is also based on a network of relationships among shipyards, naval architects, classification societies, maritime authorities (mainly French) and brokers.

Its experience with owners and shipyards has been gained throughout the world: France (Europe and almost all overseas territories), Australia, Philippines, Mauritius, Poland, Spain, Norway.

MER FORTE

www.merforte.com

© Mer Forte



Mer Forte is an engineering design consultancy specializing in sailing technology established by Michel Desjoyeaux and led by Denis Juhel. "Building on extensive experience from competitive sailing, Mer Forte strives towards bringing alternative experiences and innovative solutions to the shipping industry with an emphasis on low emission propulsion, and Marine renewable energy (specifically Floating wind mill). An experienced team of engineers uses a full range

of powerful modeling and calculation software (Catia V5; Abaqus; Simulia; StarCCM+; Simspar; Maat hydro+) in its work."

Dedicated design office of Groupama Team France for the 35th America's Cup, Mer Forte is increase human and cluster capacity to enlarge customers services in WASP (Wind Assisted Ship Propulsion) field.

Mer Forte has been named a JEI (Innovative Start-up Company).

VAISALA
www.vaisala.fr

For almost 80 years, Vaisala has been a global leader in meteorological and industrial measurement. Vaisala serves customers in weather markets (maritime, energy, defence, airports, road and rail transport, etc.) and in controlled environments.

The Vaisala group:

- is headquartered in Helsinki, Finland,
- has 30 sites worldwide,
- employs almost 1,600 professionals,
- has net sales of € 300 million (2014),
- main markets: EMEA (37%), Americas (37%), APAC (25%),
- products used in over 150 countries,
- since 1990, the French subsidiary Vaisala SAS has been a sales and service site for South Europe.

Maritime Offering:

- environmental solutions and services for HMS/EMS, Off-shore, VTS, EMR,
- Observation Driven Situational Awareness Systems designed to enhance customer's operational efficiency and safety,
- a wide range of sensors and meteorological stations (wind, pressure, temperature and humidity, current, wave, water level, tide, visibility, clouds, rain, lightning),
- Vaisala Service Offering: installation, training, technical support; calibration and repair services, maintenance.

VERIFAVIA
www.verifavia.com

Verifavia is a worldwide independent accredited carbon emissions verification body for aviation and maritime transport. Verifavia provides emissions verification information and services that enable shipping companies to navigate the requirements of EU Shipping Monitoring, Reporting and Verification (MRV) efficiently and effectively. Verifavia strives to be the maritime industry's first choice for the provision of independent carbon emissions verification services under the EU Shipping MRV Regulation. Verifavia works as a trusted partner to its customers, supporting them in achieving compliance with an independent service grounded in accuracy, integrity and expertise.

For up-to-date news and information on Shipping MRV, follow [@VerifaviaMarine](https://twitter.com/VerifaviaMarine)



VERIFAVIA © Yüç Gemisi - Rıza - Fotolia.com



In metropolitan France, the principal activity in aquaculture is shellfish farming with **160,000** tonnes produced per year for a turnover of € **546** M, followed by continental fish farming with **40,400** tonnes for a turnover of € **125** M.

Consulting Firms

CK AUDIT

Headed by a former partner of PWC, this firm has acquired financial and tax expertise in the maritime economic sector in areas such as insurance, banking, local authorities, seafood

processing industries, and particularly industrial fishing vessel ownership and operation, both in France and abroad.

DsG CONSULTANTS
www.dsgconsultants.com

DsG Consultants advises and assists public and private companies operating in the port sector or bulk solids for targeted or continuous monitoring

missions in France and abroad (countries of Southern Europe, Mediterranean and Black Sea mainly).

EB CONSEILS
www.eb-conseils.fr

A consultancy firm specialising in institutional relations and providing a representation service for companies and institutions (local authorities, professional bodies) with public authorities,

research relating to finance especially from Community sources, representation of foreign businesses in France, canvassing of the French market in the maritime and port sectors.

EPNAVAL
epnaval.com

EPNaval makes a futuristic ocean cruising yacht. Packed with innovations such as foils, electrical propulsion with hydrogenerator, home automation applied to yachting and water-cooling, the amerX is eco-designed. EPNaval engineers and develops yachts together with a partner who builds them.



© EPNaval

The amerX ship at the "Grand Pavois" exhibition"

EQUALOLOGY
equalogy.fr

Equalogy is a new type of agency whose mission is to reconcile economic issues with natural resources and biodiversity conservation as well as with climate change and environmental NGOs.

Equalogy © Teeside Offshore Wind Farm - Paul Licence Creative Commons



Equalogy helps private companies and public institutions adapt to these new challenges as quickly as possible. It helps them anticipate potential conflicts in planning projects by bringing together the different stakeholders in a spirit of partnership and consensus. In addition to typical sustainable development and CSR/OSR consultancy services, Equalogy also helps its clients make choices for their company's future that are in line with new environmental standards and social expectations.

ERNST & YOUNG
www.ey.com/fr

Ernst & Young is highly experienced in the port and maritime sector. Its multidisciplinary team of specialists in this sector work hand in hand with port authorities and maritime businesses to help them manage their complex projects, overcome

difficult issues and meet all of their objectives: performance optimisation, finance/management, risk control, strategy definition, public law, business law (including taxation)...

EUROTRANS
www.eurotrans.fr

An ISQ qualified firm in market research, business plan preparation, and strategic and logistics advice. For 20 years, its expertise has been key to the success of many projects in 20 countries,

with 800 customers in transport, logistics and industry. Eurotrans has consultants and specialised databases in sea transport, shipbuilding, and ports.

INDICTA
www.indicta.com

In April 2015 INDICTA, with its personnel and its business name, became part of the new division *Conseil et Etudes Stratégiques* of the firm M PRIME ENERGY. Its core business is:

- assistance with strategic decision making and the creation of strategies for business expansion in large groups, MSE, SME and start-ups, in France and internationally;
- support with implementing public policies and evaluating their social and economic consequences.

INDICTA has developed substantial expertise in the energy sector and in the maritime economy, with high calibre references in:

- all types of marine renewable energy;
- and more generally in the technological fields and new markets arising as a result of ground-breaking innovation (subsea, multi-use platforms, ...)

INTER ACTION CONSULTANTS
www.iac.fr

IAC is an operational advisory company which specialises in helping its clients gain a greater competitive edge. IAC oversees projects (project management), and provides organisational support

and economic expertise to boost the capabilities of project teams. The four main areas of specialisation are: design to cost, redesign to cost, purchase optimisation and value creation.

ISEMAR
www.isemar.fr

Isemar is at once a centre of research, information and expertise dedicated to the maritime economy. Its activities of analyse,

publication and promotion have led Isemar to become the "French reference observatory" and to have real recognition at European level.

JFT CONCEPTS

JFT Concepts offers consulting services to businesses, local authorities, government and professional organizations in the areas of strategy, institutional relations and development at national,

European and international level. The firm is headed by Jean-François Tallec, former prefect, former Secretary General of the Sea from 2008 to 2011, former officer in the Merchant Navy.

JP COLLIN & PARTNERS
www.jpcollin.com/offer

JP Collin & Partners is addressing transportation-intensive industries. JP Collin & Partners processes and mines transportation and logistics data for operational & financial insights. JP Collin & Partners identifies and transforms opportunities to deliver money back to the bottom lines, improve customers' satisfaction and environmental footprint.

JP Collin & Partners processes opportunities analysis, implementing its recommendations, IT

solutions transportation metrics and dashboards, pilot design to outsource project.

The JP Collin & Partners' team intervenes all over the world, always considering local environment - the expertise covers parcel, pallet, part and full truckload services, air & sea, freight forwarding and brokerage, express, projects, port operations, logistics services, data exchange and transport management.

KPMG ENTREPRISES
www.kpmg.com/fr

KPMG is the leading provider of audit, accounting and advisory services in France, with revenue of €894 million and a workforce of

8,300 in 2013. KPMG France is a member of the KPMG International network of independent firms operating in 155 countries.



KPMG's professionals have skills specialized in the maritime field throughout the country. Its SETE office is specialized in the subject with a great majority of its customers in the fishing industry. KPMG SETE offers optimum services such as the presentation of annual accounts and tax returns for the fishing industry.

LEO POLE CONSULTING
www.leo-pole.com

Dedicated to the maritime industry, LEO POLE CONSULTING provides it with sound independent expertise in the field of security, building on the maritime experience of its founder and an international network of screened partners. The scope of services includes:

- consulting (desktop and on the spot),
- the most relevant partnerships for protecting the crews against maritime crime,
- supporting maritime projects which involve both public and private stakeholders around Africa.

MASSAI
www.massala.eu

Massai is the only independent consultancy, catering exclusively for CEOs, executives and directors, which specialises in the organisation and management of corporate governance and strategic transformation.

With more than 90 projects, Massai advises senior management in over 28 countries on how to accelerate business expansion, while observing the strictest confidentiality in its relations with its clients (large groups, MSE and family-owned groups) and never disclosing references.

It has considerable experience with family-owned groups, from which it has developed a unique approach to maintaining privacy in business operations and ensuring discretion in the assistance it provides.

Using its extensive knowledge and experience acquired in France and abroad in both the public and private sectors, Massai provides individual assistance designed especially for the specific

needs of each company. It establishes tailor-made systems of governance, facilitates transition during mergers or acquisitions, prepares the way for new board members, proposes solutions for conflict resolution and prepares for the next generation to take over in family-owned groups.

It aims to be the leading consultants on governance in France and to provide its clients with real added value and lasting growth.

Its mission is not just to provide a service: it is to be a real partner and guarantee continuous improvement and efficiency in its clients.

Massai undertakes:

- to maintain complete confidentiality and total discretion for its clients,
- to provide unique solutions for solving complex problems,
- to develop innovative ideas for growth,
- and to pursue success together.

MONTGOMERY CONSEILS
www.montgomery-conseil.net

Montgomery-Conseil has skills to manage industrial projects, in particular in the energy and maritime sectors. Its experienced consultants

provide its clients with senior-level strategic advice and focused implementation processes.

ODYSSÉE DÉVELOPPEMENT
www.odysseedev.com

Odyssée Développement is an independent consulting firm specializing in maritime economics. Its expertise in audit, technical support, and training, is dedicated to maritime professional activities, related to fishing and aquaculture, port management (fishing, commercial and

marinas), maritime transportation, yachting, but also regional development and integrated coastal zone management. Based in La Rochelle, Cayenne, and soon New Caledonia, its experts are active in France and overseas.

PwC
www.pwc.com

PwC, a leading professional service organisation in the maritime economy, is active in France and in French-speaking African countries providing companies with audits and accounting advice. Its multidisciplinary staff support organisations

in the maritime economy (shipping companies, shipyards, port authorities, fishing companies...) in their business projects and strategic decisions. In France and French-speaking Africa, PwC has 4,500 people in its 38 offices.

R-MARIN CONSEIL

R-Marin Conseil provides consultancy services, project management for business development and reorganisation, as well as coaching for business managers and leaders of professional

bodies. It is backed in particular by the expertise of Eudes Riblier, a former executive of shipping and shipbuilding companies, and a network of leading experts.

S²F NAVISPEC
www.navispec.com

A network of international maritime and financial specialists and consultants for the river and port maritime sectors.

Assistance in shipping and maritime industrial projects, training, non-destructive analysis and tests, condition and 3rd party surveys.

SOCIÉTÉ MARINE DE SERVICE
www.smsmarine.fr

"Société Marine de Service" (S.M.S) is a company involved in engineering, sales, marketing and services (including aftersales).

SMS has established a network in the main countries with shipping and shipbuilding activities.

SYRTYS CONSEIL

Syrtys Conseil are project management consultants for businesses and local and

regional authorities, primarily in risk assessment, management organisation and strategy.

A symbolic threshold of **10** billion tonnes has now been surpassed by international sea transport in 2014.



Consulting firms in media and communication

ALISKER

www.alisker.com

Global communication agency, Alisker advises and supports companies and maritime sector stakeholders in the implementation and execution of their communication projects: website, corporate identity, print, exhibition stands and events in France and abroad.

In 10 years, Alisker has earned the trust and loyalty of its clients through its requirement, responsiveness and creativity.

His expertise: understanding the universe and the goals of its clients, and designing actions and its communication tools to best serve its challenges.

CAP IMAGE

www.cap-image.com

Specialized in industrial communication, Cap Image has been working alongside shipping companies for the last 21 years.

Set up in Saint Nazaire, Nantes and Paris, Cap



© Cap Image

Image creates events and stands and produces films relating to the maritime world from Marseille to Le Havre and from Miami to Moscow. Launching yachts, cruise liners, submarines or racing catamarans as well as organizing boat visits, greeting well-known people or contributing to better in-house communication, are all tasks Cap Image provides for its clients.

The knowledge of the clients' requirements, the ethos of their business, is the guarantee of the success of its clients.

Among the organisations and companies which have put their faith in Cap Image are:

the French Navy, STX Europe, MSC Cruises, Cunard, The Vendée Globe, the Ferry Port of Marseille, Alstom, GDF, the Naval Museum.

COLLOQUIUM GROUP

www.colloquium-group.com

For 60 years Colloquium has been supporting institutions, associations and federations in their development and expansion policies, and creating and implementing appropriate strategies to meet the challenges of today and tomorrow.

Colloquium has assimilated the entire value chain to enable it to provide a coherent comprehensive response to all of its clients' problems.

Events:

- corporate governance,
- finance,
- database qualification & management,
- digital communication,
- community development & organisation,
- brand content.

COMTOSEA

www.comtosea.com

Comtosea specialises in the production and management of information content and communication exclusively for the maritime and waterway sector. It assists companies in the design, facilitation, management or development of all their

media (web, print, audiovisual, conferences), and offers strong expertise in particular issues of sustainable development. It also provides training in communication (speaking, media management) for executives and industry leaders.

HEOS MARINE

www.heos-marine.com

HEOS Marine is an audiovisual agency specialising in maritime services; it carries out photographic and video promotional assignments for the business of its clients: underwater images, offshore installations, fishing and sea-related activities, offshore wind farms and development of the maritime zone.

For the media campaigns of its clients, HEOS Marine also has a database of copyright-free images on the following subjects: underwater algae, sea-related activities and offshore wind farms.



© HEOS - Nicolas Job

I-TRACK MEDIA
www.i-trackmedia.com

I-Track Media puts its know-how and its reactivity to work on images, using tone and techniques hitherto unknown in this field, in order to make information impact more pertinently and more forcefully. Its multicultural multidisciplinary team is made up of experts in audiovisual production, events and communication, who complement each other perfectly.

I-Track Media will guide its customers all the way, from shooting to editing and special effects, and will provide them with its image making expertise, leading edge technology, avant-garde methods and post-production creativeness. I-Track Media encourages a spirit of innovation to promote its customers' products, events or concepts with a video infinitely more alluring and more persuasive than a lengthy sales talk...

ILAGO GROUP
www.ilago.fr

ILAGO is resolutely international and has the complete skill set required to deliver a comprehensive communications and events service. ILAGO operates through two specialised groups: ILAGO Com satisfies all of its clients' professional

communications needs including the development of content, graphic design, public and press relations. ILAGO Event delivers proven expertise in the organisation and management of events.

VIA DÉCOUVERTES PRODUCTION
www.viadecouvertes.fr

Via Découvertes Production is dedicated to the production of audiovisual content for television programmes, institutions and businesses. A specialist in "Sea Movies" and producing all its films in HD, Via Découvertes Production relies on its 20 years of experience and its expertise in documentaries to support companies, institutions and authorities in their communication activities. Through dedicated, web friendly "showcase films", Via Découvertes Productions is able to convey its expertise and specific skills using a documentary style approach.



Picture extracted from the movie "A l'assaut des déferlantes"

© Via Découvertes Production

Social Services

SERVICE SOCIAL MARITIME
www.ssm-mer.fr

Service Social Maritime (SSM) is an organisation established in 2007 (following the merger of older maritime social services from the 1930's) as an association under the 1901 Law by the principal organisations of the maritime sector (Armateurs de France, CNPEM, CNC, Enim, Cmaf, seamen's unions ...).

It engages in particular with maritime companies as an Occupational Social Service and contributes to prevention policies in matters related with Health & Safety at Work in partnership with relevant stakeholders.

Present in the 38 principal French ports (including overseas ones), it is composed of 95 professionals in social work and maritime affairs who make their specialist knowledge available daily to maritime companies and their staff.



The oceans contain **97.5%**
of the Earth's water, the continents **2.4%**
and the atmosphere less than **0.001%**.

Local economic stakeholders



The area of France's EEZ is set to be extended by **1.5** million km² as a result of the Extraplac programme for extending the limits of the continental shelf.

With 3,427km of coastline and more than 7.7 million inhabitants in coastal towns in metropolitan France, maritime zones concentrate a significant number of economic activities important for their development. The local institutional organisations – local authorities, consular organisations, etc. – as well as the industrial clusters which have

developed in recent years, play an essential role in supporting professionals as close as possible to their work. They are key links in the implementation of a maritime policy that takes account of the specific social and economic problems of each zone.

ADIR - ASSOCIATION POUR LE DÉVELOPPEMENT INDUSTRIEL DE LA RÉUNION

www.adir.info

Established on 9 June 1975, the ADIR (Association for the Industrial Development of La Reunion) promotes the development of industry on the island of La Reunion. This association has over 200 member companies from different sectors such as food processing, public works, equipment manufacture, chemistry and other industrial activities, which represent € 2 billion of turnover and around 10,000 workers. ADIR plays an essential role in supporting industrial interests faced with Public and Administrative Authority regulations

(local, national, and European). ADIR proposes methods and technical services to its members to improve their industrial and economic performances in the supply chain, freight, maintenance, waste treatment, recycling, energy control, financial engineering, public commissions and human resources. Its communication department has been producing a monthly 40 minute TV economic program for 15 years. ADIR is also a member of the Maritime Cluster of La Reunion.

ANEL – ASSOCIATION NATIONALE DES ÉLUS DU LITTORAL

www.anel.asso.fr

The National Association of Coastal Local Authorities is a grouping of the regional authorities in the coastal areas of mainland France and the Overseas Territories: maritime municipalities, communities of municipalities and agglomerations, provinces and regions. The Association is a forum where local authorities

can share experience among themselves and with public and private partners; it is also a proactive force for innovation. Its mission is to represent local authorities and act as the principal intermediary with central government authorities on issues concerning the sea and coast.

CCI DU HAVRE

www.havre.cci.fr

The Chamber of Commerce of Le Havre is a public institution that currently represents around 7,000 industrial, commercial and tertiary service companies situated in a region with 29

municipalities. It is a real driving force for local economic development, and is the hub of a dynamic network acting for the creation and development of companies.

COMMUNAUTÉ D'AGGLOMÉRATION DU BOULONNAIS

www.agglo-boulonnais.fr



© photo pêche Mission Capécure 2020

With more than 5,000 jobs linked directly with the maritime economy, France's top fishing port Boulogne-sur-Mer is home to one of the largest fishing clusters in Europe. The fishing port at Capécure – the zone of activity devoted to the catching, processing and the logistics of fish and related sea products – is the economic

powerhouse of our urban area of 125,000 inhabitants.

The main goal the Communauté d'Agglomération du Boulonnais (CAB) is to support the stakeholders of the blue economy on the Côte d'Opale seaboard. Marine renewable energy, biotechnology, sea transport, aquaculture, yachting and cruising are the main areas of priority development where the CAB seeks to develop partnerships with members of the French Maritime Cluster.

COMMUNE DE SAINT-ANDRÉ

www.saint-andre.re

The PIB (Industrial Pole of Bois Rouge) is a major project of economic development for La Réunion island. The PIB piloted by the GIP established by the Reunion Regional, by the EPCI (Public Intermunicipal Cooperation Institute) CIREST, by Saint-André's Municipality has for ambition to develop the following activities on a land of more than 200 hectares:

- harbour: bulk carrier, carter, energy with the GNL, and complementary to the present Harbour;
- digital technology: green dated to center;
- energies: electric production units, and SWAC;
- formation and research: science park.



© Perspective Saint-André bois rouge - May 2015

COMMUNAUTÉ URBAINE
DE DUNKERQUE
www.dunkerquegrandlittoral.org

Dunkirk Urban Community (CUD) is a public body for intercommunity cooperation (EPCI). Established in 1968, it was the first voluntary urban community in France. Today it comprises 18 municipalities and contains 200,000 inhabitants. The usual tasks carried out under the French system of intercommunality (water and waste management, sewerage, urban transport, roads...), Dunkirk Urban Community has, over time, been given a number of other remits on matters related with its development and influence: economy, tourism, international relations, sport, culture...



© Communauté Urbaine de Dunkerque

In keeping with the objectives set by politicians in the community plan, work is proceeding towards regional development aimed at addressing the specific problems of the industrial hub and port of Dunkirk.

DÉPARTEMENT DE
CHARENTE-MARITIME
www.charente-maritime.fr

Consisting of 470 km (300 miles) of coastline, Charente-Maritime is a naturally attractive region. The Department helps in the development

of its maritime industry generating employment and business innovation (marine, commercial, aquaculture, fishing...).

LE HAVRE DÉVELOPPEMENT
www.havre-developpement.com



© Le Havre Port

Le Havre Développement, the economic development agency for the region of Le Havre, supports set-up, investment or development projects in France's largest port for international trade. In the maritime sector, Le Havre Développement supports logistic, port and maritime service providers, as well as connected tertiary and industrial activities. The agency is a leader in the development of the regional offshore wind industry industrial platform.

RÉGION BRETAGNE
www.bretagne.bzh

France's largest maritime region, with almost 3,000 km of coastline, Brittany values all its maritime activities: fishing, aquaculture, marine energy, ports, ship building, marine biotechnology, yachting, tourism, cross-channel links (with Ireland, the United Kingdom, the Channel Islands) and links with Spain. These activities are all drivers for development that the region actively supports, through an ambitious maritime economic development policy.

Brittany represents:

- 40,000 jobs in the maritime sector, by direct employment, excluding tourism,
- 50% of France's marine and maritime research,
- 50% of France's sea fishing production.



© Fred TAINNEAU

60% of the world's population live less than
60 km from the sea; soon it will be 75%.



RÉGION
LANGUEDOC-ROUSSILLON
www.laregion.fr

With 215km of coastlines and 70 ports, the Region Languedoc-Roussillon owns a real potential for maritime economics. Basins, canals and the Mediterranean sea constitute a great trade network. By developing ports in Sète and La Nouvelle, supporting fishermen, creating new moorings and helping scientific researches, the Region stands by every coastside-inhabitant's side. This is why, after the establishment of the *Parc Naturel Marin du Golfe du Lion* in 2012, the

Parlement de la Mer (Sea Parliament) has been set up in 2013 in order to unite the entire regional community. Today, it is an indispensable tool for enhancing the assets of the Mediterranean sea. The Region Languedoc-Roussillon hosted 2013 in Montpellier and Sète the 9th edition of the *Assises de l'économie maritime et du littoral* (national conference on maritime and coastal economics) and, in 2015, the first European summit of marinas, with over 400 participants.

RÉGION NORD PAS-DE-CALAIS
www.nordpasdecalais.fr

The Nord Pas-de-Calais Council, with its 113 regional councilors, 5,800 civil servants and a budget of € 2 billion, has owned the ports of Boulogne sur Mer and Calais since 2007. It manages, maintains and develops port infrastructures, and delegates port operations.

- Boulogne-sur-Mer: N°1 in fishing and seafood processing
 - 130 companies accounting for more than 5,000 jobs, 36,000 tonnes of fish caught per year
 - 300,000 tonnes of seafood product flow
 - 183 fishing boats
 - a national competitive cluster for fishing: Aquimer

- Calais: 1st French port for travellers, 30 km from England
 - 11 million passengers
 - 41 million tonnes of goods transported
 - ranked 2nd in Europe for roll-on roll-off freight, with 1,569,000 trucks

The Regional Council of Nord-Pas de Calais in 2011 launched the call for tenders for a public service delegation to the ports of Boulogne-sur-Mer and Calais, including the Calais Port 2015 project.

RÉGION PAYS DE LA LOIRE
www.paysdelaloire.fr

With 450 kilometers of coastline and an annual value added of €28 billion, the maritime sector plays a significant role in the economy of the Pays de la Loire region.

The maritime economy covers a wide range of domains that include shipbuilding, maritime transport, fisheries, port infrastructures, biotechnologies, and coastal and maritime tourism, to name just a few. All the actors in the Pays de la Loire region are currently focused on the "blue growth" concept; renewable marine energy, ships and fishing vessels of the future, sustainable sharing and protection of marine resources, etc.

Based both on historic expertise and their status as national leaders in the shipbuilding sector,

regional actors are innovating and building on cooperative intelligence initiatives (in particular, within dedicated research centers, or the Neopolis EMR cluster, etc.) that foster the constant reinvention of production techniques. As such, they are paving the way for the Pays de la Loire to legitimately assert itself as the go-to region for the new maritime economy.

The Pays de la Loire region is a technological leader in the renewable marine energy sector and is the driving force behind a number of initiatives:

- defense of projects for offshore wind farms off the coast of the Loire: two wind farms awarded (1/3 of national power): off the coast of Saint-Nazaire and close to the islands of Yeu and Noirmoutier,
- major financial backing of R&D projects linked to the EMR,
- structuring of regional R&D forces through the construction of the Technocampus Ocean platform,
- ongoing financial support for eco-projects run by industrials seeking to diversify towards the EMR,
- development of engineering and a training offer (e.g. wind turbine maintenance training sector).

Studies show that protecting crucial marine habitats - such as coral reefs, underwater plant communities and mangroves - can considerably increase the size and quantity of fish, benefiting both small-scale and commercial fishing.



© Région Pays de la Loire

Official opening Alstom wind farm project

**SYNDICAT MIXTE
POUR LE DÉVELOPPEMENT
DE BREST IROISE - SMBI**
www.brest.fr

Created in 1971, the SMBI is a public establishment composed of the Brittany Region, the Department of Finistere, Brest Metropole and the Brest Chamber of Commerce and Industry. Its main purpose is to be the forum for strategic governance of the port of Brest. As such, it is responsible to develop and manage the port development reference scheme. As part of the development of the Brest port area, it pilots different prospective studies that could lead to investment programmes to provide the port with high-performance infrastructures and industrial-port tools.

The SMBI, for and by the actors it brings together, leads actions of economic exploration in the service of the valorisation of port spaces, including those being created on the polder of the port of Brest.



© SMBI

TECHNOPÔLE BREST-IROISE
www.tech-brest-iroise.fr



© Technopôle Brest-Iroise

*An extraordinary site of 100 hectares,
located at the West of Brest*

The aim of Technopôle Brest-Iroise is to get together and support innovative people to galvanize the territory's development. To do so, it leads a stimulation action between industry, scientific and academic players.

It provides to its members network facilities, identify partnership opportunities, and support their business creation projects.

Technopôle Brest-Iroise runs 2 major projects: Global Sea Campus and Brest Tech +. They provide a strategy so that local social and economic players contribute to their development and the territory's attractiveness.

**TOULON PROVENCE
MÉDITERRANÉE**
www.tpm-agglo.fr

Since it was established in 2002, the agglomeration community of Toulon Provence Méditerranée, in keeping with its military, naval and industrial past, has developed a maritime strategy. TPM has made the sea a keynote of its economic and tourism policy, through numerous actions such as support for governance and for the projects of several competitiveness clusters,

particularly the Mer Méditerranée Cluster (239 projects accredited in August 2014); TPM also encourages businesses to come and set up in the area (Technopôle de la Mer, Marine Activity Park at Saint-Mandrier, Economic Activity Zones ...); finally, it invests in higher education and research, as well as in port activities.

VILLE DE PAIMPOL
www.ville-paimpol.fr

Paimpol is a historic port of unique character and an unmissable stopover on the north coast of Brittany. Paimpol harbour, situated in the heart of the town, enjoys a privileged location where protected natural sites coexist with marine renewable energy projects on the north coast of Brittany.

Paimpol is an excellent starting point for exploring the surrounding area. It is the gateway to Bréhat Island and the Trieux landings from which one can easily continue on to the Channel Islands, England or even Ireland. Surrounded by nature on a wild protected coastline, it offers magnificent walks along its famous cliffs for enjoyment and exploration.

Paimpol harbour is a centre of activity, leisure boating, fishing and oyster-farming. This diversity is the source of its strength and affluence. Actively



© Mairie de Paimpol

engaged in maritime activities, Paimpol is seeking to develop its association with the sea by promoting activities in aquaculture and marine biotechnology and by creating business zones for innovative enterprises.

Spreading the message

Dedicated to spreading a positive message about the maritime world, these institutions use their influence to raise the profile of maritime affairs with public authorities, parliamentarians, academics and also the general public. Through their activities ideas and values can be shared, knowledge passed on and information disseminated.

France has established
40 protected marine zones in the Atlantic Ocean and Mediterranean
and **7** in the Indian Ocean.



Mutual support and interdependency

AAAM - ASSOCIATION DES ADMINISTRATEURS DES AFFAIRES MARITIMES

The Association of Administrators of Maritime Affairs brings together officers belonging to this profession regardless of their position (active, retired or on secondment). Beyond the mutual exchange of information among its 200 members, the association helps to spread the influence of the

French maritime administrations. It also works to ensure that they are appropriate to the needs of all aspects of the maritime environment. To that end the association publishes (once or twice a year) "RIGEL", a magazine devoted to legal, administrative and economic developments in the French maritime world.

ACOMM Φ AENSM - ASSOCIATION OF CAPTAINS AND OFFICERS OF THE MERCHANT MARINE AND ALUMNI OF THE "ÉCOLE NATIONALE SUPÉRIEURE MARITIME" (ENSM)

www.acomm-net.com

Ideas and action to defend and promote the interests of Merchant Marine officers from cadets to master mariners, chief engineers and paramarine engineers, at all degree and certificate levels and covering all positions: at sea, ashore, in job research, retired or in supporter roles. Defence of the seas and oceans. Development of the French Merchant Marine. Theoretical and practical measures to maintain a high

level of maritime education so that it remains constantly up to date with required skills and the needs of the shipping and paramaritime world.

ACORAM

www.acoram.fr

The French Naval Reserve Officers Association is a network of 4,000 members from all Navy branches, specialities and grades: operational reservists, civilian reservists, honorary and former reservists, all sharing the values of the French Navy, values generally conveyed succinctly by the term "team spirit". The 36 sections into which they are divided cover mainland France and

the Overseas Territories. ACORAM is also the body that speaks out for Naval Reserve Officers in dealings with the defence authorities, and its media centre publishes "Marine et Océans", a quarterly review and website reporting on the maritime and geopolitical world, with contributions from international analysts and decision makers.

AEN - ASSOCIATION DES ANCIENS ÉLÈVES DE L'ÉCOLE NAVALE

www.anciens-navale.fr

The Association of Naval Academy Graduates helps former Naval Academy graduates in need of assistance, helps retiring officers finding jobs and maintains friendly links between its 4,000 members. It aims at promoting the reputation of the Academy and making people more familiar

with the Navy and the maritime interests of our country. www.anciens-navale.fr; quarterly magazine "La Baille"; Yearbook; yearly prize "The Eric Tabarly Prize"; "Soirée Bleu Marine" (a prestigious party in Paris).

INTRA-MARINE

www.intra-marine.net

INTRA-MARINE is an organisation representing Naval Reserve officers who have completed their national service in the Navy, serving as aides de camp or chiefs of staff for naval authorities, as specialists in international relations or linguists skilled in rare languages. Most of these officers are graduates of schools of business or engineering, institutes of political studies, the ENA, Normale Sup, or Langues O.

The association also admits as members Naval Reserve officers under contract to the Operational Reserve and the Citizen Reserve who have expertise in international relations or foreign languages and a keen interest in the Navy and the sea.

Learned societies and networks

ACADÉMIE DE MARINE www.academiedemarine.com

The *Académie de marine* is a national public institution under the supervision of the Minister of Defence.

As a learned society, its aim is to promote the development of high-level research and studies on maritime issues of all kinds. Its range of scientific, cultural and administrative activities and interests embraces all maritime domains.

By its projects, editorial statements, publications, field trips, and distribution of prizes and financial incentives, the Académie seeks to encourage and support research, initiatives, and experiments of potential interest to all maritime disciplines.

The Académie comprises six sections of thirteen members each. These members are elected from among the most eminent people within the maritime world :

- the Navy,
- the Merchant marine, fishing and yachting interests,
- science and technology,
- navigation and oceanography,
- history, literature, and arts,
- law and economy.

Twenty foreign members collaborate on the work of the Académie and contribute to its international prestige and influence.

CERCLE DE LA MER www.cercladelamer.com

The *Cercle de la mer* was founded in Paris in 1971 with the object of developing interest in maritime matters and related activities. Located on

a barge at the foot of the Eiffel Tower, between the Lena and Bir Hakeim bridges, the Cercle is an exceptional site.

ENTREPRENDRE POUR LE FLUVIAL www.entreprenre-fluvial.com

Established in 2007 on the initiative of the inland waterways authority VNF and those working in the sector, the association *Entreprendre Pour le Fluvial* (Entrepreneurship For Inland Waterways) today has a membership of some sixty entities from the

inland waterway industrial and financial sectors. Its mission is to help create and develop businesses in tourism, freight services and other services related with the inland waterways sector.

EPHÈSE

Ephese belongs to round the world sailor Catherine Chabaud. Launched in 1990 when she built her first racing boat, Ephese manages all her activities (racing boats, conferences...).

Since 2011, Ephese has managed the *Voilier du Futur* project, a demonstrator of ecological innovations for the nautical industries.

IFM – INSTITUT FRANÇAIS DE LA MER www.ifmer.org

The French Institute of the Sea (IFM) is a non-profit making association whose aim is to increase awareness among the French people of the fundamental role of the sea in all fields and to promote French maritime activities by all available means.

The French Institute of the Sea achieves its goals by lobbying, disseminating information, research, and through activities and actions directed at decision makers and the public in general.

The ocean liner France crossed the Atlantic **377**
times carrying **600,000** passengers.



LITTOCEAN
www.littocean.fr

As a think tank for maritime and coastal affairs tasked with producing integrated maritime policies and strategies along with their mechanisms of governance, 'LittOcean, pour des espaces maritimes équitables' develops the maritime dimension of government policies and international relations. Its action is designed to benefit all those engaged in maritime and coastal activities and policy

via training and advisory activities, mainly in the form of support for businesses engaged in implementing industrial projects designed for specific areas, involving numerous players and covering particularly weighty environmental issues. It also provides assistance to project managers of institutional organisations to help them design their maritime and coastal projects.

MAUD FONTENAY FOUNDATION
www.maudfontenayfondation.com



© Maud Fontenay Foundation

Since 2008 the Maud Fontenay Foundation, recognised as a public interest organisation, has engaged in actions in France and abroad to preserve our oceans. Its activities include environmental education for the young generation and the public with support from its scientific committee, the Ministry of Education and the Ministry of Ecology as well as the Intergovernmental Oceanographic Commission of UNESCO. Its goal is both ecological and social: oceans are humanity's future.

The 2014-2015 edition of its junior WATER pack comes with a teacher's book on how to use the pack. The 2014-2015 edition of the 100% Ocean pack comes with a junior high school teacher's book on the French coastline produced in partnership with the Conservatoire du Littoral; and a senior high school teacher's book on marine renewable energy produced in partnership with the French Maritime Cluster and the CNRS. Pupils can get their hands on the educational packs free and register their classes for the national Maud Fontenay Foundation challenge by logging on to the website of the Foundation.

PROPELLER CLUB DE PARIS
www.propeller-paris.com

The Propeller Club of the United States is a worldwide organisation which was established in New York in 1923 to promote the interests of the merchant navy in the aftermath of the First World War.

Today, the Paris Propeller Club is just one of a vast body of more than 100 affiliated clubs located throughout the world, no less than 28 of which are in Europe.

A common factor unites the 7,000 or so members of this entity: defending and promoting the broader interests of the Merchant Navy and all of

its supporting activities, given the extent to which international trade relies on sea transport.

This fact is not well understood hence the reason why the Paris Propeller Club has for some years been active in debunking misconceptions and using education to present itself as an organisation open to dialogue.

This policy requires it to return to basics by organising themed monthly lunchtime discussions, often in conjunction with other associations pursuing the same objectives and sharing the same goals.

OCÉANIDES
www.oceanides-association.org

Océanides is an association engaged on an international research project in global maritime and naval history.

By 2017, almost 300 researchers from all over the world will study and trace the history of humanity through the prism of the maritime world. Covering five thousand years of history over five continents, the objective is to demonstrate that

oceans are at the heart of past, present and future political, economic and social issues.

Financed by public and private partners, the mission of Oceanides is to publish the results of its research in French and in English, with shorter versions for the politicians, the young people and teachers.

1.2 million people live and work permanently at sea on nearly 50,000 ships.



WISTA FRANCE

www.wista.fr

The Women's International Shipping & Trading Association is an international organisation for women in management positions involved in the maritime transportation business and related

trades worldwide. WISTA has over 2,000 members in 32 national WISTA Associations throughout the world, including WISTA France set up in 2004 under Articles of Association governed by the law of 1901.

The purpose of the network is to offer its members new career opportunities, develop their knowledge within the maritime world, and promote and support women in maritime professional careers. WISTA France focuses on facilitating contacts between women with management responsibilities in all sea-related businesses.



© Pierre-Alexandre Mesnil

Exhibitions

EUOMARITIME

www.euomaritime.fr



© Euomaritime 2015 - Thierry Nectoux

Organised by *le marin* (groupe Ouest-France) in partnership with the GICAN, with active support from the French Maritime Cluster, Euomaritime is the only professional forum devoted to all participants in the economy of the sea in Europe. For its second edition, Euomaritime largely confirmed its position, and boost the development of Euowaterways, the European trade show for inland waterways economy.

By presenting all its components, Euomaritime reflected the economic vitality of the maritime sector: naval construction and repairs, maritime transport, ports, fishing, safety, environment, renewable energies, offshore, or "maretics" (digital technologies for maritime activities). The trade show also aimed at bringing the issues of the marine economy to the attention of French and European political decision-makers.

Industrialists, experts and elected officials discussed the challenges of blue growth during three plenary conferences and 13 workshops, bringing together 110 European speakers.

Key figures 2015:

- 306 exhibitors
- 8,300 m² of exhibition space
- 5,000 visitors from 48 countries
- 3 plenary conferences and 13 workshops conducted by 110 European participants.

Euomaritime - Euowaterways 2017:
January 31st to February 2nd 2017
Paris - Porte de Versailles Hall 3

THETIS EMR

www.thetis-emr.fr

Be part of the top professional trade fair in Europe for Marine Renewable Energy (MRE), a must-attend international event under the patronage of the French Ministry of Ecology, Sustainable Development and Energy.

The last edition 2015: more than 4,000 registered during 2 days, 300 exhibitors, 27% international participation, 53 speakers, 808 BtoB meetings and 33% international participation, 486 business lunches.



Thetis © William Jezequel

Thetis MRE promotes know-how and skills of MRE players and identifies challenges and new opportunities in the MRE market at local level in the host county and also at European and international levels given the international prospects of the MRE market.

The event is run by Thetis EMR (SAS) with the support of key associations, innovative clusters and main national and local institutions.

Media

The general public and interested parties are kept well informed of events and activities in the maritime world by a range of providers giving the latest news on the sea and those working close to the marine environment.



© michèle-pautasso - Fotolia.com

ENERGIES DE LA MER / CABINET B-BORNEMANN CONSEIL

www.energiesdelamer.eu

The consulting firm B-Bornemann Conseil - Energies de la Mer (Energy of the Sea / Mer-Veille) provides quality reports and analysis in the field of marine renewable energy, a sector in which it was one of the first actors.

Energy of the Sea has obtained extensive relevant documentation in part due to its policy of following on a daily basis all events related to renewable energy of the sea. It also maintains current

maps identifying both the public and the private stakeholders.

In addition to the online portal, the consulting firm B-Bornemann Conseil and its experts network recently opened a consulting department. The aim of this initiative is to support companies in their projects, to carry out studies which could contribute to their strategic plans, and to organise promotional events on their behalf.

INFOMER - LE MARIN

www.infomer.fr

A subsidiary of Ouest-France, Infomer publishes several maritime publications such as *le marin* and *Chasse-Marée*.

It also organizes the Maritime Economy Congress and the Fishing Congress as well as the Euromaritime and Eurowaterways exhibitions.

- The weekly *le marin*, with 12,087 distributed copies (42,300 readers), has been a prominent feature of the maritime sector for nearly 70 years and is focused on a powerful and dynamic maritime economy.
- *Produits de la Mer*: a magazine specializing

in the fishing industry and dealing with the processing and marketing of seafood.

- *Cultures Marines*: a magazine for shellfish farming professionals.
- *Navires et Marine Marchande*: a magazine for merchant navy fans.
- *Marines et Forces navales*: a magazine for French Navy fans.
- *Chasse-Marée*, a subsidiary of Infomer, is "the" magazine for protecting and preserving maritime culture as well as sea and river heritage.

MER ET MARINE

www.meretmarine.com

Mer et Marine was set up in 2005 by journalists, sea enthusiasts and a young publishing organisation (GLCDK Media), all with the same desire to report daily on matters related with the sea and the communities built around it.

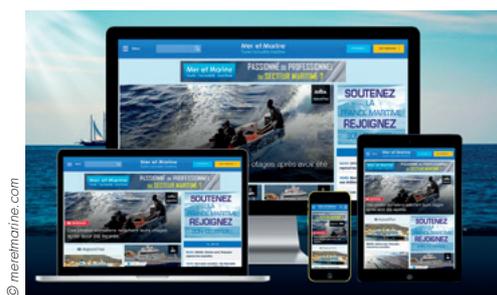
Catering for the full spectrum of digital media, the site attracts more than 500,000 hits a month, and has 35,000 subscribers to its newsletter. It provides a daily stream of in-depth information on the maritime sector (news, commentary, interviews, analysis..).

Mer et Marine, a bi-media title, also publishes special editions devoted mainly to military and geostrategic matters.

The site is very popular and has received many awards for the quality and high standard of its work. It has become a benchmark of referral not only for professionals but also for the non-specialised media.

And while its reports are regularly picked up by the regional, national and foreign media, the editorial staff of Mer et Marine are, on the occurrence of every important maritime event, present on French and international radio and TV channels.

Low in calories and rich in proteins, minerals and trace elements, brown, green and red algae possess many nutritional benefits and may be the vegetables of the future.



Published with support from the press group *Le Télégramme*, Mer et Marine is now the leading French-language site on the Internet for maritime current affairs, with a fast-growing international audience.

Also of importance are:

- "*La Revue Maritime*" with contributions from professionals, decision makers and specialists on current and past events. Established in 1861 and published by **IFM** (see page 123), it is the oldest French publication related with the sea.

- "*Marine & Océans*" published by **ACORAM** (see page 122), a media outlet consisting of a quarterly news review on maritime and geopolitical affairs and a web site, with comments by analysts and international decision makers:

www.marine-oceans.com

Culture and Heritage

Between tradition and modernity, with the goal of keeping the History of the Sea alive for present and future generations, many organisations dedicate their efforts to conserving and protecting this historic, economic and cultural heritage (which reminds us how closely

we have been attached to the sea from ancient times to the present day). These organisations also endeavour to raise public awareness of the maritime world by holding lectures and seminars, and by allowing regular contact and interaction with its professionals.

AMERAMI
www.amerami.org



Vétille, France's oldest iron-hulled yacht (1893), listed as a historical monument.

An association founded in 1975, recognised as a public interest body, with branches throughout the country, AMERAMI works to safeguard France's maritime and fluvial heritage. Among its activities are research and the preservation and restoration of old ships of all types. Once restored, a ship must sail again if it can and recreate the epoch of its service on the sea. 18 of them have already done so.

All areas of maritime activities are covered: fishing, yachting, transport, defence, surveillance, rescue. From the *Vaurien N°1* sailing dinghy to the *Argonaute* submarine, from history-making yachts to the *Vigie*, a steam launch operating in Paris, more than 80 units have been restored.

**ASSOCIATION DES PEINTRES
OFFICIELS DE LA MARINE**
www.peintreofficieldelamarine.fr

The Official Navy Painters Association (APOM) was formed in 1973 by the marine artist and Director of the National Navy Museum at the time, Luc Marie BAYLE. Membership of the APOM is made up of painters, sculptors, engravers and photographers with the title of official Navy

Painters. It keeps members of the corps of marine artists in touch with one another and maintains their links with the Navy. It also arranges trips aboard ships for willing artists, holds numerous exhibitions and organises working stays and publications in a civil and military context.



*"Les matelots en escale."
Sylvie du Plessis ✠, Official Navy Artist*

**CENTRE INTERNATIONAL DE LA
MER - LA CORDERIE ROYALE**
www.corderie-royale.com

Established since 1985 at the Corderie Royale (Royal Ropeworks) of Rochefort (Charente Maritime), the International Centre of the Sea is an associative body whose mission is to disseminate maritime culture through all forms of media (exhibitions, publications, mediation services, symposiums, cultural engineering, etc.) and to develop tourism at the former naval dockyard of Colbert where it has a restaurant, several specialised points of sale, a significant involvement in the cultural activities at the reconstruction site of the 18th century frigate *Hermione*, and caters for 400,000 visitors per year.



Centre international de la mer © S. Roussillon

**INTERNATIONAL MARITIME
EXPLORATION AND
ENVIRONMENT FILM FESTIVAL**
www.fifme-toulon.com



© International Maritime Exploration and Environment Film Festival.

For more than 60 years this festival has been exhibiting films on underwater exploration and also adventure in which new discoveries of peoples every year help to penetrate the secrets of the universe and uncover different ethnic groups around the world. This makes it a powerful tool for the Memory of the World and also a harbinger of the future. It also deals with topics such as the environment, sustainable development, fauna, flora and animal life which are presented in superb productions that fire the imagination, but also cause us to reflect.

WORLD SEA FILM FESTIVAL
www.ecransdelamer.com

The *Guilde Européenne du Raid* in conjunction with *Dunkirk Urban Community* holds a *World Sea Film Festival* every year. This maritime film event held over three days stages competitive screenings of some twenty films on subjects as diverse as ecology and marine exploration,

adventure at sea and water sports, and even occupations related with the sea. The aim is to raise awareness among the general public of the issues and challenges surrounding the oceans and seas in the modern world.

**FONDATION DU PATRIMOINE
MARITIME ET FLUVIAL**
www.patrimoine-maritime-fluvial.org

The *Maritime and Fluvial Heritage Foundation* is the part of the *Fondation du Patrimoine* responsible for initiatives related with the unprotected maritime and fluvial heritage. It centralises the actions of the *Regional Federations for Maritime Culture*. In addition it is France's representative in the *European Maritime Heritage organisation*, a cultural body whose purpose is to record and showcase the maritime heritage of Europe, and to standardise the regulations on operating historic

boats and vessels. Its main function is to identify and label *Boats of Importance to the National Heritage*. All labelled boats are described in detail in technical data files with photographs which anyone can consult on the *Foundation's* premises. Since 2011 the labelling process has been extended to cover waterways, and *VNF* gives a 90% reduction on navigation fees for boats that have obtained a label.

FONDATION BELEM
www.fondationbelem.com



Fondation Belem © Benjamin Decoin

The *Belem Foundation*, recognized as a public utility organization, was established to preserve the three-masted barque *Belem* – the last 19th century merchant sailing ship still afloat – in the landscape of French nautical heritage. In 2014, this civil

training ship also a listed historical monument, received 29,000 visitors during 23 open days and provided places for 1,000 trainees during 124 days at sea. In 2015, the *Belem* sail principally in Atlantic Ocean, English Channel, Ireland Sea and North Sea. A sailing program punctuated with islands discoveries for exploring the Atlantic coast until Bayonne, Normandy and North area, Celtic Earth with Britain, Ireland, Cornwall and Walls before to join Amsterdam. The *Belem* is also a part of major events: The *Solitaire du Figaro* start in Bordeaux, the *French National Day* in Nantes and the *Sail Amsterdam*, one of the most spectacular tall ship meeting. Finally, the *Belem* is deeply open to all the visitors in 9 French and Europeans harbour.

France currently has three Marine World Heritage Sites: the Gulf of Porto, the Lagoons of New Caledonia, and Mont Saint-Michel and its bay.





Créac'h lighthouse on the island of Ushant is the most powerful in Europe with a range of **59** km.

MUSÉE NATIONAL DE LA MARINE
www.musee-marine.fr

As a witness to the French maritime activity since the XVIII century, the Musée national de la Marine is the oldest French institution that showcases through its objects, models and paintings the importance of the French maritime heritage. Temporary exhibitions and interactive programmes enable more than 400,000 visitors every year to discover the historical, economic and sociological effects of maritime adventures from the distant past to the present day. The museum collaborates constantly with the French Maritime Cluster, thereby becoming established in the maritime world of today.



© Musée National de la Marine / S. Dendain

NAUSICAA
www.nausicaa.fr



NAUSICAA © Alexis Rosenfeld

Much more than a mere aquarium, NAUSICAA, the French National Sea Experience Centre in Boulogne-sur-Mer, is a unique place where visitors can discover the marine environment. At once entertaining, educational and scientific, the Centre derives its originality from its main focus on the relationship between Man and the Sea. 36,000 animals, giant aquariums, 5,000 m² of exhibitions, the very latest technologies and the magic of a breath-taking setting: there's everything you need to fire your imagination. Since 2015, NAUSICAA launches a new exhibition entitled Ocean & Climate: getting hot in here! This

exhibition is carried out in partnership with Météo-France and the National Museum of Natural History. In December 2015, France will be hosting the 21st climate conference, Paris Climat 2015. NAUSICAA and the partners of the Ocean and Climate Platform 2015 will be busy throughout the year to ensure that the Ocean is central to discussions at Cop 21. NAUSICAA is taking Ocean and Climate as its main theme to fulfil one of its essential roles, increasing awareness of the importance of the oceans in climate regulation.

Océanopolis
www.oceanopolis.com

Océanopolis is located at the edge of Brest Bay. The park is mainly dedicated to oceans' study and discovery. Altogether, it is fitted with 68 aquariums and 9,000 m² of visiting area. It is also a Centre for Science and Techniques which mainly focuses on sea environment to offer all age audiences a



© Oceanopolis - Atelier Paris-Brest.com

deep dive into maritime and sea ecosystems. Océanopolis opened its gates for the first time in 1990. Since then, close relations have been developed with scientists and oceanographers. West of Brittany hosts the main part of French oceanographic research and development with a wide range of national institutes, schools and leading companies in the field of marine science and technology. Océanopolis' priority is the sharing of the knowledge, and it aims at developing the audience's sensitivity towards a sustainable use of oceans, by mixing both science and sea discovery. So that, once they have been presented the most recent progress in the field of oceanographic research and development, everyone could become aware of their environment impact.

VOILES ET TRADITIONS
www.voilestraditions.fr

Voiles & Traditions offers trips open to everyone on board traditional sailing boats to explore the maritime world: for companies (customer hospitality trips, team building, seminars...), for the works council and also for the general public. The boat trips are mainly to Bréhat Island, in Brittany but also range from Spain to Ireland. One of its heritage sailing boats is certified for all oceans. Total turnover in 2012 was € 207,743 - staff of 3



© Voiles et Traditions

Maritime expertise

Maritime specialists act on behalf of marine insurers, law courts and government departments, as well as shipping agents, charterers, ship owners, warehouse operators, freight forwarders and agents, providing their knowledge and experience in sea transport and ship operation. For example they investigate the causes of incidents and then assess the damage to vessels, sea structures or cargoes. They provide advice on bulky items or special cargoes, prescribe recommendations for deep-sea towage operations, calculate vessel displacements or survey them for charters. They are also involved increasingly in environmental issues or monitoring offshore renewable energy devices. Above all maritime specialists provide technical advice in inspections, surveys and fault analyses for ships, pleasure craft and boats, and as these specialists act independently their advice is sound.

France is the world's principal operator of cable laying vessels with a fleet of **13** ships.



CEEMF - COLLÈGE EUROPÉEN DES EXPERTS MARITIMES ET FLUVIAUX

www.expert-marine.eu

The association founded in 1969 has active members among technicians and engineers from the vast maritime and river related activities areas, in a spirit of independence, competence and objectivity. The CEEMF, through its coaching and training modules; provides independent surveyors, members of the association, individual certification of their skills as "Maritime and River Expert" according to ILO Code: 2142 Certified: No. 2639 - According to Standard ISO-IEC 17024 - by IPF certified by COFRAC.

The association is multidisciplinary. Shipbuilding, yachting and boating, safety and navigation,

environment, stowage and control of facilities, transportation and handling, infrastructure works, underwater works, corrosion: Members of the association provide alone or in synergy with relevant knowledgeable colleagues, control, monitoring, study and technical assistance in line with the expectations of their public or private Clients and in the same spirit as when they are mandated by the Ministry of Justice in the legal framework. The title of expert takes its fair value in the effectiveness, objectivity and independence, in conformity with the commitment on the honor signed by each member and expert at the time they joined the CEEMF.

UPEM - UNION PROFESSIONNELLE DES EXPERTS MARITIMES

www.upem.org

Founded in 1975, the UPEM represents approximately 70 marine surveyors, genuine professionals recognized all over the maritime world. Most are former officers of the merchant marine, navy or are civil engineers. They are fully qualified and their long experience in shipping allows them to practice the profession with great skill and independence. They operate mainly in the fields of merchant shipping (hull and machinery, cargo handling, stowage, lashing and securing of goods), inland waterways,

fishing boats, pleasure craft, shipbuilding and repair, ship stability, the environment, safety and port security.

With 40 years of feedback from experience, UPEM is behind the creation of the University Diploma of Marine Surveyor in partnership with the University of Le Havre and the Ecole Nationale Supérieure Maritime (ENSM), designed to train future surveyors in the technicalities and specialities of this activity.

Major maritime trade fairs and events in France

See our web site for the dates of these events and many others:
www.cluster-maritime.fr/en

In 2015

11th ASSISES DE L'ÉCONOMIE DE LA MER www.economiedelamer.com	From the 3 rd to the 4 th November Marseille	Organized by <i>le marin</i> , in partnership with the CMF, and with support from <i>Les Échos</i> and the French Institute of the Sea
24th FORUM OF THE SEA'S PROFESSIONS www.institut-ocean.org	The 28 th of November Paris	Organized by and at the Institute of Oceanography
5th EDITION OF THE "SHORTSEA NIGHT" www.shortsea.fr	The 9 th of December Paris	Organized by BP2S
NAUTIC, THE 55th SALON NAUTIQUE www.salonnautiqueparis.com	From the 5 th to the 13 th December Paris	Organized by the Federation of Nautical Industries

In 2016

THE FISHING AND SEA PRODUCTS EXHIBITION www.assisesfilierepeche.com	June	Organized by <i>Produits de la Mer</i> and <i>le marin</i>
PORT OF THE FUTURE EXHIBITION www.cetmef.developpement-durable.gouv.fr	September	Organized by CEREMA
25th EURONAVAL www.euronaval.com	From the 17 th to the 21 st October Paris - Le Bourget	Organized by GICAN-Sogena
12th ASSISES DE L'ÉCONOMIE DE LA MER www.economiedelamer.com	Early December	Organized by <i>le marin</i> , in partnership with the CMF, and with support from <i>Les Échos</i> and the French Institute of the Sea
NAUTIC, THE 56th SALON NAUTIQUE www.salonnautiqueparis.com	In December Paris	Organized by the Federation of Nautical Industries

In 2017

3rd EDITION OF EUROMARITIME / EUROWATERWAYS www.euromaritime.fr	From the 31 st January to the 2 nd February Paris	Organized by <i>le marin</i> and the GICAN, in partnership with the FMC
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Other events throughout the whole year:

THE TUESDAYS OF THE SEA www.ifmer.org	Paris	Organized by the French Institute of the Sea and the CETMER of the Institut Catholique de Paris
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Maritime directory: principal administrations and institutions

(non-members of the CMF)

In France

SECRETARIAT GÉNÉRAL DE LA MER

69, rue de Varenne – 75007 PARIS
Phone: +(33) 1 42 75 66 00
www.sgmer.gouv.fr

MINISTÈRE DES AFFAIRES ÉTRANGÈRES ET DU DÉVELOPPEMENT INTERNATIONAL

37, quai d'Orsay – 75351 PARIS
Phone: +(33) 1 43 17 53 53
www.diplomatie.gouv.fr

MINISTÈRE DE L'ÉCOLOGIE, DU DÉVELOPPEMENT DURABLE ET DE L'ÉNERGIE

246, boulevard Saint-Germain – 75007 PARIS
Phone: +(33) 1 40 81 21 22
www.developpement-durable.gouv.fr

Which includes:

SECRETÉIRE D'ÉTAT CHARGÉ DES TRANSPORTS, DE LA MER ET DE LA PÊCHE

246, boulevard Saint-Germain – 75007 PARIS
Phone: +(33) 1 40 81 21 22

DIRECTION GÉNÉRALE DES INFRASTRUCTURES, DES TRANSPORTS ET DE LA MER (DGITM)

Tour Séquoïa
1, place Carpeaux – 92055 Paris-La-Défense Cedex
Phone: +(33) 1 40 81 21 22
www.developpement-durable.gouv.fr

DIRECTION DES AFFAIRES MARITIMES (DAM)

Tour Séquoïa
1, place Carpeaux – 92055 Paris-La-Défense Cedex
Phone: +(33) 1 40 81 21 22
www.mer.gouv.fr

Which includes:

INSTITUT MARITIME DE PRÉVENTION (IMP)

60, avenue de la Perrière – 56100 LORIENT
Phone: +(33) 2 97 35 04 30
www.imp-lorient.com

DIRECTION DES PÊCHES MARITIMES ET DE L'AQUACULTURE (DPMA)

Tour Séquoïa
1, place Carpeaux – 92055 Paris-La-Défense Cedex
Phone: +(33) 1 40 81 88 51

DIRECTION DES SERVICES DE TRANSPORT

Tour Séquoïa
1, place Carpeaux – 92055 Paris-La-Défense Cedex
Phone: +(33) 1 40 81 25 27
www.developpement-durable.gouv.fr

BEAMER (BUREAU D'ENQUÊTES SUR LES ÉVÉNEMENTS DE MER)

Tour Pascal B
92055 LA DEFENSE CEDEX
Phone: +(33) 1 40 81 38 24
www.beamer-france.org

ÉTABLISSEMENT NATIONAL DES INVALIDES DE LA MARINE (ENIM)

4, avenue Eric Tabarly
17183 PÉRIGNY Cedex
Phone: +(33) 5 46 31 83 00
www.enim.eu

MINISTÈRE DE L'AGRICULTURE, DE L'AGROALIMENTAIRE ET DE LA FORÊT

78, rue de Varenne – 75349 PARIS 07 SP
Phone: +(33) 1 49 55 49 55
www.agriculture.gouv.fr

MINISTÈRE DE LA DÉFENSE

14, rue Saint-Dominique - 75007 PARIS
Phone: +(33) 1 80 50 14 00
www.defense.gouv.fr

Which includes:

SERVICE D'INFORMATIONS ET DE RELATIONS PUBLIQUES DE LA MARINE (SIRPA)

2, rue Royale – 75008 PARIS
Phone: +(33) 1 42 92 16 65
www.defense.gouv.fr/marine

MINISTÈRE DE L'ÉCONOMIE, DE L'INDUSTRIE ET DU NUMÉRIQUE

139, rue de Bercy – 75572 PARIS CEDEX 12
Phone: +(33) 1 40 04 04 04
www.economie.gouv.fr

MINISTÈRE DES OUTRE-MER

27, rue Oudinot – 75007 PARIS
Phone: +(33) 1 53 69 20 00
www.outre-mer.gouv.fr

MINISTÈRE DE L'ENSEIGNEMENT SUPÉRIEUR ET DE LA RECHERCHE

1, rue Descartes - 75005 PARIS
Phone: +(33) 1 55 55 90 90
www.enseignementsup-recherche.gouv.fr

In Europe

EUROPEAN COMMISSION DIRECTORATE-GENERAL FOR MARITIME AFFAIRS AND FISHERIES

99 rue Joseph II
B-1000 Brussels – BELGIUM
Phone: +(32) 2 299 11 11
www.ec.europa.eu/maritimeaffairs

French Maritime Cluster

A federating organisation working on behalf of the maritime economy

The French Maritime Cluster (CMF) is an organisation established in 2006 by and for professionals to **promote the interests of all sectors of the maritime economy from manufacturing to services**. The membership of the CMF is composed of enterprises large and small, competitiveness clusters, federations and associations, laboratories and research centres, colleges and training institutions, local authorities, economic stakeholders and even the French Navy.

Together with its members, the CMF is building a united front for maritime France, a real ecosystem for business development. The maritime and coastal economic conferences (Assises de l'économie de la mer) held annually are just one example of this. In today's extremely competitive economic environment, it is essential to create synergies among those engaged in the maritime economy, so that the economy as a whole can benefit from the innovative skills of the maritime sector and the business opportunities arising from marine activities.



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The CMF team

(from left to right):

Emmanuel-Marie Peton, Philippe Perennez, Frédéric Moncany de Saint-Aignan, Marie-Noëlle Tiné, Alexandre Luczkiewicz.

Action Plan

of the French Maritime Cluster

Corporate communication



The CMF has developed a vast network and uses social networks and professional media services to promote the maritime economy and the drive and excellence of its members, and to defend the strategically important interests of the sector.

- **The annual Conferences on the Maritime Economy** organised by the French maritime magazine *le marin* and the CMF, in partnership with the IFM (French Institute of the Sea)

This annual gathering is the most important in Europe on maritime affairs. These conferences provide a forum for discussion and consultation on issues related with the maritime economy, and are now an indispensable platform for professionals of the sector as well as representatives of local and central government.

- **Brochure**

A source of business information and analysis, the brochure you now hold in your hand is published annually and provides data on the maritime economy as a whole and by sector, while promoting its members and their products and services. Distributed widely and available to download, it has become **THE reference of the French maritime economy.**

Operational synergies

The CMF hosts meetings between professionals with similar interests and concerns and who also share the values of the maritime world.

- **Synergy groups**

Proposed by the members themselves, the synergy groups deal with key issues and concerns which cut across sectors and disciplines and which are central to their businesses. They all have an **operational objective** such as: making recommendations and proposals and following them through, setting up industrial consortiums, structuring industry sectors, and any other action that furthers the common objectives of maritime France.

- **Networking buffets**

The networking buffets are held six to eight times a year and provide an opportunity for economic, institutional and political stakeholders to meet and talk. With each one attended by nearly 250 participants, they encourage team spirit and mutual support across the whole sector and facilitate business dealings.



Lobbying



Lobbying is undertaken on behalf of members of the CMF at their request or for the benefit of the whole maritime community. Undertaken to defend and promote strategically important interests, it has earned the CMF recognition as an organisation representing the general interest of the maritime economy and as an effective defender of the particular interests of its members (when these coincide with the general interest).

- **An impartial voice**

The strength of the CMF lies mainly in its impartiality: its budget does not depend on public funding and consists solely of the subscriptions of its members. This independence gives it the credibility and freedom of action essential in lobbying activities.

- **A primary intermediary for decision makers**

The CMF **engages permanently** with government authorities in vigorous, informative and constructive dialogue. In this aspect of its work, it has helped place the maritime industries firmly on the French economic and social landscape and has helped settle crucial issues.

Work of the French Maritime Cluster in progress or already completed...

Active synergy groups:

- SG The appeal of maritime occupations
- SG Underwater rescue archaeology
- SG Marine drones (2015)
- SG Professional gender equality
- SG MRE and storage
- SG Deep Sea Mining
- SG Microfinance (2015)
- SG Overseas territories
- SG Leisure boating (2015)
- SG Marine spatial planning (2015)
- SG Multi-use offshore platforms
- SG Developing the marine bioresources

Large projects and industrial consortiums

- **ATALAYA**: creation of the first investment fund especially for the maritime economy (development capital).
- **BlueDome - Ship self-protection**: launch of an industrial consortium to develop this project given the green light and financed by ADEME as part of its programme "investing in the future".
- **Deep sea mining**: creation of an industrial consortium bringing together all entities in the value chain to pursue the sustainable development of the sea's mineral resources.

Industry sector development and support

- **MRE**: since 2007 the CMF has launched two synergy groups which have helped to establish the MRE sector: mobilisation of marine and energy sector operators, advocacy and promotion of MRE among decision makers.
- **Marine bioresource development**: the CMF has brought together stakeholders from the entire value chain, from producers (fishermen and fish farmers) to processors (in the biotechnologies especially), in order to facilitate and open up access to production methods to satisfy numerous expanding bioresource markets such as human and animal nutrition, health, pharmaceuticals, materials, etc.

Reports *(all reports can be downloaded free at www.cluster-maritime.fr)*

- Archéologie préventive en mer (2013) (Underwater rescue archaeology)
- Impact du bruit en mer (2013) (Impact of noise at sea)
- Services portuaires du futur (2013) (Future port services)
- Enseignement maritime (2008) (Nautical education)
- Pour une réforme portuaire (2007) (Port reform)
- ...

In addition to these actions the CMF has frequently voiced its opinion in the media on key and sensitive issues of the sector (Law of 1992, pilot farms for MRE, armed guards aboard merchant ships, the deep sea bed, etc.).

Maritime occupations: for those passionate about the sea!

The CMF has decided to film young professionals to encourage young people to choose careers in the maritime sector. These clips can be viewed on the CMF YouTube link. Launched in 2013, these snapshots give a fascinating insight into the key skills needed throughout the maritime economy.

EUROMARITIME

The CMF is a partner of Euromaritime, the 1st European trade show to cover the whole sea related economy. The first edition was held in February 2013 and the second in February 2015. A showcase for everything the maritime sector has to offer, this European trade show is the place to find the full range of technology, innovation and activities to do with the sea. Not to be missed!

A neutral environment

The CMF provides its members with a venue where they can meet and hold discussions in a discreet neutral setting, whether to pursue confidential issues, resolve recurrent disputes or help to alleviate sector rivalry.

Team maritime france

Every year in October, the CMF organises several hundred runners and support personnel for the Paris 20km run. All take part simply for the pleasure of running together under the same colours, and to enjoy a lively event among friends with a shared passion: the sea!