



The association The SeaCleaners, governed by Law 1901, declared in the sub-prefecture of Lorient (France, 56) on 7 September 2016, published in the Journal Officiel de la République (Official Journal of the Republic) on 17 September 2016, has the purpose of :

Participate in the reduction of ocean pollution, including the design, construction and operation of one or more ocean waste collection vessels.

Its head office is located at 10, rue de la Drisse, 56470 La Trinité s/mer, FRANCE.

The SeaCleaners has set itself this objective by developing concrete solutions on land and at sea, divided into four missions

- Collect and recycle plastic waste at sea in high density areas before it degrades.
- Raise awareness and educate to raise awareness and change behaviour in a sustainable way.
- Boost the most impacted areas by developing a local circular economy
- Observe and understand to enrich scientific knowledge.

1/ Governance and operation of The SeaCleaners :

The President of the association is Mr. Yvan Bourgnon.

The current accounting of the association is carried out internally, the preparation of the annual accounts and the balance sheet are outsourced to the accounting firm Audiceco, located in Vannes (France, 56). The audit of the annual accounts as well as the specific verification of the accounts required by law are carried out by the firm Collet & Associés, Statutory Auditors in Ploemeur (France 56).

Organizational chart:

- Chief Executive Officer: Jean-François Mielcarek
- Accountant: Mireille Fixon

Development & Patronage Hub

- Marketing and Development Director: David Taïeb
- Partnerships Manager: Caroline Resmond
- Patron Relationship Manager : Bénédicte Hamon
- Sponsorship Development Managers France : Nathalie Loussouarn (mission de 5 mois), Bérengère de Buchy (mission de 5 mois), France Souques, Coralie Grundeler
- Sponsorship Development Managers International : Laure Viennot-Tronche, Sophie Thomasset

Communication Hub

- Communications Director: Valérie Amant

- International Communication Manager : Élise d'Épenoux
- Digital Communication Manager : Anne Lorient
- Events Manager: Nolwenn Brohan
- Communication, Graphic Design and Web Development Officers: Séverine Cottin, Tiphaine Levrier
- Content Manager and Editorial Managers : Antoine Rodat, Clara Farcy

Awareness & Action Hub

- Head of the cluster: Claire Manneville
- Environmental Awareness Facilitator: Thémis Vernhes

Scientific Hub

- Scientific Director: Yannick Lerat

Volunteer Hub

- Head of unit: Romain Sorlin

Technical Hub

- Technical Director: Frédéric Silvert (Manta Innovation)
- Operational and Scientific Manager: Éric Le Plomb (Manta Innovation)
- Project Manager: Thierry Pacini
- Project Manager: Ève Bourdon (Manta Innovation)
- Circular Economy Project Officer: Alice Darondeau (Manta Innovation)
- Circular Economy Officer: Cécile Laval

2/ The Manta Project process in 2020 :

- **Design of the multihull, the MANTA, naval architecture and design**

In 2020, Concept Design work was carried out to fix the "General Arrangement" and the Design of the Manta with our naval architect SHIP-ST. Detailed hydrodynamic studies were carried out in parallel with GREENFLOW to define the hulls, bulbs, appendages...

Once the overall plans for MANTA were finalised, other important naval architecture documents were completed, such as the mass balance, the power balance, the technical specifications for consulting the shipyards, an initial nomenclature of the ship, the fire compartmentation and partitioning plans, etc. The principle studies of the ventilation and air conditioning system (one of the biggest energy consumers) were also carried out with the PAUMIER company and the ship's design was refined and fixed with DEMS.

Further naval architecture activities in 2021 will focus on selecting an independent naval architecture firm to carry out the Basic Design studies for the vessel and continuing our consultation with shipyards which has already progressed well in 2020.

- **Sailing propulsion: study of automated rigs Turborig**

Regarding the development of automated rigging for the MANTA, 2020 saw many results obtained with our contractors MAGMA STRUCTURE / SOUTHERN SPARS and GREENFLOW and the end of the tests carried out on 2 1:6 scale prototypes of the Turborigs. A cost reduction study for a realistic full-scale deployment is also underway.

- **Collecting mats**

In 2020, static and dynamic tests of different types of mats on the "CleanersLab" prototype built with EPC enabled us to identify the avenues for developing an efficient system for collecting waste by mat. In order to scale up to MANTA, in 2020 we set up a multi-skilled collaboration with ALTRAN for the design and integration of the various ancillary systems (suction, concentrators, support, lifting, etc.), TURBE for the construction of the chassis and the design of the motorisations, and finally INTRALOX for the selection and integration of the modular belts for the belts. We also rely on the expertise of TECHNIP-FMC for the operation and design of the systems in a marine environment.

In parallel, a study will be undertaken in 2021 with ALTRAN on the choice of systems for detecting floating plastic waste and assisting in guiding through the waste stream to ensure the safe and efficient collection of plastic waste at sea.

- **Surface collecting system**

In 2020, Manta Innovation designed a low drag surface waste collection system with PAYOTE CONSEILS. This was followed by the manufacture and sea trials of 1/4 scale prototypes, tested with different mesh sizes and opening systems.

The final collection system opening solution is being selected (with the support of new providers such as LE DREZEN) and tests will be carried out in 2021 on the new solutions identified. Tests on small-scale prototypes are planned first and will then be followed by tests on full-scale prototypes with the agreement of the Directorate of Maritime Affairs.

- **Waste sorting and preparation plant**

The main contributor to the design work for the plant, which integrates conveyors, a sorting table, a shredder and a dryer, is our partner MTB. Thanks to these studies, in 2020 the waste treatment plant could be integrated into MANTA. The results of the tests carried out by the French Atomic Energy Commission on the capture of chlorine from salt, and TECHNIP-FMC's expertise on processes in offshore environments also contributed significantly to the design choices made in 2020 for this sorting and preparation plant. It should be noted that pelletizing trials to densify the inputs and improve the waste-to-energy system were also carried out by MTB at RAGT.

The next step will be the final sizing of the facilities and the selection of equipment in 2021.

- **Waste-to-energy unit for MANTA**

In 2020, a large number of tests and studies enabled progress to be made on drawing up specifications and selecting technologies and service providers. The main tests were carried out with the help of the French Atomic Energy Commission for chlorine capture and with our service

providers for the characterisation of syngas (synthesis gas) and energy production. In 2020, we have selected our waste-to-energy and electricity and heat production systems.

2021 will be dedicated not only to specific preliminary studies to integrate the various systems and optimise the recovery of waste heat (residual heat from a process and not used by it) from the recovery unit, but also to the sizing studies that will allow the construction of a land-based demonstrator (which can then be taken on board the MANTA).

- **Development of the renewable energy production systems and the energy management system on board MANTA**

In 2020, this vast subject consisted largely of monitoring existing systems (photovoltaic panels, hydro-generators, wind turbines) and making contact with numerous potential equipment suppliers.

For the selection, sizing and integration studies of the photovoltaic panels, we have launched a detailed integration study with EMERAUDE SOLAIRE as a partner (competence sponsorship).

In addition to the selection and integration of the energy production equipment, a detailed study of the energy management system on board the MANTA was carried out. On this project, carried out with the assistance of the Brest Naval School, the ECEEN company and the SHIP-ST company, 2020 ended with the completion of the preliminary design studies of the system architecture and the development of a digital twin that will enable us to carry out the integration and advanced energy optimisation studies.

Integration studies for wind and hydro generators will be carried out in 2021.

The refinement of the numerical model carried out by the Brest Naval School will also allow the sizing and verification of the system's operating safety and its architecture.

The pre-study of the system sizing already carried out in 2020 will continue in 2021 to lead to the final definition of the system architecture and the selection of technologies and equipment.

- **MOBULA study**

In 2020, the search for clean-up solutions using small multi-purpose collection boats resulted in the signing of a partnership agreement with the Breton shipyard, EFINOR SEA CLEANER, and the arrival of the Institute for Development Research to provide scientific support and to put the project in contact with clean-up actors in South-East Asia (Ministries, regional managers). Several days of tests of different collection systems (baskets, mats, nets, etc.) were carried out on demonstrators, in order to improve the systems and select the most efficient and robust equipment (Pairwise method implemented with the support of Technip-FMC teams).

The outcome of this work is the launch at the end of 2020 of the construction of an 8 m MOBULA integrating the selected systems. At the same time, an in-depth study of the costs and means of operation has been carried out with ALTRAN to enable the best choices to be made in terms of operation and economic viability.

Funding applications have been prepared in 2020 to enable deployment in South East Asia.

Cost reduction studies will also be carried out in 2021 to optimise the design and construction of the upcoming second 10m vessel.

- **Life Cycle Assessment (LCA) and technical-economic study of circular economy loops**

A full life cycle assessment study was carried out with OBEO and ALTRAN in 2020. It was the keystone of the choices that enabled us to improve the design and operation of MANTA, in particular to minimise its energy consumption and environmental impact.

The MOBULAs were also the subject of an LCA study and a technical and economic analysis. The results made it possible to determine the number of collection boats and to size the facilities so that the recovery of the waste collected (material and/or energy recovery) would be beneficial for the environment and economically self-sufficient.

In 2021, depending on the public funding granted to our service providers, a study may be launched with OBEO, ALTRAN and EFINOR SEA CLEANER to continue working on the eco-design of MOBULA.

Work hours on the Manta project: 5,100 internal hours / 9,000 external hours

3/ Fundraising and balance sheet (Period from 01.01.2020 to 12.31.2020):

- The sum of **2,056,233 euros** (two million fifty-six thousand and two hundred and thirty-three euros) was collected and allowed the payment of the following actions:

COÛTS DES ACTIONS LIEES AU PROJET MANTA	MONTANT DU FINANCEMENT
Outsourced technical studies / MANTA project	€ 918 672
Awareness / pedagogy actions	€ 5 426
Communications actions carried out in France	€ 78 190
Communications actions carried out abroad	€ 113 749
Fundraising actions	€ 86 244
Banking services / fund transfer commissions	€ 14 531
TSC store merchandise purchases	€ 8 241
Other purchases and external charges (Rent, utility vehicles, accountant,)	€ 251 892
Taxes	€ 47 028
Depreciation and amortisation	€ 23 050
Salaries and social charges	€ 873 761

Operating income + €2,056,233
Operating expenses: €2 420 784
Operating result: - 364 551 €.

Balance sheet total net assets: + 2 353 814 €.

4/ Liberalities received period from 01.01.2020 to 12.31.2020:

Direct donations: €80 251 (online donations) + 37 284 € (manual donations) = **117 535 €**

Donations from corporate patrons: **€1 871 364**

The sponsoring companies are linked to the project by a sponsorship agreement which commits them to support the association for a period of up to 5 years.

En 2020 les entreprises mécènes sont les suivantes : ADEXGROUP, ALLIANZ GI, ALUMAINE, AUBRYTECH, BALZEO, BIGBEN CONNECTED, BOOST-AIR, BRANGEON Services, BRUNEL, DICKSON CONSTANT, EcoDDS, ED TRANS, ELCIA, ELEVEN STRATEGY, ESKENAZI SA, EXTERNATIC ATLANTIQUE, ETYO REAL ESTATE, FOKUS, Groupe BARBIER, INNAX, JUNE PARTNERS, LEONOR GREYL, MARIGNY CAPITAL, MAISONS DRÉAN, Les Salines de Guérande, MTB MANUFACTURING, MTB RECYCLING, OBÉO, OSALIA, PILOT PEN France, PROCAL, RAMSES Keystone, ROQUIGNY, SOCAPS FUND, SUNSAIL The MOORING, TARIFHOLD, TECHNIP FMC, W2P DIGITAL.

It should be noted that despite the health crisis linked to the Corona Virus, no defection of corporate sponsors committed over several years has been noted and 12 new ones have come to support us. However, the pandemic made it difficult to raise funds from companies during the year 2020.

5/ In-kind and skill-based sponsorship in 2020:

The association has benefited from the patronage in kind and expertise of the following companies:

- **Duo Display** : Creation of various dismountable stand elements and other visual marketing products for the association's presence at the events. Service and delivery of the elements valued at **€2 805**.

- **MTB Manufacturing, MTB Recycling and MTB Group**: Research and development on the entire waste sorting unit on board the Manta, on an energy conversion system for the processing of collected plastics, on a system for converting gases into electrical energy and on the treatment of smoke. Sponsorship of skills valued at **€88,694**.

- **Air Liquide**: Provision of a full-time project manager for the development of the project.

- **W2P DIGITAL**: Redesigning the ASSOCIATION's website and putting it online. Sponsorship of skills valued at **€1,960**.

- **TECHNIP FMC:** Research and development on the WECU (Waste-to-Electricity Conversion Unit) and the SCOMER (Système de Collecte des Déchets en MER) / NAVTRA (Navires de TRAvail) sea waste collection system. Sponsorship of skills valued at **€55,000**.
- **EMERAUDE SOLAIRE:** Carrying out the detailed design study for the Manta's photovoltaic power plant and defining its interfaces with the Manta's main shipbuilding batch. Sponsorship of skills valued at **€3,840**.
- **TERRE MAJEURE:** PR services for France and foreign press correspondents for the Manta project. Sponsorship of skills valued at **€4,875**.
- **MATCH EVENT:** Provision of sound, lighting, technical and audiovisual equipment, etc. and qualified personnel for the association's New Year's Eve party. Sponsorship of skills valued at **€4,260**.
- **JIN:** Assistance with the campaign to unveil the new Manta. Support on digital influence, support on social networks with content creation. Sponsorship of skills valued at **€2,430**.
- **MCI:** contribution to the organisation of the association's New Year's Eve party with the provision of a Project Manager, contact with service providers and coordination of the various events. Sponsorship of skills valued at **€3,300**.
- **Jacques Frelin Vignobles:** Provision of organic wines for the association's New Year's Eve party and sponsorship events. Sponsorship of skills valued at **€819**.

6/ International development

Creation of the Operational Unit. Its purpose is to set up actions on the ground in the countries most affected by ocean plastic pollution.

The first country targeted is Indonesia, where The SeaCleaners will set up a branch in 2021 to carry out the association's four missions (see page 1).

7/ Awareness-raising actions for different audiences in 2020

7.1/ Volunteer Hub:

The Hub is now made up of 8 regions. In each of these regions a Regional Delegate has been named and trained.

Each RD then formed a regional team and by the end of 2020, 785 volunteers were involved with The SeaCleaners,

The creation of the Volunteering Hub has enabled the development of a network of 70 active volunteers in different regions of France. They have been trained in field observation and event management.

In a few months, 350 new volunteers have registered on the platform of the association's website created for this purpose.

The Volunteer Hub is developing its action plan by planning to open international volunteer networks in 2021.

During the summer of 2020, three training courses for Regional Delegate volunteers were organised. They covered the modules on the presentation of the Awareness & Action Unit, animations and training on the collection guide. 35 volunteers were trained.

7.2/ The association was present at 7 trade fairs and targeted events in order to present the project and raise public awareness of plastic pollution of the oceans:

- Salon de la Plongée in Paris from 10 to 13 January: 370 people reached
- Boot Düsseldorf from 18 to 26 January: 400 people reached
- Summer Collect (litter collection) in Hyères on 19 July
- Summer Collect (litter collection) in La Trinité-sur-Mer on 1 August
- Summer Collect (litter collection) in Lacanau on 14 August: 106 people reached
- WCUD 19 September: 31 collections - 2,242 participants - 24,305.8 kilos of waste and 172,211 cigarette butts collected
- Vendée Globe in Les Sables d'Olonne from 17 to 28 October: 378 people made aware of the issue

The health situation greatly disrupted the organisation of events in 2020 and many were cancelled.

7.3/ Raising awareness among schoolchildren, peri- and extra-curricular environments and other audiences

School environment:

The health situation and the repeated lockdowns have forced us to cancel all animations and interventions planned for the year 2020 in schools.

Peri and extra-curricular environments:

183 people reached

- Scout camp in Carnac on 21 July 2020: 20 young people aged 14 to 18
- Children Camp Summer Village (CISV): WE in Préfailles on 12 and 13 September: 40 young people aged 11 to 20.

- Leisure centres in Les Sables d'Olonne on 20, 23 and 28 October 2020: 123 people sensitised (104 children aged 6 to 12 + 19 adult leaders)

Some after-school programmes have been cancelled due to the health situation in 2020.

Total estimated number of people reached in 2020: 3332

7.4/ Design of awareness-raising tools/kits

For the Patron Public:

- Patron Kit sent digitally to patrons on 8 June 2020 and presented at the 1st Patron Club on 9 July 2020

For the school public

- Co-creation with our sponsor Pilot Pen France of an 8-page special edition "Mon quotidien" on ocean plastic pollution, published at the end of May 2020.
- Work on an educational kit as part of the National Union of Professional Footballers (UNFP)/Players for Society campaign aimed at pupils in the 6th and 5th grades.
- Miscellaneous: poster "Why protect the ocean?", digital animation "Who eats whom?", visual recognition game "Funny fish", card game "Plastic on our plates", animation-debate "Alternatives to plastic and eco-actions".

For the aquarium public

- Design and testing of the XXL Giant Goose Game "Mantawa"
- Escape game "A bottle to the Earth"
- Game of 7 families of plastics
- Quiz for interactive terminals
- Animation-debate on the circular economy, alternatives to plastics and eco-actions

For events

- Catalogue of animations for event organisers: under development

For the voluntary public

- Clean&Action collection guide
- Volunteer leadership training project, design of a training program

8/ Development of the Science Hub

Outreach activities have been carried out with national and international institutions and scientific experts. The objectives of these actions are to increase in-depth knowledge of the problem of

oceanic plastic waste and to determine possible solutions to combat this pollution. An International Scientific Council has thus been created. Established in 2020.

13 conventions signed, 11 members + 2 observers

5 countries represented: France, Australia, New Zealand, USA, Indonesia.

4 continents: Europe, Oceania, Asia, Americas

Varied expertise of members: physical oceanography, biology, chemistry, economics, circular economy, etc.

Launch seminar in November 2020 by teleconference: Access to data and models, CIFRE thesis proposal and project set-up proposal.

Member :

- Claire Dufau : CLS-Group, Toulouse, France, expert in current modeling of remote sensing data
- François Galgani : IFREMER, France, expert in marine plastic pollution and networking with global organizations related to plastic pollution.
- René Garello : IMT-Atlantique, Brest, France, expert in signal processing, remote sensing
- Bernard Gindroz : BMGI, consulting, France, expert in circular economy, eco-design, public policy
- Denise Britta Hardesty : CSIRO, Australia, Biologist, ecologist, in marine plastic pollution
- Jean leBideau : IMN Jean Rouxel, Nantes University, France, expert in material science and vibrational spectroscopy
- Laurent LeBreton : The OceanCleanUp Foundation, Netherland, expert in marine plastic pollution modeling
- Christophe Maes : IRD, France, Brest, Oceanography, modeling
- Umi Muawanah : Min. of Maritime Affairs and Fisheries, Indonesia, Economist
- Jean-François Sassi, CEA- Cadarache, France, expert in polymer chemistry, bio-polymers, fine chemistry

Observers :

- Odeline Brillant : IFREMER, France, All-Atlantic Ocean Youth Ambassador, EU
- Isabelle Poitou, MER-TERRE, France, President of the association

The Science Hub provides the general public with up-to-date information on plastic pollution, biodiversity, impacts, etc. via The SeaCleaners' communication.

In this context, Yannick Lerat, Scientific Director, has carried out the following actions:

- Scientific monitoring (profiles on the Web of Science) and dissemination via the Newsletter, Social Networks, etc.
- Archiving of references and documents
- Sharing of scientific and technical knowledge: Training (internal + volunteers) on plastics, their uses, degradation, marine pollution, etc., 21 "SeaView" publications on the association's website and social networks of detailed opinion/opinion on an article or scientific subject, content for the creation of infographics for social networks and sponsors, support for the association's projects and communication.

Exploratory campaigns prior to collection campaigns.

In support of the Technical Pole for the preparation of MANTA missions, contribution to the selection of geographical areas for waste collection, collection of data on densities and types of floating plastic waste, development of the TSC Database: 3500 entries (item/km², kg/km²... geo-referenced).

International Data: Focus on Indonesia (new priority choice)

- Contribution of the Technical Unit to data collection
- Contribution to observation protocols
- Contribution to the scientific network Indonesia

Specific Scientific and Technical Studies :**Internal**

- On the technological building blocks necessary for the Manta's missions
- Characterisation of floating plastic debris deposits
- GIS mapping
- Installation and training in ArcGis Desktop and ArcGis Online
- Map of global geo-referenced biblio data
- Indonesia specific data map

External

- Development of the network of scientific contacts
- Hakathons and student projects: IMT (Ecole des Mines) Nantes - PlastiBot, Chatbot (conversation robot) on plastic pollution knowledge base and Manta project, CapGemini - PlastiNappes
- Analysis of social networks to identify images of plastic slicks at sea and their location

9/ Operational in the field

Field actions have been suspended due to the international health situation.

10/ Communication

The Communication Hub worked on the following actions:

- Redesign of the association's visual identity and its communication tools (videos, brochures, presentations, leaflets, stands, etc.)
- Increased digital communication, to continue to raise awareness of plastic pollution among the general public and disseminate eco-actions to be taken during the COVID19 and containment periods
- Publication of several articles by Yvan Bourgnon in the general public press (Libération, Ouest-France, Huffington Post) and professional press (Le Marin)



ACTIVITY REPORT 2020

The SeaCleaners

The SeaCleaners joined several international alliances: United Nations Decade of Ocean Sciences for Sustainable Development, CleanSeas, Plastic Pollution Coalition, Break Free from Plastic, Blue Manifesto.

Signing of several image partnerships: Union Nationale des Footballeurs Professionnels, Popeye, France-International Chambers of Commerce and Industry Network, Global Partnership on Marine Litter Management.

This report has been validated by the President against signature.

Done at La Trinité s/mer, le 3 décembre 2021.

Yvan Bourgnon
Président