



# MEDITERRANEAN ENDANGERED

For a sea free of waste





# Programme Summary

---



C. Maleen - Marine Photo Bank

The “ Mediterranean EnDangered (M.E.D.) ” Expedition 2010 - 2013 is an international programme bringing together scientists, teachers, sailors, artists and associations for the protection of the Mediterranean Sea. Its action will entail 4 transnational missions on all shores of the Mediterranean basin from 2010 to 2013.

This scientific and educational programme was conceived as a consequence of the first report on marine debris in the major seas of the world that was carried out in 2009 by the United Nations Environment Programme (UNEP):

**“Alarming quantities of rubbish thrown out to sea continue to endanger people's safety and health, entrap wildlife, damage nautical equipment and deface coastal areas around the world ».**

In order to preserve the uniqueness of the Mediterranean Sea heritage, the M.E.D. Expedition 2010 - 2013 will better quantify the distribution and understand the dynamics of debris pollution in the Mediterranean, especially in marine protected areas. The scientific part of the Expedition will extend our knowledge of the marine environment and specific endangered species, with the aim to protect Mediterranean biodiversity. Quantifying plastic microdebris in proportion to plankton is a major and innovative theme in the oceanographic research programme.

The Expedition will also be the starting point for initiatives aiming to develop environmental awareness and eco-citizenship.

All along its journey, at every stop, the Expedition will meet local associations for the protection of the Mediterranean and participate in collective projects to reduce marine debris, so that these associations continue to develop awareness among the Mediterranean populations regarding this pollution.



**In some areas, up to six times more micro-fragments of plastic have been measured compared to plankton**

James Laitcher - Marine Photobank

## Debris is a threat to marine biodiversity : the future of the Mediterranean Sea is in our hands!

**H**uman-caused solid debris is one of the most recent forms of massive marine pollution. Some areas of our oceans currently contain 6 times more microscopic debris than plankton, and it is said that a continent of debris is building up in the Pacific.

Plastic is a major component of this form of pollution and accounts for an average of 75%, both in the sea and ashore (1). Submerged plastic debris in our oceans is estimated to exceed 100 million tons.

Plastic is a considerable threat to marine fauna. The multiple shapes and colours of plastic make it look like pelagic preys such as jellyfish, cephalopods, fish, etc. Furthermore, the density of plastic keeps it in the surface layer, which is the feeding area of numerous species.

Finally, the degradation time of plastic is significant (2). For all these reasons, plastic is extremely harmful to marine animals.

It is widely known that large predators – especially cetaceans, turtles, sea birds and seals – ingest human-caused debris (3). Affected animals suffocate or starve to death due to their breathing or digesting system being blocked. However, it was only recently proven that planktophagous species absorb plastic micro-fragments (4).

This invisible debris either results from the decomposition of old plastics or corresponds to plastic pellets used in the plastic converting industry. These are widely found in the environment as the consequence of frequent accidental releases.

1- Recommendations for a coordinated plan for the reduction of floating or washed up macrodebris in rivers, ports, seas and on shores. Report from the « waste in aquatic environment » working group for the Grenelle de l'Environnement (French conference for the environment), May 2009.

2- The scientific community estimates that the degradation time of plastic is around 20 years if it is exposed permanently to sunshine. In the sea, it is more likely centuries due to the limited or non-existent sunshine.

3- For a thorough review of the said species, refer to:

Laist D.W., 1997. Impacts of marine debris: entanglement of marine life in marine debris including a comprehensive list of species with entanglement and ingestion records. In: Marine Debris. Sources, Impacts, Solutions. J.M. Coe and D.B. Rogers (eds.). Springer-Verlag New York, Inc., pp 99-140.

Derraik J.G.B (2002). The pollution of the marine environment by plastic debris: a review. Marine Pollution Bulletin, 44: 842-852.

4- Arthur C., Baker J. and Bamford H. (eds.), 2009. Proceedings of the International Research Workshop on the Occurrence, Effects and Fate of Microplastic Marine Debris, 9-11 September 2008. NOAA Technical Memorandum, Washington.



Syria - M. Kasperek - Medasset/Marine Photobank

The large quantity of plastic debris ending up in our oceans since the 1950's and its property of fixing diffuse marine pollutants and releasing their toxic components have probably made plastic one of the major carriers of pollutants in marine ecosystems, even from the first trophic level. It is likely to contribute to the bioaccumulation of substances that decrease the fertility and immune capacities of marine species. The impact of plastic affects populations, maybe even species. Man too can be affected, being at the top of the food chain through his exploitation of marine resources. Experts believe that the impact of plastic on marine ecosystems today is most likely underestimated.

For these reasons, the scientific community views the collection of data on compared amounts of plankton and microdebris in the sea as a priority. As far as the Mediterranean Sea is concerned, to our knowledge and to

this day, no information on this invisible pollution is available. In the same way, little information is available regarding the amounts of macrodebris. The Mediterranean is said to contain over three billion plastic components.

The Mediterranean is one of the world's marine biodiversity hotspots, with a high endemism rate. Multiple forms of pollution also make it one of the most polluted seas. The fact that it is an enclosed sea and the expected intensification of anthropogenic pressure on the coastal area require the implementation of significant and ambitious actions to protect this heritage that is so important to the surrounding populations. It is also essential to carry out more studies to better estimate the impact and understand the dynamics of the said pollution, in order to protect the exceptional Mediterranean biodiversity.



◀ Turtle that grew up around a plastic ring it got trapped in - photo : Dino Ferri

.....

# EVERY YEAR 1 MILLION SEA BIRDS AND 100 MILLE MARINE MAMMALS DIE BECAUSE OF DEBRIS\*

▶ **To face this ecological emergency, the Mediterranean needs a general and collective initiative !**



▲ *Beached sperm whale after having accidentally ingested a "ghost net" - Crédit photo: Sea Watch*



▶ *Debris found inside the stomach of a young albatross*  
credit photo : NOAA



\* Data Sources: European Agency for the Environment- N. Wallace, 1985



# What political solutions can we implement today ?



An entire clean up of all this pollution is impossible. The task is huge and nobody wants to be the initiator or bear the related costs. It is, nonetheless, the responsibility of the international community to solve this problem and implement effective measures to reduce marine debris.

- 1- The UNEP has already called for a global boycott of plastic bags.
- 2- Sustainable design is the consideration and attempt to reduce environmental impact when designing or re-designing products. This preventive process is distinguished by an overall approach with the consideration of the entire product life cycle (from the extraction of the raw material to its end-of-life elimination) and of all environmental criteria (consumption of raw material, water and power, discharge into the air and water, waste production...).

## Petitions to the European Parliament, a responsible act !



Joining the initiative of the « Surfrider Foundation », the M.E.D Expedition 2010-2013 will start a European petition to convince deputies to legislate on the packaging and waste management issues.

The European Union acknowledges petitions as possible grounds for the initiation of new laws.

The aim is to gather as many signatures as possible in this petition with the support of all partners in European countries visited during the Expedition. The petition will then be

As surprising as it may seem, however, macrodebris is still not considered to be actual pollution according to European regulations. So, although this form of pollution is the most visible and easiest to contain, the problem is not about to be solved.

Moreover, in addition to the necessary development of waste sorting and recycling, it will be essential to implement an effective waste reduction policy (1) : encouraging the reuse of consumables and other goods (as opposed to disposable products), but also demanding that industrialists think « sustainable design (2) ».

Granting macrodebris the status of pollution and prescribing sustainable design for packages and manufactured goods are essential conditions to start addressing this issue seriously.

officially handed to Joe Borg, European Commissioner for Marine Affairs, on the occasion of each European Maritime Day (20th May) to stress the urgency of this matter. This is a real opportunity to act and influence European policies for a better protection of the sea.

The final petition title is currently under drafting and will be based on two proposals:

- 1- Urging the European Parliament to rapidly initiate a legal process for the recognition of macrodebris as actual pollution.**
- 2- Legislating towards a systematic application of sustainable design for all packages and manufactured goods.**



# Aims of the Expedition

.....  
Raising consciousness and extending knowledge  
of marine debris and Mediterranean biodiversity



Until the law improves the situation by operating the structural and economic levers, it is urgent to change social habits, as every one of us has a role to play in waste reduction.

It is essential to raise the consciousness of the rim populations about the fragility of the Mediterranean and the threats it is exposed to. The matter of marine debris, which the public usually knows very little about, is of particular importance as three quarters of the releases to the sea originate from the land (1).

A better understanding of some of the aspects of plastic pollution is also very important due to the questions recently raised by the scientific community.

Faced with this environmental issue, and aware of the specific situation of the Mediterranean with its endangered exceptional biodiversity, the Expedition partners want to collaborate in synergy in order to:

- collect scientific data : within the P.R.E.S Euro-Mediterranean programme (a French research and higher education scheme), scientific laboratories will exploit and enhance the measurements and samples collected during the 4 years of the Expedition. This programme will allow better evaluation of the geographical distribution and dynamics of marine debris, especially in marine protected areas, and extend our knowledge of the

environment and species (see scientific programme). The findings of this overall study in the Mediterranean will be made available to the public and the relevant institutions.

- raise consciousness, share and communicate : with the dramatically growing marine debris issue as a guide line, the expedition will stop at several large cities of the Mediterranean coast. In each of the visited countries, with the support of local associations for the protection of the Mediterranean, exhibitions, debates and other activities based on this marine pollution will be initiated with the public (see educational programme).

Consequently, in addition to the brotherhood of peoples promoted by this project, the M.E.D Expedition 2010 - 2013 wants to believe that its action will contribute to strengthening the connections between France and the neighbouring countries of the Mediterranean basin on the topic of biodiversity protection.

Another major purpose of the M.E.D Expedition is to echo the voices of those who struggle with the waste problem on the Mediterranean rim: scientists, associations, politicians, economists... so that these voices can be heard by the widest possible public. The M.E.D. Expedition 2010 - 2013 will work for the development of a common effort towards the fight against solid waste pollution in the Mediterranean Sea.

1- the last quarter being littered directly in the sea. Source: Recommendations for a coordinated plan for the reduction of floating or washed up macrodebris in rivers, ports, seas and on shores. Report from the « waste in aquatic environment » working group for the Grenelle de l'Environnement (French conference for the environment), May 2009.



# Scientific programme

---



**T**he Mediterranean is one of the world's marine biodiversity hotspots, with a high endemism rate (1). The fact that it is an enclosed sea, and the expected intensification of anthropogenic pressure on the coastal area (2) require the implementation of significant and ambitious actions to protect this heritage that is so important to the populations of the Mediterranean rim.

Marine biodiversity is particularly affected by solid waste pollution, comprising approximately 75% of plastic (3). This refractory material is known to be a significant cause of mortality among mammals, turtles and sea birds, many species of which are endangered. When it reaches the size of plankton after degradation, we now know that plastic can also contribute to the accumulation of pollutants in marine ecosystems (3), making it a potential threat to marine biodiversity.

Only little data is currently available on the distribution of debris on the scale of the Mediterranean and today we have no information at all on the amount of plastic micro-debris in proportion to plankton in the Mediterranean. More study is thus essential to better quantify this pollution and understand its dynamics.

In this context, the scientific part of the M.E.D. Expedition 2010 - 2013 aims particularly at collecting data on marine debris in order to extend our knowledge of this pollution, especially in the marine protected areas (MPAs). Additional protocols will also contribute to the protection of the Mediterranean marine biodiversity. The research laboratories involved in the programme will ensure the scientific enhancement of the collected information. Summarized below are the various research topics the project will be dedicated to (details of the protocols available on request).

1- The Mediterranean accounts for 0.8% of the total ocean surface but harbours almost 10% of the world's marine biodiversity.

2- See coastline part of the Plan Bleu (UNEP): [http://www.planbleu.org/publications/4pages\\_littoral\\_fr.pdf](http://www.planbleu.org/publications/4pages_littoral_fr.pdf)

3- Recommendations for a coordinated plan for the reduction of floating or washed up macrodebris in rivers, ports, seas and on shores. Report from the « waste in aquatic environment » working group for the Grenelle de l'Environnement (French conference for the environment), May 2009.

4- Arthur C., Baker J. et Bamford H. (eds), 2009. Proceedings of the International Research Workshop on the Occurrence, Effects and Fate of Microplastic Marine Debris, 9-11 September 2008. NOAA Technical Memorandum, Washington.

### 1- Measurement of macrodebris density in Mediterranean marine protected areas that harbour species vulnerable to macrodebris

MPAs shelter a rich heritage and rare species that need to be specially protected. Some of the Mediterranean MPAs are the habitat of large animal species that are vulnerable to debris (cetaceans, turtles, seals, tuna and sea birds). In selected MPAs all around the Mediterranean, measurements of the presence of debris will be carried out with the support of local management structures, which will benefit from the collected information in their struggle with this largely land-originated pollution. The basin-scaled overall analysis of this data will allow an evaluation of the relative presence of debris in these refuge areas for the Mediterranean biodiversity.

Laboratory involved in this research topic :

Ecomers Laboratory (marine and coastal environment laboratory), Nice Sophia Antipolis University.

### 2- Evaluation of the compared proportion of plastic microdebris against plankton in the Mediterranean



Microscopic plastic fragment found in the sea, viewed with a scanning microscope - R. Thomson

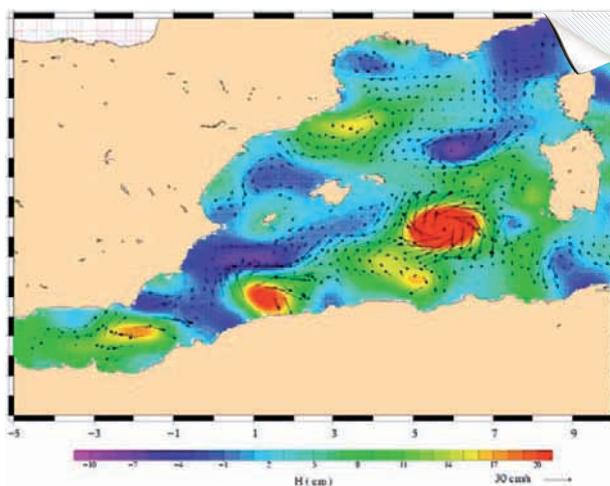
This invisible pollution has never been measured in the Mediterranean. Because it may be ingested by planktonic organisms, this pollution is likely to convey persistent organic pollutants (POPs) causing a drop in the animals' fertility and their immune capacities. Evaluating the ratio of plastic micro fragments in the Mediterranean will allow us to assess the extent of this worrying phenomenon that was only recently brought to light.

Partner on this research topic :

Pasquale Paoli (Corse) University  
Algalita Marine Research Foundation.

### 3- Localization of preferential areas for macrodebris concentration on sea surface, evaluation of the influence of currents on the distribution of debris aggregates, and determination of sources and landing areas

Currents and wind convey marine debris and sometimes make them land far from sources. Oceanographic structures like whirlpools and fronts, which can be permanent in space and time, can be feeding areas for animals that are vulnerable to macrodebris. This is why it is important to better understand the role played by these structures in the locally observed concentrations of debris. Collecting information on the type of debris found and on the environmental conditions at that time, together with the support of mathematical models of currentology should help providing leads on the origin and the future



Currentology

of said debris.

Laboratory involved in this research topic :

Laboratoire de Sondages Électromagnétiques de l'Environnement Terrestre (laboratory of electromagnetic sounding of the Earth environment), Toulon University

Ecomers Laboratory, Nice Sophia Antipolis University

#### 4- Measurement of debris density in the Mediterranean throughout the journey.

In order to get a Sea-scale evaluation of the observed pollution, and to have interregional comparative data, measurements will be repeated outside the MPAs throughout the journey of the ship.

Laboratory involved in this research topic :

Ecomers Laboratory  
Nice Sophia Antipolis University.

.....

#### 5- Contribution to the validation of an acoustic method of identifying cetaceans.



We generally know little about the populations of cetaceans, including in the Mediterranean Sea. In order to achieve a breakthrough in populations monitoring, one of the involved laboratories elaborated an innovative acoustic method recently. The validation of this non-intrusive and animal-friendly method requires field data, which will be collected during the Expedition.

Laboratory involved in this research topic :

Laboratoire des Sciences de l'Information et des Systèmes (laboratory of information sciences and systems), Toulon University.

.....

#### 6- Contribution to the understanding of the dynamics of jellyfish swarms in the Mediterranean with the Villefranche-sur-Mer oceanological observatory.

Jellyfish proliferation seems to become more and more frequent in the Mediterranean being a sign of ecosystem perturbation. Global warming as well as rarefaction of jellyfish predators are often mentioned as the main reasons of such a proliferation. Theoretically, plastic debris can also be implicated in jellyfish proliferation since they participate to predators mortality (confusion between plastic bags/packing and jellyfish). Thus, jellyfish swarms will be systematically recorded along the journey, their dimension will also be estimated. This data will contribute to the inputs of predictive models for swarms development (contribution to JELLYWATCH programme).

Laboratory involved in this research topic :

Ecomers Laboratory  
Nice Sophia Antipolis University

#### 7- Contribution to the study of an endangered endemic seaweed species, indicator of water quality.



Cystoseirae are seaweeds that build up marine "forests". Some species are endemic to the Mediterranean and are endangered. Understanding their genetics and biology can help to better protect them. The Expedition will collect samples of this seaweed throughout the journey.

Laboratory involved in this research topic :

Ecomers Laboratory, Nice Sophia Antipolis University

.....

#### 8- Other pending protocols



- Extension of our knowledge of cetacean ecology with the University of Genoa / CIMA Foundation and LSIS.



- Sample collection of sea fans / shallow corals in the Western Mediterranean with the Monaco Scientific Centre.

- Contribution to the study of surface pollution by persistent organic pollutants (POPs) with the Ecomers Laboratory, Nice Sophia Antipolis University.

- Study of the adsorbed pollutants (POPs) on plastic micro debris.



# Educational programme

---

## 1- Organization of a travelling artistic and educational exhibition in partnership with the École Supérieure des Beaux-Arts de Marseille - E.S.B.A.M. - (Marseilles School of Art) and the artist Anita Molinero.

« As part of its educational missions, the École Supérieure des Beaux-Arts de Marseille wants to develop the theme of the relationship between art and reality, by encouraging the confrontation between the students' artistic practice and issues faced by the contemporary world. In this context, the action of the M.E.D. Expedition 2010 – 2013 offers a very interesting subject of inspiration and plastic production.

In this prospect, with the support of the sculptress Anita Molinero and the photographer Max Armengaud, the ESBAM students will be encouraged to participate in the design and the creation of an exhibition combining aesthetic challenges and relationship to reality ».

An artistic and educational exhibition was viewed as an original and efficient way of raising public awareness to the issue of the pollution caused by macrodebris in the Mediterranean.

The exhibition is based on an educational and scientific content, via the artistic staging of macrodebris collected at sea surface, the seabed and the shore. This artistic approach will be the trigger to question the public on their knowledge of pollution through a direct confrontation with macrodebris.

The modularity of this exhibition will allow it to travel along the Mediterranean shore and throughout France, echoing the voices heard during the Expedition.

## 2- Meetings and projects with associations for the protection of the Mediterranean in visited countries

The M.E.D. Expedition 2010 - 2013 wants to be the symbol of the necessary involvement of bordering countries in the protection of the Mediterranean, a priceless collective heritage for their populations.

In order to protect the uniqueness of this heritage, the M.E.D. Expedition 2010 - 2013 will be the starting point for initiatives aiming at developing environmental awareness and eco-citizenship. By encouraging interactions between associations, France and the other bordering countries of the Mediterranean basin will be able to strengthen their relations around the environment theme during this wide-scale and multiannual action.



Une œuvre monumentale d'Anita Molinero

All along its journey, at every stop, the Expedition will meet and conduct collective projects with local associations for the protection of the Mediterranean, so that these associations will continue to develop awareness among the Mediterranean populations. Associations have also been invited to set up an exhibition similar to the French one.

A Partnership scheme has been initiated with associations for the protection of the shore in each Mediterranean country involved in the programme. Volunteers from every partner association will also be invited to join the Expedition so that they can discover the various actions of the scientific and educational programmes, and take part in their follow-up.

## 3- Production of a documentary film

One of the main purposes of producing a film on the M.E.D. Expedition 2010 – 2013 is to echo the voices of those who struggle with the macrodebris problem on the Mediterranean rim.

It is an opportunity for scientists, associations, politicians and economists to make themselves heard by the widest possible public.

The aim of the film, therefore, will be to serve the cause of those who campaign against the proliferation of macrodebris, and help the public understand how this debris jeopardizes the future of our oceans.



# The boat of the expedition

---

## Halifax

The sailboat halifax has been designed and built for remote expeditions with a ship of reasonable size in a way to be easy to manage as far as maintenance, sailing and budget are concerned. She is fast, seaworthy, strong, virtually unsinkable (four watertight bulkheads), comfortable, and equipped to sail and stay under all latitudes.

### *Technical datas :*

Halifax is fitted with the 6 cylinders " Ford " naturally aspirated 135 hp diesel engine, which virtually gives her the power of a displacement motorboat.

To make sure the energy system on board is reliable even in case of freezing temperatures, the batteries ( starting and services) are nickel-cadmium technology.

Designer : Jean Pierre Brouns

Shipyard : Chantiers navals Trehard Antibes

Material : Aluminium

LOA : 17 meters

Beam : 4,88 meters

Draft : 2,20 meters

sail area : 148 square meters

Displacement : 20 tons

ballast : 6 tons

Gross tonnage : 33 tons

### *General equipment :*

1 generator 6 KW " Northern Light "

1 air compressor 5m3 " Bauer "

3 bottles 15 liters

1 bottle 8 liters

1 battery charger of 75 amps

1 converter 24/220 volts

Screen and dvd player for video on board

1 tender 3,60 meters " Novamarine " powered by 1 outboard 25hp " Yamaha "



### *Electronic navigation equipment :*

2 auto pilots " Raymarine "

1 sonar " Echopilot "

1 echo sounder bi-frequency " Furuno "

1 vhf " sailor "

2 portable vhf " simrad "

1 gps plotter " raymarine "

1 radar arpa 48 nm /plotter " raymarine "

1 navigation program " maxsea explorer "

1 decoder for weather forecasts

1 SSB transceiver " Icom "

1 electronic barograph " Vetus "

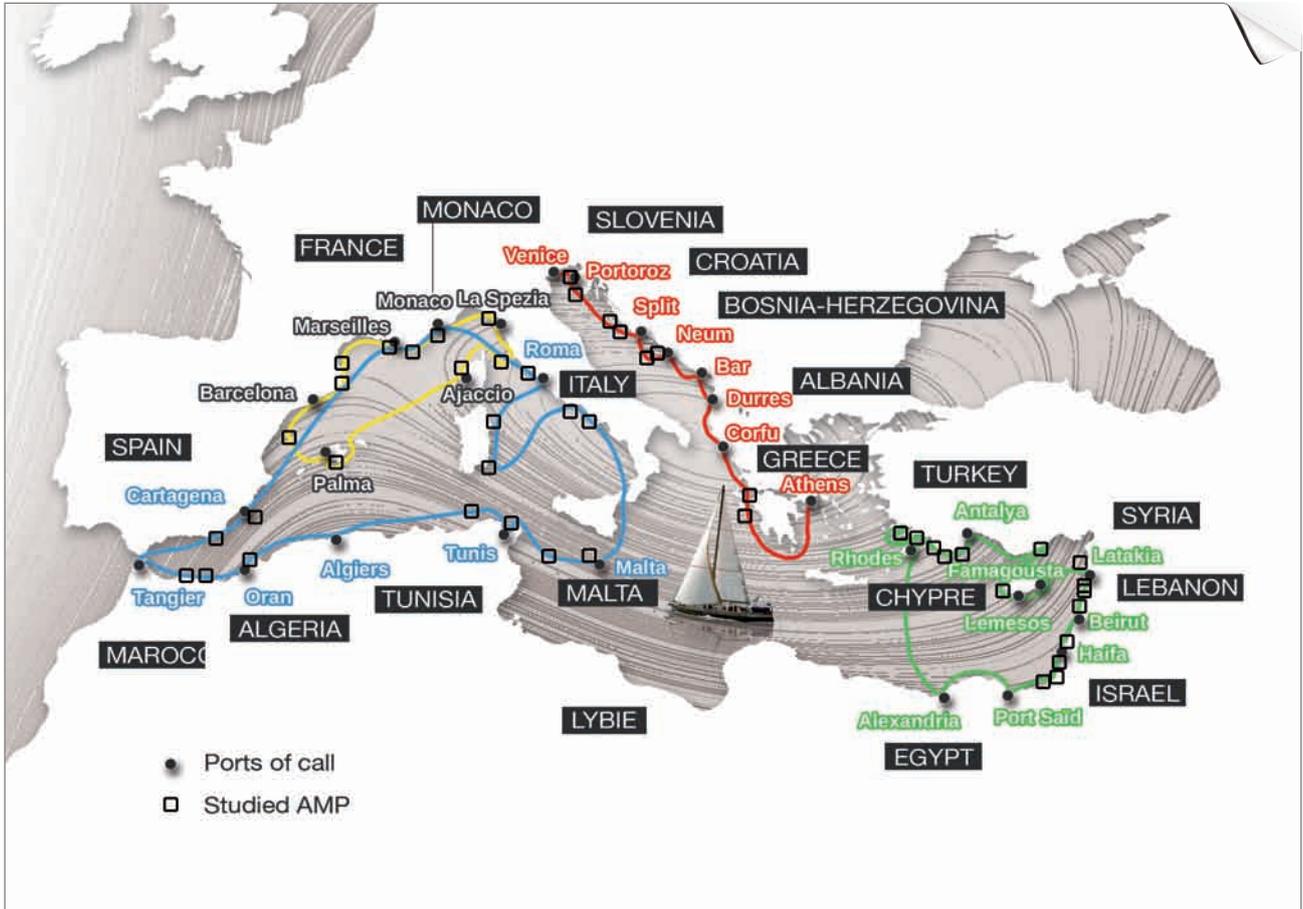
1 distress Cospar sarsat " macmurdo "

1 radar transponder " macmurdo "



# Programme de navigation

2010 - 2011 - 2012 - 2013 \*



## Expedition

2010

Marseilles  
Monaco  
La Spezia  
Ajaccio  
Palma  
Barcelona

## Expedition

2011

Marseilles  
Monaco  
Rome  
Malta  
Tunis  
Algiers  
Oran  
Tangier  
Cartagena

## Expedition

2012

Venice  
Portoroz  
Split  
Neum  
Bar  
Dures  
Corfu  
Athens

## Expedition

2013

Rodhes  
Antalya  
Famagousta  
Latakia  
Beirut  
Haifa  
Port Said  
Alexandria

\* for information only



# Partners (involved)

## Marine Protected Areas



### Agence des Aires Marines Protégées

(French agency of marine protected areas) :

<http://www.aires-marines.fr/>

(Contact pending)

MPAs are the priority of the research programme of the M.E.D Expedition 2010 - 2013. The Agence des Aires Marines Protégées is hence a major partner. This agency is a public institution dedicated to the protection of the marine environment. Under the supervision of the French Ministry of Ecology, Energy, Sustainable Development and Sea, it is present on the three sea fronts of continental France and overseas (French West Indies, Polynesia and New Caledonia).

The main missions of the agency are:

- supporting public policies for the creation of marine protected areas,
- leading the existing network of marine protected areas,
- allocating means to the natural marine parks,
- helping develop the marine part of Natura 2000 (a European network of natural and semi-natural parks of high biological value),
- strengthening the influence of France in international sea negotiations.



### MedPan Network : <http://www.medpan.org>

MedPAN is the network of managers of marine protected areas in the Mediterranean.

The aim of the network is to facilitate exchange between Mediterranean marine protected areas in order to improve the efficiency of the management of these areas. Specifically, the network can :

- promote the sharing of experiences and good practices amongst managers
- suggest solutions to management issues of marine protected areas
- improve the capacity of managers ;
- make the role of marine protected areas known and encourage their recognition
- disseminate messages common to all marine protected areas.

| 2010           |    |                                    |                       |
|----------------|----|------------------------------------|-----------------------|
| <b>France</b>  | 1  | Côte bleue                         | 2,95 km <sup>2</sup>  |
|                | 2  | Cerbres Banyuls                    | 6,5 km <sup>2</sup>   |
| <b>Spain</b>   | 3  | Cap Creus                          | 30,56 km <sup>2</sup> |
|                | 4  | Iles Columbretes                   | 17 km <sup>2</sup>    |
| <b>France</b>  | 5  | Archipel de Cabrera                | 86,8 km <sup>2</sup>  |
|                | 6  | Scandola                           | 6,57 km <sup>2</sup>  |
| <b>Italy</b>   | 7  | Archipel Toscan                    | 76 km <sup>2</sup>    |
|                | 8  | Portofino                          | 3,46 km <sup>2</sup>  |
| <b>Monaco</b>  | 9  | Corail rouge                       | 0,01 km <sup>2</sup>  |
|                | 10 | Larvotto                           | 0,5 km <sup>2</sup>   |
| <b>France</b>  | 11 | Port Cros                          | 12,88 km <sup>2</sup> |
| 2011           |    |                                    |                       |
| <b>Spain</b>   | 12 | Cap de Palos - Iles Hormigas       | 2,69 km <sup>2</sup>  |
|                | 13 | Cap de Gata Nijar                  | 14,35 km <sup>2</sup> |
| <b>Marocco</b> | 14 | Al Hoceima                         | 94 km <sup>2</sup>    |
| <b>Spain</b>   | 15 | Iles Chafarinas                    | 4,59 km <sup>2</sup>  |
| <b>Algeria</b> | 16 | Habibas                            | 27 km <sup>2</sup>    |
| <b>Tunisia</b> | 17 | Archipel de la Galite              | 4,5 km <sup>2</sup>   |
|                | 18 | Zembra et Zembretta                | 47 km <sup>2</sup>    |
| <b>Italy</b>   | 19 | Ile Pelagie                        | 32,3 km <sup>2</sup>  |
| <b>Malta</b>   | 20 | Malte                              | 11,06 km <sup>2</sup> |
|                | 21 | Cap Carbonara                      | 3,32 km <sup>2</sup>  |
| <b>Italy</b>   | 22 | Ile Tavolara - Pointe Coda Cavallo | 5,29 km <sup>2</sup>  |
|                | 23 | Pointe Campanella                  | 15,39 km <sup>2</sup> |
|                | 24 | Ile de Ventotene et Santo Stefano  | 27,99 km <sup>2</sup> |
|                | 25 | Secche di Tor Paterno              | 13,87 km <sup>2</sup> |
| 2012           |    |                                    |                       |
|                | 26 | Limski Zaljev                      | 6 km <sup>2</sup>     |
| <b>Croatia</b> | 27 | Brijuni                            | 26,5 km <sup>2</sup>  |
|                | 28 | Telascica                          | 44,5 km <sup>2</sup>  |
|                | 29 | Kornati                            | 11 km <sup>2</sup>    |
|                | 30 | Malonstoski Zaljev                 | 48,21 km <sup>2</sup> |
|                | 31 | Mlijet                             | 23,8 km <sup>2</sup>  |
| <b>Greece</b>  | 32 | Iles Echinades                     | ?                     |
|                | 33 | Zakynthos                          | 103,4 km <sup>2</sup> |
| 2013           |    |                                    |                       |
|                | 34 | Kycegiz - Daylan                   | 178 km <sup>2</sup>   |
|                | 35 | Data Bozburun                      | 763 km <sup>2</sup>   |
| <b>Turkey</b>  | 36 | Fethiye - Gcek                     | 326 km <sup>2</sup>   |
|                | 37 | Patara                             | 41,2 km <sup>2</sup>  |
|                | 38 | Kas - Kekova                       | 115 km <sup>2</sup>   |
|                | 39 | Göksu Deltasi                      | 50 km <sup>2</sup>    |
| <b>Chypre</b>  | 40 | Lara Toxeftra                      | 5,5 km <sup>2</sup>   |
| <b>Syria</b>   | 41 | Ras El Bassit                      | 30 km <sup>2</sup>    |
|                | 42 | Om Al Toyour                       | 10 km <sup>2</sup>    |
|                | 43 | Fanar Ibn Hani                     | 10 km <sup>2</sup>    |
| <b>Lebanon</b> | 44 | Ile de Palme                       | 4 km <sup>2</sup>     |
|                | 45 | Rosh Hanikra                       | 9,6 km <sup>2</sup>   |
| <b>Israel</b>  | 46 | Yam Dor Habonim                    | 5,32 km <sup>2</sup>  |
|                | 47 | Yam Evtah                          | 1,37 km <sup>2</sup>  |
|                | 48 | Yam Gador                          | 0,65 km <sup>2</sup>  |

# Scientific partnerships .....

Conseiller scientifique de l'Expédition M.E.D., le professeur Patrice Francour du laboratoire Ecomers



## **P.R.E.S. Euro-Méditerranéen** .....

The " Pôle de Recherche et d'Enseignement Supérieur Euro-Méditerranéen " (Euro-Mediterranean research and higher education programme) federates six universities (Paris, Genoa, Nice Sophia Antipolis, Toulon, Corsica and Turin universities). It intends to facilitate and promote the creation of an European Centre of research and training for 200,000 students and over 15,000 researchers and teacher researchers over these universities. The M.E.D. Expedition 2010 - 2013 falls perfectly within the context of the PRES since our research partners are laboratories members of this programme. The Nice Sophia Antipolis University will be leading the PRES until September 2010.



## **ECOMERS Laboratory** .....

(marine and coastal environment laboratory)

**Patrice Francour** <http://www.unice.fr/LEML/Pages/equipe/francour.html>

The ECOMERS team (Nice Sophia Antipolis University) is highly involved in the research on marine protected areas, the study of endangered marine species, and pollution. The scientific programme of the M.E.D. Expedition 2010 - 2013 comes within the context of these 3 research topics.



## **Laboratoire de Sondages Electromagnétiques de l'Environnement Terrestre** .....

(laboratory of electromagnetic sounding of the Earth environment)

**Anne Molcard** <http://lseet.univ-tln.fr/L7/squel.php?content=accueil>

LSEET specializes in the study of physical processes in coastal oceanography and atmosphere. Its fields of activity are the development of instrumentation - originally mainly radars - but also the physics of associated measures and the physics of natural environment.



## **Laboratoire des Sciences de l'Information et des Systèmes** .....

(laboratory of information sciences and systems)

**Hervé Glotin** [http://www.lsis.org/~herve\\_glotin.html](http://www.lsis.org/~herve_glotin.html)

The activity of LSIS consists in developing basic and theoretical research in data processing and automatics. In this context, LSIS has elaborated a unique application to detect cetaceans, identify species present, count the individuals, locate them and real-time follow their route on an embarked computer. The M.E.D. Expedition will contribute to the validation of this non-intrusive and animal-friendly method.



## **Observatoire océanologique de Villefranche sur Mer** .....

(Villefranche sur Mer oceanological observatory) .....

**Gabriel Gorsky** <http://www.obs-vlfr.fr/>

The Villefranche sur Mer oceanological observatory is a unique link of multidisciplinary with 2 laboratories acknowledged by the CNRS (French national centre for scientific research) that work in cell biology, but also pelagic, biological, biochemical, physical and chemical oceanology. The M.E.D Expedition 2010 - 2013 will contribute to the JELLYWATCH research programme on the dynamics of jellyfish swarms in the Mediterranean, that was initiated by the " plankton dynamics, physical and chemical processes " team.



## **Laboratoire Sciences Pour l'Environnement** .....

(Laboratory of Environmental Sciences) .....

**Sylvia Agostini** [www.univ-corse.fr](http://www.univ-corse.fr)

The Corisca University will contribute to the MED Expedition regarding plankton assessments. This collaboration will be implemented as a part of its Programme « Integrated management of Halieutic and Coastal Resources in Corsica » carried out by the team « Parasites and Mediterranean Ecosystem ».



## **Università degli Studi di Genova** .....

(University of Genoa, Italy) [www.unige.it](http://www.unige.it) .....



## **IFREMER Corse** .....

**François Galgani** <http://www.ifremer.fr/toulon/corse.htm> .....



## École des Beaux-Arts de Marseille .....

(Marseilles school of art)

[www.esbam.fr](http://www.esbam.fr)

As part of its educational missions, the Ecole Supérieure des Beaux-Arts de Marseille wants to develop the theme of the relationship between art and reality, by encouraging the confrontation between the students' artistic practice and issues faced by the contemporary world. In this context, the action of the M.E.D. Expedition 2010 – 2013 offers a very interesting subject of inspiration and plastic production. Since the beginning of the semester in October 2009, a group of ESBAM students has initiated the elaboration of the exhibition as part of their 2009/2010 curriculums.



## Anita Molinero .....

[www.documentsdartistes.org/artistes/molinero/repro.html](http://www.documentsdartistes.org/artistes/molinero/repro.html)

[www.creativtv.net/artistes/anita-molinero.html](http://www.creativtv.net/artistes/anita-molinero.html)



According to Anita Molinero, who kindly accepted to serve the M.E.D. Expedition 2010 – 2013 with her talent, the urgency of this collective problem requires artistic means in proportion with the disaster caused by marine debris. Anita Molinero, who is also a teacher at ESBAM, supervises the elaboration of the exhibition.

Anita Molinero's work started in the early 80's and was never interrupted. Her work is impregnated with refusal, history, culture, language, scrap... She is by no means tempted by a redemptive transfiguration which would make them sacred through the status of work of art by sublimating them in their shapes.

# Technical partnership and support .....



## **Surfrider Foundation** .....

*[www.surfrider.eu/fr](http://www.surfrider.eu/fr)*

Surfrider Foundation plays a major part in the fight against macrodebris by organizing field actions, such as the Ocean Initiatives (coastal clean up), but also by raising citizen awareness and initiating a campaign and petition to incite the acknowledgement of debris by the law. Surfrider Foundation Marseilles has also helped collect debris to prepare the exhibition designed by the ESBAM for the M.E.D. Expedition 2010 – 2013.



## **Watch the Waste** .....

*<http://watchthewaste.free.fr>*

Watch the Waste is a young Breton association that has just started its first expedition around the North Atlantic with the purpose of identifying waste agglomeration areas throughout its journey. The aim is to create a simplified typology of waste characterization and a reporting method that facilitates the operation of the Portail d'Observation des Déchets en Mer – PODEM – (marine debris observation portal). This portal site will compile and share information gathered by all sea users, and will offer a real-time map of floating debris on our oceans. The M.E.D. Expedition 2010 - 2013 will contribute to providing data for the PODEM in the Mediterranean.



## **Algalita** .....

*[www.algalita.org](http://www.algalita.org)*

The Algalita Marine Research Foundation was created by Charles Moore, the sailor who made public the Great Pacific Garbage Patch. For the past 10 years, this scientific foundation has been working on the subject of marine debris, and in particular on the emergence of “ plastic soups ” in oceans. Supported by Dr. Markus Eriksen, the AMRF backs the M.E.D. Expedition 2010 – 2013 by providing the plankton sampling material and the protocols used by the Foundation. This cooperation is in line with the major goals of the Expedition : being able to share with the scientific community data concerning the formation of waste agglomeration areas in the open sea.



## **ÉcoNav** .....

*[www.econav.org](http://www.econav.org)*

This eco-navigation network is dedicated to the large-scale and concrete promotion of more environment-friendly navigation habits. The ship of the M.E.D. Expedition 2010 - 2013 will also be an ambassador of alternative solutions to promote and validate ecological and sustainable navigation practices.

# Partnerships with associations for the protection of the shore in the Mediterranean basin .....

(pending)



## **The Legambiente association** .....

[www.legambiente.it](http://www.legambiente.it)

Italy - 2010 programme (pending)

Founded in 1980, Legambiente (league for the environment) is currently the most widespread environmental organization in Italy, with over 1,000 local groups, 20 regional branches and more than 115,000 members and associates :

[http://www.parconazionale5terre.it/lega\\_ambiente\\_3.asp?id\\_lingue=3](http://www.parconazionale5terre.it/lega_ambiente_3.asp?id_lingue=3)



## **Ecologistas en acción** .....

[www.ecologistasenaccion.org](http://www.ecologistasenaccion.org)

Spain - Programme 2010 / 2011

Ecologistas en acción is a confederation of 300 groups Environmental located throughout Spain. The M.E.D. expedition is in contact with the federation to implement the program educational and the artistic and educational exhibition awareness and exposure on the macro-waste in Spain.



## **Association Tunisienne pour la Protection de la Nature et de l'Environnement - ATPNE** .....

*(Tunisian association for the protection of nature and environment)*

Tunisia - 2011 programme (pending)

Fields of action: integrated management of coastal areas, waste management, environmental education, urban development, rural development, drainage, irrigation, basin management, integrated fresh water management. Founded in 1971, this association now has 1,600 members and is part of various domestic and international institutions.



## **Association Ecologiste de Boumerdès - A.E.B** .....

*(Boumerdes environmentalist association)*

Algeria - 2011 programme (pending)

The Association Ecologiste de Boumerdès was founded 16 years ago; it is dedicated to fighting against pollution and nuisance, but also to the protection of the environment and the sustainable development.



## **Association pour la Gestion Intégrée des Ressources** .....

**AGIR** (association for the integrated resource management)

<http://agir.cfsites.org/>

Morocco - 2011 programme (pending)

The goals of this association on a national scale are: protection of the environment and marine and coastal biodiversity, support to non-industrial fishing, environmental education, support to the creation and the management of cooperatives, information and consciousness-raising campaigns, marine and coastal conflict management through a participative process. AGIR is also involved in the PAC Maroc (programme of coastal development of the Central Rif for an integrated coastal zone management).

## Institutional partners (involved) .....



### **Mission Mécénat du Ministère de l'Écologie** .....

<http://www.developpement-durable.gouv.fr/-Les-projets-en-recherche-de-.html>



### **IUCN** [www.iucn.org](http://www.iucn.org) .....

The International Union for Conservation of Nature (IUCN) works to provide solutions to take up environmental as well as development challenges. It supports scientific research, manages field projects and brings governments, NGOs, UN agencies, businesses and local communities to develop and implement policies, laws and best practices. Furthermore, IUCN Center for Mediterranean Cooperation contributes to the MED-PAN (network Managers of Mediterranean MPAs). Thus IUCN will be a crucial, effective support for the various parts of the MED Expedition programme.

## Institutional partners (pending) .....



### **French Ministry of Ecology and Sustainable Development** [www.developpement-durable.gouv.fr](http://www.developpement-durable.gouv.fr) .....

### **French Ministry of European and foreign affairs**

[www.diplomatie.gouv.fr](http://www.diplomatie.gouv.fr) .....

### **French ministry of research** [www.enseignementsup-recherche.gouv.fr](http://www.enseignementsup-recherche.gouv.fr) .....

These ministries also participate in a policy of sustainable development by supporting actions related to their specificities. They help support the M.E.D Expedition 2010 - 2013 in the context of the Programme de Recherche et d'Enseignement Supérieur (PRES) Euro-Méditerranée, which is a pole of the scientific programme of the Expedition.



### **Le Grenelle de la mer** .....

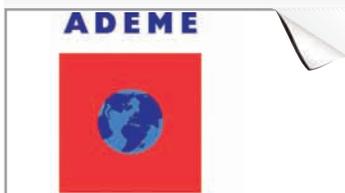
[www.legrenelle-mer.gouv.fr](http://www.legrenelle-mer.gouv.fr)



### **Fondation pour la Recherche sur la Biodiversité**

[www.fondationbiodiversite.fr](http://www.fondationbiodiversite.fr) .....

Lancée officiellement par les ministres de l'Écologie et de la Recherche, en février 2008, la Fondation pour la Recherche sur la Biodiversité (FRB) unit les organismes publics de recherche, les associations de défense de l'environnement, les gestionnaires d'espace et de ressources biologiques, ainsi que les entreprises autour d'un unique but : relever les défis de la biodiversité.



### **ADEME** <http://www2.ademe.fr/servlet/KBaseShow?sort=-1&cid=96&m=3&catid=23070> .....

This French office for the environment and energy management is an industrial and commercial public institution placed under the shared supervision of the ministries in charge of ecology / energy / sustainable development and sea, green technologies and negotiations on climate, and higher education and research. The ADEME conducts and funds programmes for increasing public awareness on the reduction of waste. The M.E.D Expedition 2010 - 2013 is willing to collaborate with the ADEME, as part of its research and consciousness-raising programme.



### **European Commission** .....

[http://ec.europa.eu/commission\\_barroso/dimas/index\\_fr.html](http://ec.europa.eu/commission_barroso/dimas/index_fr.html)

The fight against the decline of biodiversity is a priority for the European Union. «Fostering eco-innovation is essential if we are to successfully tackle these issues as well as the other environmental challenges we face, such as pollution of our air and water, waste generation and unsustainable use of resources». Europe supports the M.E.D Expedition 2010 – 2013 through its assistance to the PRES Euro Méditerranée.



### **United Nations Environment Programme** .....

[www.unep.org/french/](http://www.unep.org/french/)

The mission of the United Nations Environment Programme (UNEP) is to show the way and encourage cooperation to protect the environment. It also has to be a source of inspiration and information for States and populations, and an instrument helping them to improve the quality of living without jeopardizing that of the future generations. The M.E.D Expedition 2010 - 2013 wants its programme to come within the framework of the actions of the UNEP.

# Local and regional communities .....

(pending)



## **Région PACA** (South-East region of France) [www.regionpaca.fr](http://www.regionpaca.fr) .....

The PACA region is particularly vigilant in all the actions concerning the protection of the Mediterranean sea. It was aware of the shipping MED Expedition 2010 - 2013 and should and be an attentive partner. In order to protect the environment, our future, the PACA region has established sustainable development as a priority in its regional policy.



## **Région Languedoc Roussillon** [www.laregion.fr](http://www.laregion.fr) .....

The Languedoc Roussillon is the first French region for biodiversity (65% of its territory consists of natural areas and 2 / 3 of species are present in this French region. The Languedoc Roussillon region is sensitive to the research program of the Expedition MED 2010 - 2013 for the protection of biodiversity in the Mediterranean sea.



## **Région Corse** [www.corse.fr](http://www.corse.fr) .....

The « Région Corse » (Corsica authorities) has set up an environmental politics especially oriented towards enhancement of Mediterranean sea ecosystems. The collaboration between the Corsica University and the MED Expedition 2010 -2013 will contribute to the project « integrated management of halieutic and coastal resources » by providing some data regarding plankton.



## **City of Marseilles** [www.mairie-marseille.fr](http://www.mairie-marseille.fr) .....

Being the port of departure and arrival of at least two of the four journeys of the programme, Marseilles should be a special partner of the M.E.D Expedition 2010 - 2013. The city of Marseilles was signatory to the Ecological Pact of the Nicolas Hulot Foundation for Nature and Mankind, and has initiated a Municipal Plan for the Climate, in accordance with the National Plan for the Climate and the Kyoto Protocol.



## **Marseille-Provence 2013** [www.marseille-provence2013.fr](http://www.marseille-provence2013.fr) .....

On 16th September 2008, Marseille was elected European Capital of Culture 2013. In this context, the M.E.D Expedition 2010 - 2013 is planning to set up an exhibition of all artistic staging of marine debris created by art schools in every partner country.



## **Communauté Urbaine de Marseille** [www.marseille-provence.com](http://www.marseille-provence.com) .....

In the context of environmental protection and the enhancement of the living environment, Marseille Provence Métropole is in charge of collecting, forwarding and processing domestic waste. The M.E.D Expedition 2010 – 2013 hopes to raise the awareness of Marseille Provence Métropole to its action plan.



## **Agence de l'eau Rhône-Méditerranée et Corse** [www.eaurmc.fr](http://www.eaurmc.fr) .....

In order to achieve the good standard of water masses required by the Water Framework Directive, the Agence de l'eau Rhône-Méditerranée et Corse, a State-controlled office, encourages, on the scale of its catchment areas, a rational use of the water resources, the fight against pollution and the protection of the aquatic environment. The M.E.D Expedition 2010 - 2013 wishes to involve the Agence de l'eau Rhône-Méditerranée et Corse in its scientific and educational programmes.



# Contacts

of the M.E.D. Expedition 2010 - 2013

## Programme and projected general planning\*

The official launch of the M.E.D Expedition 2010 - 2013 will take place in Marseilles, during the opening of the art exhibition on marine macrodebris set up by the ESBAM students. This exhibition will be held in the ESBAM gallery, rue Montgrand, in June 2010. The navigation programme of the 2010 Expedition, which will start in July 2010, is deliberately less ambitious than the 2011, 2012 and 2013 navigations. Its aim is to fit and validate the scientific protocols embarked on the Expedition ship.

## Start of mission

June / July 2010

## End of mission

August / September 2010

## Navigation

North-West Mediterranean  
(see navigation map)

## Countries involved

France, Spain, Italy, Monaco

## Intervention areas

Marine protected areas and model zones in transnavigation.

## Logistic partner of the Expedition

The association « Terre d'Avenir » will be the logistic support for the initiation of the programme and the backup of the Expedition.

As it develops, the M.E.D Expedition 2010 - 2013 will become an independent structure.

## Funding

The MED Expedition will be funded by :

- the PRES Euro-Méditerranéen
- local and regional communities
- foundations and institutions dedicated to the protection of the Mediterranean Sea and biodiversity preservation
- firms and patronage

## \* for information only

“ Terre d'avenir ” association créée en 2007 : SIREN / 515 258 721 - code APE 9499Z - Déclaration en Préfecture : W182000640  
Siège social : 29, rue de Lattre de Tassigny : 56 230 Molac - Président : Bruno Dumontet

## Project Manager



### Bruno Dumontet

bruno.dumontet@expeditionmed.eu

tél : +33 (0)9 63 57 19 13 / 06 34 48 13 05

## Scientific Programme



### Pierre Voisin

pierre.voisin@expeditionmed.eu

tél : +33 (0)3 20 74 35 70 / 06 24 06 68 20

## Educational Programme



### Gaëlle Lacroix

gaelle.lacroix@expeditionmed.eu

tél : +33 (0)4 42 93 24 90 / 06 70 10 46 85

## Mission Leader



### Pierre-Jean Jannin

pierrejean.jannin@expeditionmed.eu

tél : +33 (0)2 40 40 12 45 / 06 22 19 07 36

## Captain



### Jean Marc Asensio

jeanmarc.asensio@expeditionmed.eu

A naval officer who sailed the seas, is also the owner and skipper of the sailboat : Halifax.