



Puerto de Cartagena

Autoridad Portuaria de Cartagena

Environmental Statement 2019



MINISTERIO
DE TRANSPORTES, MOVILIDAD
Y AGENDA URBANA

Puertos del Estado

OBJETIVOS
DE DESARROLLO
SOSTENIBLE



EMAS AWARDS

WINNER 2019

Micro and small
Public organisations



1

Table of contents

| | |
|---|-----|
| 1. Introduction | 3 |
| 2. Port description | |
| 2.1. Location and physical data | 5 |
| 2.2. Legal framework | 8 |
| 2.3. Port traffic report | 9 |
| 2.4. Economic performance | 10 |
| 2.5. Public domain management, projects and works | 10 |
| 3. Environmental policy | 17 |
| 4. Management policy | |
| 4.1. Documentation | 18 |
| 4.2. External audits | 18 |
| 4.3. Organization chart and responsibilities | 18 |
| 4.4. Environmental Aspects Inventory | 19 |
| 4.5. Goals and targets | 21 |
| 5. Natural resources management | |
| 5.1. Water | 25 |
| 5.2. Water emissions, monitoring and quality | 26 |
| 5.3. Port waters cleaning | 37 |
| 5.4. Electric energy | 40 |
| 5.5. Fuel | 42 |
| 5.6. Paper and toner | 43 |
| 6. Waste generation | |
| 6.1. Own waste | 44 |
| 6.2. Waste from port companies | 46 |
| 6.3. Sewage from vessels | 46 |
| Environmental performance indicators summary | 51 |
| 7. Air emissions | 52 |
| 8. Other aspects | |
| 8.1. Soil pollution | 58 |
| 8.2. Dragados | 60 |
| 8.3. Control of Legionella | 61 |
| 8.4. Noise | 62 |
| Natural | |
| 9. environment | 65 |
| 10. Emergency situations response | 94 |
| 11. Training and communication | 99 |
| 12. EMAS Club – Region of Murcia | 102 |
| 13. CSR-Inter-University Chairs-Acknowledgments | 104 |
| 14. Verification and validation | 112 |
| 15. Appendices (ISO 14.001 Certificate, EMAS, legal references) | 114 |

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Performance and design; Department of Sustainability
 Photos: José Sánchez Pérez and Cartagena's Port Authority's files



1. Introduction

The main purpose of this statement is to address the information needs that society and other stakeholders have on the environmental effects of port activities and on the measures taken so far to control and minimize such effects.

All organizations recognized by the EMAS must have accurate environmental policies and environmental management systems, whose performance is regularly reported by means of a public environmental statement that is verified by independent bodies. These bodies are recognized by the appropriate environmental authority of the Regional Government with the EMAS logotype, which guarantees the reliability and veracity of the information they provide.

Respect for the environment is a commitment acquired by the Cartagena Port Authority that goes far beyond mere legal compliance, which materializes in our firm commitment to EMAS registration, the highest exponent of environmental excellence in management. The requirements for EMAS registration are much higher than those demanded by the ISO 14001 standard, since in addition to EMAS being a guarantee of legal compliance, it is an exercise in total transparency in environmental management by making public our environmental performance, whatever the result, positive or negative. By means of this Environmental Statement, we also communicate with all interested parties so that they can participate by contributing ideas, suggestions, and can show their doubts and/or discrepancies. In this Statement, we analyze environmental management and publish the objectives and measures to be implemented in the future.

Counting on this 2019 Environmental Statement, we have been driving on roads until reaching the Environmental Excellence Stage for over 12 years. Along all this time, we have been facing countless challenges which have made us maximize all the efforts in order to strengthen that willful commitment we assumed. That is evidenced by all those positive results our quality control on port waters have given together with air quality levels (immission levels) we measured in our bulk terminals, and all those management activities on the natural environment. That provided quite worthy information about the environmental health of the seven natural sites included in Red Natura 2000 surrounding us.

However, the most significant aspect along 2019 and what we feel prouder of was **EMAS AWARDS 2019, Micro and Small Public Organizations' modality**. It was awarded by the European Union, being the greatest award on environmental excellence awarded all along Europe. It is also considered a public acknowledgment to our environmental management and commitment that we shall stretch to all the Port Community and the city of Cartagena.

https://ec.europa.eu/environment/emas/emas_for_you/emas_awards/emas_awards_2019_en.htm

We would like to acknowledge and congratulate other companies in the Port Community that followed our footsteps, since Ership, Cartago Marpol or Amarradores, formerly holding this award, have been joined by some other companies with EMAS registration as Agencia Marítima Blázquez, which is in charge of providing passengers with services regarding cruise traffic, or Daniel Gómez Servicios, managing the horticulture terminal. It brings us great satisfaction to know other companies are now working to reach that goal.

We would like to strengthen our commitment with society. That is the reason why we signed the Global Compact and implemented the Sustainable Development Objectives in both our strategic action lines and company goals. Thus, we report society how the Port of Cartagena contributes in the search of reaching those goals. We are also expanding our vision to the Port Community. Due to that, we are developing a platform named "Commitment for the Sustainable Development of the Port of Cartagena". Other companies sharing their concern and commitment might join us for our port's sustainability. <https://www.pactomundial.org/tag/ods/>

This Environmental Statement complements the public information that is normally disseminated through the Annual Report and the Sustainability Report.

For further information on the Port Authority of Cartagena and its publications, please check our website: www.apc.es

Toda la información sobre esta Autoridad Portuaria y sus diferentes publicaciones está disponible en nuestra web: www.apc.es.

La Presidenta,

El Director General,

El Presidente del Comité de Empresa,


María Yolanda Muñoz Gómez


Fermín Rbl Rol


Juan Andúa Díaz

OBJETIVOS DE DESARROLLO SOSTENIBLE

DIRECT CONTRIBUTION



INDIRECT CONTRIBUTION



MINOR CONTRIBUTION



EMAS AWARDS WINNER 2019

Micro and small public organisations

2

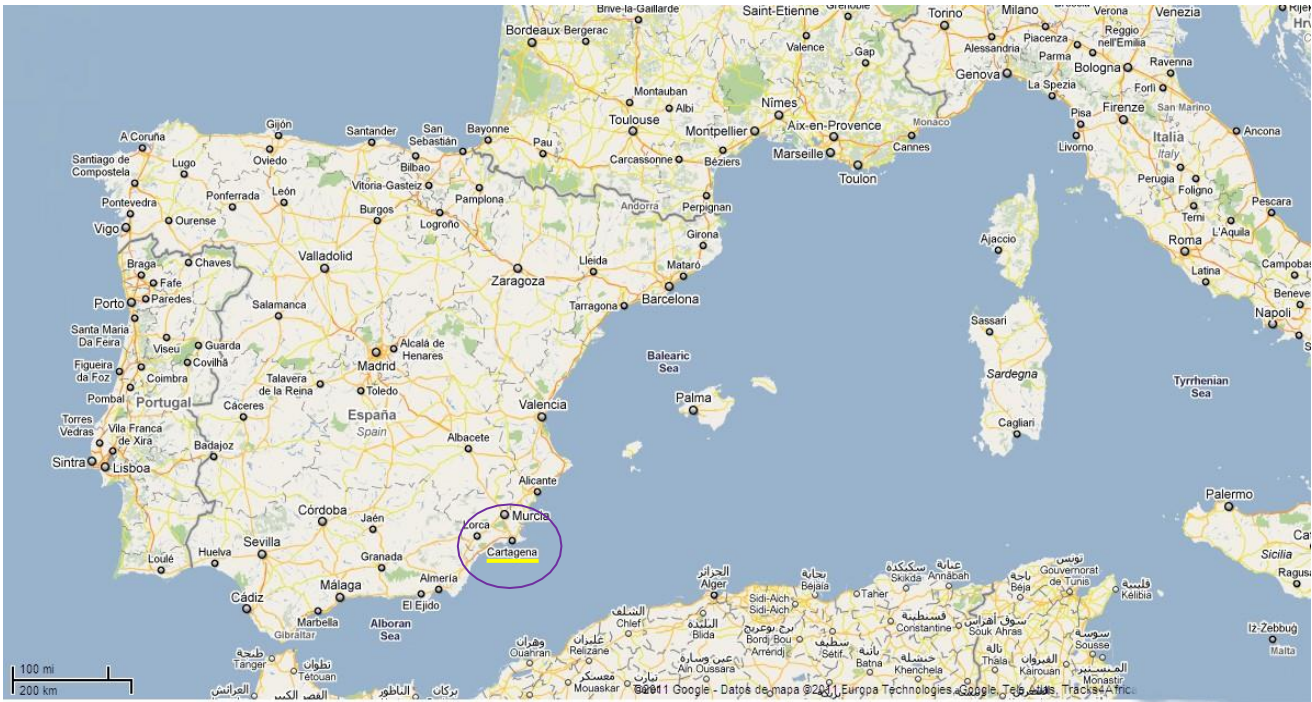
Port description

2.1

Location and physical data

The port of Cartagena is located in the Southeast of Spain, in the Region of Murcia. It is a natural access to the sea for Cartagena, the whole Region of Murcia and for many provinces from other regions, like Castile-La Mancha.

Its geographical location is Longitude 0° 59' W and Latitude 37° 35' N. The prevailing winds are from S SW and S SE and its maximum tidal range is 0.65m. The port consists of two docks that are separated from each other but connected by a 5 Km road and 1.5 nautical miles.



Google maps





| Floating surface (Hectares) | Cartagena | Escombreras | Total |
|-----------------------------|---------------|---------------|---------------|
| Commercial | 108,30 | 105,18 | 213,48 |
| Fishing | 1,23 | | 1,23 |
| Remaining | 9,66 | | 9,66 |
| Total | 119,19 | 105,18 | 224,37 |

| | |
|-----------------------------|-----------------|
| Anchoring (Hectares) | 4.462,60 |
|-----------------------------|-----------------|

| Land area (m ²) | Total |
|-----------------------------|------------------|
| Roads | 261.475 |
| Almacenes convencionales | 543.099 |
| Remaining | 1.522.217 |
| Total | 2.326.791 |

| | |
|---|---------------|
| Cold stores (m³) | 47.700 |
| Fishing facilities (m ²) | 6.145 |
| Free warehouse outside service area (m ²) | 10.200 |

| Public buildings and premises (m ²) | Cartagena | Escombreras | Total |
|---|-----------|-------------|----------------|
| | 5.587,50 | 585 | 6.270,5 |

| Docks length | m. |
|--------------|---------------|
| Cartagena | 6.971 |
| Escombreras | 7.126 |
| Total | 14.097 |

| Breakwaters | m. |
|--------------|--------------|
| Curra | 600 |
| Navidad | 190 |
| Bastarreche | 817 |
| Southwest | 1000 |
| Total | 2.607 |

| Docks and berths distribution |
|---|
| Cartagena's Dock |
| Cruise terminal |
| Fishing boats |
| Sport boats and pleasure vessels |
| Container terminal |
| General freight terminal |
| Fruit and vegetables storage terminal |
| Escombreras's Dock |
| Large gas tankers' berthing |
| Fertilizers' storage dock |
| General freight terminal |
| Solid bulk terminals |
| Cement carrier dock |
| Liquid bulk terminal |
| Oil and hydrocarbons terminal |
| Double berthing for 315.000 Tm. Oil tankers |
| Multi-purpose terminal |

Cartagena's Dock also harbors Navantia, the Spanish state-owned shipbuilding company, and several Spanish Navy facilities, such as the Cartagena Military Arsenal and the Submarine Base. For further information, please check <http://www.apc.es>



Operations at Escombreras's dock, and Cartagena in the background

2.2

Legal framework

The legal framework of the Port Authorities of Spain is based on Royal Legislative Decree 2/2011 of September 5th, which approved the Consolidated Text of the State Ports and Merchant Navy Act (TRLPEMM). The Spanish General Budgetary Act and other legal provisions ruling the Central State Administration are also applicable.

This Act gives the Central State Administration exclusive powers on the Ports of General Interest in Spain (section 149.1.20 of the Spanish Constitution) and enables the Autonomous Communities to designate the governing bodies of each Port Authority.

The said law identifies the State Ports Authority, a public body that depends on the Ministry of Public Works and Transport. The said Authority is in charge of implementing the ports policy of the Spanish Government, as well as coordinating and monitoring the efficiency of the State Port System. It also cooperates with the different authorities of the Central State Administration that are in charge of introducing controls in port spaces.

The Port Authority of Cartagena is a public body that holds its own personality and estate, and depends on the State Ports Authority. It is also responsible for the administration, management, control and use of the Port of Cartagena (Spain). Its main functions are to manage public premises within the port, to grant licenses and authorizations, to plan, project and develop works, to provide police surveillance within the service area of the port and to maintain navigational aid.

The President of the Port Authority of Cartagena represents the Governing Board. He is designed by the Autonomous Community of the Region of Murcia (CARM) and accepted by the State Ports Authority.

The authority that provides the Port Community with assistance and information is the Sailing and Port Council, where all its companies, associations and organisms are represented. The Sailing and Port Council has no power to make decisions regarding the port management; however, it is enabled to provide assistance and information to the Maritime Authority and the President of the Port Authority, in accordance with section 34 of the State Ports and Merchant Navy Act (TRLPEMM).

For further information, please check <http://www.apc.es/webapc/puerto/autoridad/consejo>.

According to Regulation (EC) 1221/2009, the fulfilment of the legal requirements applicable to each environmental aspect is verified by an external audit firm. A reference to the aforementioned legal requirements is included in the development of every environmental aspect included in this Statement.



Héroes de Cavite and the Port Authority's headquarters in Cartagena

2.3

Port traffic report

In 2019, 34.421.346 Tm. metric tonnes of goods were moved within the Port of Cartagena, a historical record for the Port of Cartagena which means a slight increase of 1,26% in comparison to last year's historic high.

| GOODS | Tm. |
|--|-------------------|
| General goods | 1.255.130 |
| Liquid bulk | 25.887.303 |
| Solid bulk | 6.965.446 |
| Provisioning, local traffic tranships and fresh fish | 313.466 |
| TOTAL | 34.421.346 |

Liquid bulks have increased **0,80%**, solid bulks increased by **4,85%**, and general goods total has decreased **-13,96%** in comparison to last year.

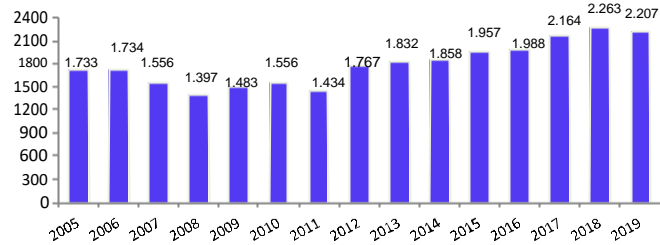
The figure corresponding to cruise ships increased from 149 to 166, and the number of passengers increased by **9,48%** (250.058 people compared to 228.396 registered in 2018).

The total number of vessels that stopped over the port has increased by 2.207, as compared to 2.261 vessels registered in 2018, **-2,39%** less.

The number of heads of live animals has also experienced an increase by **13,26%**, reaching 654.386 heads in comparison to 577.767 in 2018.

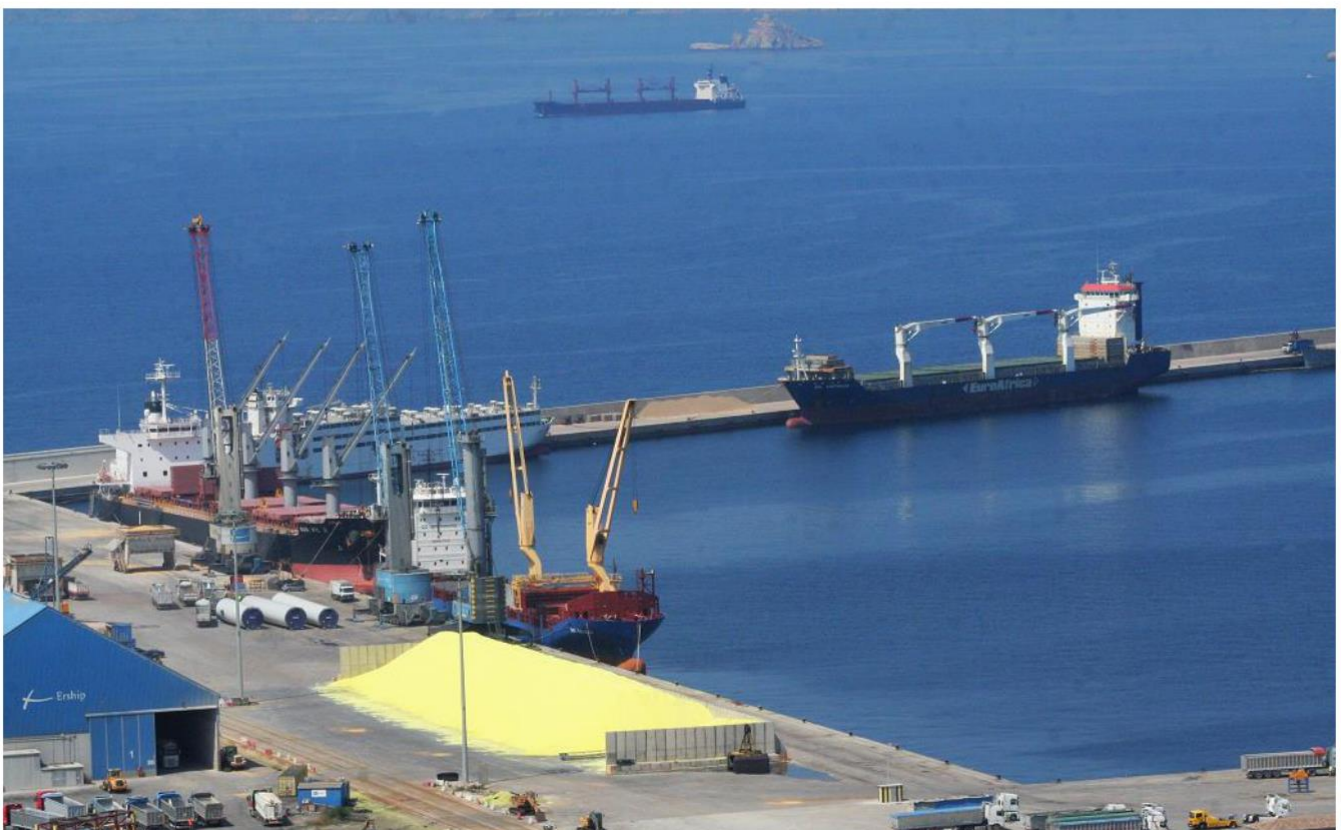
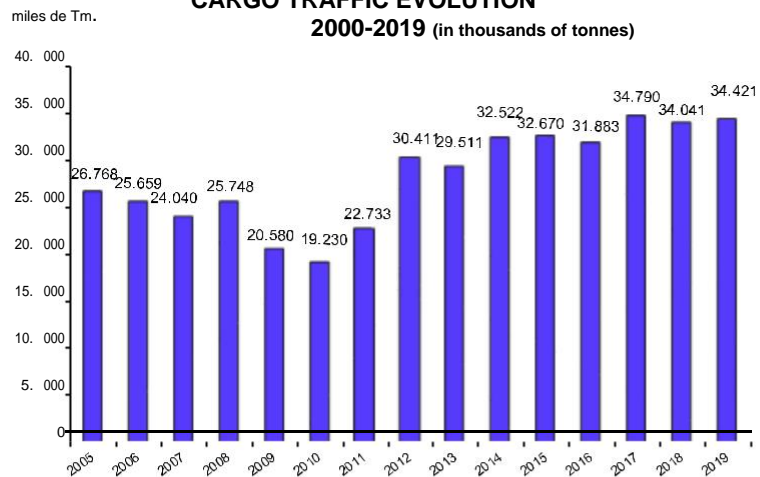
Likewise, the number of TWU has decreased by **-19,82%**, reaching 67.466 as compared to 84.143 in 2018.

Vessels stopovers 2005-2019



CARGO TRAFFIC EVOLUTION

2000-2019 (in thousands of tonnes)



2.4 Economic performance

Economic performance for financial year 2019 (thousand Euros):

Net sales amounted to €45.721, decreasing -0,47% as compared to the previous year.

The average turnover per tone was 1,33 €/t. as compared to 1,36 €/t. of the previous year. This represents a decrease of -2,21%.

Operating expenses per ton was €30.301, 3,92% more than last year. The final operating expenses amount to €19.363, about -9,97 % if compared to 2018.

Salaries and wages item regarding personnel costs amount to €7.854, which represents 5,24% more.

Cash flow decreased -2,79% until €30.381.

Net income for the year after tax amounts to **€20.061**, -8,19% as compared to 2018.

Cartagena's Port Authority's profitability in 2019 was **8,00 %** as compared to **8,40%** in 2018, -4,76%

For further information, please check <http://www.apc.es/webapc/publicaciones/documentacion>

2.5 Public domain management, projects and works

Public domain management, projects and works.

Along 2019, over 100 activities or authorized facilities are still active. Together with the rest of port charges, all those have resulted in €43.623.985,47.

INFRASTRUCTURE AND WORKS:

In 2019, 10,7 million Euros have been mainly invested in:

Cartagena's dock

Common áreas and commercial buildings' facilities adequacy

In the last years, the Port Authority of Cartagena has been in charge of developing new actions to improve Alfonso XII Dock's area. The commercial building is located over the underground car park, together with hostelry establishments and some others which are vacant. Due to the state of abandonment of those establishments and common areas, a comprehensive performance in the commercial building is crucial in order to be able and exploit it.

All the works will be focused on those facilities in accordance with the common areas for all the establishments; those accesses to improve the entry into the underground car park, public places and the building itself; white porcelain-wall facades for both floors and replacement of balustrades with glass handrails; exterior woodwork removing all remaining curves in bores and replacing the woodwork and the panes; and the construction of an entrance hall for all those establishments which may need any.

All these works were assigned to "Organización Empresarial de Levante, S.L.& Pegiro, S.L. UTE.", budgeted at €936.534,69. They were completed, received and discharged in October 2019. The investment certified was €541.483,22 in 2019.



Paving, lighting and furnishing at the area surrounding the commercial building (C4).

In the last years, the Port Authority of Cartagena has been developing several activities focused on improving all the area along Alfonso XII quay. Among those activities, we shall remark an emerging remodeling project at the commercial building, which made necessary the integral adequacy of the area itself, including paving, lighting, and refurbishing.

This project is aimed at all the necessary paving, lighting and urban furnishing actions to be taken at the area surrounding the commercial building, so that they are properly plotted and quantified.

These Works were awarded to U.T.E., which is composed by SBA Global Inversora, Obras y Estudios JIMA, S.L. y Triturados YLORCI, S.L. for € 565.026,73 (VAT included). Its deadline was set within six months, with yearly payments in 2019 and 2010. The investment certified in 2019 was €78,608.18. The project shall not be completed in order to juggle it with the contributions provided by Dirección General de Bienes Culturales.



Road paving at Alfonso XII quay and cruise esplanade. C-4

Among all the actions to be taken regarding the Port to City integration, this area means to be the most representative one. They first started in 2000, and the current platform is structured in two different heights. Therefore, most of pedestrians choose to walk on the esplanade below, and that action results in the underuse of the esplanade above. On the other hand, several floorings are found, which makes the promenade and entry/exit roads to the cruise esplanade look slightly uniform, though they are placed practically.

The main purpose of this project is to harmonize the environment, achieve uniformity on floorings, improve lighting, provide with areas in the shade, and reorganize traffic to the cruise terminal, so that citizens shall take advantage of the results of all those actions taken.

These Works were awarded to Continental Obras y Mantenimiento S.L., with a budget of €1.459.361,99 (VAT excluded), with yearly payments in 2.019 and 2.020, and a 9-month deadline. The investment certified in 2019 was €43.491,42. It shall not be completed in order to juggle it with Dirección General de Bienes Culturales.



ESCOBRERAS'S DOCK.

Access by Rail to Section I of the Escombreras's dock's extension.

The works included in this investment began in February 2015 and finished in 2019, budgeted at €27.400.716,34 for the modified project, that is, 8.86% over the budget on the original project's material execution.

It was awarded to FERROCARRIL DÁRSENA DE ESCOBRERAS U.T.E., with a 59-month deadline and yearly payments from 2015 to 2019, being €1.388.067,01 the investment certified.

All these works comprise the new ways of the enlargement to ADIF station in Escombreras, through the Iberian gauge road that remains non-electrified. Its access route is 2,5 km long, and 4,3 km divided into two track beds, with at least 918 and 729 meters of length respectively, five level crossings, eleven switches, two molehills together with a 20-metre detachable metallic board. The following materials were used:

- ✓ 51.024.805 kg of S355 J2 steel.
- ✓ 1.701.418 kg of steel.
- ✓ 14.863 m³ of reinforced concrete,
- ✓ 5.528 m³ of ballast.
- ✓ 4.926 mono-block sleepers of prestressed concrete.
- ✓ Two pilot-operated áreas. One of 70 pilings of 0,85 diameter, and 20 meters of length, and another of six pilings of 0,85 meters of diameter and 26 meters of length.

In addition, this project included some important actions, such as service replacement developed at Repsol's facilities, highlighting the following:

- ✓ Replacement of 30 process lines, of variable diameter (between 1" and 24").
- ✓ Conditioning of primary and secondary accesses to Finished Product Station (E.P.T.) and Wastewater Treatment Plant (P.T.A.R.).
- ✓ Cisternas Butano's parking relocation.

This performance provides Escombreras's dock with all the necessary components to boost inter-modality and allow goods boarding through the existing line in our way to Madrid or the existing traditional exits, being an essential link to Corredor Mediterráneo.

Finally, we shall carry out signaling and all the corresponding communications for this infrastructure to be completed and used.



Complementary Rail Access to the Enlargement of Escombreras's dock (section I).

All the above projects mentioned regarding "RAIL ACCESS TO ESCOBRERAS'S DOCK'S ENLARGEMENT OF THE PORT OF CARTAGENA" show several activities, which have not been completed yet, and must be carried out along the performance of the main Works for technical and economic reasons, in order to avoid any possible demolitions and its subsequent budget increase.

In order to complete and project these complementary Works to the main project, it is included in this project.

It was also awarded to FERROCARRIL DÁRSENA DE ESCOBRERAS U.T.E., set to be finished in 17 months, from August 2018 to December 2019, budgeted at €2.982.110,53. The investment certified in 2019 was €1.940.700,79.

Several drainage actions and link to the riverbed, improving water evacuation and allowing connections with El Fungal river bed by reinforce-concrete open canals of seven meters wide maximum. Another superficial drainage area is located at a track bed, at the multipurpose terminal, and then generating a concrete-paved Surface of 4.089 m².

Piping modification at Repsol with lines withing 4" and 16" to clear any interference with the performance of a drainage canal. According to Repsol, it is also necessary to set a new communication laying with optic fiber of 19.450 meters, together with anti-intruder enclosures as a result of oil facilities' regulations by the Ministry of Interior.

Roundabout adequacy on CT-34 for passage of vehicles and replacement of four medium-voltage lines property of Iberdrola.

New building to control rail access' operating system, leading to the expansion of trains from quays without the former and necessary stop at Escombreras' station. It involves several spaces like control room, office, facilities rack, restroom and their corresponding supplies. The building has two floors of 169,04 m2.

Together with nine diversions at track beds, a new automatic actuating mechanism through hydraulic drives is improved, four electric and five trailable-type.

This performance generates a low-security customs zone, leading to the installation of three automatic doors, which are nestled on the road to prevent unauthorized trespassing.



Punta Aguilones' quarry's stabilization and regeneration

The digging scope carried out at Fausilla Mount in Punta Aguilones to enlarge Escombreras's dock finished 10 years ago. Along all these years, several performances took place such as repairs to support meshes at the central area due to material losses in some vessels.

On the other hand, instability already affects the bottom of the scope along all the wall at its south end and shoals for the first time. Likewise, cracks are shown in some surface shoals together with some risk of large stone detachment. This performance seeks for the stabilization at this quarry owing to all the damage done to the slope and those detachment risks together with its regeneration by new woodland plantation.

This project is developed including a 135-meter demolition on the containment wall to implement stabilizing filling (50.000 cubic meters, protected by 3.000 cubic meters of 750-1.000-kilo breakwater) at the south-eastern part of the quarry with decks up to +10 and +20 of height. 40.000 square meters of metal mesh will be installed as containment against any possible detachment occurring at unstable areas. 21.000 square meters of grid and 20.000 cubic meters of topsoil in the northern area to plant bushes and woodland will be supplied and installed. Additionally, drainage and drainpipe networks will be implemented together with an irrigation system including tanks and hoses along the area in which 8.000 new native species specimens will be planted.

These Works were awarded to UTE Punta Aguilones, budgeted at €1.676.000,00 € (VAT excluded), with yearly payments in 2018 and 2019. It was set to be completed within nine months. These works were already finished, received and discharged in October 2019. The investment certified in 2019 was €704.396,14.



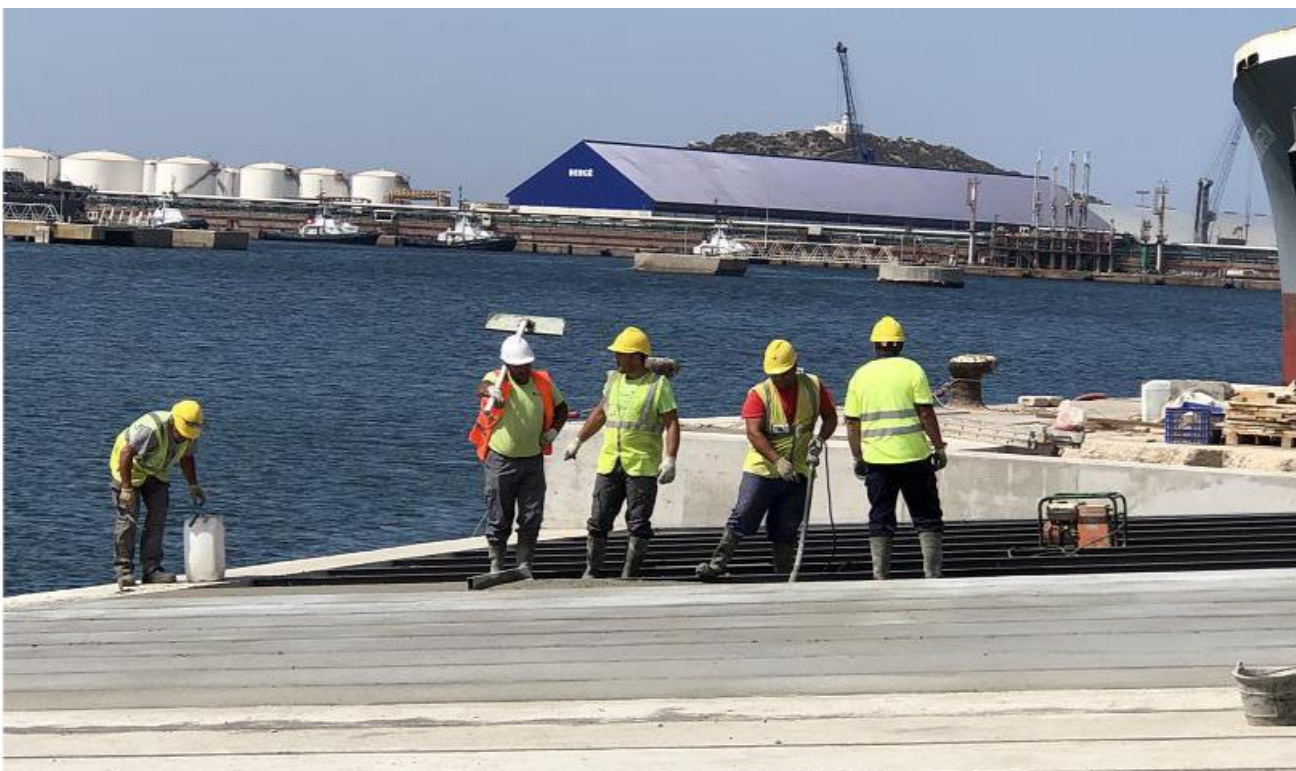


Roll on-Roll off berthing at Príncipe Felipe and Isaac Peral.

The Port Authority of Cartagena has been taking some commercial actions to increase traffic with Northern Africa. Due to its proximity to other countries, our port boosts cargo traffic with refrigerated trucks. Roll on-Roll off traffic in the Spanish port system has been rising lately. A new relocation process along the Surface took place at one area at Príncipe Felipe quay and also where it joins Isaac Peral quay, in order to equip our port with the necessary facilities to offer this service. That is the reason why we have provided it with a usable area for 80 trailers. In addition, the roundabout managing traffic has been reorganized between both quays, and also, we have refurbished restrooms for more users, modified the commercial building located at the roundabout, improved the lighting, etc.

Roll on-Roll off berthing has been built by employing notches at the corners located in both quays, being 24 meters wide, with an expansion of 12,5 meters and a slope of 12,5% starting at 1,50 meters and finishing at 3,0 meters.

These works were awarded to Ferrovial Agroman, S.A. y Jumabeda, S.L., budgeted at €696.544,00 (VAT excluded), with yearly payments in 2018 and 2019. They are already finished, received and discharged in October 2019. The investment certified in 2019 was €738.035,12.



Paving and protection of slopes in service road at Escombreras's dock.

Along the last years, the Port Authority of Cartagena has been taking several actions addressed to improving safety down the service road that connects both Escombreras and Cartagena's docks. The first of those actions was the rehabilitation of the road coming from Cartagena until the tunnel that leads to Cala Cortina, and the second action taken was focused on the project called "Improvement of Road Safety down the road between Cala Cortina and Escombreras within the Municipal Territory of Cartagena" in 2016.

The object of the works is the rehabilitation of the road surface, stabilization of unstable slopes by means of specific support techniques, protection of the tunnel slope against possible landslides, cleaning of tunnel drains and ditches, construction of masonry walls with lantern lines and implementation of new retaining systems formed by parapets with containment level h4b.

These works were awarded to Ferrovial Agroman, S.A., budgeted at €1.118.910,00 (VAT excluded), with yearly payments in 2017 and 2018. The deadline was set within 15 months, and the investment certified in 2019 was €95.124,91.

Ramparts at Isaac Peral quay

Isaac Peral quay is around 25-30 years old. Ramparts were put in when its lifespan was terminated. The Maritime Service Division suggested the installation of eight new ramparts (C-1600x800x2000mm), four at every front at the fronts number 7 and 8 at Isaac Peral quay. Moreover, eight cylindrical rubber ramparts were replaced (type C), seven of them of 1600x800x2000 mm., and one of 1700x850x1500 mm., (grade A). Due to the above mentioned, the central area of the front, where vessels buttress their length, the footholds have been doubled and all the strength coming from vessels will be held by a double number of ramparts, and their lifespan will be longer.

These were awarded to Prosertek, S.L., budgeted at €319.732,00 (VAT excluded), with yearly payments in 2019 and 2020. The investment certified in 2019 was €211.023,12.

By the end of 2019, these ramparts were received, and half of them have been installed already. By 2020, the rest will be installed, and also a new coating of 200 m² of the capping beam.

Road paving at Isaac Peral quay.

Isaac Peral and Principe Felipe quays are around 25-30 years old. On these quays' roads, truck traffic and Access to current weighbridge and parking areas are rather degraded due to trucks' turns, and also because there are bigger and heavier as time goes by.

This project is mainly focused on improving distribution roads and parking areas for trucks by paving 37.000 m², operating on five different sections, depending on the use of each section, using different semi-rigid and rigid roads. Works are really advanced by the end of 2019, at around 90% of completion. All roads have been recovered at that percentage, and improved all elevations. These works are set to be finished by the first trimester of 2020.

These works were awarded to UTE Pavimentación Viales Muelle Isaac Peral, budgeted at €1.286.774,00 (VAT excluded), with yearly payments in 2019 and 2020. The investment certified in 2019 was €1.044.493,01.

Pipe rack extension until the limits of El Fangal's service area.

In order to boost liquid bulk traffic at Escombreras, the Port Authority of Cartagena has been taking different actions to ease the placement of some new companies specialized in this kind of cargo. In the last years, we have been enabling land, and also performing all the necessary support for the implementation of a pipe rack, in which different licenses are authorized.

There is a piping system, whose starting point is located at the original base of the SW pier, stretches parallelly along service road at Escombreras's enlargement, continues through the quays at the Liquid Bulk Terminal, and finishes at El Fangal's starting point.

Therefore, it is intended to extend that piping system all along the limits of the port service in the northern part of El Fangal. This way, service could be provided to implement new companies nearby, where great surface areas are available. To do so, we shall operate on some pieces of land where the railway runs through to access Isaac Peral and Principe Felipe quay, meeting this way the limits of the public port domain, near other operators' plots or those that may develop by themselves.

These works started in March 2019, and cancelled in September due to some problems during their structure performance and foundations, since the real location of pipes of different pipelines and other pipes varies as compared to the one shown in the project. After the license is provided, the new modified project will be drafted.

These works were awarded to El Fangal UTE, budgeted at €1.540.466, 00 (VAT excluded), with yearly payments in 2019 and 2020. The investment certified in 2019 was €51,986.02.

Accommodation and improvement of LNG loading and livestock shipment.

Due to the increase of livestock export and the regulations on Animal Well-being enforced in the European Community, the port found it necessary to accommodate its facilities to this traffic. One of the main requests is the construction of farmyards, which are used as node between land and maritime traffic.

These facilities' excellent location might be at the Western Berthing Point, which borders on the south with Principe Felipe quay, and on the north with the LNG Berthing Point (front E03). For the adequate livestock trucks' traffic, the closing of the existing corner at front E03 and the Western Berthing Point is set to be completed. To do so, several cemented caissons have been used at the same height as the existing ones. This action results in an increase of the berthing line at the Western Berthing Point of 17.3 m, the extension of 100 m of the LNG Berthing Point, and also an increase of the surface of 3.653 m².

These works were awarded to UTE Muelle GNL, budgeted at €8.060.710,24 € (VAT excluded), with yearly payments in 2019, 2020 and 2021. The investment certified in 2019 was €1.000.000,00.



Código seguro de Verificación : GEN-c749-2253-fb59-6b0d-61fa-cfc9-af00-6b58 | Puede verificar la integridad de este documento en la siguiente dirección : <https://sede.administracion.gob.es/pagSedeFront/servicios/consultaCSV.htm>



The Cartagena Port Authority (CPA), has established in its strategic objectives the excellence in Port Management, fomenting respect for the environment, health and safety at work, innovation and support the Social Responsibility, promoting active support of its socio-economic partners and with a motivated and committed human team.

For the Port of Cartagena to advance towards Excellence, it is necessary for the Port Community to internalize these objectives, so the CPA stands as a leader, setting the course and integrating its Policy in all activities developed in the port area. Aware that our most important asset is people, the CPA is committed to an integrated and participatory management model, in which its workers are essentials and where continuous improvement is a fundamental principle.

For that, this Port Authority declares its commitment to:

- Provide its general and maritime signals services, according the needs and expectations of our clients and stakeholders, in an efficient, safe, sustainable and innovative way.
- Promote port services (pilotage, towing, mooring, passage, reception of waste and handling of goods) in order to quality, safety, innovation and respect for the environment.
- Ensure free competition in our Commercial Services.
- Create social, economic and environmental VALUE for Cartagena and the Region.
- Foment and promote sustainability, innovation and excellence in the port community.
- Identify, systematically and permanently update and comply with the legal, regulatory or other requirements that the APC subscribes.
- Implement continuous improvement in the CPA as a standard of conduct in its management.
- Expand in our social and economic environment the knowledge and compliance of the Sustainable Development Goals (SDG) as a way for prosperity and sustainability.
- Protect and promote safety and health at work.

It is the responsibility of the Presidency and the persons to whom it delegates, that this Management Policy is known, understood, accepted, applied and updated at all levels of the organization. Managers and people in charge have a special obligation to know the Policy and the Management System rules, promote their correct application and demand their compliance.

Cartagena, 23th July 2020

Mrs. Yolanda Muñoz Gómez
- CPA President -



4 Management system

4.1 Documentation

In 2012, we completed the definitive integration of the Environmental Management System and the Occupational Health and Safety System. From that moment on, it became known as **Integrated Management System (IMS)**. The IMS consists of 21 procedures, 16 technical instructions and 87 record formats, including those referring to environmental aspects. Currently, our system is on its way to becoming a Global Management System that covers not only safety, prevention, environment or quality, but also the rest of the activities we undertake, with an emphasis on corporate social responsibility.

These instruments are complemented by UNE-EN ISO 14001:2004 and UNE-EN ISO 18001:2007 standards, the Regulation (EU) 1221/2009 (EMAS), the Site Emergency Plan (5th review), the Maritime Internal Plan (3rd review) and by the Reception and Handling of Ship-Generated waste Plan (5th review).

The Port Authority of Cartagena is currently working on a short-term object consisting in integrating this system in the Quality Management and Social Corporate Responsibility systems. The idea is to create a single system that covers all the operation, communication and management aspects of the company.

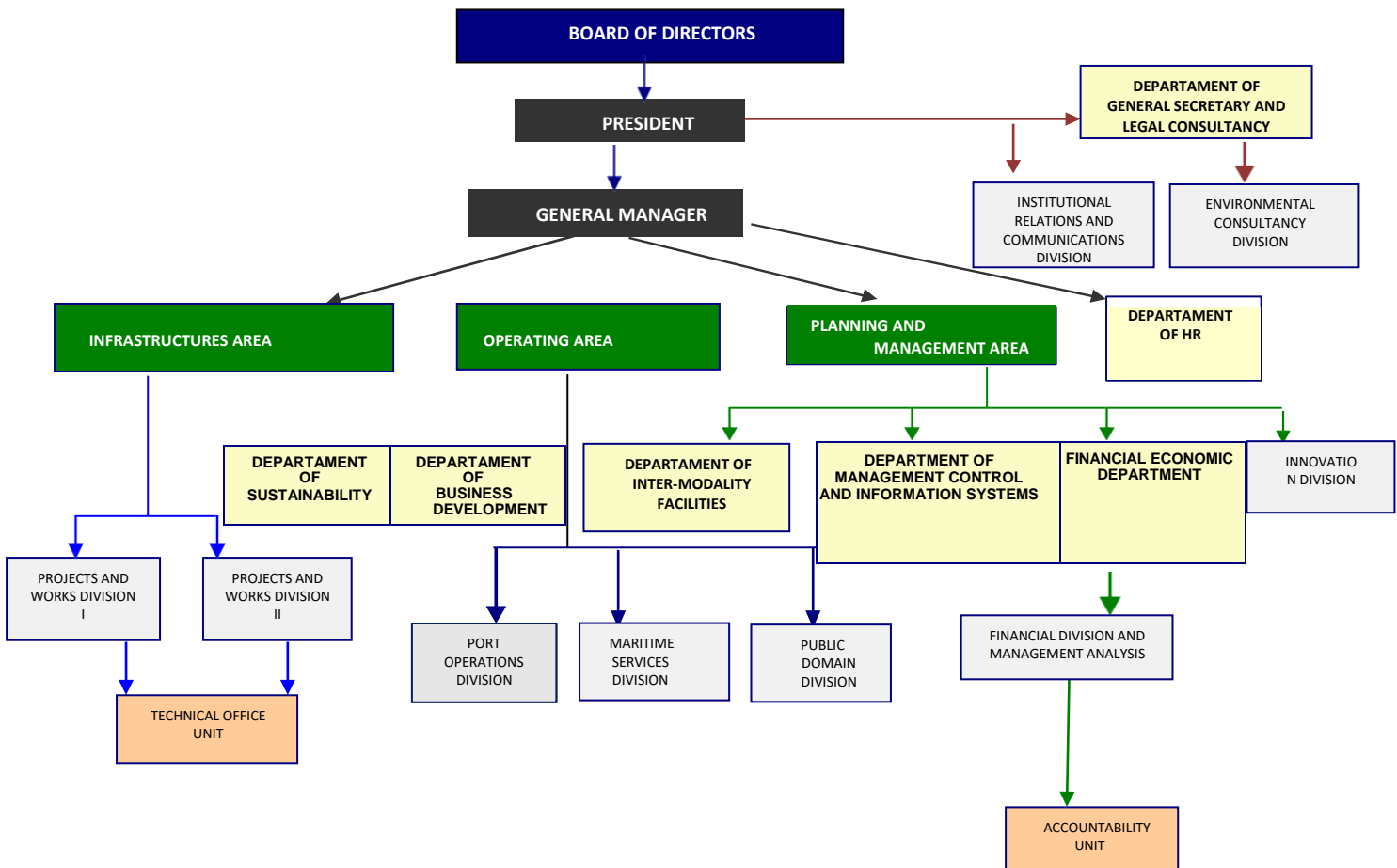
4.2 External audits

Since we implemented the Environmental Management System in June 2003 to date, Lloyd's Register Quality Assurance has carried out 17 external audits. Please, find the following Appendices at the end of this Statement: Certificate of Approval of our Environmental Management System as per the UNE-EN ISO 14001:2015 9001:2015 Standard, UE Commission's 2017/1505 Regulations on August 28th 2017, Certificate of Verification of the said System as per Regulation (EU) 1221/2009 (EMAS) and the Certificate of Approval as per the OHSAS 18001:2007 Standard. The latest external audits have been carried out in a totally integrated way.

4.3 Organization chart

The Management organization chart throughout 2017 is based on the Board of Directors, where in addition to the President, the General Manager, the Secretary and the Maritime Captain, the Autonomous Government of the Region of Murcia (4 members), the Cartagena City Council (2 members), the General Government Administration (3 members), as well as the Business and Union Organizations (4 members) are also represented.

The person in charge of implementing and maintaining the Integrated Management System and the Quality management System is the Head of the Sustainability Department (Head of the Safety and Environment Division). This department covers all issues related to Safety, Prevention, Quality, Corporate Social Responsibility and Environment.



4.4

Environmental aspects inventory

Definitions:

Environmental Aspect: Element of the activities, products or services of an organization that may interact with the environment.

Environmental Impact: Any change in the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services.

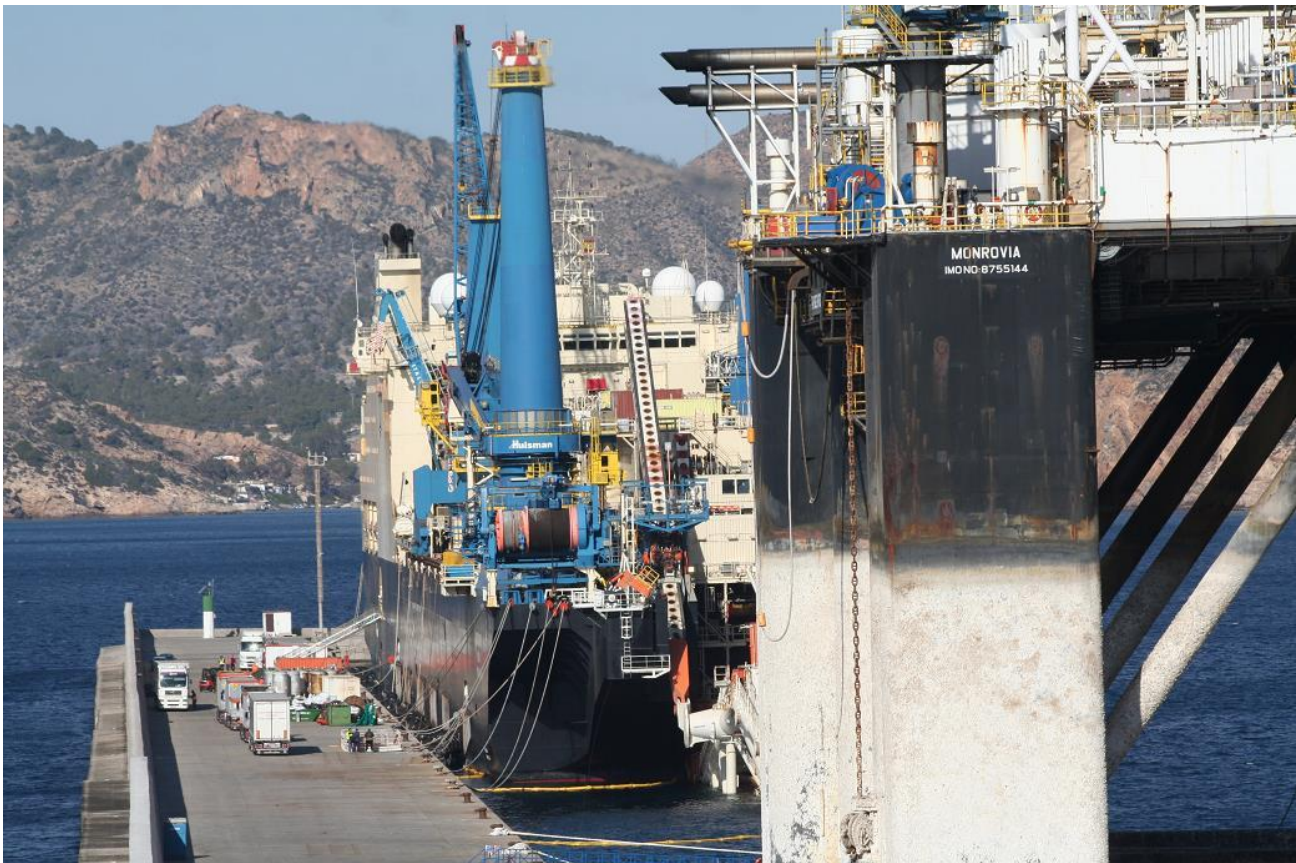
We have carried out an Environmental Aspects Inventory that includes all the possible effects that the activity of the port can have on the environment. It consists of 31 aspects and it defines their associated environmental impacts, both direct and indirect, as well as their level of importance.

We have determined a series of evaluation criteria in order to define whether these aspects are considered significant or not. For this purpose, we have taken into account the lack of compliance with legal requirements, the significant social impact, the impact on natural resources, the available information and specially, the occurrence and consequences of environmental risk. Depending of the type of occurrence and consequences, we define the respective aspect as "significant" or "non-significant". The "significant" environmental aspects are the first ones to be considered when defining objectives and goals aimed at minimizing their impact on environment.

This is our criterion:

| Environmental risk | | | |
|--------------------|--------------|------------|------------|
| | Consequences | | |
| Occurrence | Mild | Medium | Severe |
| Low | NO | NO | YES |
| Medium | NO | YES | YES |
| high | NO | YES | YES |

YES = Significant environmental aspect
 NO = Non-significant environmental aspect



Gestión de residuos y aprovisionamientos en operaciones de mantenimiento de buques en la dársena de escombreras

| Environmental Aspects Inventory | | | |
|--|-------------|---|---------------------|
| Aspect Identification | Significant | Potential Associated Impact | Direct or Indirect |
| Water Consumption | YES | Consumption of a non-renewable natural resource of special importance due to the existing drought in the area | Direct |
| Control of potential sources of emission of aerosols contaminated with Legionella | YES | Potential air pollution - infection to people. | Direct |
| Noise emissions. | YES | Air pollution, possible social impact. | Indirect |
| Waste oil generation, production of waste oil filters and waste oil containers. | YES | Soil and water pollution. | Direct |
| Underwater noise | YES | Noise pollution (from vessels, works, dredging, etc.) for sea life | Direct and Indirect |
| Air pollution generated by the stacking and handling of bulk goods. | YES | Air pollution, possible social impact. | Indirect |
| Removal of dredged spoils and movement of materials during port works. | YES | Potential soil, water and marine ecosystems pollution. | Direct |
| Accidents that could result in fire. | YES | Soil, water and air pollution. Potential impact on society | Direct and Indirect |
| Generation of waste from ships and load/unload operations | YES | Potential soil and water pollution. | Indirect |
| Port water waste generation. | YES | Potential water pollution. | Indirect |
| Maritime accidents. | YES | Potential water pollution. | Indirect |
| Generation of wastewater discharged into cesspit (this situation has been completely eliminated) | NO | Soil and water pollution. | Indirect |
| Electric Power Consumption. | NO | Consumption of a non-renewable natural resource. | Direct |
| Paper consumption. | NO | Consumption of a non-renewable natural resource. | Direct |
| Generation of wastes similar to urban types. | NO | Potential soil, water and air pollution. | Direct and Indirect |
| Used batteries. | NO | Soil and water pollution. | Direct |
| Generation of rags and absorbent clothing contaminated by waste oil | NO | Soil and water pollution. | Direct |
| Production of empty paint cans and drums. | NO | Soil and water pollution. | Direct |
| Inert waste generated by works carried out at the port. | NO | Soil, water and air pollution. | Direct |
| Dust emission generated by works carried out at the port. | NO | Air pollution, possible social impact. | Direct |
| Discharge of domestic wastewater into the sewage system. | NO | Water pollution. | Direct |
| Used paper. | NO | Loss of recycled manufactured products. | Direct |
| Toner and ink cartridges. | NO | Loss of recycled manufactured products. | Direct |
| Batteries. | NO | Potential soil and water pollution. | Direct |
| Fluorescent tubes and lamps containing mercury. | NO | Soil and air pollution. | Direct |
| Fuel Consumption | NO | Consumption of non-renewable natural resources. | Direct |
| Generation of electrical, electronic and computer material no longer in use | NO | Occupation of usable space in offices, potential soil and water pollution. | Direct |
| Accidental spills. | NO | Soil and water pollution. | Direct and Indirect |
| Traffic accidents at services area. | NO | Potential soil, water and air pollution (when handling hazardous goods). | Direct and Indirect |
| Emission of flue gases by port land transport. | NO | Air pollution. | Direct and Indirect |
| Used tires, rubber fenders and junk. | NO | Soil and water pollution. | Direct and Indirect |

This item will be removed of the list at the end of 2016 due to the medical assistant's retirement and to the subcontracting of the current health care services.

This inventory on aspects has been revised in 2019 by adding underwater noise to be taken as a new aspect. As a result, we have developed a strategy on underwater noise included in our port's environmental management policy

4.5

Goals and targets

Taking into account the Environmental Aspects with significant impacts, each year we establish a series of objectives and goals aimed at eliminating or reducing, as much as possible, those impacts.

Please, find below the objectives and goals achieved in recent years:

| YEAR | OBJECTIVE | % ACHIEVEMENT |
|-----------|---|---------------|
| 2005 | Continuing to improve of sanitation and sewage systems at Cartagena's dock. | 100 |
| 2005 | Continuing to improve of sanitation and sewage systems at Escombreras's dock. | 100 |
| 2005 | Continuing to optimize water consumption at port. | 100 |
| 2005 | Vegetable shield at the service area of Cartagena's dock. | 100 |
| 2005 | Optimization of power consumption at port. | 100 |
| 2006 | Continuing to improve of sanitation and sewage systems at Cartagena's dock. | 100 |
| 2006 | Continuing to improve of sanitation and sewage systems at Escombreras's dock. | 100 |
| 2006 | Continuing to optimize water consumption at port. | 100 |
| 2006 | Continuing to place and complete the vegetable shield at the services at Escombreras's dock. Access by rail to Cartagena's dock | 100 |
| 2006 | Continuing to optimize energy consumption at port. | 100 |
| 2006 | Specific training in prevention, safety and environment for Port Police | 100 |
| 2007 | Adherence to Regulation (EU) 761/2001 (EMAS) | 100 |
| 2007 | Participation in the Social Pact for the Environment of the Region of Murcia. | 100 |
| 2007 | Arrangement of a "green point" at Santiago Dock to discharge waste from vessels. | 100 |
| 2008 | Reduction of uncontrolled water consumption by 10 % at Escombreras's dock. | 100 |
| 2008 | Installation of light flow dimmer-stabilizers in the street lighting management system of the new areas of Escombreras's dock's extension. | Delayed |
| 2008 | Improvement of management of waste generated by users (including the arrangement of a "green point" at Santiago Dock). | 75 |
| 2008 | Training activities for officials on Regulation (EU) 761/2001 (EMAS). | 100 |
| 2008 | Improvement of air quality control at the dry bulk terminal. | 100 |
| 2008 | Promotion of sustainable mobility. | 100 |
| 2009 | Reduction of uncontrolled water consumption at Cartagena's dock (10%). | 100 |
| 2009 | Installation of PV panels at the Fishermen Association of Cartagena's premises for energetic use (long-term objective 2009-2010). | 100 |
| 2009 | Installation of solar storage tanks to warm water at the Santa Lucía workshops of the Port Authority of Cartagena. | 100 |
| 2009/2010 | Development and organization of the "Ideas for Environmental Improvement" competition, which shall provide new environmental improvement actions. | 100 |
| 2009/2010 | Reduction by 10 % of the levels of airborne particles (PM ₁₀) at the dry bulk terminal (long-term objective 2009-2010). | 100 |
| 2009/2010 | Installation of PV panels at the Fishermen Association of Cartagena's premises for energetic use (long-term objective 2009-2010). | 100 |
| 2010 | Reduction of uncontrolled water consumption by 10 % at Cartagena's dock and Escombreras's dock. | 100 |
| 2010 | Training activities on the control of wastes dumped into soil and sea for Port Police and Environmental Management departments' staff. | 100 |
| 2010/2011 | Preparation of the noise map of the service area of Cartagena's dock (long-term objective 2010/2011). | 100 |
| 2010 | Control and effective measurement of 95 % of the total power consumed at the port. | 100 |

| | | |
|-----------|---|-----|
| 2011/2012 | Arrangement of a new "green point" for discharging the hazardous waste generated by the workshops of the Port Authority of Cartagena. | 100 |
| 2011/2012 | Actions to promote business excellence among the Port Community. | 100 |
| 2011/2012 | Improvement of forestry at the extension of Escombreras's dock. | 100 |
| 2011/2012 | Improvement of cleanliness and appearance of the mooring dock. | 100 |
| 2011/2012 | Offsetting the CO ₂ emissions associated with the activities of the Port Authority of Cartagena. | 100 |
| 2011/2012 | Improvement of the urban environment at the Containers terminal and at the General Goods terminal. | 75 |
| 2011/2012 | To optimize energy efficiency at the premises of the Port Authority of Cartagena. | 100 |
| 2012/2013 | Implementation of an Integrated Management System. | 100 |
| 2012/2013 | To conclude agreements with the Autonomous Government of Murcia in accordance with the control of wastes dumped in soil and sea, and water quality. | 100 |
| 2012/2013 | Promotion of business excellence among the Port Community. | 50 |
| 2012/2013 | Implementation of a Management System for the Social Responsibility of Corporations. | 100 |
| 2012/2013 | Improvement of staff's education. | 100 |
| 2012/2013 | Improvement of the preventive inspections carried out by Port Police. | 100 |
| 2012/2013 | Monitoring and control of preventive planning. | 100 |
| 2012/2013 | Improvement of the coordination of business activities at the Port Authority of Cartagena. | 100 |
| 2014/2015 | Implementation of the Maritime Works Requirements (ROM) 5.1-13 in order to control port water quality along the coast. | 100 |
| 2015/2016 | Implementation of Maritime Works Requirement (ROM) 5.1-13 to control port water quality along the coast, adaptation to Royal Decree 817/2015 and control of non-native species. | 100 |
| 2017 | Preparation of the noise map of Escombreras's dock. | 100 |
| 2018 | Port Biodiversity Preservation and Development | 100 |
| 2019 | Greater number of pollution metering stations | 100 |
| 2019 | Assessment of Carbon footprint at scale 3 | 100 |

There are other activities related to environment and sustainability that are currently under development:

- Improvement of sustainable mobility with new pedestrian paths and bicycle lanes.
- Plantation of new indigenous species at Sierra de La Fausilla
- New tasks aimed at monitoring the birds and natural environment in Cartagena, as well as the surroundings of Mazarrón's lighthouse
- Sierra de la Fausilla and Escombreras Island: monitoring of birds and Escombreras' chamomile, and genetic study of the island's reptiles.
- Isla de las Palomas: monitoring of Scopoli's shearwater and European shag's, chicken banding
- Adhesion of more companies to the GOOD Environmental Practices Agreement
- Public dissemination of EMAS register and SDO
- EMAS European Forum at the port of Cartagena
- Awareness activities on marine litter and reduction of plastics (Operation Clean Sweep)
- Study of diatom algae as an indicator of water quality
- Acquisition of electric and hybrid vehicles
- Marking of seabirds with GPD devices to study their habits
- Cleaning of seabed in port areas
- Studies on underwater noise and its effect on cetaceans
- Studies on the impact of works and increase in traffic to cetaceans and turtles
- Studies on the impact of vessels in the city's environmental pollution
- Study on the quays' role for the development of fingerlings
- Study on the presence of micro-plastics in port waters

Environmental objectives and goals 2019

Greater number of pollution metering stations

At the end of 2019, the acquisition of two new air pollution metering cabins was discharged, replacing the former one located at the solid bulk terminal in Escombreras, after working for more than 17 years and which required an urgent renewal.

Both cabins are equipped with the latest technology available regarding PM10, PM2,5, SO₂, CO, NO, NO₂, and NO_x analyzers. It has also been provided with a new control and management software that allows information access in real time through any mobile device.

One of these cabins will replace the existing one, and the other will be placed at the new bulk terminal and multi-purpose zone in Escombreras' enlargement. This way, information shall be received in real time at any port area where solid bulk are transported, which allows to deal rapidly with any exceedance in immission levels meaning a threat for workers' health or the environment itself. These new cabins were awarded by DNota Medio Ambiente, S.L.



Solid bulk terminal at Escombreras' enlargement – Sulphur loading from Repsol Petróleo refinery

Assessment of Carbon footprint at scale 3

The research and assessment of Carbon footprint at scale 3 (it included all activities and facilities from the Port Authority and other companies, vessels, and vehicles operating at the port along 2017, chosen to be the starting point of this assessment), was carried out by CEDEX (Ministry of Development) involved in an assignment on Ports of the State and the port of Cartagena.

Its results show that the impact of the Port Authority's activities (facilities, buildings, vehicles, etc.) represents 1% over the total around the port, and 79% of concessions due to the fact that an energy generation plant impacts greatly in the area, through the consumption of LNG in Escombreras. The impact of maritime traffic means 20% over the total, and the remaining activities represent rates below 1%.



Movimiento portuario, al fondo chimenea de la Planta de Ciclo Combinado de Engie (1.200 Mw), concesión del Puerto de Cartagena

5

Natural resources management

5.1

Water

Total water consumption throughout 2019 decreased -22,31% in both docks from 137.313 m³ (2018) to 106.678 m³. This decrease is mainly due to the fresh water supply to vessels, Army operations at Curra Pier and own facilities.

Total water consumption per dock:

- ✓ At Cartagena's dock, water consumption decreased - 23,14%, coming from 65.208 m³ to 50.122 m³.
- ✓ At Escombreras's dock, water consumption decreased - 15,59%, coming from 65.913 m³ (2017) to 55.640 m³.

Uncontrolled water consumption development and water supply efficiency:

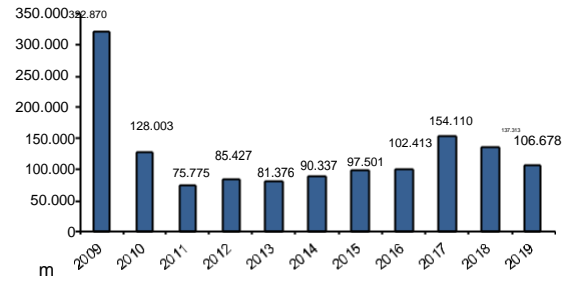
Uncontrolled water consumption at Cartagena's dock has gone from 11.368 m³ to 4.129 m³ (a decrease of 63,68%) so the efficiency of the partial water supply system at this dock increased from 84,08% to 91,91%.

Water consumption at Escombreras's dock increased from 127m³ to 13.254 m³ (+10.336%) setting the efficiency of the partial network at 76,18%, as compared to 99,81% last year.

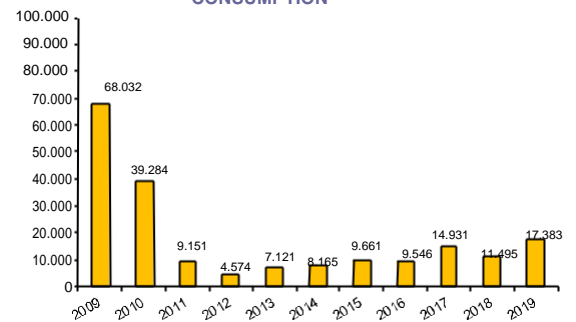
In our own facilities, there was a decreased of -57,96%, from 13.255 m³ to 5.572 m³

In the total calculation in both docks, uncontrolled consumption means a 51,22% increase for the total port. Compared to the overall volume, this figure shows the maintenance at the efficiency of the water supply system from **91,63%** in 2018 to **83,71%**, this means that the efficiency of the whole water supply system is still over 90% for the seventh consecutive year.

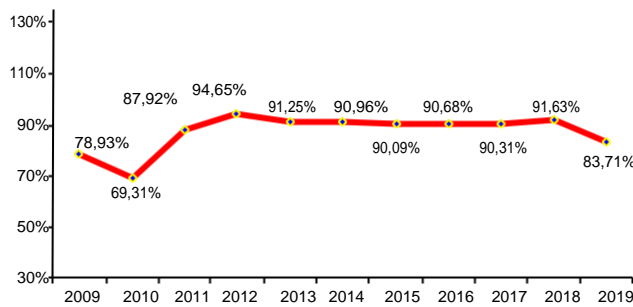
GENERAL CONSUMPTION AT THE PORT



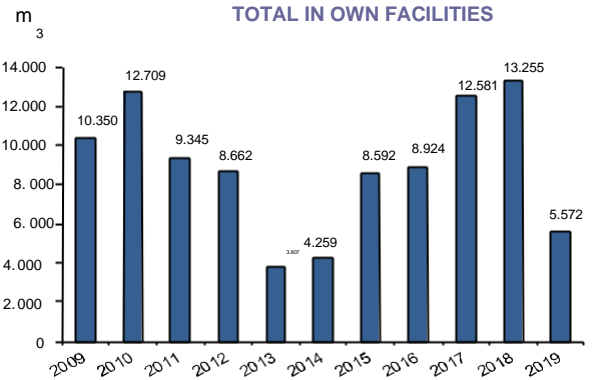
UNCONTROLLED CONSUMPTION



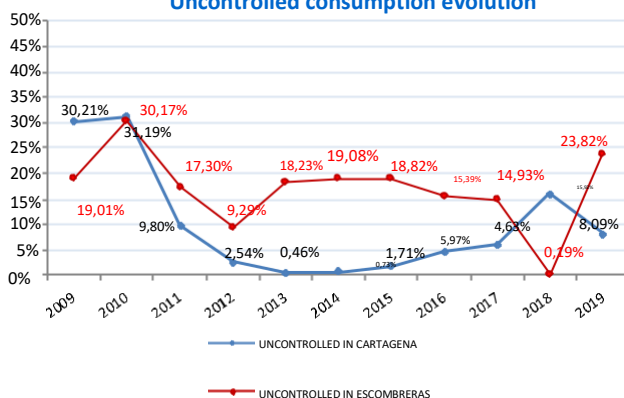
TOTAL NETWORK EFFICIENCY (%)



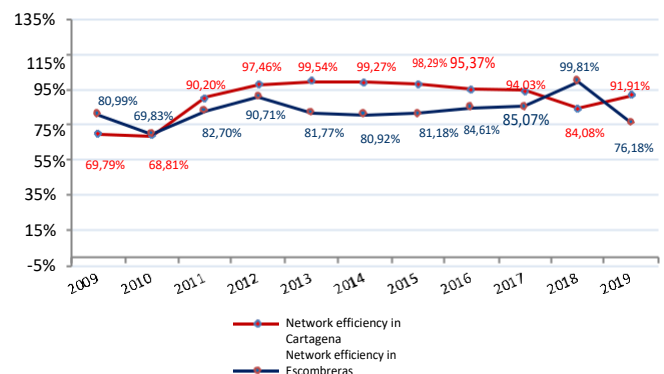
TOTAL IN OWN FACILITIES



Uncontrolled consumption evolution



Partial network efficiency evolution



5.2 Spills, monitoring, and water quality

All premises belonging to the Port Authority of Cartagena have adequate sanitation systems consisting in septic tanks, septic tanks with sewage treatment plants or connections to our own sanitation network. Throughout 2010, we carried out the necessary works to connect the Social Club's premises, which were fitted with a sealed septic tank, to the sanitation network. This way, all facilities at Cartagena's dock are connected to the sanitation network, thereby eliminating the existing septic tanks.

In view of the impossibility of connecting the Escombreras's dock's premises to the municipal network, we have arranged a series of sanitation systems formed by septic tanks or purification systems.

In order to ensure compliance with the regulations in this respect, and regardless of the inspection that the technicians of the Sustainability Department carry out daily, all conditions of authorization or concession for new facilities shall include specific clauses on emissions, waste, discharges, safety and prevention. This is a way to enforce the observance of prescriptions that go beyond their strict legal compliance.

In February 2016, the two waste water pipes property of the Port Authority underwent the corresponding periodic analysis. The outcome showed that the level of chemical oxygen demand exceeded the legal levels. This forced the adoption of supervision and cleaning measures in the pumping wells. In November 2016, and at the request of the city council of Cartagena, the waste water pipes underwent a second analysis. This time the outcome revealed that all parameters were within the legal limits.

In December 2016, the Port Authority was served notice of the need of renewing the necessary authorization to discharge to sewers and public sanitation networks. This time, the requirements included, not only the regular controls and analysis, but also the obligation of submitting every year a report made by an Environmental Inspection Body on the suitability of sanitation systems, waste classification and operation of the whole network. The said authorization replaces the one granted on 26/06/2007 and establishes annual analyses.

All analyses made on water and on the waste discharged to the sewage system have been carried out by the Laboratorios Munuera SLU Company, which holds Quality Management Standard 9001 and Environmental Management Standard 14001, and is entered in the EMAS registry.

As a result of this new authorization, between December 2017 and January 2018 an industrial oil and grease separator was installed in the restaurant of the Santa Lucía Yacht Club, and the pumping well and collector were cleaned, as well as the complete overhaul of the control equipment and impulsion pumps was carried out.

In April 2018, the annual ECA report was done. Several tests on two spilling points to the local network were attached. Some parameters were detected and slightly ranked over the limits. That has forced us to strengthen the control on those users who spill in our traps. To this effect, some different requirements have been attached to all authorization and granting proceedings that specify the spill in the sewerage system, such as stricter regular controls and tests than those ones the Town Hall establish in their spill authorizations.

Along the first trimester in 2019, a new ECA report was made by the same company, together with several samples issued by the Town Hall of Cartagena on March 15, 2019.

As a result of this report and samples made, a breach of the spill policy on the sewage system carried out by some of the concessionary companies was detected. Consequently, several actions to maximize the supervision have been taken, together with some periodic controls at the spill manifold.



Sample collection from the pumping well at the Container Terminal in Santa Lucía



ECA inspection carried out by Laboratorios MUNUERA and verified by Hidrogea (02/01/2018)

With regard to the control of wastes dumped into soil and sea, on 07/14/2009 we signed with the Autonomous Government of Murcia a **Collaboration Agreement** “to protect the aquatic environment by controlling and monitoring water quality within the port area of Cartagena”. The Agreement was ratified on June 5, 2012 with the signing of a new of a new text detailing the obligations of each party. By means of the said Agreement, the personnel of the Security and Environment Division, as well as the Surveillance and Police Service of the Port Authority of Cartagena, will be able to act as agents recognized by the Autonomous Government of Murcia with regard to the report of illegal discharges and the collection, samples and custody of land and sea discharges.

The Port Authority undertakes to carry out monthly checks and analyses of port water quality. In order to comply with the provisions of the mentioned Agreement, during 2010 we provided the necessary training to the personnel of the Safety and Environment Division, Fleet Personnel and the Port Police. The training seminars were given by technicians of the General Directorate of Planning, Evaluation and Environmental Control of the Autonomous Government of Murcia.

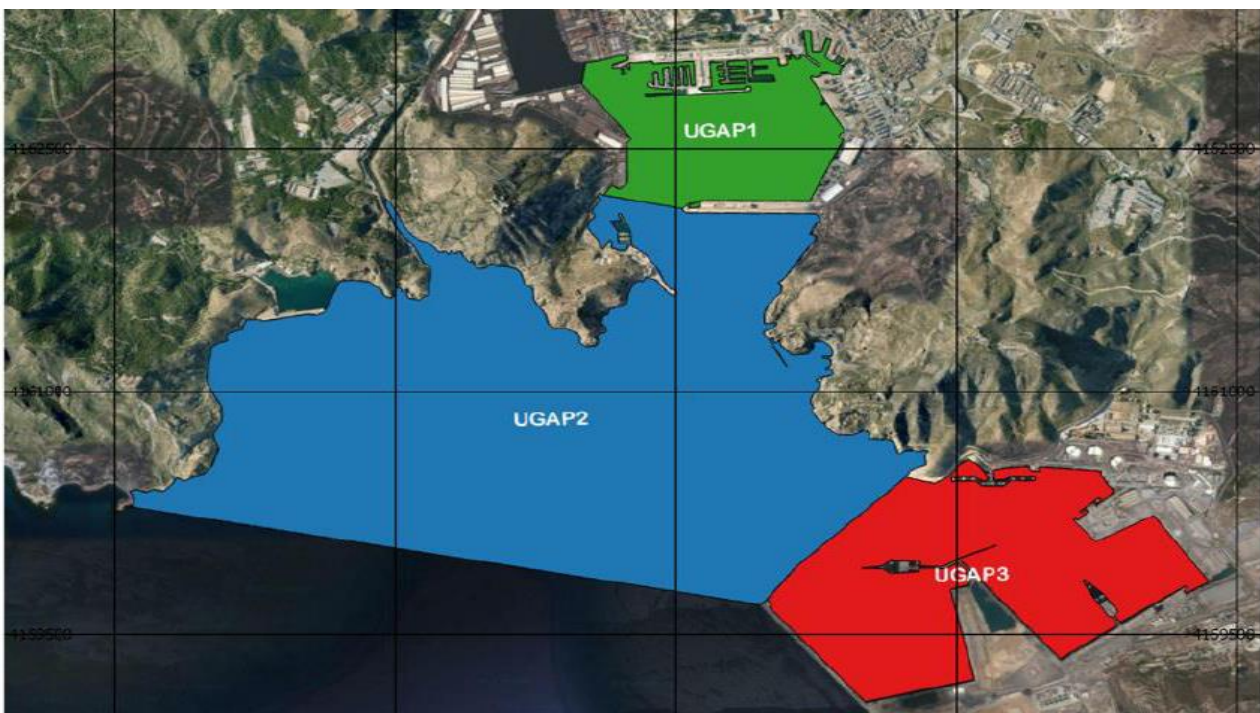
Despite the fact that the renewal of this Collaboration Agreement is still pending nowadays, the Port Authority of Cartagena keeps on controlling the quality of port waters, as foreseen in the Maritime Works Requirement (ROM) 5.1-13 and Royal Decree 817/2015.

[ROM 5.1-13: Port Waters Quality Control Section of the Maritime Works Requirements for State Ports \(2013\)](#)

[Royal Decree 817/2015: Royal Decree 817/2015 of September 11, which establishes the monitoring and evaluation criteria for surface water status and environmental quality standards.](#)

Delimitation of water divisions (UGAPS)

[Water Divisions \(UGAP\): A port waters management division defined by its uses, geomorphology, waste water discharges record and type of water bodies](#)





Result of controls carried out in 2019

✓ **CHEMICAL QUALITY WATER CONTROL**

✓ Priority substances, appendix IV RD817/2015: (36 controls)

Cadmium: All controls below reference levels for environmental quality standard

Nickel: All controls below detection level of the analytic technique

Mercury: All controls below reference levels for environmental quality standard

Lead: All controls below reference levels for environmental quality standard

✓ Preferred substances, appendix V RD817/2015 (36 controls)

Arsenic: All controls below reference levels for environmental quality standard

Copper: All controls below reference levels for environmental quality standard

Chromium: All controls below reference levels for environmental quality standard

Zinc: All controls below reference levels for environmental quality standard

✓ Hydrocarbons (36 controls)

Not detected in any of the 36 controls, with an annual average of <0.05 (laboratory detection index). The absence of hydrocarbons is associated with a level of maximum ecological potential.

✓ Other substances (12 controls)

Detergents, phenols, and residual free chlorine: All controls below detection level of the analytic technique

Oils and fats: All controls below reference levels for environmental quality standard

✓ **PHYSICAL-CHEMICAL QUALITY WATER CONTROL (36 controls)**

✓ Dissolved oxygen

Parameters over 103%, reaching even 109%.

The quality controls to take into account are shown in RD 817/2015 and ROM 5.1 document. Both state values over 70% for the 36 sampling points. The minimum level to be able to have the maximum potential of 70 indicating coastal waters have been strongly modified by the presence of ports nearby.

| OXÍGENO DISUELTO | MARZO | JUNIO | SEPTIEMBRE | DICIEMBRE | PROMEDIO |
|------------------|---------|---------|------------|-----------|----------|
| UGAP1_1 | 109.148 | 112.764 | 102.717 | 96.133 | 105.190 |
| UGAP1_2 | 107.159 | 111.094 | 98.913 | 95.969 | 103.284 |
| UGAP1_3 | 108.892 | 113.068 | 104.590 | 98.164 | 106.178 |
| UGAP2_1 | 108.542 | 109.830 | 107.509 | 98.088 | 105.992 |
| UGAP2_2 | 105.352 | 108.690 | 106.914 | 96.205 | 104.290 |
| UGAP2_3 | 106.317 | 109.322 | 106.416 | 96.925 | 104.745 |
| UGAP3_1 | 108.900 | 116.690 | 108.420 | 96.800 | 107.703 |
| UGAP3_2 | 106.154 | 109.994 | 105.310 | 96.683 | 104.535 |
| UGAP3_3 | 108.779 | 130.149 | 102.207 | 94.719 | 108.964 |

- ✓ **Turbidity**
All controls between 0,1 and 1,2 NTU. The maximum level understood as potential is below 4 NTU
- ✓ **Transparency (Disco Secchi)**
At Cartagena's dock, several levels have been detected below reference parameters. At Escombreras's dock and UGAP, levels are located between 5m. and 21m. of transparency, well above the reference parameters.
- ✓ **Total suspended solids**
The suspended solids have been below the detection level and the Environmental Quality Standard.
- ✓ **NUTRIENTS**
- ✓ **Ammonium**
Levels at UGAP 1 (Cartagena's dock) are still well above the parameters (4,6 mg/l), reaching the annual average of 53,293 mg/l at UGAP1-2, although ammonium levels decreased as compared to previous years. It comes from spills from the municipal rain manifold, which discharges under ASCAR, and was located and communicated to the Town Hall and CARM in 2016. In the rest of points, ammonium levels are within or below the limits of detection levels.
- ✓ **Nitrates**
Generally, all levels stick to good/moderate levels enforced by RD817/2015. Mostly all controls are at very low levels or below the detection level. Only in those places located near the local rainwater collector's outlet, levels are exceeded the same way as with the case of ammonium.
- ✓ **Nitrites**
It shows recent spills, and in connection with a high bacteriological activity. All controls are at very low levels or below the detection level, except for a nearby sampling point close to the local rainwater manifold (UGAP 2). High ammonium levels result in high nitrate and nitrite levels.
- ✓ **Phosphates**
All controls are below the detection levels or reference parameters.
- ✓ **Silica**
All controls are below the detection levels.
- ✓ **FAN index**
This index is established for Mediterranean coastal waters or waters heavily modified by ports (RD 817/2015). In all controls the FAN index is at the highest ecological level with the exception of the UGAP_1.2 area, where the presence of ammonium makes this index bad/deficient. Out of 36 controls, 30 correspond to the highest level of quality, 1 good, 3 moderate, and 2 bad/deficient.

| FAN | MARZO | JUNIO | OCTUBRE | DICIEMBRE | PROMEDIO |
|----------|-------------|-------------|--------------|-------------|-------------|
| UGAP1_1* | -1.13833784 | -0.33728426 | -0.08927923 | -0.31708093 | -0.50510315 |
| UGAP1_2* | -0.1535674 | 0.2973458 | 1.6549897 | 1.00755197 | 0.9465123 |
| UGAP1_3 | -0.6947154 | -0.54341683 | 0.29722986 | 0.4351298 | 0.40973038 |
| UGAP2_1 | -0.76908262 | -0.74668355 | -0.60486186 | -0.02314094 | -0.16988328 |
| UGAP2_2* | -1.10021089 | -1.14350564 | -0.330915625 | -0.91229109 | -1.21035626 |
| UGAP2_3 | -1.1935798 | -1.04056712 | -1.288899751 | -0.35078555 | -0.79283508 |
| UGAP3_1 | -1.16163033 | -1.05097593 | -1.273663873 | -0.83005708 | -1.03541655 |
| UGAP3_2 | -1.02367134 | -1.24629406 | -1.287015915 | -0.77811252 | -0.85670570 |
| UGAP3_3 | -1.32831167 | -0.68734543 | -0.66144894 | -0.60882944 | -1.46126577 |

* Campo Próximo, menos de 200m de costa.

| Calidad | FAN CP | FAN CM |
|------------|------------------|-----------------|
| Muy bueno | FAN ≤ -0,2 | FAN ≤ -0,3 |
| Bueno | -0,2 < FAN ≤ 0,2 | -0,3 < FAN ≤ 0 |
| Moderado | 0,2 < FAN ≤ 0,6 | 0 < FAN ≤ 0,3 |
| Deficiente | 0,6 < FAN ≤ 1 | 0,3 < FAN ≤ 0,6 |
| Malo | FAN > 1 | FAN > 0,6 |

- ✓ **PHYSICAL-CHEMICAL SEDIMENT QUALITY CONTROL– Every year (9 controls)**
- ✓ **Granulometry**: Predominant sample of sands ranging from 63% to 99%. Along 2019, no gravels were found in any of the samples taken, higher percentages of thin sediments (<63 µm) were collected, though.
- ✓ **Microbiology: E. coli and Enterococci**: absence of fecal contamination in all controls.
- ✓ **Organic quality index (OQI) : Total Organic Carbon, total Phosphorus, and Kjeldahl Nitrogen**: According to the results shown in the parameters of this study together with OQI index's calculations, quality might be Good or higher at all sampling points, being some of them at the maximum ecologic potential.

Resultados obtenidos en COT, NTK y PT en los sedimentos, y cálculo del Índice ICO.

Niveles de calidad ICO según RD 817/2015

| ÍNDICE ICO | Calidad según RD817/2015 |
|------------|-----------------------------|
| 10 | Máximo Potencial Ecológico |
| 6 | Buena o superior / moderada |
| 4 | Moderada / deficiente |
| 2 | Deficiente / malo |

| ÍNDICE ICO | Carbono Orgánico | C-COT | Nitrógeno Kjeldahl | C-NTK | Fósforo Total | C-PT | ICO |
|------------|------------------|-------|--------------------|-------|---------------|------|-----|
| UGAP_1_1 | 0.58 | 4 | 674 | 2 | <400.0 | 3 | 9 |
| UGAP_1_2 | 0.81 | 3 | 818 | 2 | <400.0 | 3 | 8 |
| UGAP_1_3 | 1.2 | 3 | 970 | 2 | <400.0 | 3 | 8 |
| UGAP_2_1 | 0.81 | 3 | 878 | 2 | <400.0 | 3 | 8 |
| UGAP_2_2 | <0.10 | 0 | 360 | 3 | <400.0 | 3 | 6 |
| UGAP_2_3 | 0.38 | 4 | 785 | 2 | <400.0 | 3 | 9 |
| UGAP_3_1 | 0.36 | 4 | 1927 | 2 | <400.0 | 3 | 9 |
| UGAP_3_2 | 2.4 | 2 | 1995 | 2 | <400.0 | 3 | 7 |
| UGAP_3_3 | 0.99 | 3 | 976 | 2 | <400.0 | 3 | 8 |

Resultados obtenidos en el sedimento y valoración CIEM 2015.

| PARÁMETRO (CIEM 2015) | UGAP1_AGUAS | UGAP2_AGUAS | UGAP3_AGUAS | UMBRAL SEDIMENTO NO PELIGROSO |
|-----------------------------------|-------------|-------------|-------------|-------------------------------|
| ARSENICO | 43 | 48 | 142 | 1000 |
| CADMIO | 4.795 | 0.92 | 1.324 | 72 |
| COBRE | 134 | 57 | 242 | 2500 |
| CROMO | 17 | 21 | 24 | 1000 |
| MERCURIO | 16 | 2.7 | 1.3 | 17 |
| NIQUEL | 11 | 17 | 19 | 1000 |
| Pcb's (28,52,101,118,138,153,180) | 0.0316 | < 0.008 | < 0.008 | 4 |
| SUMATORIO PAHs | < 0.08 | 0.45 | < 0.08 | 110 |
| PLOMO | 335 | 271 | 409 | 2500 |
| ZINC | 659 | 475 | 817 | 2500 |

✓ BIOLOGICAL QUALITY WATER AND BENTHOS CONTROLS

✓ Phytoplankton – Chlorophyll a. Every three months (36 samplings)

Values of maximum potential in 26 samples, 9 are of good potential and only 1 correspond to a moderate biological quality level, 2 are deficient or bad. It should be pointed out that the bodies of water inside the two basins UGAP1 and UGAP3 are the ones with the best value.

✓ Coastal cartography (CARLIT) – Every three years

Done in December 2019.

Very good result in most of the areas.

✓ Invasive species monitoring: No samples have been detected.

ENVIRONMENTAL QUALITY ASSESSMENT

This assessment is carried out with hierarchical integration based on sediment CF quality, water biological quality, water CF quality, and water chemical quality. In 2019, a new sensitive improvement in the evolution of the biological quality of water and CF quality of the sediment was found.

AÑO 2018

| UGAP | Punto Muestreo | Calidad FQ sedimento | Calidad Biológica Agua | Calidad FQ Agua | Calidad Química Agua | Clasificación como Calidad Ambiental |
|-----------------------|----------------|----------------------|------------------------|-----------------|----------------------|--------------------------------------|
| UGAP1 AMP – T05 | UGAP1_1 | MODERADA | BUENO | MUY BUENO | BUENO | BUENA |
| | UGAP1_2 | DEFICIENTE | BUENO | MUY BUENO | | MODERADA |
| | UGAP1_3 | BUENA | BUENO | MUY BUENO | | BUENA |
| UGAP2 AC – T05 | UGAP2_1 | MUY BUENA | MODERADO | MUY BUENO | BUENO | MODERADA |
| | UGAP2_2 | BUENA | MODERADO | MUY BUENO | | MODERADA |
| | UGAP2_3 | MUY BUENA | BUENO | MUY BUENO | | BUENA |
| UGAP3 AMP – T05 | UGAP3_1 | BUENA | BUENO | MUY BUENO | BUENO | BUENA |
| | UGAP3_2 | BUENA | MUY BUENO | MUY BUENO | | BUENA |
| | UGAP3_3 | BUENA | BUENO | MUY BUENO | | BUENA |

AÑO 2019

| UGAP | Punto Muestreo | Calidad FQ sedimento | Calidad Biológica Agua | Calidad FQ Agua | Calidad Química Agua y Sedimento | Clasificación como Calidad Ambiental |
|--------------------|----------------|----------------------|------------------------|-----------------|----------------------------------|--------------------------------------|
| UGAP1 AMP – T05 | UGAP1_1 | MUY BUENA | BUENO | MUY BUENO | BUENO | BUENA |
| | UGAP1_2 | MUY BUENA | BUENO | MUY BUENO | | BUENA |
| | UGAP1_3 | MUY BUENA | BUENO | MUY BUENO | | BUENA |
| UGAP2 AC – T05 | UGAP2_1 | MUY BUENA | BUENO | MUY BUENO | BUENO | BUENA |
| | UGAP2_2 | MUY BUENA | MUY BUENO | MUY BUENO | | BUENA |
| | UGAP2_3 | MUY BUENA | MUY BUENO | MUY BUENO | | BUENA |
| UGAP3 AMP – T05 | UGAP3_1 | MUY BUENA | BUENO | MUY BUENO | BUENO | BUENA |
| | UGAP3_2 | MUY BUENA | MUY BUENO | MUY BUENO | | BUENA |
| | UGAP3_3 | MUY BUENA | BUENO | MUY BUENO | | BUENA |

CARLIT Results Summary 2019

In November 2017, Carlit (coastal cartography based on the type of algae associated with water quality levels in the intertidal zone) was completed. In December 2019, a new study on a larger research area was carried out at Escombreras Island.

In the second phase of the study, the type of algae from Terrosa to Cabo Tiñoso was analyzed, thus completing the entire port and its anchorage area.

Fieldwork made it possible to identify the stretches of coastline corresponding to each of the environmental quality categories defined and then to establish a weighting according to the length of each stretch and its environmental value. All the information acquired on the spot was transferred to a digital version of the study area plan and submitted to the processes of the GIS methodology (QGIS Version 2.18 - Pisa) to obtain information on the length of each stretch of coastline characterized. The value recorded for CARLIT is the result of adding the coastal length products by their respective environmental quality values.

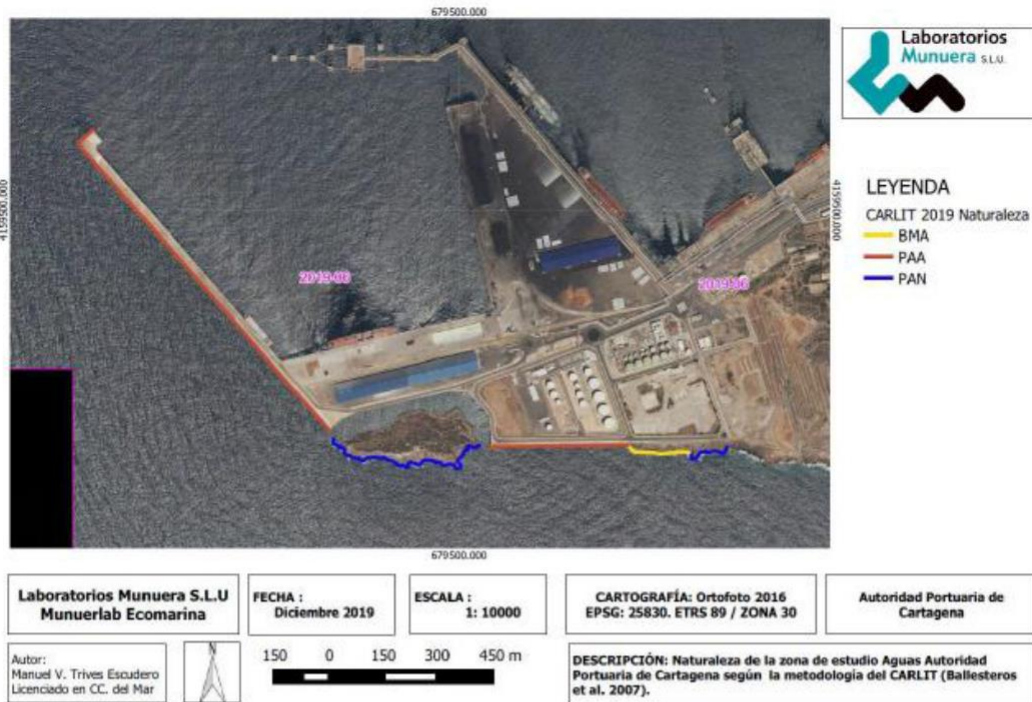
Sampling is carried out over an area of 50 linear meters (DGPS), provided that the community present in these sections is homogeneous. The name of the categories corresponds to the types and abundances of the strictly coastal communities (upper infralittoral zone) dominant at each point. At the same time, the different physical and morphological parameters of the coastal zones, important for the implantation of the different communities of algae, are mapped.

A numerical value is applied to the presence of each species or community according to their ecological status and the density in which they are found, thus it is possible to quickly locate the alterations that happen from one year to another (such as the increase in alteration/degradation, results of applied means or changes in water quality).



Carlit study area from the port's perimeter to the anchorage zone

Example of assessment for zone M, Escombreras enlargement's exterior perimeter:



Resultados obtenidos de la aplicación del CARLIT en la ZONA M.

| Tramo | Tipo Costa | Naturaleza | Categoría | li(m) | Xi | EQVrsi | EQRssi | Alteración | Estado ecológico |
|-----------------|------------------|------------|-----------|-------|----|-------------|--------|-------------------------------|------------------|
| 1 | Pared alta | Natural | Cs4 | 145 | 19 | 15.25 | 1.25 | Inexistente o muy baja | Muy bueno |
| 2 | Bloques métricos | Artificial | Cs3 | 179 | 15 | 11.86 | 1.26 | Inexistente o muy baja | Muy bueno |
| 3 | Pared alta | Artificial | Co | 380 | 8 | 8 | 1.00 | Inexistente o muy baja | Muy bueno |
| 4 | Pared alta | Natural | Cs5 | 566 | 20 | 15.25 | 1.31 | Inexistente o muy baja | Muy bueno |
| 5 | Pared alta | Artificial | Co | 1106 | 8 | 8 | 1.00 | Inexistente o muy baja | Muy bueno |
| 6 | | | | | | | | | |
| EQR ZONA | | | | | | 1.11 | | Inexistente o muy baja | Muy bueno |

Area 1 stretches from the methane tanker jetty at Escombreras to Punta de la Terrosa, 10,214 m. long; area 2 stretches from Punta de la Terrosa to Cabo Tiñoso, 19,549 m. long., and zone M has been added being 2.862 m. long, which includes exterior piers to Escombreras's dock's enlargement, at Escombreras Island.

We have inspected, photographed, and filmed a total of 32.645 m. long.

Ecological status of 12 areas along A-M sections (subject matter).

| AREA A1 | EQR AREA | ECOLOGICAL CONDITIONS |
|---------|----------|-----------------------|
| A | 0.98 | Very good |
| B | 0.77 | Very good |
| C | 0.58 | Acceptable |
| D | 0.67 | Good |
| E | 0.81 | Very good |
| F | 0.50 | Acceptable |

| AREA A2 | EQR AREA | ECOLOGICAL CONDITIONS |
|---------|----------|-----------------------|
| G | 1.09 | Very good |
| H | 1.10 | Very good |
| I | 0.76 | Very good |
| J | 0.58 | Acceptable |
| K | 0.55 | Acceptable |
| L | 1.10 | Very good |
| M | 1.11 | Very good |



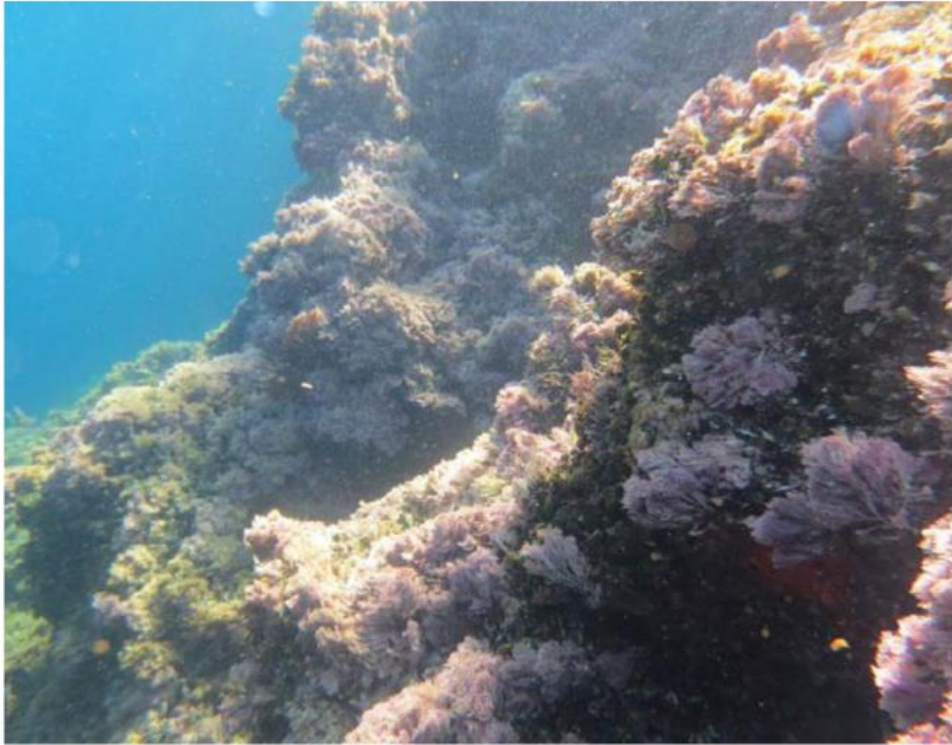
Samplings at Escombreras's dock



Sediment samples at Escombreras's dock



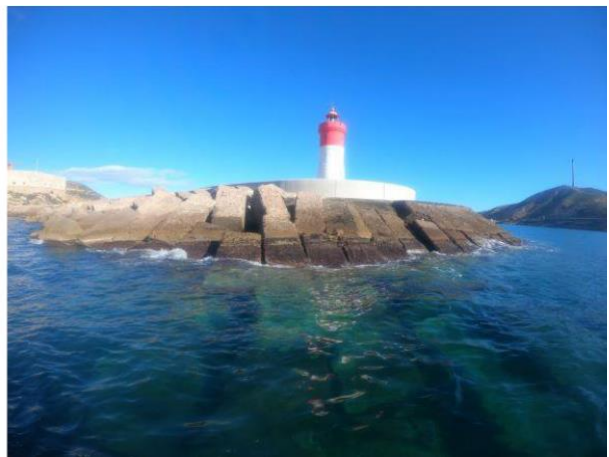
See bottom photographing at Cartagena's dock



See bottom at Escombreras Island



Carlit Area C



| | | | | |
|--|----------------------------------|----------------------------|--|---|
| Laboratorios Munuera S.L.U Munuerlab Ecomarina | FECHA : Diciembre 2019 | ESCALA : 1: 6000 | CARTOGRAFÍA: Ortofoto 2016 EPSG: 25830. ETRS 89 / ZONA 30 | Autoridad Portuaria de Cartagena |
| Autor: Manuel V. Trives Escudero Licenciado en CC. del Mar | | | DESCRIPCIÓN: Estado ecologico de la zona de estudio Aguas Autoridad Portuaria de Cartagena según la metodología del CARLIT (Ballesteros et al. 2007). | |

Zona C



Carlit at Area M

Study on the existing micro-plastics in port waters

This study has been developed in 2019 by a team led by Francisco Javier Bayo Bernal, professor of the Department of Chemical and Environmental Engineering of the Polytechnical University of Murcia.

It was the first time this project covered the identification, distribution, sources and destination of micro-plastics in the marine ecosystem at the port sector (both area 1 and 2), including three different areas: Cartagena's dock, Escombreras's dock, and Cala Cortina. It suggests punctual tests in all areas, showing thus presence, variability, and trends among micro-plastics massing within one year. Therefore, it shall be possible to know and interpret these micro-pollutants and their presence in different areas, and might be related to different anthropogenic activities held in the marine environment. Moreover, the research work shall provide with some knowledge on the presence and characterization of micro-plastics around the port, which is found in Red Natura 2000.

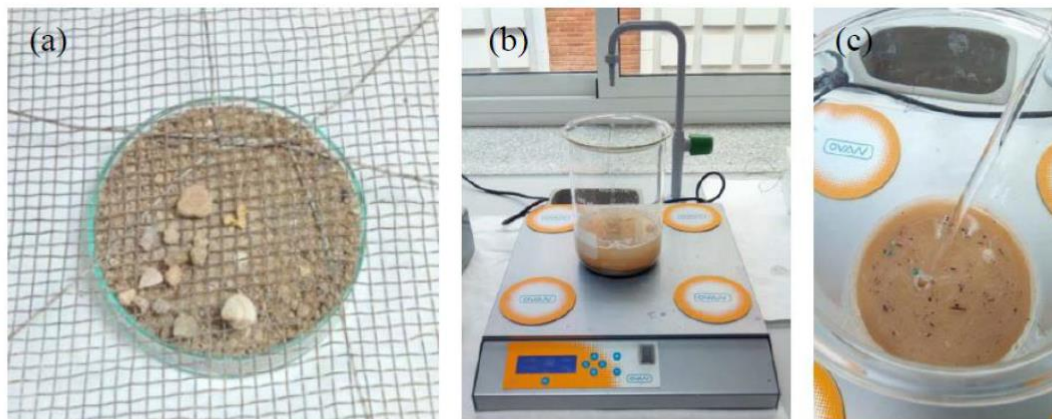


Figura 3.7. *Procesado de muestras de sedimento costero: (a) Tamiz de luz de paso de 5 mm, (b) agitación de la mezcla sedimento-disolución salina, (c) vista superior del proceso*

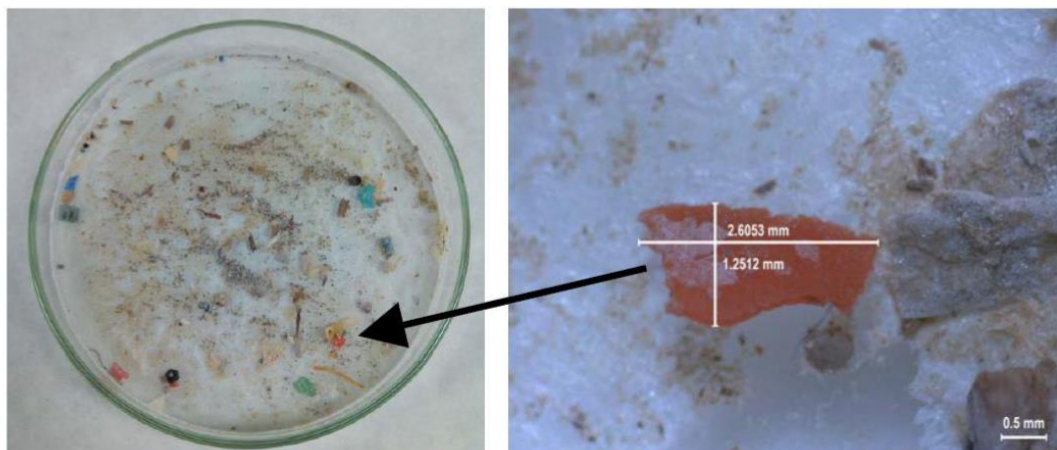


Figura 3.10. *Imagen obtenida al estereomicroscopio de una micropartícula aislada en una de las muestras analizadas*

The study shown the following conclusion:

COASTAL SEDIMENTS

All the tests taking place in coastal sediments shown the following conclusions:

1. MP particles were found in all coastal sediments' samples analyzed in a massing between 8,0 and 143,2 MP/kg of dry sediment, and average value of $30,0 \pm 7,3$ MP/kg, being 41,9% over the total ML analyzed by infrared spectroscopy (FTIR).
2. MP average value among all the coastal sediment samples along June was higher than the ones found in March and September. No significant differences were found, though.
3. The greatest MP massing was found at Area 3 or the farthest area in relation to the shore. It may be due to its close location to the road and to pedestrian areas, getting to Area 2 and 1. That leads us to the point which shows the existence of MP from land to sea, not the other way around. These differences were not statistically significant.
4. The simultaneous study on months and sampling areas showed higher ML values FOR Areas 1 and 2 along September. It may be due to the storms taking place along this month, but without any significant statistic difference.
5. MP massing found in this study was almost always over the average value found by the Ministry of Ecological Transition and the Demographic Challenge for our referral beach: La Llana beach in San Pedro del Pinatar.
6. The most isolated was the fiber form among coastal sediments, followed by film, fragment, foam and micro-spherical. In addition, the greatest massing of fibers was found in June, followed by another one taking place in September and March, with statistically significant differences. That may show us the textile origin used by beach goers along the summer. It shows no statistically significant differences according to the area. Fragment shape showed statistically significant differences regarding the sampling area, showing higher massing at area 3 than at areas 2 and 1, what may represent a MP fragmentation process closer to the shore.
7. Large-particle coastal sediment samplings showed a higher capacity of holding MP in fragment form.
8. The most common MP color among coastal sediments was white, and then blue and red, representing 75% over all the colors analyzed.
9. MP average size among coastal sediments was $1,5 \pm 0,1$ mm, between 150 μ m and 8,0 mm, whose size was between 1,0 and 2,0 mm, the most commonly found.
10. The four plastic polymers mostly found in the isolated MP were low-density polytene, polypropylene, acrylate, and high-density polytene, 80% over all the polymers identified in coastal sediments.

MARINE SEDIMENTS

Tests showed the following points:

1. Not all the samples analyzed showed MP, with a maximum value of 59,2 MP/kg and average of $19,4 \pm 2,4$ MP/kg. We suppose 34,2% MP over the total amount of micro-particles analyzed.
2. MP massing in marine sediments increased since the point where samples were collected at a low depth (8,0 m) until the deepest area (24,0 m), although these differences were not statistically significant.
3. Just three different MP forms were found in marine sediments: fiber, film, and fragment. Foam forms or micro-spherical forms were not found in primary MP form.
4. Fiber massing increased once again since the point where samples were collected at a low Depth until the deepest point. There were no significant differences, either.
5. MP size found in marine sediments was between 210 μ m for film and 9 mm for fiber, with an average size of $1,2 \pm 0,1$ mm.
6. The largest was fiber form, followed by film and fragment forms.
7. Nine colors were identified for the isolated MP in marine sediments, being white, blue, red and green the most popular ones. No space trend was found regarding sampling areas.
8. Nearly 78% of MP were opaque, and 22% transparent.
9. The main polymers composing MP among marine sediments were: polyvinyl, polypropylene, low-density polytene, and acrylate, showing thus that the density of the polymer plays an important storage role for these micro-pollutants.
10. The analysis of a greater number of samples in subsequent years and other areas at the port shall lead to a greater time and space database, which might help clarify those trends shown along this study, without any statistic result, and also untangle the anthropogenic activity regarding these micro-pollutants in the marine ecosystem, and in the port environment included in Red Natura 2000.

This analysis resulted in the upcoming conclusions:

1. The average size of fiber, film, and fragment forms were less in marine sediments than among the corresponding coastal sediments. That represents the decomposition or weathering process affecting those micro-pollutants at the sea bottom.
2. The MP massing's gradient around the farthest areas from the shore, in coastal sediments, to the deepest sampling point, in marine sediments, both allow us to identify the Flow of these micro-pollutants from land to sea, more than in the other way around.

On October 24, 2019, the Port Authority of Cartagena has adhered to "Operation Clean Sweep" fostered by Plastics Europe and Industrias de Plásticos Spanish Association, in search of removing any plastic losses in the sea and environment.



QUÉ ES OCS EMPRESAS ADHERIDAS CERTIFICACIÓN ACTUALIDAD

EMPRESAS ADHERIDAS

| Materias Primas | Transformadores | Recicladores | Logística y otros |
|-----------------|-----------------|--------------|-------------------|
| | | | |
| | | | |
| | | | |
| | | | |

5.3 Port waters cleaning

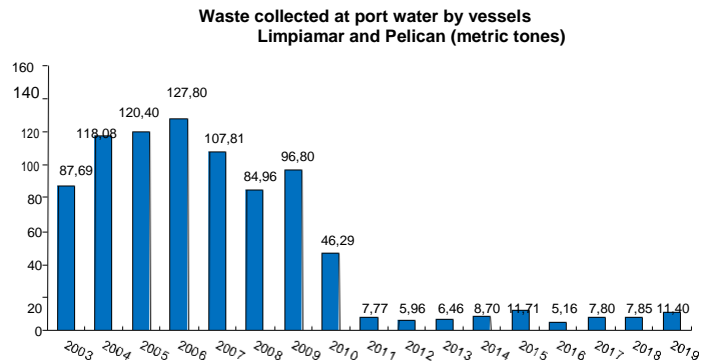
In July 2010, "Pelican", the new water purification vessel, entered into service. This vessel belongs to the company Ecolmare Ibérica S.A., which has been awarded the tender for the cleaning and removal of waste from the water sheet of Cartagena Port for the coming years. The tender was renewed in 2017 for the next few years, with the same company being the successful bidder.

The "Pelican" is built entirely in stainless steel and has the newer means to perform cleaning, oxygenation, removal of floating debris and accidental marine anti-pollution control tasks. Throughout 2019, the "Pelican" removed 11,4 metric tons of solid waste from port waters.

This new vessel allowed us to initiate the segregated control of the different types of waste collected from the surface of water. This is the result obtained in 2018:

- Oils and fats: 12,61 kg. (0,11 %)
- Algae: 9 kg: (0,08%)
- Organic waste: 781 kg. (6,85 %)
- Woods: 4.417 kg. (38,74 %)
- Plastics: 6.105 kg. (53,55 %)
- Others: 66 kg. (0,58%)

Total between January and December 2019: **11,4** metric tones
Total between 2003-2019: **862,642** metric tones





"Pelican"



A good indicator of the port water quality are the results obtained from the analyses that Cala Cortina Beach waters undergo every year. Although this beach is outside the Service Zone, it is located between the two main docks and it is a transit area for the maritime traffic that enters and leaves the port every day. The periodic analyses carried out from 2002 to the present year by the Department of Health of the Autonomous Government of the Region of Murcia have resulted in the "water suitable for bathing with good or very good quality" classification.

With regard to Cala Cortina Beach's water quality, we would like to stress that it has been continuously awarded with the Blue Flag from 2007 to 2019.

<http://www.murciasalud.es/pagina.php?id=463230&idsec=305>

<https://nayadeciudadano.msssi.es/Splayas/ciudadano/ciudadanoVerZonaAction.do>



Every year, in summer season, the Port Authority of Cartagena installs an anti-pollution barrier to preserve the beach from any possible spillage that could affect it. There has not been a single spillage in the last 15 years.



Cala Cortina Beach located between both docks, very close to the city and visited due to its location. It has a pedestrian pathway and a cycling lane built by the Port Authority of Cartagena.

5.4 Electric energy

In 2019, the electricity purchased by the Port of Cartagena decreased -7,32%, as compared to 2018, controlled consumption decreased -6,36% and the sale of energy to users also decreased -10,55%. The energy sold to the remaining facilities plus the energy sold to the remaining facilities decreased by -9,71 %.

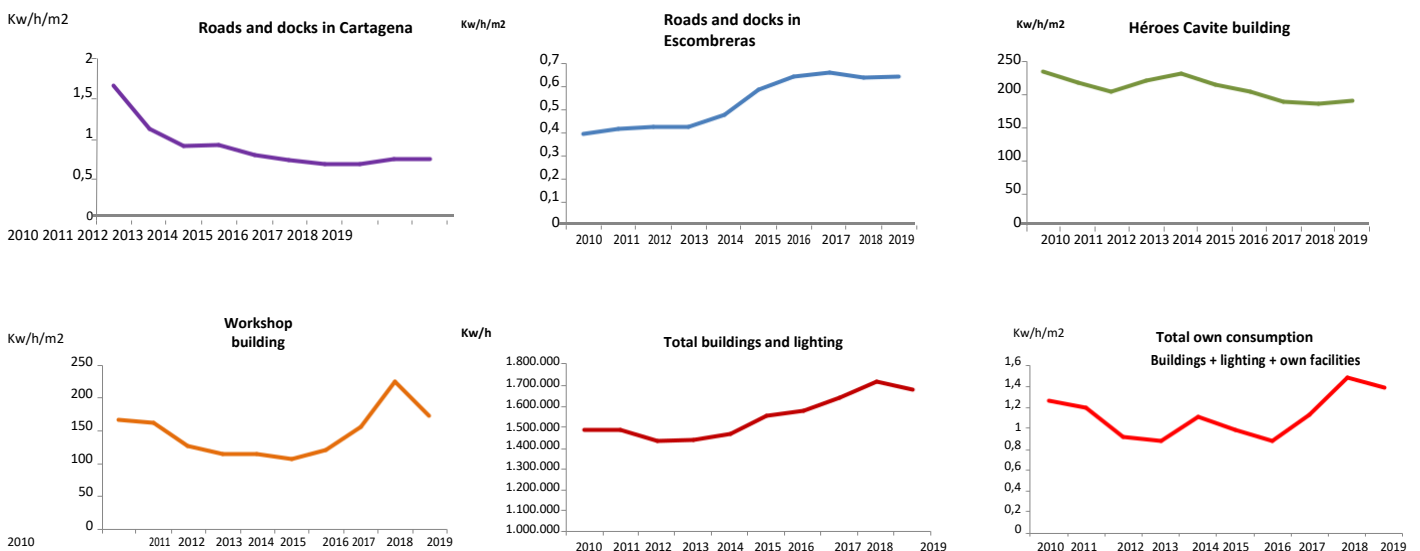
According to the consumption registered at our own controlled facilities (mainly buildings), roads and docks, these are the efficiency indicators expressed in Kw/h/year/m²:

| Efficiency indicators | 2018 | | | 2019 | | | Variation 2018/2019 |
|-------------------------------------|------------------|------------------|---------------|------------------|------------------|-------------------|---------------------|
| | Kw/h/year | m ² | indicator | Kw/h/year | m ² | indicator | |
| Héroes de Cavite building | 278.122 | 1.639 | 169,690055 | 309.846 | 1.639 | 189,04576 | 11,41% |
| Talleres S.Lucía workshop buildings | 356.661 | 1.685 | 211,668249 | 289.092 | 1.685 | 171,567953 | -18,94% |
| Cartagena's roads and docks | 381.179 | 505.985 | 0,7533 | 378.461 | 505.985 | 378.461 | -0,71% |
| Escombreras' roads and docks | 655.643 | 1.022.009 | 0,6415 | 663.097 | 1.022.009 | 663.097,00 | 1,14% |
| Total own facilities | 2.275.142 | 1.532.118 | 1,4849 | 2.130.454 | 2.558.251 | 1,39052867 | -6,36% |

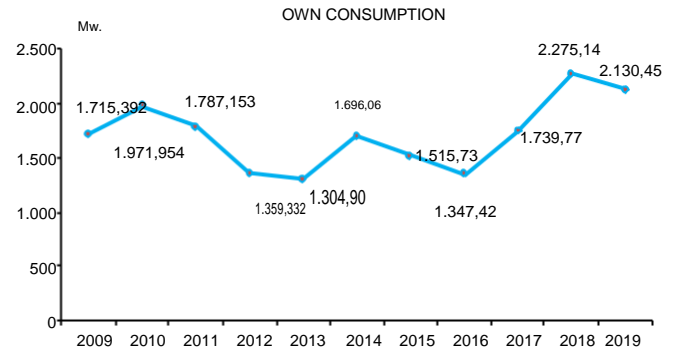
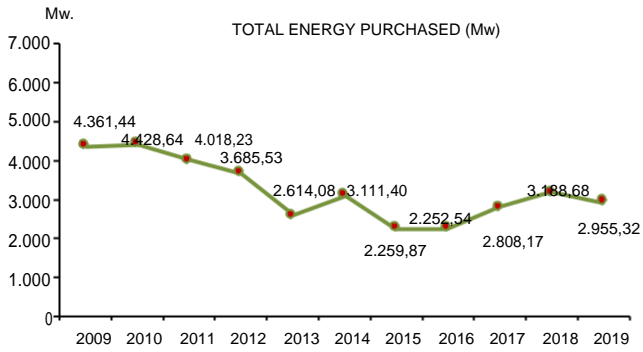
These indicators help to enable a more effective monitoring of electrical consumption of those premises that are under the control of the Port Authority of Cartagena.

| INDICATORS Kw/h/m ² | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|-----------------|-----------------|----------------|------------------|------------------|------------------|----------------|----------------|---------------|
| H. Cavite building | 216,7175 | 203,9329 | 220,786 | 229,4039 | 213,68517 | 203,18426 | 187,7200 | 184,9371 | 189,0457 |
| Workshop building | 159,8896 | 126,6552 | 114,271 | 114,99941 | 107,56379 | 120,90386 | 155,4457 | 224,1709 | 171,5679 |
| Extension building | | | | 0,8467 | 59,1362 | 35,6537 | 51,8938 | 59,4625 | 55,2912 |
| Cartagena's roads and docks | 1,1168 | 0,919826 | 0,92269 | 0,8044982 | 0,7416089 | 0,6979476 | 0,6937 | 0,75334 | 0,7479 |
| Escombreras' roads and docks | 0,41748 | 0,430154 | 0,42818 | 0,4812472 | 0,5891181 | 0,6481919 | 0,6608 | 0,64152 | 0,6488 |
| Total ow consumption | 1,201361 | 0,913771 | 0,87718 | 1,1075812 | 0,9893068 | 0,8794492 | 1,13553 | 1,48496 | 1,3905 |
| Buildings and lighting consumption in Kw/h | 1.487.607 | 1.433.242 | 1.439.509 | 1.469.347 | 1.556.111 | 1.580.866 | 1.637.402 | 1.719.175 | 1.684.729 |

The table and graphics below show the development of consumption:

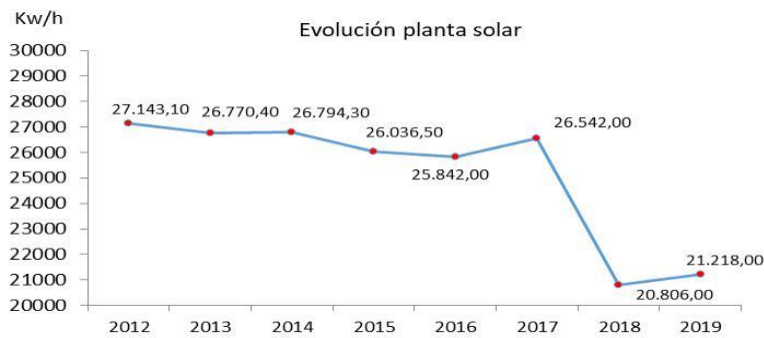


| Mw. | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Difference 18/19Mw. | Difference 18/19% |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------------|-------------------|
| Total purchased | 4.361,437 | 4.428,644 | 4.018,225 | 3.685,53 | 2.614,08 | 3.111,40 | 2.529,87 | 2.252,54 | 2.808,17 | 3.188,68 | 2.955,32 | -233,360 | -7,32% |
| Own Controlled | 1.715,392 | 1.971,954 | 1.787,153 | 1.359,332 | 1.304,90 | 1.696,06 | 1.515,73 | 1.347,42 | 1.739,77 | 2.275,14 | 2.130,45 | -144,688 | -6,36% |
| Total sold | 907,871 | 1.030,256 | 1.128,587 | 1.258,685 | 238,53 | 265,13 | 224,03 | 218,46 | 332,83 | 288,44 | 258,01 | -30,428 | -10,55% |
| Uncontrolled + remaining facilities | 1.738,174 | 1.426,434 | 1.102,486 | 1.067,516 | 1.070,65 | 1.150,21 | 914,13 | 686,66 | 735,57 | 625,10 | 566,85 | -58,244 | -9,32% |
| m ² of illuminated area | 1.487.607 | 1.487.607 | 1.487.607 | 1.487.607 | 1.487.607 | 1.531.318 | 1.532.118 | 1.532.118 | 1.532.118 | 1.532.118 | 1.532.118 | | |



The graphics below show the amounts in Mw/h

Likewise, the photovoltaic panels installed in “Pescadores” brotherhood are still operating at full capacity, although this year represented an increase of +1,98% as compared to 2018. The energy generated along 2019 reaches 21.218 Kw/h.



All the energy acquire by the Port Authority of Cartagena is originated in renewable sources and supplied by Iberdrola, thus there are no CO₂ emissions while it is generated. You might find some of the certificates of origin of the energy purchased on the following page.



Escombreras's dock and anchorage area



Autoridad Portuaria de Cartagena

DATOS DE LA REDENCIÓN DE CUPS

Año de garantías: 2019

CUPS: ES0021000005920119MP

| Nº Registro | CUPS | Redimidas (MWh) | Tipo Energía | Tipo Tecnología | Nº Registro Origen | Código Instalación | Titular de la Instalación/Comercializadora |
|--------------|----------------------|-----------------|--------------|-----------------|--------------------|---------------------------|--|
| 2020RT114559 | ES0021000005920119MP | 341 | Renovables | EÓLICA | 2020RT106943 | ES0031800000400887K21F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |
| 2020RT101100 | ES0021000005920119MP | 108 | Renovables | HIDRÁULICA | 2019RT083163 | GJO1 | R2515 - IBERDROLA CLIENTES, S.A.U. |

Año de garantías: 2019

CUPS: ES0021000005936190ZW

| Nº Registro | CUPS | Redimidas (MWh) | Tipo Energía | Tipo Tecnología | Nº Registro Origen | Código Instalación | Titular de la Instalación/Comercializadora |
|--------------|----------------------|-----------------|--------------|-----------------|--------------------|---------------------------|--|
| 2020RT114559 | ES0021000005936190ZW | 113 | Renovables | EÓLICA | 2020RT106943 | ES0021000010720982JN1F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |
| 2020RT101100 | ES0021000005936190ZW | 34 | Renovables | EÓLICA | 2019RT087603 | ES0021000013544562MG1F002 | R2515 - IBERDROLA CLIENTES, S.A.U. |

Año de garantías: 2019

CUPS: ES0021000012681902DK

| Nº Registro | CUPS | Redimidas (MWh) | Tipo Energía | Tipo Tecnología | Nº Registro Origen | Código Instalación | Titular de la Instalación/Comercializadora |
|--------------|----------------------|-----------------|--------------|-----------------|--------------------|---------------------------|--|
| 2020RT114559 | ES0021000012681902DK | 71 | Renovables | EÓLICA | 2020RT106943 | ES0021000010721136CM1F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |
| 2020RT101100 | ES0021000012681902DK | 22 | Renovables | EÓLICA | 2019RT087603 | ES0027460000009308BE0F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |

Año de garantías: 2019

CUPS: ES0021000005920121MX

| Nº Registro | CUPS | Redimidas (MWh) | Tipo Energía | Tipo Tecnología | Nº Registro Origen | Código Instalación | Titular de la Instalación/Comercializadora |
|--------------|----------------------|-----------------|--------------|-----------------|--------------------|---------------------------|--|
| 2020RT101100 | ES0021000005920121MX | 36 | Renovables | EÓLICA | 2019RT087603 | ES0021000013000371XD1F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |
| 2020RT114559 | ES0021000005920121MX | 98 | Renovables | EÓLICA | 2020RT106943 | ES0031000000040088KZ1F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |

Año de garantías: 2019

CUPS: ES0021000005963839CM

| Nº Registro | CUPS | Redimidas (MWh) | Tipo Energía | Tipo Tecnología | Nº Registro Origen | Código Instalación | Titular de la Instalación/Comercializadora |
|--------------|----------------------|-----------------|--------------|-----------------|--------------------|---------------------------|--|
| 2020RT101101 | ES0021000005963839CM | 3 | Renovables | EÓLICA | 2019RT087603 | ES0021000012022367QH1F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |
| 2020RT114559 | ES0021000005963839CM | 8 | Renovables | EÓLICA | 2020RT106943 | ES0021000013774893JY1F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |

Año de garantías: 2019

CUPS: ES0021000006004478QA

| Nº Registro | CUPS | Redimidas (MWh) | Tipo Energía | Tipo Tecnología | Nº Registro Origen | Código Instalación | Titular de la Instalación/Comercializadora |
|--------------|----------------------|-----------------|--------------|-----------------|--------------------|----------------------------|--|
| 2020RT101100 | ES0021000006004478QA | 13 | Renovables | EÓLICA | 2019RT087603 | ES0021000011650085KF1F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |
| 2020RT114559 | ES0021000006004478QA | 37 | Renovables | EÓLICA | 2020RT106943 | ES00310000000405756NW1F002 | R2515 - IBERDROLA CLIENTES, S.A.U. |

Año de garantías: 2019

CUPS: ES0021000015283425MZ

| Nº Registro | CUPS | Redimidas (MWh) | Tipo Energía | Tipo Tecnología | Nº Registro Origen | Código Instalación | Titular de la Instalación/Comercializadora |
|--------------|----------------------|-----------------|--------------|-----------------|--------------------|---------------------------|--|
| 2020RT114559 | ES0021000015283425MZ | 6 | Renovables | EÓLICA | 2020RT106943 | ES0021000011787156TK1F002 | R2515 - IBERDROLA CLIENTES, S.A.U. |
| 2020RT101102 | ES0021000015283425MZ | 2 | Renovables | EÓLICA | 2019RT087603 | ES0021000012327757EF1F004 | R2515 - IBERDROLA CLIENTES, S.A.U. |

Año de garantías: 2019

CUPS: ES0021000011457017ER

| Nº Registro | CUPS | Redimidas (MWh) | Tipo Energía | Tipo Tecnología | Nº Registro Origen | Código Instalación | Titular de la Instalación/Comercializadora |
|--------------|----------------------|-----------------|--------------|-----------------|--------------------|---------------------------|--|
| 2020RT101100 | ES0021000011457017ER | 4 | Renovables | EÓLICA | 2019RT087603 | ES0021000015481524QZ1F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |
| 2020RT114559 | ES0021000011457017ER | 15 | Renovables | EÓLICA | 2020RT106943 | ES0031000000040088KS1F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |

Año de garantías: 2019

CUPS: ES0021000019022141VB

| Nº Registro | CUPS | Redimidas (MWh) | Tipo Energía | Tipo Tecnología | Nº Registro Origen | Código Instalación | Titular de la Instalación/Comercializadora |
|--------------|----------------------|-----------------|--------------|-----------------|--------------------|---------------------------|--|
| 2020RT114559 | ES0021000019022141VB | 75 | Renovables | EÓLICA | 2020RT106943 | ES0021000010721136CM1F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |
| 2020RT101100 | ES0021000019022141VB | 22 | Renovables | EÓLICA | 2019RT087603 | ES0027460000009308BE0F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |

Año de garantías: 2019

CUPS: ES0021000006120377HM

| Nº Registro | CUPS | Redimidas (MWh) | Tipo Energía | Tipo Tecnología | Nº Registro Origen | Código Instalación | Titular de la Instalación/Comercializadora |
|--------------|----------------------|-----------------|--------------|-----------------|--------------------|---------------------------|--|
| 2020RT114559 | ES0021000006120377HM | 4 | Renovables | EÓLICA | 2020RT106943 | ES0021000011313069LX1F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |
| 2020RT101102 | ES0021000006120377HM | 2 | Renovables | EÓLICA | 2019RT087603 | ES0021000012934562WT1F001 | R2515 - IBERDROLA CLIENTES, S.A.U. |

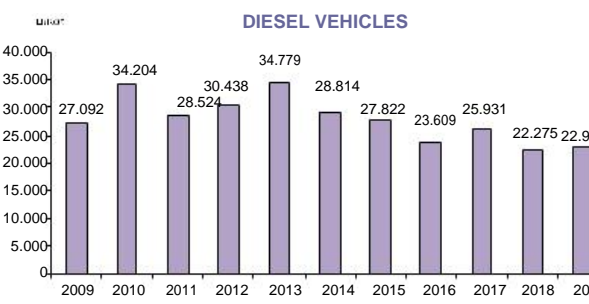
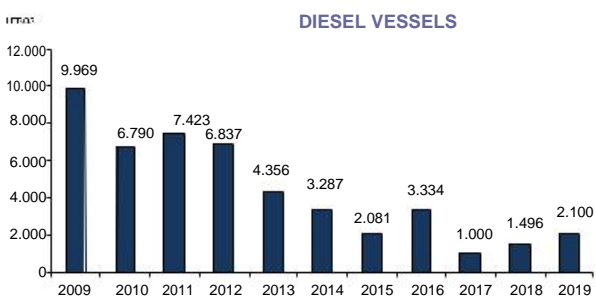
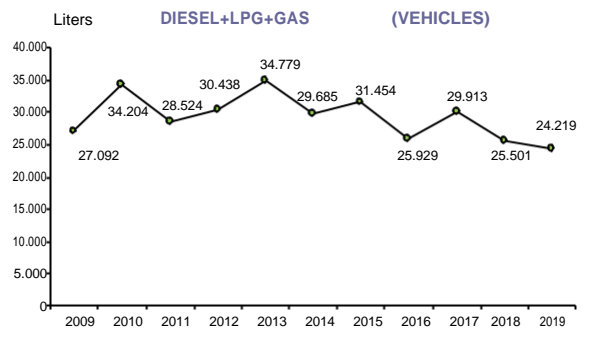
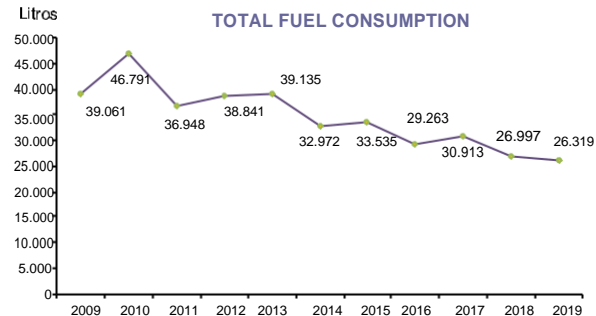
5.5 Fuel

Service vehicles, electric generators and vessels are the main fuel consumption generators. In 2019, 26.319 liters were consumed, of which 25.037 liters corresponded to diesel, 360 liters to Autogas (LPG) and 922 liters to gasoline, respectively. This means a decrease of -12.67% as compared to 2017.

If we break down the data by type of vehicle, 22.937 liters of diesel have been consumed by service vehicles, 2.100 liters of diesel consumed by boats, 922 liters of petrol consumed by hybrid vehicles and 360 liters of LPG which are consumed exclusively by a vehicle assigned to janitors. No consumption is observed by generators, which are only used when power supply failures occur.

| liters | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 18/19% |
|------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Diesel cars | 27.092 | 34.204 | 28.524 | 30.438 | 34.779 | 28.814 | 27.822 | 23.609 | 25.931 | 22.275 | 22.937 | 2,97% |
| Generators | 2.000 | 5.797 | 1.000 | 1.566 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Autogas LPG | | | | | | 871 | 3.311 | 2.125 | 2.479 | 1.376 | 360 | -73,83% |
| Vehicles: diesel + LPG + gas | 27.092 | 34.204 | 28.524 | 30.438 | 34.779 | 29.685 | 31.454 | 25.929 | 29.913 | 25.501 | 24.219 | -5,03% |
| Vessels | 9.969 | 6.790 | 7.423 | 6.837 | 4.356 | 3.287 | 2.081 | 3.334 | 1.000 | 1.496 | 2.100 | 40,37% |
| Gas 95 | | | | | | | 321 | 195 | 1.503 | 1.850 | 922 | -50,16% |
| TOTAL | 39.061 | 46.791 | 36.948 | 38.841 | 39.135 | 32.972 | 33.535 | 29.263 | 30.913 | 26.997 | 26.319 | -12,67% |

The future trend will be to replace the diesel consumption of vehicles with gasoline, which is less polluting, as it is planned to replace the fleet of vehicles by hybrid vehicles. In 2018, four hybrid vehicles were purchased, and four more will be acquired in 2020.



Hybrid cars acquired in 2018



Pure electric car for Port Police Services

5.6 Toner, ink cartridges and paper consumption

Paper consumption during 2019 increased from 950 packages of 500 sheets in 2018 to a total of 905 packages (-4,74), while toner consumption dropped by -34,51%, from 142 units in 2018 to 93 units in 2019, resulting in 63 cartridges.

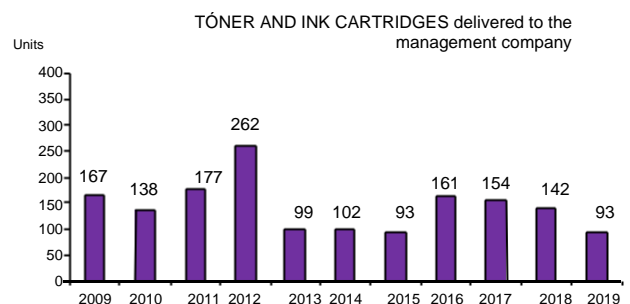
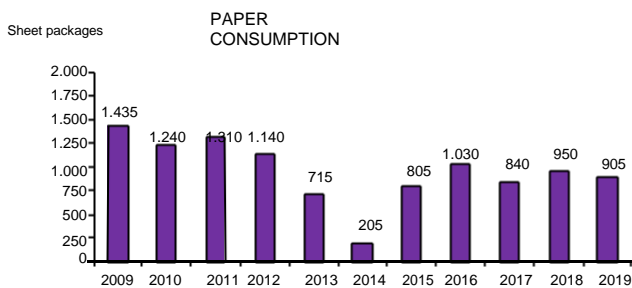
We should keep in mind that the toner of large printers and the ink cartridges of personal printers are taken into account, so it is difficult to establish a trend, since, although the toner costs are usually similar every year, the expense of Ink cartridges are different depending on each user. Likewise, paper consumption shows difficulties due to the management of its purchase, as it is sometimes gathered for several years in order to optimize expenditure.

PAPER CONSUMPTION

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-------------------|-------|-------|-------|------|------|------|------|-------|------|------|------|
| 500-sheet package | 1.436 | 1.240 | 1.310 | 1140 | 715 | 205 | 805 | 1.030 | 840 | 950 | 905 |

TONER AND INK CARTRIDGES DELIVERED TO THE MANAGEMENT COMPANY

| unidades | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|------|------|------|------|------|------|------|------|------|------|------|
| Tóner y cartuchos de tinta gestionados | 167 | 138 | 177 | 262 | 99 | 102 | 93 | 161 | 154 | 142 | 93 |



6

Waste management

6.1

Own waste

The Port Authority of Cartagena is registered in the Port regional government as a small producer of waste No 2.913 since 11/2/1999.

In 2019, a total of 584 Kg of our own hazardous waste was collected at the green point of Talleres AP. This waste would be broken down as follows: 155 kg of end-of-life electric and electronic equipment, 17kg of mercury-containing tubes and lamps, and 169 kg of pollution-absorbent material, 200 kg of used oil and little amounts of packages, sprays, and compressed bottles.

Likewise, a total of 293.773 kg of non-hazardous and inert waste were collected from our facilities and from the public containers for waste sorting that are distributed throughout the Service Area of the port and all vessels that anchor at the Port. These wastes include, in addition to paper and paperboard boxes, light packaging and organic waste, alkaline batteries, septic tank sludge, toner and ink cartridges and inert waste.

We maintain a selective collection system for non-hazardous waste, which applies to public areas, facilities and all ships that dock at the port. Our Service Area has 58 containers of 4.5 m3 and 310 containers of 800l. for waste sorting, including 10 underground containers and a paper compactor located at the leisure area of the *Paseo de Alfonso XII* promenade.

The amounts of non-hazardous waste correspond to all the facilities of the Port Authority and to the containers for public use distributed throughout the Service Area of the port. Waste delivered by ships or those owned by licensed and authorized companies are not included.

No premises within the Port Authority of Cartagena produce polychlorinated biphenyls (PCBs) or polychlorinated terphenyls (PCTs).

Main NON-HAZARDOUS waste due to their nature:

| Amounts in Kg. | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|------------------|-------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Paper and carton | 8.820 | 7.020 | 6.110 | 5.605 | 1.683 | 2.231 | 1.869 | 2.048 | 2.059 | 2.633 | 2.400 |
| Light packaging | 3.931 | 4.426 | 544 | 400 | 503 | 454 | 1.456 | 1.475 | 561 | 462 | 636 |
| Organic waste | 198.64 0 | 157.681 | 161.181 | 153.750 | 120.150 | 121.880 | 132.270 | 143.332 | 141.013 | 131.031 | 123.639 |



Green point at the workshops of the Port Authority of Cartagena

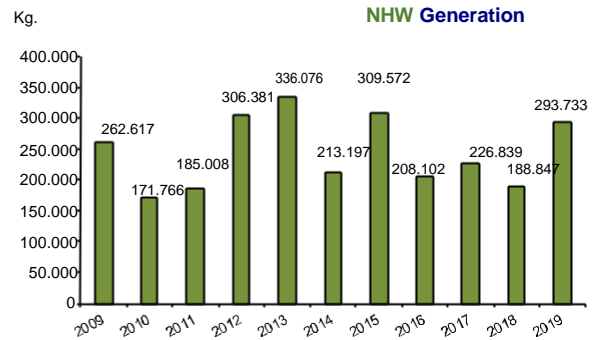
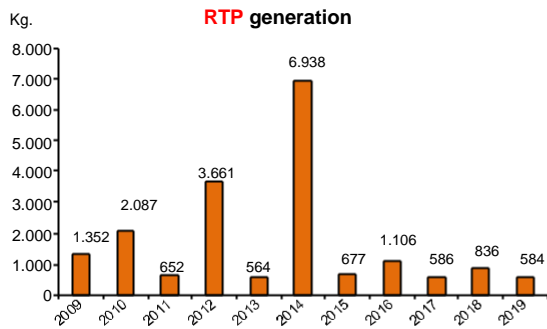
Hazardous waste Kg.

| 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-------|-------|------|-------|------|-------|------|-------|------|------|------------|
| 1.352 | 2.087 | 652 | 3.661 | 564 | 6.938 | 677 | 1.106 | 586 | 836 | 584 |

Non-hazardous waste Kg.

| 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------------|
| 262.617 | 171.766 | 185.008 | 306.381 | 336.076 | 213.197 | 309.572 | 208.102 | 226.839 | 188.847 | 293.733 |

| Own HAZARDOUS waste 2019 | E.W.L CODES. | Kg. |
|------------------------------------|--------------|------------|
| Pressure cylinders | 060504 | 9 |
| Used oil | 130208 | 200 |
| Sprays | 150111 | 9 |
| Mercury-containing tubes and lamps | 200121 | 17 |
| Electric and electronic equipment | 160213 | 155 |
| Sludge and remaining paint | 080111 | 17 |
| Land and polluted adsorbent | 150202 | 169 |
| Polluted plastic packages | 150110 | 8 |
| Total | | 584 |



The main legislation applicable in the management of waste is Law 22/2011 on waste and contaminated soils; Royal Decree 833/1988, which supplements Law 20/1986; Royal Decree 952/1997, which amends Royal Decree 833/1988; Law 11/1997 on packaging and packaging waste; Royal Decree 110/2015 on electrical and electronic equipment waste; the National Waste Plan for 2016-2022 approved by Agreement of the Council of Ministers on 6 November 2015.

In 2019, 220 kg of anti-pollution barriers were sent to Cartago Marpol, S.L., which have been damaged due to their use along the summer at Cala Cortina Beach.



6.2 Waste from other companies at the port

All companies operating within the Service Area of the Port of Cartagena (concessions, franchises, works development and services companies), apart from having the obligation to comply with the applicable legislation, they must provide, before being authorized or contracted, their consent to the contractual clauses and additional environmental requirements that are included in all specifications and conditions.

This way, an additional element of control is added to all aspects of the port activities, thereby incorporating specific clauses on industrial safety, risk prevention and respect for the environment. In this sense, and without prejudice to the powers that the law grants to other authorities, the Safety, Quality and Environmental Control Division performs all the necessary inspections and control tasks over all companies within the port.

The abandonment, mixing and/or incineration of waste, as well as the delivery of waste to unauthorized waste managers, is strictly prohibited.



6.3 Waste from vessels and ships

All vessels that arrive in the Port of Cartagena have the obligation to discharge their waste in facilities authorized by the MARPOL Convention, as set for in Royal Decree 1381/2002 of December 20 on port facilities for the reception of ship-generated waste and cargo residues, and all the respective amendments thereof included in Royal Decree 1084/2009 of July 3.

Cartago Marpol, S.L. is the local waste manager at the Port of Cartagena. This company holds UNE-EN ISO 14001, 18001 and 9001 certifications and is registered in the EU Eco-Management and Audit Scheme (Regulation CE 1221/2009 EMAS) of the Region of Murcia since 2008.

In August 2014, we granted Cespa Gestión de Residuos, S.L.U. a license to provide Marpol V and Marpol VI waste withdrawal and management services. This company holds UNE-EN ISO-14001 and 9001 certifications, but in November 2015, it lost the license because it did not provide the requested documentation on the scope of its ISO 9001 and 14001 certificates in our port, and it was not able to prove its adherence to the EMAS Register or its intention to obtaining it.

The obligation of the Marpol waste managers in the Port of Cartagena to adhere to the EMAS registry is a premise that has not been imposed by the legislation, but by the environmental policy of the port, which will be extended to other port service operators.

Cartago Marpol, S.L. is authorized to collect the following Marpol waste in the Port of Cartagena:

- Marpol Annex I: Oily waste.
- Marpol Annex II: Noxious Liquid Substances.
- Marpol Annex IV: Sewage.
- Marpol Annex V: Garbage and other solid residue and waste (the remaining hazardous, non- hazardous or inert waste).
- Marpol Annex VI: Exhaust gas cleaning systems waste.

This company has facilities in the "Cabezo Beaza" Industrial Estate and in San Pedro Dock, where it keeps ships, tankers and special trucks for the collection of waste.

The standards to be followed for the reception and handling of waste and residues are described in the "Reception and Handling of Ship-Generated Waste and Cargo Residues Scheme", prepared by the Port Authority of Cartagena, which is currently in force in its revision of May 5, 2017.

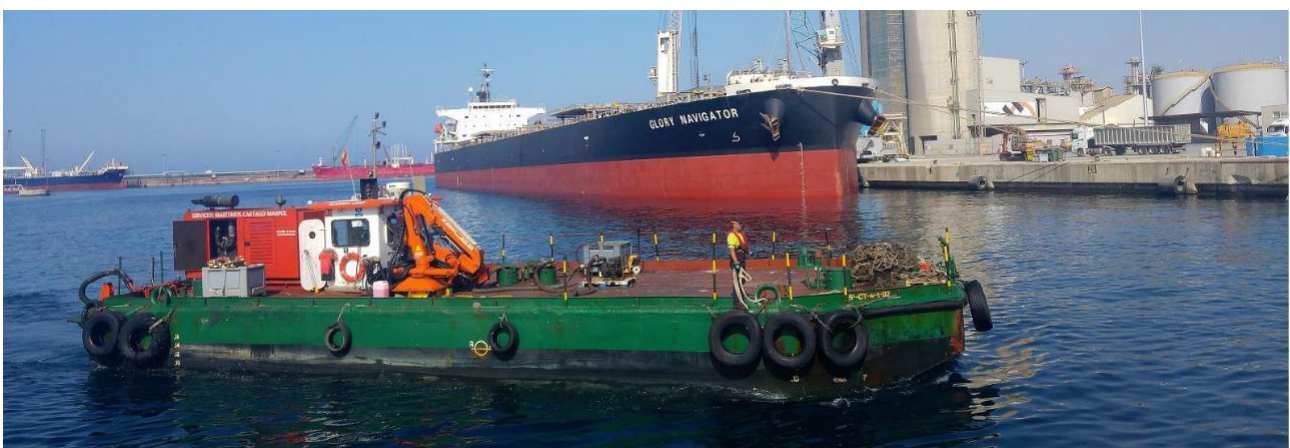
During 2019, we have received 20.573 m³ of waste, which corresponds to ship-generated waste, cargo residues and waste generated by stowing operations. This amount is higher than the one registered in 2017 (+21.15%) and is accompanied by a +7.54% increase in the number of services performed. We would like to highlight that, since we implemented the Environmental Management System in 2003, we have collected 185.739 m³ of Marpol waste, and we have provided 45.228 services.

In 2007, we started the collection of noxious liquid substances (Marpol Annex II). This gave rise to a considerable increase in the delivery of toxic and hazardous waste from vessels, which, until that year, was hardly performed. Likewise, in 2018 the first waste withdrawal coming from cleaning activities at exhaust systems has taken place.

The volume of toxic and hazardous waste (including Marpol Annex V waste) collected from vessels since 2007, amounts to 12.509 m³. The total waste management services rendered amounts to 10,958.



Waste removal by Marpol IV



Cartago Marpol's barge in the waste removal of waste from vessels

WASTE COLLECTED BY MARPOL AT THE PORT 2003-2019

| | OILY WASTE (Appendix I) | | NOXIOUS SUBSTANCES (Appendix II) | | WASTE WATER (Appendix IV) | | GARBAGE (Appendix V) | | OTHER WASTE (Annex V toxic and hazardous waste) | | EXHAUST SYSTEMS CLEANING (Marpol VI) | | TOTAL WASTE m ³ | TOTAL SERVICES |
|-------------|----------------------------|----------|--|----------|---------------------------------|----------|-------------------------|----------|--|----------|---|---|----------------------------------|-------------------|
| | m ³ | Services | m ³ | Services | m ³ | Services | m ³ | Services | m ³ | Services | | | | |
| 2003 | 3.383 | 315 | | | 8.753 | 10 | 3.708 | 957 | | | | | 15.844 | 1.282 |
| 2004 | 2.544 | 292 | | | 5.025 | 6 | 3.335 | 1.013 | | | | | 10.904 | 1.311 |
| 2005 | 3.396 | 358 | | | 2.164 | 17 | 3.318 | 1.253 | | | | | 8.878 | 1.628 |
| 2006 | 3.806 | 340 | | | 167 | 13 | 2.955 | 1.633 | | | | | 6.928 | 1.986 |
| 2007 | 3.527 | 297 | 591 | 47 | 517 | 26 | 2.429 | 1.445 | 824 | 674 | | | 7.888 | 2.489 |
| 2008 | 3.586 | 312 | 480 | 43 | 645 | 36 | 2.366 | 1.346 | 649 | 551 | | | 7.727 | 2.288 |
| 2009 | 2.870 | 262 | 512 | 34 | 110 | 21 | 2.808 | 1.386 | 844 | 406 | | | 7.144 | 2.109 |
| 2010 | 3.672 | 308 | 1.114 | 31 | 862 | 42 | 3.397 | 1.455 | 1.116 | 597 | | | 10.161 | 2.433 |
| 2011 | 4.863 | 426 | 1.489 | 11 | 738 | 39 | 3.713 | 1.498 | 1.175 | 930 | | | 11.978 | 2.904 |
| 2012 | 5.717 | 422 | 143 | 8 | 1.077 | 23 | 3.262 | 1.689 | 1.018 | 1.104 | | | 11.217 | 3.246 |
| 2013 | 6.408 | 520 | 215 | 20 | 102 | 17 | 3.105 | 1.713 | 1.282 | 1.471 | | | 11.113 | 3.731 |
| 2014 | 5.843 | 506 | 107 | 7 | 1.125 | 28 | 3.350 | 1.699 | 1.164 | 1517 | | | 11.589 | 3.757 |
| 2015 | 6.299 | 612 | 75 | 9 | 340 | 31 | 3.905 | 1.716 | 1.393 | 1.452 | | | 12.011 | 3.820 |
| 2016 | 9.048 | 764 | 107 | 5 | 247 | 25 | 3.821 | 1.809 | 1.583 | 1.167 | | | 14.806 | 3.770 |
| 2017 | 9.385 | 849 | 123 | 10 | 1.331 | 78 | 4.682 | 2.057 | 1.460 | 1.089 | | | 16.981 | 4.083 |
| 2018 | 10.199 | 987 | 221 | 11 | 2.255 | 39 | 5.216 | 2.091 | 2.651 | 1.262 | 30 | 1 | 20.573 | 4.391 |
| 2019 | 8.845 | 813 | 153 | 8 | 3.723 | 38 | 5.114 | 2.187 | 1.871 | 1.337 | 31 | 4 | 19.737 | 4.387 |
| Suma | 94.717 | 8.389 | 4.001 | 228 | 29.181 | 489 | 60.485 | 26.947 | 17.031 | 13.557 | 61 | 5 | 205.475 | 49.615 |

It should be noted that maritime transport is the one with the highest environmental performance and with the least metric tons of waste and emissions generated in relation to the volume of cargo transported. Besides, all companies that supply fuels and lubricants to vessels at the port must comply with the provisions set for in *Royal decree 1695/2012, of December 21, which approves the National Marine Pollution Emergency Response System*. This Royal Decree revokes Royal Decree 253/2004, of February 13, which establishes the necessary measures for the prevention and combating of pollution generated by the hydrocarbons loading, unloading and handling operations that take place within the maritime and port area.



"El Espalmador" green point

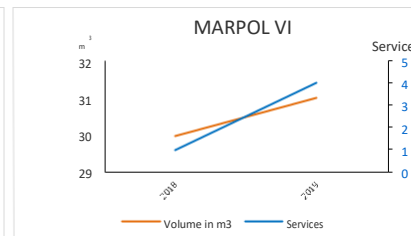
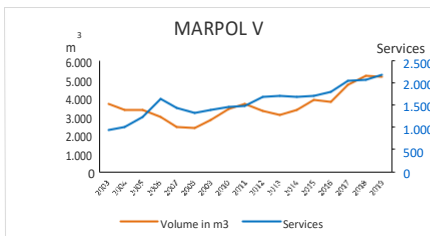
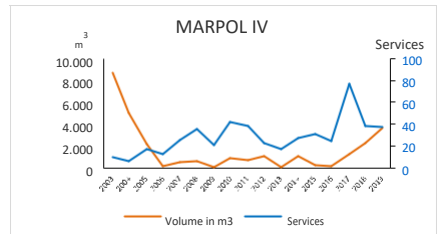
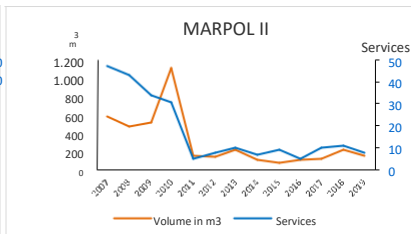
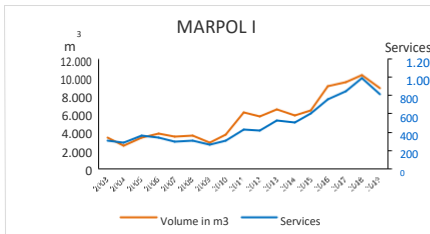
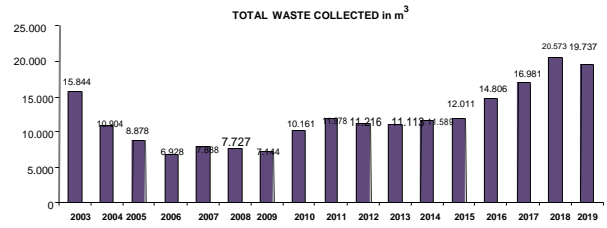
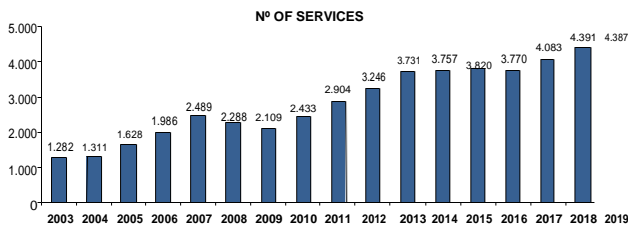
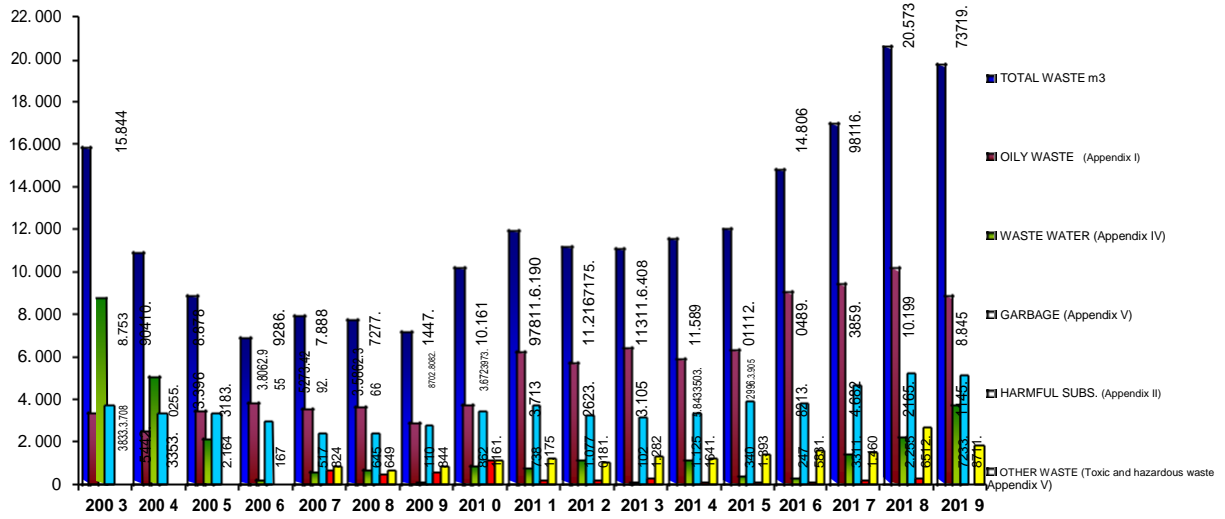


"Sabnitiago Dock's" green point

Regarding Marpol waste withdrawal, in 2016, the Port Authority of Cartagena replaced the containers of the green point located at Santiago Dock and withdrew the 0.8 m³ of used oil therein stored. The green point installed at the area for traditional vessels known as "El Espalmador", is now managed by the "El Chalet" Nautical Club. This entity has received the corresponding license and it is therefore responsible for contracting the respective waste management services in order to manage its own waste and the waste generated by the said vessels.

The green points installed at the Royal Yacht Club of Cartagena, the Fishermen's Association of Cartagena, Cartagena Shipyards (Ascar) and at Yacht Port Cartagena, continue to operate and have not recorded incidents during 2019.

MARPOL WASTE DELIVERED BY VESSELS (m³) 2003-2019





Waste removal in cruise ships by Marpol V



Waste removal in cruise ships by Marpol IV

2019 Environmental performance indicators summary

| 2019 Environmental Performance Indicators according to Annex IV of Regulation (EC) 1221/2009 EMAS | | |
|---|---|--|
| | Raw data | Relative data per employee (189 employees for 2019) |
| Energy efficiency | | |
| Electric power consumption | 2.130,45 Mw/h | 11,272 Mw/h / employee |
| Diesel, gas, and autogas consumption (LPG) | 22,171 t. 267,293 Mw | 0,117 t. / employee 1,414 Mw/h / employee (0) |
| Material efficiency regarding material consumption | | |
| Paper | 2,280 t. | 0,012 t. / employee (1) |
| Water consumption | 5.572 m ³ | 29,481 m ³ / employee |
| Waste generation | | |
| Own hazardous waste | 0,584 t. | 0,00308 t. / employee |
| Hazardous waste generated by vessels | 8.981 t. | 47,518 t. / employee (4) |
| Own non-hazardous waste | 293,733 t. | 1,554 t. / employee |
| Non-hazardous waste generated by vessels | 4.643 t. | 24,566 t. / employee (5) |
| Biodiversity | | |
| Use of soil | 2.389.892 m ² | 12.644 m ² / employee |
| Emissions | | |
| Direct emissions Diesel, gas, and autogas (LPG) | 25,037 m ³ of diesel corresponding to 21,281 t. of diesel and 61,821 t. of CO ₂ 0,922 m ³ of gas corresponding to 0,688 t. of gas and 2,097 t. of CO ₂ 0,360 m ³ of LPG corresponding to 0,20 t. of LPG And 0,591 t. of CO ₂ Total: 64,509 t. of CO ₂ | 0,341 t. de CO ₂ / employee (2) |
| Indirect emissions Electric power consumption | 2.130,45 Mw/h. corresponding to 0 t. of CO ₂ | 0 t. de CO ₂ / employee (3) |

(0) 1 tep is equal to 11,627 Mw.; 1 t. of diesel = 1,035 tep ; 1 t. of gas = 1,070 tep and 1 t. of LPG = 1,13 tep . tep = tones equivalent to oil. Source: International Energy Agency (AEI)

(1) One sheet is equal to 0,063m², 1 m² of paper is equal to 80 gr., 905 packages are equal to 2,280 t. of paper.

(2) 1 liter of diesel is equal to 0,85 Kg. and 1l. of diesel corresponds to 2,471 kg of CO₂ emissions, 1 t. of diesel is equal to 2,905 t. of CO₂
1 liter of LPG (Autogas) is equal to 0,56 kg. and 1liter of LPG corresponds to 1,656 kg of CO₂ emissions, 1 t. of LPG is equal to 2,957 t. of CO₂ 1liter of gas corresponds to 0.747 kg. and 1l. of gas is equal to 2,196 kg. of CO₂, emissions 1 t. of gas is equal to 3,049 t. of CO₂. According to the data included in the Carbon Footprint Calculation Guide published by the Ministry of Agriculture, Food, and Environment in April, 2015 (2^o edition).

(3) The energy consumed, supplied by Iberdrola,SAU fully comes from renewable sources, thus it shows no emissions equal to CO₂

(4) 1 m³ of oil waste (Marpol I) corresponding to 0,92 t.

(5) 1 m³ of garbage (Marpol V) is equal to 0,18 t. and 1m³ of other waste (hazardous waste generated by vessels – Marpol V) equal to 0,4 t.

7

Air emissions

In recent years, the movement of solid bulk at the Port of Cartagena has experienced a significant rise. Handling this type of traffic causes high emissions of dust due to its nature and conditions. The Port Authority of Cartagena, aware of the need to make the movement of this type of goods compatible with the maintenance of certain air quality levels in the environment, moved the Dry Dock Terminal from Cartagena's dock to Escombreras's dock, which is 6 km. away from the city and behind a mountain chain.

At the end of 2007, a new Dry Bulk Terminal, which was built on the land reclaimed by the expansion works of Escombreras's dock, was put into operation. This new terminal, further from the city, improves the existing facilities and allows the handling of bulk goods to be performed in better conditions of safety and environment protection.

In order to keep track of the dust immission* levels (PM₁₀) generated at the solid bulk terminal, in 2004 we arranged an air pollutant measuring station (consisting of a set of profilers for analyzing PM₁₀, CO, NO_x, SO₂ particles, a meteorological station and a complete computer system for real time measurement and control). This system was renewed and updated in 2008.

In 2020 the acquisition of two new cabins was discharged. Those are equipped with the latest technology, together with 2,5 PM measurement, and will be set in in July 2020.

There is no specific legislation to regulate the immission of particles in port areas or industrial installations, so the only existing reference is Royal Decree 102/2011, of January 28 on the improvement of air quality, which is also applicable to urban agglomerations. The later royal decree revokes Royal Decree 1073/2002 of October 18 on the air quality assessment and management. According to this Royal Decree, the maximum annual average for urban agglomerations is 40 µg/m³.

An important factor is the location of the metering station, which was installed in the bulk goods storage and handling area. This way, the particles that are emitted by port operations, are measured in situ and more accurately, unlike the other stations that measure the particles present in the air in a specific place (immission) but are not able to determine their origin. Therefore, we could say that the measurements made at the Bulk Goods Terminal correspond to actual emission values, rather than to immission* values.



In accordance with these considerations, during 2019 we registered the following data:

- Average annual value of PM₁₀ : 54,78 µg/m³
- Days with significant levels of Saharan dust intrusion* : 75 días
- Days when Saharan dust intrusion's levels exceed the legal daily limit: 15 días
- Average annual value, excluding days with significant levels of Saharan dust intrusion: 53,42 µg/m³

Immission*: Concentration in air of a specific pollutant. For dust particles of up to 10µ (PM₁₀) the unit of measurement is µg/m³

PM₁₀: Dust particles of up to 10µ. One µg is equal to 1/1.000.000 g.

Saharan intrusion*: Natural phenomenon consisting of the contribution of dust and particles from African areas to the atmosphere that are later deposited elsewhere, mainly in Europe.

These data show that the average annual value of PM₁₀ concentrations rose from 48,49 µg/m³ to 54,78 µg/m³ (+12,97%).

The average value of dust particles registered at the Bulk Goods Terminal (53,42 µg/m³) is still very good, since it is under the 41 µg/m³ average annual value determined for urban agglomerations in the last eight years.

It should be remarked the fact that there was a slight increase along the días of Saharan dust intrusion, in total: 75 days in 2019 as compared to 83. Along those days, the daily limits were over exceeded showing a -57% variation (from 35 to 15 days).

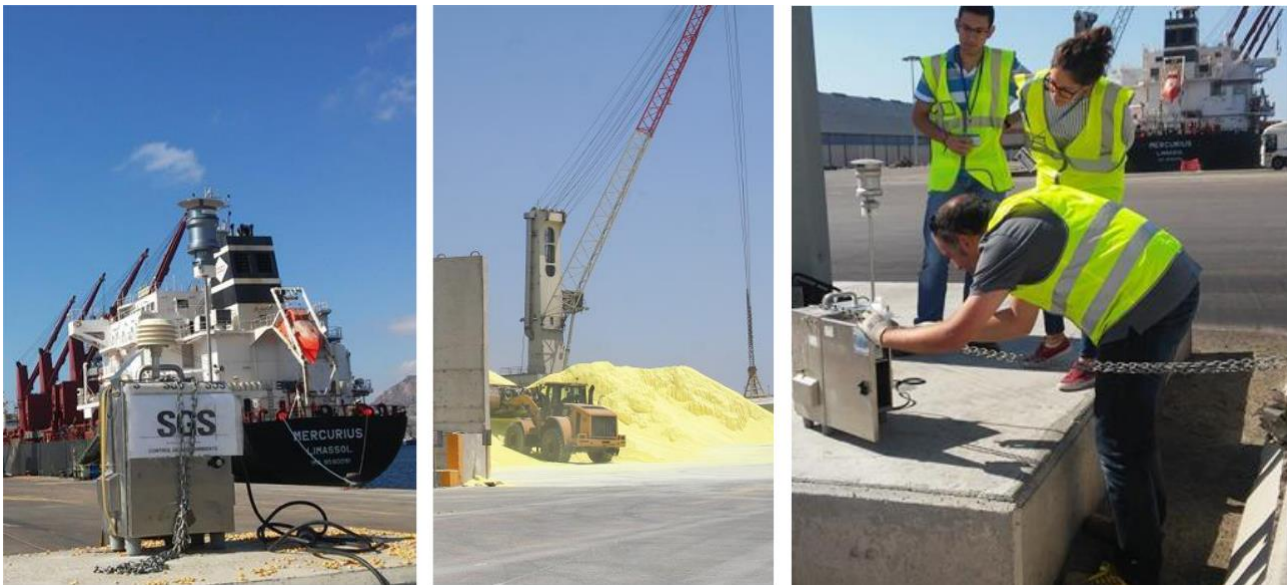
As part of the control and surveillance actions on the levels of particles carried out in the bulk terminal, during October 2017 and through SGS Tecnos, a control campaign was carried out on the percentage of Sulphur contained in the dust originating from the Escombreras expansion works.

For this purpose, two sensors were installed, one in the vicinity of the Sulphur storage area, and the other on the Ership scale.

The result shows that the percentage of Sulphur is less than 5% of the total particles analyzed in each sample.

On the other hand, Ership has carried out a study on the immission of particles from fairing and unshaded hoppers, with the result that fairing hoppers reduce the emission of particles by 50%, so they are proceeding to fair all their hoppers.

In order to evaluate the possible incidence of port dust and particles in the urban areas nearest to the port, we have compared port data with those registered in the stations located at the Regional Air Pollution Monitoring Network of "Valle de Escombreras", Alumbres, Valle de Escombreras, Mompean Cartagena and in La Aljorra (Cartagena) and Lorca, two locations that are distant from the port. All data registered by the Regional Air Pollution Monitoring Network can be checked at <http://www.carm.es/cmaot/calidadaire/portal/>.



Study on the Sulphur particles present in the dust from the bulk terminal located in the Escombreras extension. Installation of collectors in October 2017



Cutting-edge hopper of keel manufactured at the Port of Cartagena

The table below shows the comparison between the data registered both at the Bulk Goods Terminal and the measuring stations located at the nearest city centres:

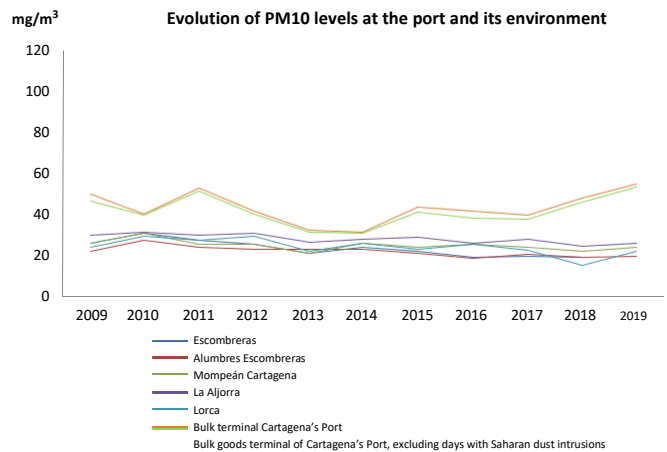
| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Station | Average µg/m ³ | Average µg/m ³ | Average µg/m ³ | Average µg/m ³ | Average µg/m ³ | Average µg/m ⁴ | Average µg/m ⁵ | Average µg/m ⁵ | Average µg/m ⁵ | Average µg/m ⁵ | Average µg/m ⁵ |
| Escombreras | 26 | 30,72 | 27,6 | 25,3 | 21,5 | 24,4 | 22,1 | 19,43 | 19,94 | 19 | 22 |
| Alumbres Escombreras | 22,1 | 27,28 | 24,2 | 23,4 | 23,3 | 23,5 | 21,5 | 18,56 | 20,52 | 19 | 20 |
| Mompeán Cartagena | 26,1 | 30,9 | 25,8 | 25,4 | 21,1 | 26,5 | 24,1 | 25,61 | 23,97 | 22 | 24 |
| La Aljorra | 30,5 | 31,94 | 30,3 | 30,7 | 26,9 | 28,3 | 28,6 | 26,28 | 27,96 | 25 | 26 |
| Lorca | 24,3 | 29,34 | 27,3 | 29,9 | 22 | 26 | 23,6 | 25,39 | 22,67 | 15 | 22 |
| Bulk Terminal Cartagena's port | 50 | 40,9 | 52,87 | 41,88 | 32,36 | 31,72 | 44,31 | 41,96 | 39,8 | 48,49 | 54,78 |
| Bulk goods terminal of Cartagena's port, excluding days with Saharan dust intrusion | 46,5 | 39,61 | 51,69 | 40,82 | 31,54 | 30,88 | 41,04 | 38,61 | 37,67 | 45,78 | 53,42 |

All data on Saharan dust intrusions, which are controlled on a daily basis, are obtained thanks to the Collaboration Agreement for the Study and Assessment of Particulate Air Pollution in Spain subscribed between the Ministry of Agriculture, Food and Environment and the Spanish National Research Council. This Agreement was financed by the General Directorate of Environmental Quality and Assessment of the Ministry of Agriculture, Food and Environment and the subsequent research was developed by the Spanish National Research Council (through the "Jaume Almera" Earth Science Institute), the National Institute of Meteorology (through the Environmental Institute), the "Carlos III" Health Institute, the University of Extremadura, the Polytechnic University of Cartagena and the University of Huelva.

To prepare the Saharan dust intrusions forecasts, it is important to consider the data provided by three mathematical models:

- The NAAPS model developed by the Naval Research Laboratory (NRL) Monterrey, Canada.
- The BSC/DREAM model developed by the Barcelona Supercomputing Centre.

The Skiron model developed by the National and Kapodistrian University of Athens. This information can be checked at <http://www.calima.ws/>

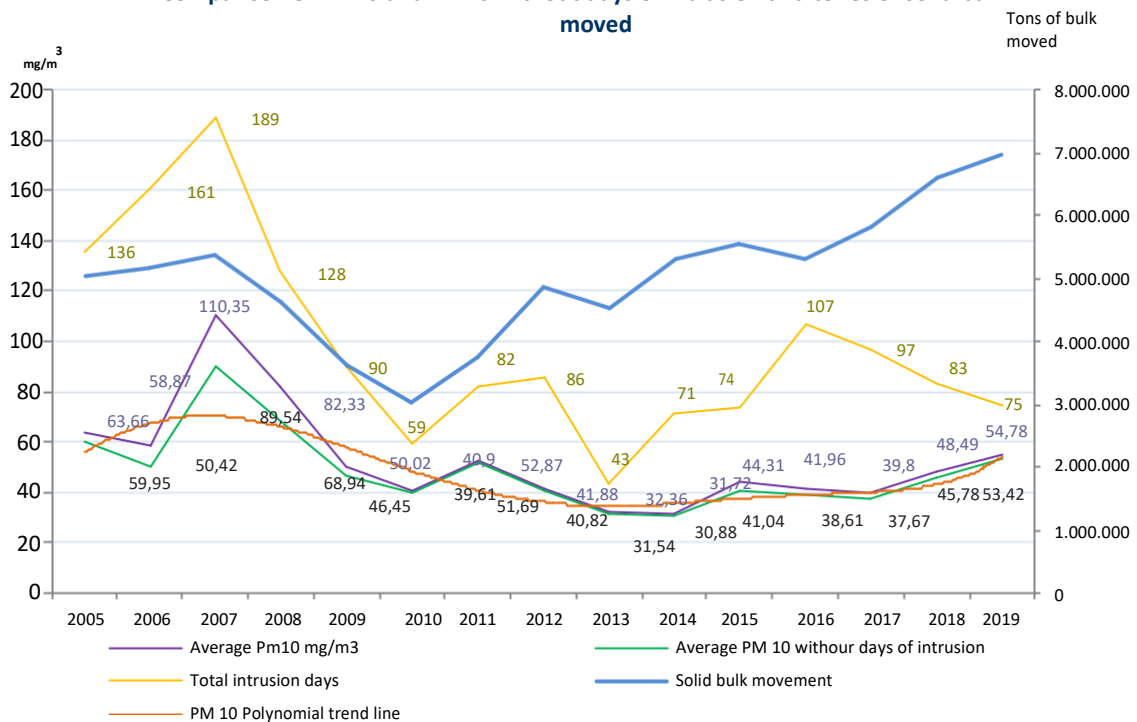


Dry bulk terminals at Escombreras



Legumes movement for animal feeding at Escombreras

Comparison of Pm10 and Pm10 without days of intrusion and tones of solid bulk moved

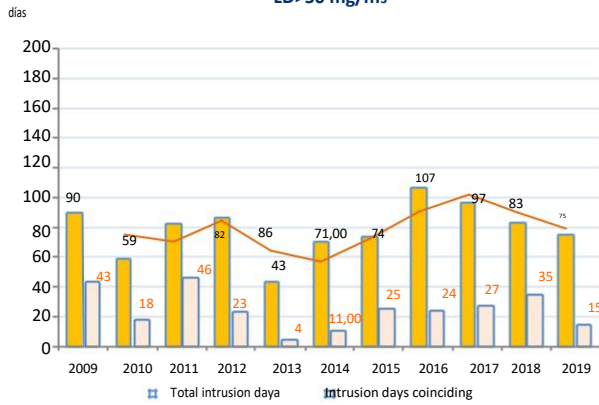


The graphic shows a direct relation between the days with Saharan dust intrusions and the annual average of immission levels. The higher the number of days with dust intrusions, the higher the average annual level of PM₁₀ particles concentration.

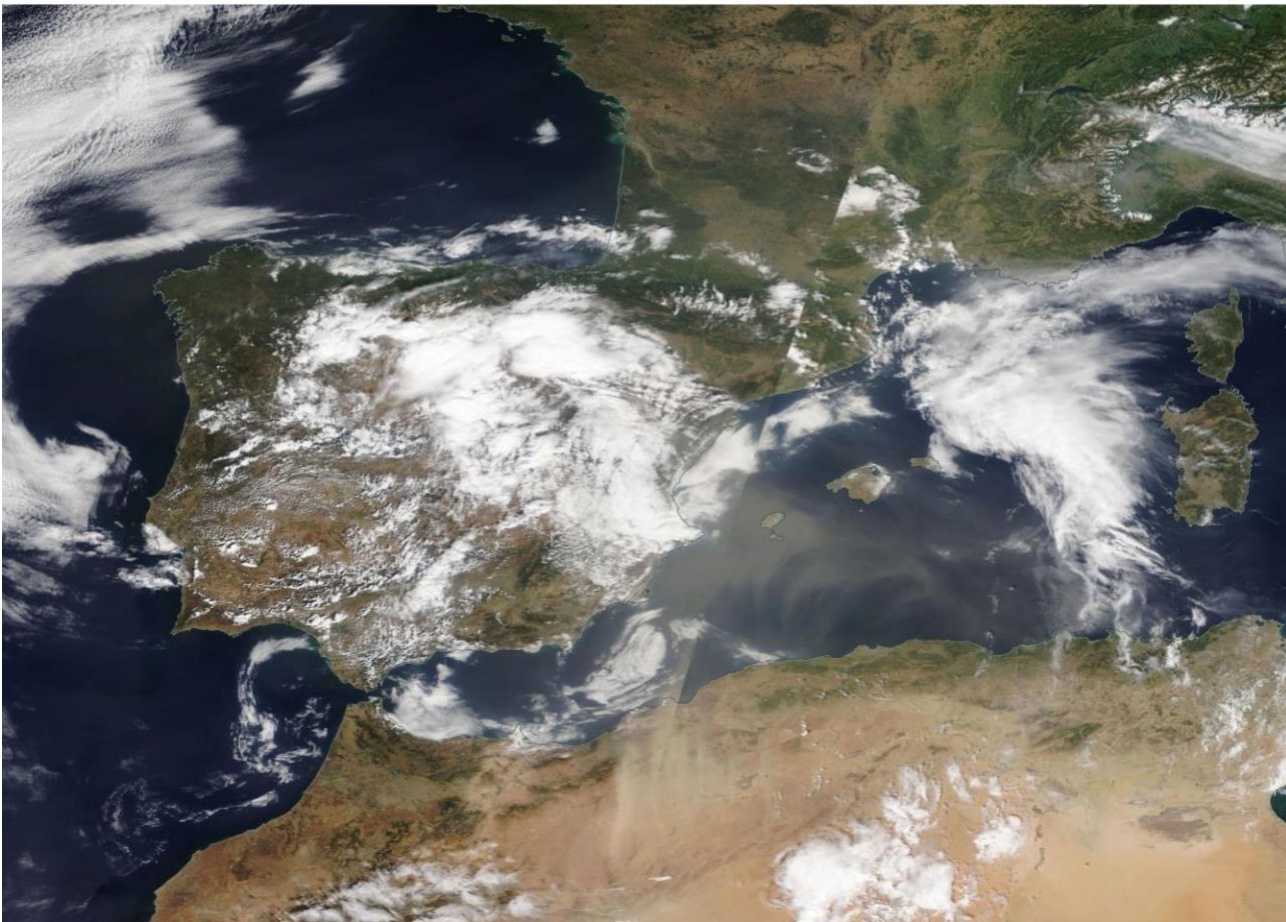
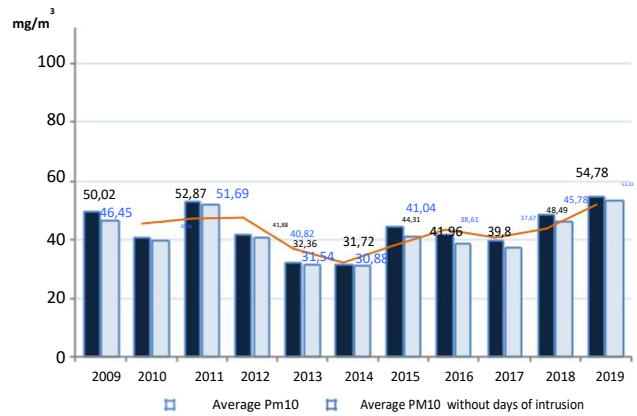
There is no direct connection between immission levels and bulk traffic. However, along the last two years, there was an existing upward trend making PM₁₀ increase slightly, and also solid bulk has been duplicated by 2,5 in the last ten years. On the other hand, PM₁₀ levels are almost constant, which shows that all those measures enforced to control emissions associated with bulk traffic are functioning correctly.



Comparison of total days of intrusion and days of intrusion coinciding with LD>50 mg/m³



Comparison of Pm10 and Pm10 without days of intrusion



A satellite photo shows a Saharan dust intrusion episode over the Iberian Peninsula and the Canary Islands on 08/03/18. Source: Earth Observatory – NASA. <http://earthobservatory.nasa.gov>
https://lance.modaps.eosdis.nasa.gov/subsets/?subset=Europe_3_01

Study on the research of air emissions regarding cruise ships traffic at Cartagena's dock Polytechnical University of Cartagena

Along all the investigation contracts given to public universities in the Region of Murcia, in 2019 a new ambitious pilot project was developed, whose objective was measuring the possible impact of cruise ships traffic in our city regarding air pollution.

It was assigned to the Chemical Investigation Group of Environment in the Environmental Engineering Department of the Polytechnical University of Cartagena, managed by por D. José María Moreno Grau.

Its main objectives were:

Specific objectives

Particular objectives that allow us to achieve the main objective.

1. To compare concentrations of particulate pollution at Cartagena's dock when there is cruise ships traffic to be found or not.
2. To compare concentrations of the main polluting gases found at Cartagena's dock when there is cruise ships traffic to be found or not.

Secondary objectives

Objectives to be developed preliminary regarding all the knowledge acquired along this project.

1. To analyze the contribution of other polluting sources to air quality levels at Cartagena's dock.
2. To meet needs and define the location of a possible permanent measuring station at Cartagena's dock in any case, working as a complement to the existing one at Escombreras's dock.

To be completed, data from Mompeán's station were analyzed, specially, monitoring information on air quality of the Autonomous Community of the Region of Murcia. Moreover, data from the mobile unit of the monitoring network on air quality were also analyzed, which was located at Cartagena's dock in some periods of 2019. That included data on ins and outs of cruise ships at Cartagena's dock, berthing periods, and the resto f port traffic together with weather information three towers at the port provide

This study's conclusions show that: "according to emissions coming from vessels, it should be emphasized that pollutants reflect all those emissions caused by other combustion sources, not only by road traffic but industrial emissions, including other vessels entering the port of Cartagena, merchant, at Cartagena's dock or Escombreras, and Spanish Navy's vessels, maritime rescue, fishing boats, tugboats, recreational boats, etc. The analysis resulted in an increase of PM daily average values showing no remarkable statistic in most of cases. Regarding SO₂, depending on the year and the time, data increase or decrease, reaching 99% at 12 p.m. in 2018. Saxe and Larsen (2004) affirm that emissions coming from vessels do not contribute to this pollutant's levels in inhabited areas.

Regarding Nitrogen oxides, different actions take place in 2018 and 2019. In 2018 there were decreases of daily average values early in the morning, and increases late in the evening, with no remarkable statistic. However, in 2019 there were no decreases, and increases were detected when cruise ships were present, 99% of statistic signification between 1 p.m. to 5 p.m. regarding NO and NO₂. Ozone showed the opposite result, note even reaching statistic signification in 2018 and 2019, just at 3 p.m., the lowest value with cruise ships reaching 99% of statistic signification".





Mobile measuring unit of air pollutants along 2019 cruise ships measuring campaign

8

Other aspects

8.1

Soil pollution

On January 30, 2007, the Port Authority of Cartagena submitted before the Department of Industry and Environment of the Region of Murcia the preliminary soil report required by Royal Decree 9/2005 of January 14, which set for the list of activities that could potentially cause soil pollution, and the standard criteria to determine whether soils are polluted or not.

On March 14, 2019 a new report on polluted soil was presented before the Environmental Body of the Autonomous Community of the Region of Murcia. It showed updated and continued information, which was developed by SGS Tecnos and represented no incidence or new area that may be polluted.

The port area with the highest polluted soil index is "El Fangal", located at Escombreras's dock. This area has always been polluted by hydrocarbons leaks on pipelines from nearby facilities. This area was decontaminated before being used as industrial port land, and it was declared "decontaminated soil" by the Department of Environment of the Region of Murcia on June 2, 1999.

During 2007, the company "Emgrisa" carried out the study and characterization of the State-owned soils, which includes the Service Area of the Port of Cartagena.

The aim of this study was to confirm, or rule out, the presence of pollutants concentrations that were above the generic levels of reference established by Royal Decree 9/2005.

The project entailed sample gathering, including samples of soil, groundwater and gases present in the field, and their subsequent analysis. The company carried out soundings in 10 points of the Service Area: two points in Cartagena's dock and eight points in Escombreras's dock, all of them were up to 9 meters deep.

Eventually, the study reached the following conclusions:

"The generalized concentrations of potentially polluting substances (heavy metals, TPH*) observed in almost the entire port that are caused by sanitary landfills, or by the dispersion and homogenization produced by the tidal influence of the conditions of various focal points, do not present an unacceptable risk to public health".

TPH* : Total Petroleum Hydrocarbons



Automatic wheels cleaner installed at the Bulk Goods Terminal to reduce dust emissions generated by goods transportation

BIOREMEDIATION PLANT FOR CONTAMINATED SOILS IN WASTE DUMPS

As a consequence of the works corresponding to the railway accesses to the Expansion of the port in Escombreras, the presence of soil contaminated with hydrocarbons from the excavations for the foundation of a new bridge was detected. In order to be able to properly manage this contaminated material, the environmental body of the Autonomous Community of the Region of Murcia was asked for an Integrated Environmental Authorization to carry out bioremediation treatment of soils ex-situ, thereby minimizing the transfers and movements of this contaminated material.

On 31/07/2017, the Environmental Management and Discipline Service of the Autonomous Community of the Region of Murcia issued a Sectorial Environmental Authorization for the creation of a soil bioremediation plant, according to which the Port Authority of Cartagena would be the promoter of the works and the company "U.T.E. Ferrocarril Dársena Escombreras" would carry out the execution thereof.

On a surface of 4,337m², previously concreted with a 40 cm. thick base and provided with a draining collection system, three biopiles are located where, by means of controlled biological degradation processes, the TPH's are degraded by reducing the chemical compounds that form them, which become simpler and with a lower molecular weight.

This plant has the capacity to treat 3,500 tons/year and is classified as a potentially soil contaminating activity. Along 2018, all biological degradation processes in bulking polluted waste have continued.



Soil bioremediation plant in Escombreras

Currently, we are working on the bidding process of a soil decontamination process and the wrecking of old facilities at Peñarroya's foundry, which is located at the container terminal in S. Lucía, and whose grounds were acquired by the Port Authority of Cartagena to be logistic soil. Works are expected to begin in 2020.



Old Peñarroya's foundry. Photo by La Verdad

8.2

Dredging work

Throughout 2015 and 2016, the berthing line at the Cruise Ships Terminal was extended over 100m. The purpose of these works was to allow the simultaneous berthing of two cruise ships longer than 300 m. Part of the works consisted in dredging the area and classifying the dredging materials, where a certain amount of heavy metals was found—the Port Authority of Cartagena was already aware of this circumstance thanks to the results shed by previous water and sediment quality controls and to the study of the Polytechnic University of Cartagena on the 4000-year-old mining activity of the city and its environment.

Thus, 6572 m³ of dredged material was extracted and deposited in a safe area located at the extension of the Escombreras's dock. The said material underwent a comprehensive analysis in order to verify its ecotoxicity and risk levels. This ecotoxicity study was carried out by the Labaqua, SA Company and consisted in identifying all the metals present, as well as their concentrations, and determining their toxicity thresholds for the environment and human health.

The study concluded that the dredging material intended for the protection of human health and the environment, in accordance with the criteria established in Annex III of Law 22/2011 on Waste and Contaminated Soils, in Regulation EC 1272/2008 (CLP), in Order MAM/304/2002 or in the Order of 13/10/1989 on Hazardous Waste Characterization, does not present any characteristic of danger to the environment or human health. For this reason, this waste has been classified as a **Non-hazardous waste** with EWC code 17 05 06 on "sewage sludge other than those mentioned in 17 05 05*", within chapter "Earth, Stone and Sewage Sludge" (including dredged from contaminated areas).

This way, the waste could be managed as uncontaminated material without being dumped back into the sea. No dredging operations have been carried out throughout 2017, 2018, and 2019.



Dredging works to extend the Cruise Ships Terminal at Cartagena Port



Dredging material deposited at Escombreras's dock extension before being managed as Non-hazardous waste

8.3 Control of legionella and potable water

The Port Authority of Cartagena does not have cooling towers or evaporative condensers that may be a source of emission of aerosols contaminated with Legionella Pneumofila.

However, it has its own water network, a fire-fighting system and an irrigation system in gardens, so it is mandatory to comply with the provisions of Royal Decree 865/2003 of July 4, which establishes the hygiene and health criteria for the prevention and control of Legionellosis. In this sense, the Port Authority of Cartagena performs periodic checks and an annual analysis in 14 spots of its Service Area (7 cold spots and 7 hot spots), and also holds the corresponding certificate proving the disinfection of its facilities.

On 01/02/2017, the company CAES, S.L. (entered in the Official Register of Pest Control Companies and Services of the Region of Murcia with number **1091-MUR-L-10**), took water samples at 14 network endpoints for their subsequent analysis. The results did not show the presence of Legionella in any of the said samples.

Continuing with the commitment to ensure compliance with all the legal obligations applicable to local water distribution networks, on 02/02/2017 samples of the potable water supplied by the Port Authority of Cartagena to the Border Inspection Post of the General Goods Terminal, as well as to the Cruise Ships Terminal, the Dry Bulk Terminal, the Oil Terminal and the Multi-purpose Terminal located at the Escombreras's dock extension, were taken. These samples were subsequently analysed by **Laboratorios Munuera, S.L.U.** (a company adhered to the EMAS register) in accordance with the provisions of Royal Decree 140/2003 of February 7 regarding the necessary health criteria for the quality of water for human consumption. The results showed that all parameters analysed were within the legally established limits.

These analyses on the control of the quality of the potable water supplied to vessels are one of the most common requests that Shipping Agencies make to the Customer Service of the Port Authority of Cartagena.



Sample drawing to control Legionella and potable water quality

8.4 Noise level

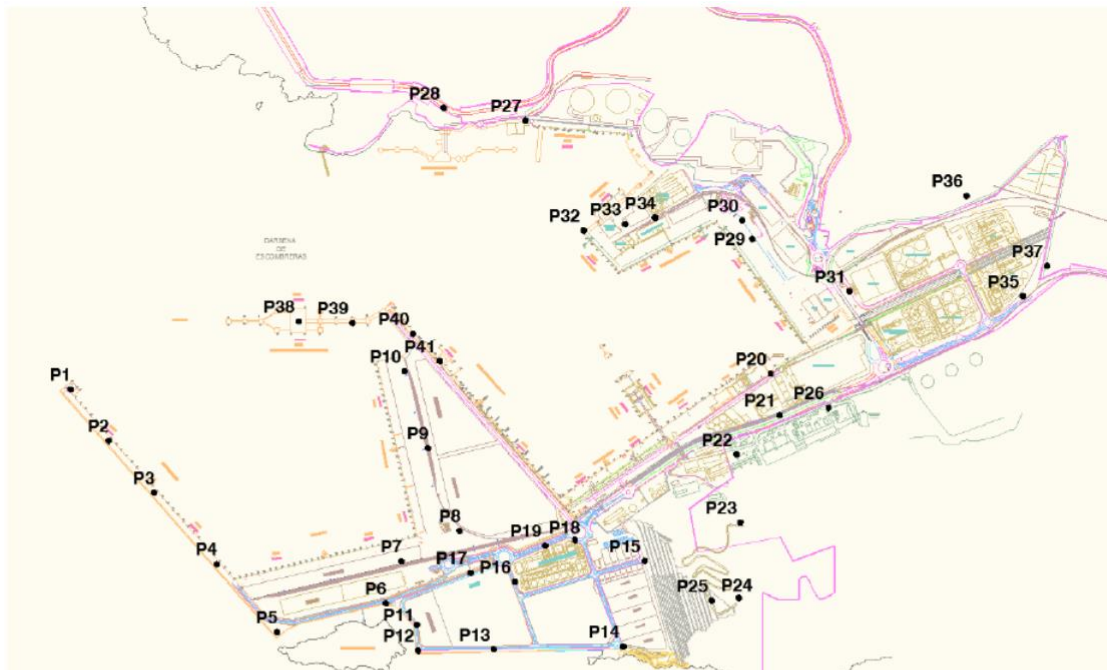
In 2017 the company SGS Tecnos, S.A. was commissioned to produce the noise map for the Escombreras's dock. This noise map completes the entire port, as in 2012 was made for Cartagena's dock.

Royal Decree 1367/2007 passed on October 19 to develop the Noise Act 37/2003 of November 17 on noise zoning, quality objectives and noise emissions.

The study consisted of the characterization and modelling of noise sources in all areas of the dock, access roads and adjacent natural spaces. For this purpose, data were taken during the day, afternoon and night at 41 points, which together with the data on the vehicle capacity at the different terminals, the sound power of the machines, installations and industrial processes served to feed a CADNA-A model and compare the real values with those calculated by this model.

From the maps obtained it can be deduced that the activity produced by the Escombreras basin does not exceed the maximum levels permitted in the bordering environment, for the periods of day, afternoon and night. Values were detected well below 75 dB for the day and evening period, and 65 dB for the night period (industrial zone to which it belongs to the environment). This noise map completes the entire port.

In 2019, underwater noise has been considered new environmental impact. We have started working on a strategy to manage that underwater noise coming from works and maritime traffic. It is expected to have a management plan on underwater noise available and start its implementation.



Sampling points and study result for the afternoon period

CETACUSTIC

On July 11, 2019 “**Cetacustic project**” was presented included in the strategy the Port Authority of Cartagena has started in order to include underwater noise as environmental impact on which we shall work on to widen our knowledge and impact mitigation. This project was developed in collaboration with CROEM, whose objective is to do some research on the interaction between cruise ships traffic and cetaceans found around the Port of Cartagena, and provide with new actions to be taken in order to minimize possible damage done to cetaceans caused by cruise ships.

The seminar where this project was presented counted on national and international experts such as José Antonio Esteban Simón, researcher in the Research Institute for the Integrated Management in coastal areas (IGIC), Polytechnical School of Gandía, Polytechnical University of Valencia, and professors at the Polytechnical University of Cartagena, Javier Gilabert Cervera and José Luis Sancho Gómez, experts on noise measuring technology and telecommunications. <https://croem.es/proyecto-cetacustic/>

This project is pioneer in a field like this, and it perfectly fits objective number 14 of SDO “Underwater Life”. It contributes to improving governance since it promotes cooperation between administration and economic agents operating in the same sector, water sector, in this case, including protected areas like ZEC ES6200048. In addition, it shall improve the involvement of the economic sectors in the environmental protection thank to the visibility CROEM shall provide this project, and the results among its members, the practical totality of companies inside the Region, and also through its national association.

This project consisted of the development of a study done by Javier Gilabert and José Luis Sancho, both professors at the Polytechnical University of Cartagena, in order to define the interaction between cruise ships traffic and cetaceans around the protected area ZEC ES6200048 of the Port of Cartagena-Underwater valleys of Mazarrón’s escarpment in Red Natura 2000. Regarding all the results, new directives were proposed on the management of cruise ships traffic to minimize noise damage on cetaceans.

Along the development of this study, several actions took place, such as the detection of noise coming from four representative passenger vessels stopping over the Port of Cartagena from May to September in 2018. Those were categorized according to the number of passengers. The first one with more than 3000 passengers, Britannia and Celebrity Reflection, and the second one, for less than 500 passengers, Wind Surf and Seadream I.

This project was developed by measuring with a hydrophone, which was located at the nearest sampling point to the usual route vessels take, southern point at Cala Cortina Beach specifically. More than 2000 minutes of noise were recorded. It was divided into several stages. The first stage was financed and developed by the Port Authority of Cartagena, and the following ones through the grant by “Fundación Biodiversidad”.

Afterwards, data were processed and that led to:

- The characterization and assessment of underwater noise from four Passenger vessels chosen along proximity and departure maneuvers at the Port of Cartagena.
- The assessment of possible impact of cruise ships traffic on cetaceans regarding all the data provided by the scientific community.

That characterization and assessment resulted in:

- The sound source regarding those vessels does not exceed, in any case, the limits found in the literature on TTS impacts (Temporary Threshold Shift), PTS (Permanent Threshold Shift), and behavior changes (flight) among cetaceans.
- What is specifically explained is the possible impact of the hearing masking due to the fact that cruise ships’ sound frequencies overlap with those frequencies used by cetaceans to communicate, locate, and navigate mainly at low and medium frequencies (LF and MF cetaceans), which may hinder some of those actions. Scientists consider it to be the least harmful impact on cetaceans.



Organiza:



Con el apoyo de :



Colabora:



Participan:



Inscripciones: Teléfono: 968 298677
Email: medioambiente@croem.es
Web : <https://croem.es/proyecto-cetacustic>

JORNADA DE PRESENTACIÓN DEL PROYECTO



“Estudio de la interacción entre el turismo de cruceros y los cetáceos presentes en el entorno del Puerto de Cartagena y propuesta de actuaciones para minimizar la afección acústica de dicha actividad”



Jueves, 11 de julio de 2019
Salón de Actos. Autoridad Portuaria de Cartagena
Plaza Héroes de Cavite

10.00 h. Bienvenida.

- D. Pedro Pablo Hernández Hernández. Vicepresidente de la Autoridad Portuaria de Cartagena.
- D. José M^a Albarracín Gil. Presidente de la Confederación Regional de Organizaciones Empresariales de Murcia (CROEM).
- D. Fermín Rol Rol. Director General de la Autoridad Portuaria de Cartagena.

10.10 h. Compromiso de la Industria de los Cruceros con el Medio Ambiente.

- D. Alfredo Serrano Chacón. Director Nacional de CLIA España. Asociación Internacional de Líneas de Cruceros.

10.30 h. Marco Legislativo Europeo y Nacional en materia de Ruido Submarino.

- Dña. Noelia Ortega Ortega. Directora del Centro Tecnológico Naval y del Mar.
- Dña. Marta Sánchez Egea. Responsable de Medio Marino del Centro Tecnológico Naval y del Mar.

10.50 h. Cetáceos y Ruido Submarino.

- D. José Antonio Esteban Simón. Investigador del Instituto de Investigación para la Gestión Integrada de Zonas Costeras (IGIC), Escuela Politécnica Superior de Gandía, Universidad Politécnica de Valencia.

11.10 h. Café.

11.30 h. Presentación del Proyecto Cetacustic.

- Dña. Graziela Nortes Torregrosa. Directora de Medio Ambiente de la Confederación Regional de Organizaciones Empresariales de Murcia.
- D. Javier Gilabert Cervera. Profesor Titular de Universidad. Director grupo de Investigación "Ecosistemas". Departamento de Ingeniería Química y Ambiental. E.T.S. Ingeniería Naval y Oceánica. Universidad Politécnica de Cartagena.
- D. José Luis Sancho Gómez. Universidad Politécnica de Cartagena. Profesor Titular de Universidad. Director del grupo de investigación de Tratamiento de Datos y Aprendizaje de Máquina. Departamento de Tecnologías de la Información y las Comunicaciones. E.T.S. Ingeniería de Telecomunicación. Universidad Politécnica de Cartagena

12.10 h. Sostenibilidad en el Puerto de Cartagena.

- D. Rafael Cano Albaladejo. Jefe Departamento de Sostenibilidad. Autoridad Portuaria de Cartagena.

12.30 h. INHERIT. Estrategias de turismo sostenible para conservar y valorizar la costa mediterránea y el patrimonio natural marítimo.

- D. Francisco Soriano Rico. Técnico de la Oficina de Impulso Socioeconómico del Medio Ambiente (OISMA). Dirección General del Medio Natural. Consejería de Empleo, Universidades, Empresa y Medio Ambiente.

12.50 h. Clausura.

- Dña. Consuelo Rosauo Meseguer. Directora General de Medio Natural. Directora de Medio Ambiente y Mar Menor. Consejería de Empleo, Universidades, Empresa y Medio Ambiente.
- Dña. María José Barahona Moreno. Jefe Área Planificación y Gestión. Autoridad Portuaria de Cartagena.
- Dña. Paloma Escudero Giménez. Jefe División Innovación. Autoridad Portuaria de Cartagena.

9 Natural environment

- ✓ **Yellow-legged gull population control at Escombreras Island**
- ✓ **Study by the University of Murcia of the ecology and conservation of seabirds in the vicinity of the Port of Cartagena.**
- ✓ **Monitoring of marine avifauna in the vicinity of the port**
- ✓ **Genetic research on jeweled lizards population (*Timon Lepidus Nevadensis*) at Escombreras Island**
- ✓ **Yellow-legged gull population control and Mazarrón's Lighthouse sea monitoring**
- ✓ **Escombreras's chamomile**
- ✓ **Sierra de la Fausilla's reforestation – Aguilones's pathway**
- ✓ **Study on the sea bottom in front of Cala Cortina and Escombreras Island**

Yellow-legged Gull population control at Escombreras Island. Maritime Bird Life Study

The Yellow-legged Gull (*Larus michaellis*) is a bird traditionally present at port environments. However, in recent years, its population has experienced a significant growth that is now causing serious problems to the port facilities, people and other birds also present at the port. The growth of this species is also a problem for urban areas, where the presence of Yellow-legged Gulls in parks, buildings, schools and roofs is increasingly common.

Another problem is the competition with other birds for food and nesting areas, eggs and chick's predations, kleptoparasitism (food theft), deterioration of vegetation, deterioration of facilities, health problems, colonization of buildings, attacks on workers, etc. For all this reasons and due to its abundance, the Autonomous Government of Murcia considers this species is not threatened (Act 7/1995) and therefore it can be hunted (Act 7/2003).

One of the birds that is affected by the demographic growth of the Yellow-legged Gull is the Audouin's Gull (*Ichthyaetus audouinii*), which is also present at Cartagena Port. The only place in the entire Region of Murcia where this species was nesting was Grosa Island, but today it has been displaced by the pressure from the excessive population of Yellow-legged Gulls on the said island.

In order control the demographic density of this species and to try to reduce its population in Escombreras Island down to ecologically sustainable levels, the Port Authority of Cartagena contracted the company Mendijob, S.L., which is specialized in the control of bird population. In 2017, this firm carried out a control campaign during the months of March, April, May and June, which is the breeding season for this bird. From 2007 to 2018, the company took control measures on 2,267 nests, which resulted in the death of 1,081 specimens.

In this campaign, one of the areas in the island has not been managed in order to make the capture of adult yellow-legged specimens and the placements of GPS-GSM emitters possible, which is carried out by the University of Murcia and the Port Authority at Escombreras Island.

| Year | Couples estimation |
|------|--------------------|
| 2007 | 392 |
| 2008 | 364 |
| 2009 | 243 |
| 2010 | 199 |
| 2011 | 117 |
| 2012 | 96 |
| 2013 | 87 |
| 2014 | 63 |
| 2015 | 67 |
| 2016 | 68 |
| 2017 | 47 |
| 2018 | 32 |
| 2019 | 40 |



These measures consisted of the elimination of chicks and eggs, the destruction of nests, placement of poisoned baits in nests, removal of corpses and their subsequent elimination. The placement of baits and the destruction of nests has been carried out in three successive phases, since seagulls produce immediately new eggs when their nests are destroyed. A total of 51 nests have been destroyed throughout these three phases, which resulted in the death of 9 adult specimens.

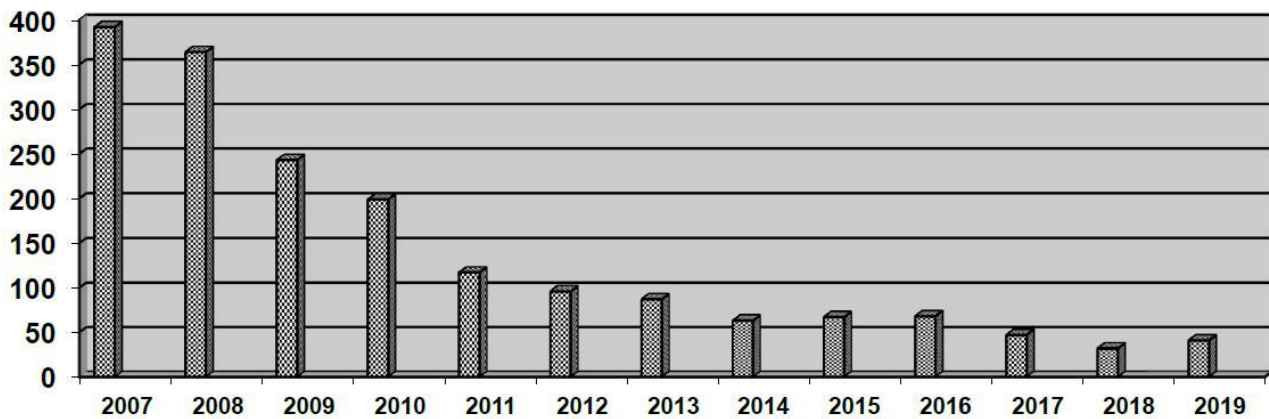
All these nests are georeferenced in order to get precise information on those areas that seagulls prefer and the repetitive placement of nests in the same places.



Nests location along first control in 2019



Nests location along third control in 2019



Yellow-legged Gull population control at Escombreras Island, population reduction of -85,54% as compared to 2007.



Conclusions:

The breeding population not only increased since controls began in 2007, but they decreased 84% during the first seven years. Making the same efforts during the eighth, ninth and tenth years, the population did not recover all those specimens, although it became more stable between 63 and 68 breeding couples. In 2017, it got minimized again until 47, and along the last two campaigns in 2018 and 2019, the population is composed by 32 and 41 couples, representing size smaller than the expected one when controls began. The first objective was to minimize the breeding population at Escombreras Island until 100 to 140 couples.

The total reduction was 89,54%. It was the first time since controls began that there was a 7% increase higher than the previous year. In 2016 and 2017, there were lesser increases, and this year's increase as compared to 2018 showed more than 28%. It might be related to the decision made in 2018 to avoid employing 11 couples in the radio-monitoring process. In the next campaign, we shall be able to check out whether it is a population's trend or the above-mentioned effect's trend.

All control measures have been duly approved by the respective Environmental Authority of the Autonomous Government of Murcia and they have been carried out in compliance with the Protocol of Action for workers and persons exposed to birds or animals that may be infected with the avian influenza virus (Ministry of Health and Consumer Affairs protocol).

The decrease of the Yellow-legged Gulls in the island generates a constant "sink effect" for the more than 8257 pairs registered in the coast of the Region of Murcia, which shows that keeping this type of controls over time has a positive effect.

For many years, a small population of 25-50 specimens of Audouin's Gulls (*Ichthyæetus audouinii*) inhabits the Port of Cartagena. Despite strong pressure from the Yellow-legged Gulls, this species remains stable on our coast. In 2017, no breeding pair of Audouin seagulls could be observed, but 6 nests of this bird were identified in Escombreras Island in 2016, despite the fact that no eggs were laid. In 2015, it was not possible to register any breeding pair of Audouin's Gulls. However, their growing presence encourages the thought that, if we keep the Yellow-legged Gulls population under control, they may once again settle at the Port of Cartagena, as they already did in 2010 and 2011.

The Audouin's Gull is an endemic species of the Mediterranean Area that was on the verge of extinction in the 80's. This promoted various conservation programs that have so far allowed to maintain stable populations in certain places of Spain, mainly in Ebro Delta, Alborán Island and Torrevieja salt lakes. At present, this rare gull is considered as "vulnerable" and therefore must be protected.

One of the peculiarities of Audouin's Gull is that it is a pelagic fishing bird that does not feed on garbage or in dumping sites (as the Yellow-legged Gull does), and never nest on rooftops or urban environments. This could be considered a good natural indicator of the state of the marine ecosystem, since the presence of this bird is linked to uncontaminated waters and in good condition. The Port Authority of Cartagena collaborates with the Biological Station of Doñana (Andalusia) in the monitoring of the flagged birds that are spotted at the port. These sightings are communicated to the Biological Station of Doñana to incorporate them into the Bird Tracking Database.



Audouin's Gull (*Ichthyaetus audouinii*) at Escombreras's dock. Photo by Sergio Eguía

All seagulls sighted with identification are entered in our database and registered in the Bird Banding Office of Doñana Biological Station, which allows keeping records of all bird sightings, the type of bird banding they wear and their migratory movements.

Database of Audouin's Gull specimen detected at the port and pictures of all the flagged birds registered so far.

In order to be able to study the evolution of seabirds in the port environment, to have a closer look at their feeding habits and breeding habits, in 2015 a first study on the birds present in the port environment was commissioned to Mendijob, SL. This study was repeated in 2016 and 2017, obtaining very valuable information on biodiversity, the population parameters of the species that comprise it (abundance, number of individuals that reproduce, birth rate, pre-adult survival, mortality, etc.), the selection of areas for reproduction, feeding, rest, etc. and other aspects such as migratory processes, interspecific relations, competitive phenomena and threats.



Audouin seagull's immature specimen (CD3V) banded on June 15, 2017 at Torrevieja's Salt Mines, spotted at the port on November 26, 2018.

Study by the University of Murcia of the ecology and conservation of seabirds in the vicinity of the Port of Cartagena.

Continuing with this line of work, in June 2017 the technical assistance of the Mediterranean Ecosystems Research Group of the University of Murcia was contracted to deepen the ecology and conservation of seabirds in the vicinity of the port of Cartagena in 2017 and 2018.

This group of researchers also participates in the studies carried out to ascertain the viability of application and effectiveness of the compensatory measures of the Natura 2000 Network for birds included in Directive 2009/147/EC, and other species of interest, within the Infrastructure Master Plan of the New Cartagena's dock in Gorguel.

The work team of the University of Murcia has been directed by Francisco Robledano Aymerich (Doctor of the Department of Ecology and Hydrology [Area of Ecology] and Coordinator of the Master's Degree in Protected Areas, Natural Resources and Biodiversity) in collaboration with Jacinto Martínez Ródenas, in charge of the field work (Biologist, Master's Degree in Management of Mediterranean Environments, expert in bird-ringing, with more than 10 years of experience in field work with fauna and flora).

<http://www.um.es/ecologia/>

<http://www.um.es/web/biologia/contenido/estudios/masteres/biodiversidad>

The most important and novel aspects of this study have been:

- Marking of shag (*Phalacrocorax aristotelis*) chicks in the Escombreras Island colony.
- Marking with CPS/GSM emitters of yellow-legged gulls (*Larus michahellis*) in the same colony
- Evaluation of the survey carried out in new nesting sites of the European Storm-petrel (*Hydrobates pelagicus melitensis*)
- Study on the population of Mediterranean Cory's Shearwater (*Calonectris diomedea diomedea*) present at the vicinity of the port

The results are as follows:

-Marking of 22 cormorant chicks on the south side of Escombreras Island (2nd breeding colony in the Region of Murcia after Grosa Island).

-Marking of 10 adult yellow-legged gulls with rings and GPS/GSM devices.

-Evaluation of the population of Ocellated Lizard (*Timon lepidus*) present on the island. This study on the presence of lizards on the island, the only insular population in the Region of Murcia, will be complemented with a genetic and molecular analysis in 2018 in order to know the differences with the lizard population present in the environment (Sierra de la Fausilla).

-Evaluation of the incidence of the brown rat (*Rattus norvegicus*) population on birds on the island, proving that it mainly affects the development of nests of species other than the yellow-legged gull.

List of regular birds (not classified as seabirds) present on Escombreras Island in 2019:

- House sparrow (*Passer domesticus*)
- Sardinian warbler (*Sylvia melanocephala*)
- Common Starling (*Sturnus sp.*)
- Eurasian-collared dove (*Streptopelia decaocto*)
- Willow warbler (*Phylloscopus troquillus*)
- Subalpine warbler (*Sylvia cantillans*)
- Eurasian hoopoe (*Upupa epops*)
- Blue-rock thrush (*Monticola solitarius*)
- White wagtail (*Motacilla alba*)
- Common kestrel (*Falco tinnunculus*)
- Common kingfisher (*Alcedo atthis*)
- Grey wagtail (*Motacilla cinerea*)
- Western-yellow wagtail (*Motacilla flava*)
- African stonechat (*Saxicola torquata*)
- Meadow pipit (*Anthus pratensis*)
- Eurasian crag martin (*Ptyonoprogne rupestris*)
- Common chiffchaff (*Phylloscopus collybita*)
- European robin (*Erithacus rubecula*)
- Peregrine falcon (*Falco peregrinus*)
- Eurasian sparrowhawk (*Accipiter nisus*)
- European serin (*Serinus serinus*)
- Common chaffinch (*Fringilla coelebs*)
- European goldfinch (*Carduelis carduelis*)
- Black redstart (*Phoenicurus ochruros*)
- Common linnet (*Linaria cannabina*)
- Song thrush (*Turdus philomelos*)
- Dartford warbler (*Sylvia undata*)
- European greenfinch (*Carduelis chloris*)

Given its accessibility and the facilities for scientific work on the island, it is configured as a strategic point for research in the field of insular ecology, which is why the possibility of creating a reference center for field studies in this field is being valued. Continued censuses, marking and monitoring of seabirds and land birds, implementation of network programs with other islands and coastal enclaves, and monitoring of other relevant local processes are only part of the possibilities offered by Escombreras Island.

It was the first time that passerine birds' banding campaigns took place at Escombreras Island in Autumn 2019 and Spring 2020, which resulted in the capture and banding of more than 150 birds belonging to 15 different species.

Since November 2019, Escombreras Island has also been included the World Sighting Network (RAM), Trektellen's Birdwatching and Cetaceans sighting network, which is composed by some strategic points where birds and cetaceans are monitored daily for three hours. From November 2019 to June 2020, 7624 birds and 36 cetaceans were registered. <https://www.trektellen.nl/site/yeartotals/2594/2020>

Trektellen

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Totals Isla de Escombreras-Cartagena 2019 Also present 2019 all months

| Species | Nov | Dec | Totals | W | E | Maximum | Presence (%) | Presence (days) | First | Last | |
|-------------------------------------|------|------|--------|-----|------|--------------|--------------|-----------------|-------|-------|--|
| 1. Scopoli's Shearwater | 0 | 7 | 7 | 3 | 4 | 7 (7 Dec) | 50 | 1 | 7 Dec | 7 Dec | |
| 2. Balearic-/Yelkouan Shearwater | 3 | 3147 | 3150 | 519 | 2631 | 3147 (7 Dec) | 100 | 2 | 9 Nov | 7 Dec | |
| 3. Gannet | 24 | 70 | 94 | 28 | 66 | 70 (7 Dec) | 100 | 2 | 9 Nov | 7 Dec | |
| 4. Shag | 0 | 86 | 86 | 0 | 86 | 86 (7 Dec) | 50 | 1 | 7 Dec | 7 Dec | |
| 5. Phalacrocorax a. desmarestii | 14 | 0 | 14 | 5 | 9 | 14 (9 Nov) | 50 | 1 | 9 Nov | 9 Nov | |
| 6. Slender-billed/Black-headed Gull | 2 | 0 | 2 | 2 | 0 | 2 (9 Nov) | 50 | 1 | 9 Nov | 9 Nov | |
| 7. Audouin's Gull | 5 | 0 | 5 | 2 | 3 | 5 (9 Nov) | 50 | 1 | 9 Nov | 9 Nov | |
| 8. Sandwich Tern | 1 | 92 | 93 | 59 | 34 | 92 (7 Dec) | 100 | 2 | 9 Nov | 7 Dec | |
| 9. Great Skua | 1 | 13 | 14 | 1 | 13 | 13 (7 Dec) | 100 | 2 | 9 Nov | 7 Dec | |
| 10. Meadow Pipit | 5 | 0 | 5 | 5 | 0 | 5 (9 Nov) | 50 | 1 | 9 Nov | 9 Nov | |
| 11. Chaffinch | 5 | 0 | 5 | 5 | 0 | 5 (9 Nov) | 50 | 1 | 9 Nov | 9 Nov | |
| 12. Greenfinch | 12 | 0 | 12 | 12 | 0 | 12 (9 Nov) | 50 | 1 | 9 Nov | 9 Nov | |
| 13. Goldfinch | 21 | 0 | 21 | 21 | 0 | 21 (9 Nov) | 50 | 1 | 9 Nov | 9 Nov | |
| 14. Serin | 7 | 0 | 7 | 7 | 0 | 7 (9 Nov) | 50 | 1 | 9 Nov | 9 Nov | |
| 15. Siskin | 10 | 0 | 10 | 10 | 0 | 10 (9 Nov) | 50 | 1 | 9 Nov | 9 Nov | |
| Other species | | | | | | | | | | | |
| 1. Bottle-Nosed Dolphin | 0 | 34 | 34 | 34 | 0 | 34 (7 Dec) | 50 | 1 | 7 Dec | 7 Dec | |
| 2. Fin Whale | 0 | 1 | 1 | 1 | 0 | 1 (7 Dec) | 50 | 1 | 7 Dec | 7 Dec | |
| Totals | | | | | | | | | | | |
| | 110 | 3450 | 3560 | 714 | 2846 | | 100 | 2 | | | |
| Observation hours | 3:00 | 3:00 | 6:00 | | | | | | | | |

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This table shows birds and cetaceans sightings along November and December in 2019, being the most significant aspect: the 3000 Shearwaters and the 34 dolphins spotted around our port's area II.



Audouin seagulls (*Ichthyæetus audouinii*) in Escombreras.



Monitoring of European Shag chicks on Las Palomas Island



Francisco Robledano, Head of Department of Biology in the University of Murcia

Passerine-bird banding campaigns on Escombreras Island

Common chiffchaff (*Phylloscopus collybita*)



European robin (*Erithacus rubecula*)





Black redstart (*Phoenicurus ochruros*)



Dartford warbler (*Sylvia undata*)



Woodchat shrike (*Lanius senatos*)



Bluethroat (*Luscinia svecica*)



Chiffchaffs

While all those studies on the European shag's population were completed, they showed that some of the couples around the bay resulted to be the most premature in the peninsula. The total number of nests built along 2019-2020 season was 18 in the breeding colonies found at Cartagena's bay on Escombreras Island, and 13 nests on Las Palomas Island. They first set off on January 14th, 2020 in order to prospect all the breeding couples in both colonies. It resulted in four couples at Escombreras and four at Palomas at that moment.

Two out of the four couples registered at Escombreras were the earliest ones in the peninsula, and also the ones that successfully bred (two chicks and one chick respectively). The other four couples found around the island (two initially set and two setting afterwards) lost their laying. According to dates, all the adult breeding progenitors of the two chicks registered at Escombreras Island are shown in figure 12, which had to initiate an incubation period from November 4th to 9th in 2019.

After checking the literature and talking to the experts in charge of researching on this species along the Mediterranean coast, we assure these are the most premature breeding so far detected on the Spanish Mediterranean (Barros et al., 2016), highlighting November to be the right moment in which these specimens, which belong to the Mediterranean subspecies, start their nesting delimitation.

Laying responds to weather conditions (temperature, wind and light). However, the most important aspect here is the abundance of local food (Aebischer, 1986).



European shag during breeding period at Escombreras Island. Photo by Jacinto Martínez

Monitoring of marine avifauna in the vicinity of the port

In addition to the work carried out by the University of Murcia, the company Mendijob S.L. was commissioned, for the third consecutive year, in order to continue with the study of the avifauna present in the surroundings of the port, covering not only the proximity of the Island of Escombreras, but also taking into account the whole ecosystem (area of the Cabo Tiñoso Marine Reserve, the Isla de las Palomas SPA, the Sierra de la Fausilla SPA and the whole of the coastal strip that surrounds the Cartagena and Escombreras basins). The methodology used includes transects from boats, fixed observation points, land tours with fixed observation points, fixed points from boats, exhaustive census of nests and placement of photo-trapping cameras.

The outcome of the study for 2019 provides the following conclusions:

- ✓ Use of Escombreras Island by the Great Cormorant (*Phalacrocorax carbo*) as a roost, 71 specimens per day on average.
- ✓ Presence of two breeding populations of European shag (*Phalacrocorax aristotelis*) on Escombreras Island (4 pairs) and Las Palomas Island (8 pairs), with a rate of 1,4 chicks flown per nest.
- ✓ Presence of European storm-petrel (*Hidrobates Pelagicus*) in the surroundings of Las Palomas Island.
- ✓ Presence of Cory's shearwater (*Calonectris diomedea*) and Balearic shearwater (*Calonectris mauretanicus*) in the area, with a breeding colony of Cory's shearwater on Las Palomas Island.
- ✓ Presence of Common gannet (*Morus bassanus*)
- ✓ Presence of Razorbill (*Alca torda*)
- ✓ Significant presence of Audouin's gulls (*Ichthyaetus audouinii*) with peaks of up to 167 birds counted on the same way. Many of these birds are ringed and come from other reeding areas, so the rings are written down and the information is sent to Doñana biological station.
- ✓ Presence of other birds such as Laughing gulls, terns, egrets, black-crowned night herons, and birds of prey as the Eurasian Eagle-owl and the Peregrine Falcon, which maintains a nest on Escombreras Island, and on Las Palomas.
- ✓ GPS sender's marking on 8 yellow-legged seagulls (*Larus michaellis*) and study on their habits and movements.

List of birds spotted:

- | | |
|---|--|
| 1) European storm-petrel (<i>Hydrobates pelagicus</i>) | 28) Slender-billed gull (<i>Larus genei</i>) |
| 2) Cory's shearwater (<i>Calonectris diomedea</i>) | 29) Mediterranean gull (<i>Ichthyaeetus melanocephalus</i>) |
| 3) Balearic shearwater (<i>Puffinus mauretanicus</i>) | 30) Sandwich tern (<i>Sterna sandvicensis</i>) |
| 4) Great cormorant (<i>Phalacrocorax carbo</i>) | 31) Common tern (<i>Sterna hirundo</i>) |
| 5) European shag (<i>Phalacrocorax aristotelis</i>) | 32) Little tern (<i>Sternula albifrons</i>) |
| 6) Northern gannet (<i>Morus bassanus</i>) | 33) Razorbill (<i>Alca torda</i>) |
| 7) Black-crowned night heron (<i>Nycticorax nycticorax</i>) | 34) Common woodpigeon (<i>Columba palumbus</i>) |
| 8) Grey heron (<i>Ardea cinerea</i>) | 35) Eurasian collared dove (<i>Streptopelia decaocto</i>) |
| 9) Purple heron (<i>Ardea purpurea</i>) | 36) European turtle dove (<i>Streptopelia turtur</i>) |
| 10) Little egret (<i>Egretta garzetta</i>) | 37) Eurasian eagle-owl (<i>Bubo bubo</i>) |
| 11) Cattle egret (<i>Bubulcus ibis</i>) | 38) Little owl (<i>Athene noctua</i>) |
| 12) Squacco heron (<i>Ardeola ralloides</i>) | 39) Common kingfisher (<i>Alcedo atthis</i>) |
| 13) Bonelli's eagle (<i>Hieraaetus fasciatus</i>) | 40) Eurasian hoopoe (<i>Upupa epops</i>) |
| 14) Golden eagle (<i>Aquila chrysaetos</i>) | 41) Red-rumped swallow (<i>Cecropis daurica</i>) |
| 15) Common kestrel (<i>Falco tinnunculus</i>) | 42) Barn swallow (<i>Hirundo rustica</i>) |
| 16) Peregrine falcon (<i>Falco peregrinus</i>) | 43) Common swift (<i>Apus apus</i>) |
| 17) Red-legged partridge (<i>Alectoris rufa</i>) | 44) Pallid swift (<i>Apus pallidus</i>) |
| 18) Eurasian stone curlew (<i>Burhinus oedichnemus</i>) | 45) Blue rock thrush (<i>Monticola solitarius</i>) |
| 19) Common ringed plover (<i>Charadrius hiaticula</i>) | 46) Common blackbird (<i>Turdus merula</i>) |
| 20) Ruddy turnstone (<i>Arenaria interpres</i>) | 47) Sardinian warbler (<i>Sylvia melanocephala</i>) |
| 21) Whimbrel (<i>Numenius phaeopus</i>) | 48) Southern grey shrike (<i>Lanius meridionalis</i>) |
| 22) Common sandpiper (<i>Actitis hypoleucos</i>) | 49) Spotless starling (<i>Sturnus unicolor</i>) |
| 23) Black-winged stilt (<i>Himantopus himantopus</i>) | 50) Common starling (<i>Sturnus vulgaris</i>) |
| 24) Lesser black-backed gull (<i>Larus fuscus</i>) | 51) House sparrow (<i>Passer domesticus</i>) |
| 25) Common gull (<i>Larus canus</i>) | 52) Hooded crow (<i>Corvus cornix</i>) |
| 26) Audouin's gull (<i>Ichthyaeetus audouinii</i>) | 53) Skuas (<i>Stercorarius parasiticus</i> and <i>S. skua</i>) |
| 27) Black-headed gull (<i>Chroicocephalus ridibundus</i>) | 54) Yelkouan shearwater (<i>Puffinus yelkouan</i>) |



Cory's shearwaters at the port



Scopoli's shearwaters (*Calonectris diomedea*). Photo by Jacinto Martínez



Northern gannet (*Morus bassanus*)



Scopoli's shearwaters (*Calonectris diomedea*) at the outlet of the port

Scopoli's and Balearic shearwaters are usually found at port waters.



Sandwich terns (*Thalasseus sandvicensis*)



Pair of Peregrine falcons on Escombreras Island

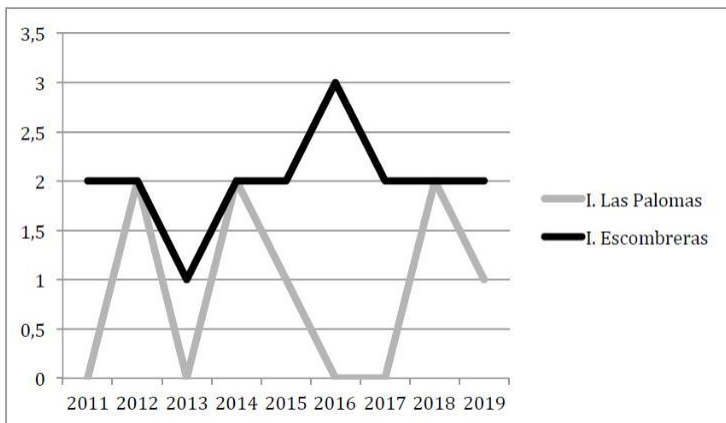


Chart on the breeding evolution of pairs of Peregrine falcons at Escombreras and Las Palomas Islands.



European turtle Dove female at Las Palomas Island (*Streptopelia turtur*) captured. Photo by Sergio Eguía

European shag's breeding population is increasing steadily in the surroundings of the port. In less than ten years, in those areas were there only one breeding pair, now there is an upward trend in terms of breeding parameters.



European shag (*Phalacrocorax aristotelis*) at Escombreras Island. Photo by Sergio Eguía



European shag chicks (*Phalacrocorax aristotelis*) ringed at Escombreras Island. Photo by Sergio Eguía



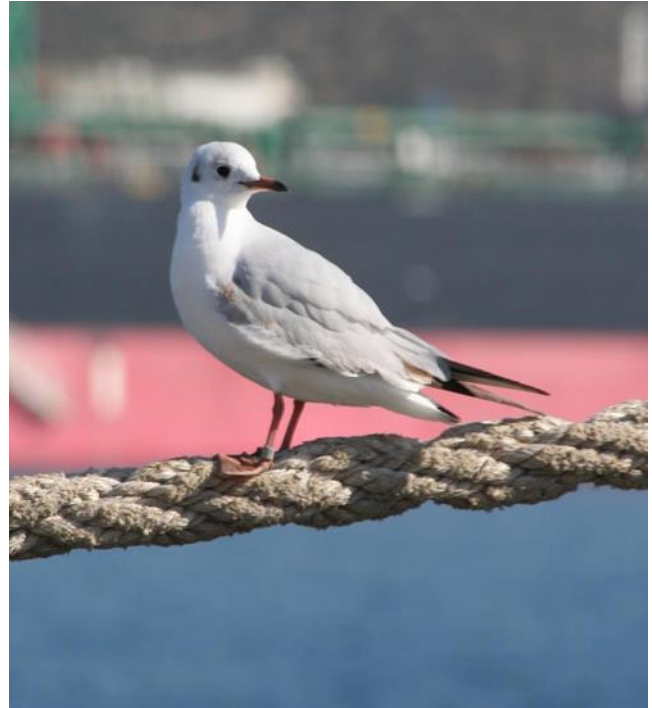
Sandwich terns (*Thalasseus sandvicensis*)



Lesser black-backed gull (*Larus fuscus*) and yellow-legged gulls at the background



Laughing seagull (breeding season) (*Chroicocephalus ridibundus*)



Black-headed gull (normal appearance)



Laughing seagulls (*Chroicocephalus ridibundus*) with black-legged terns and an Audouin's gulls

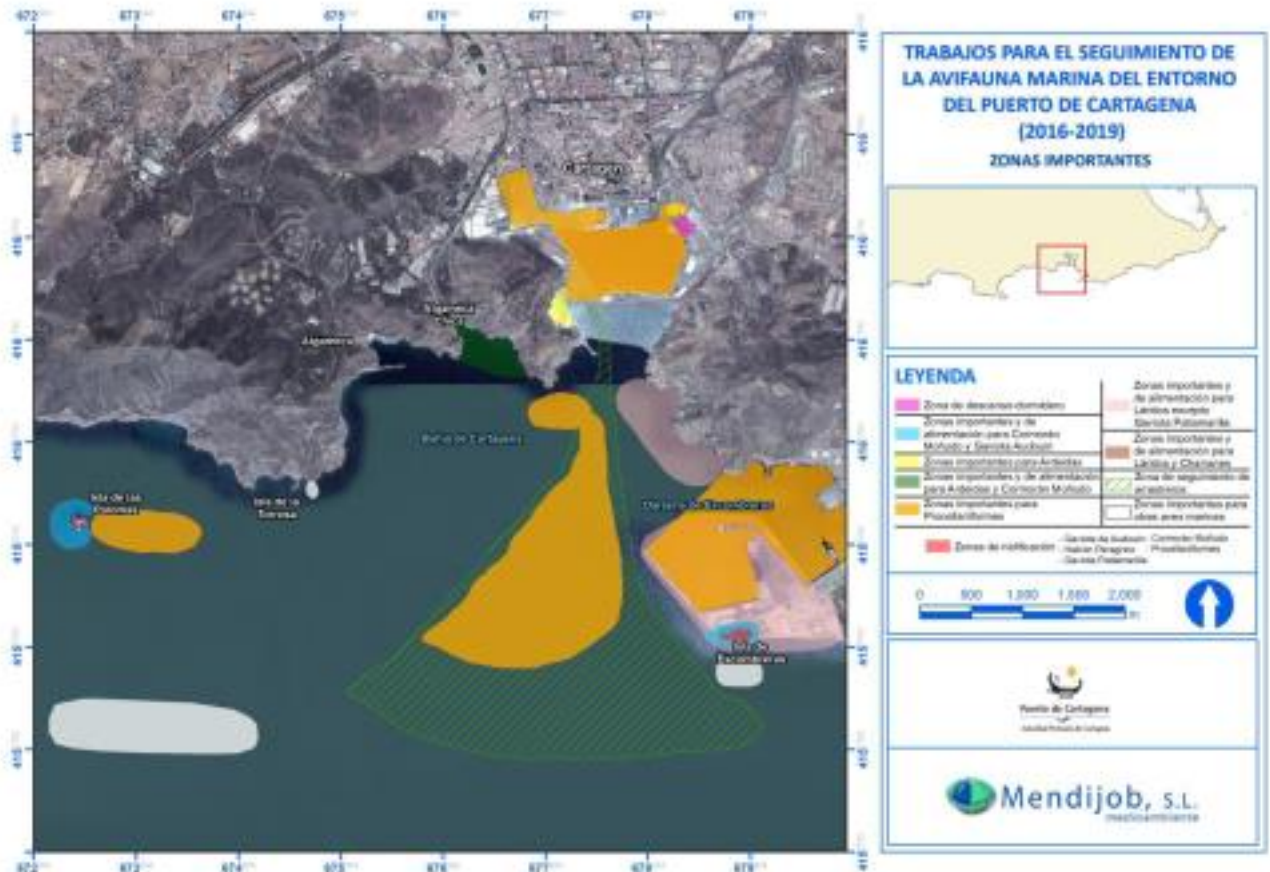
We would like to point out that, in August 2015, a port police patrol recorded an Eurasian Eagle-owl (*Bubo bubo*) hunting yellow-legged gulls at Escombreras's dock, which confirms the presence of this nocturnal raptor in the port's surroundings and in "Sierra de la Fausilla".



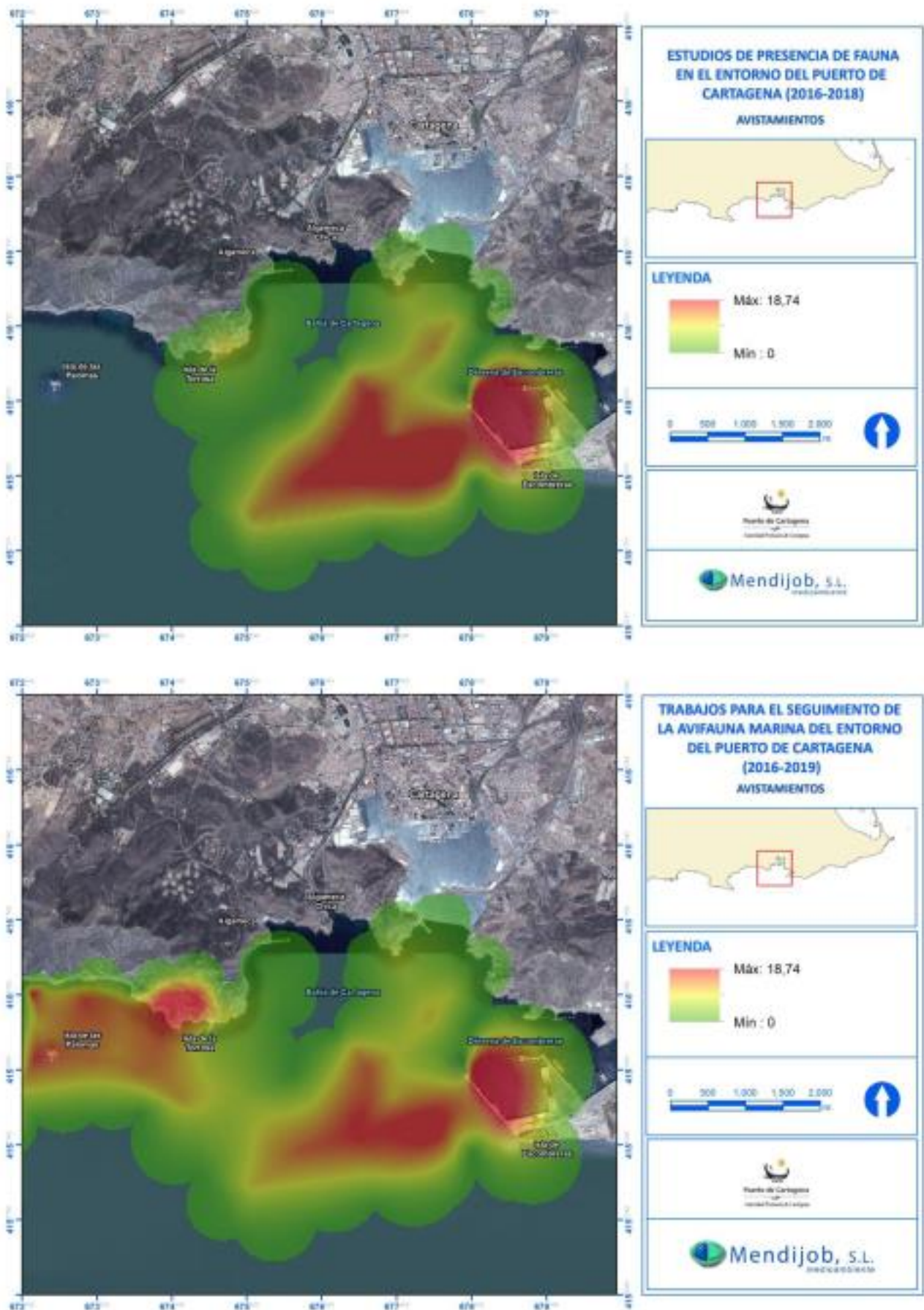
Picture taken on 08/08/15 by Miguel Ángel Rodríguez Bastida, Port Police Officer No 13.



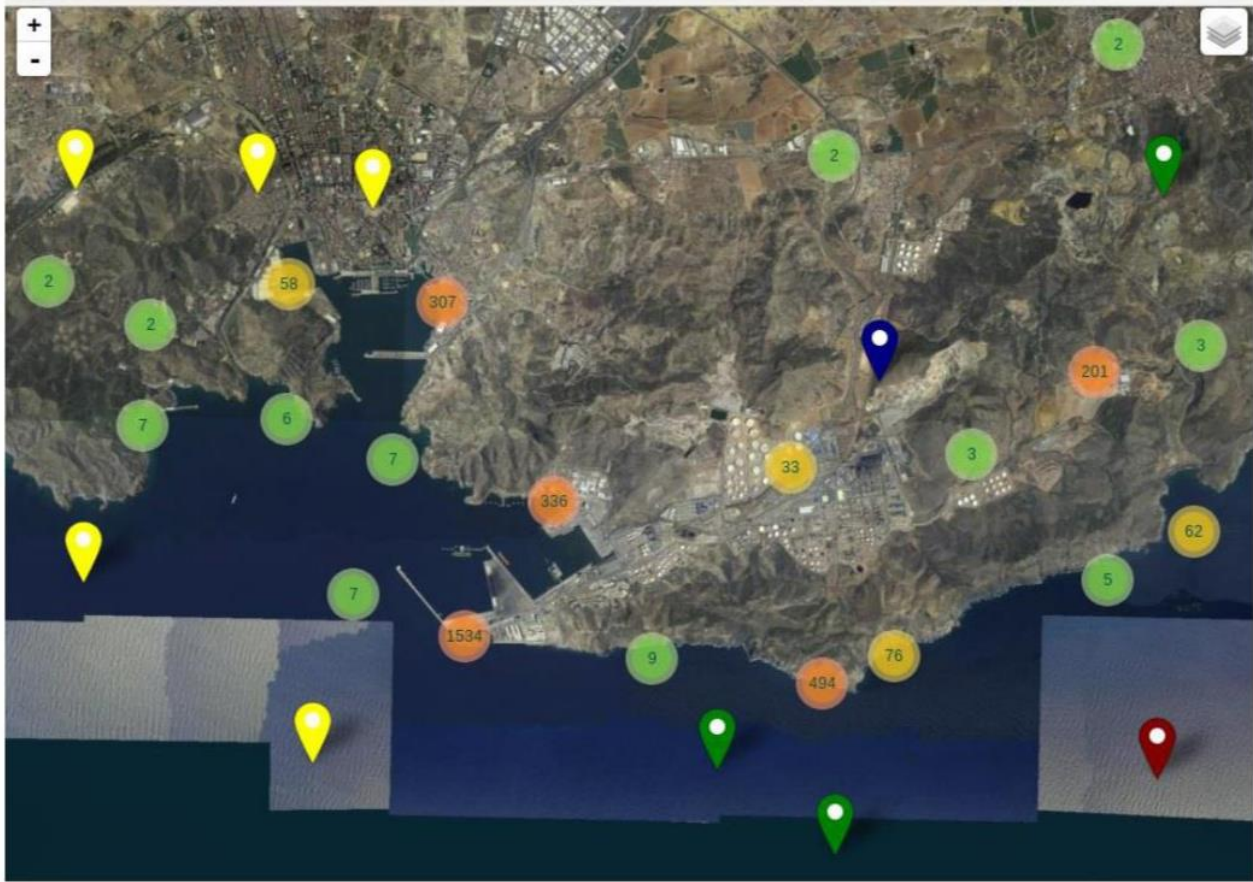
A common kestrel (*Falco tinunculus*) and hooded crow (*Corvus cornix*) at Escombreras's dock. The presence of three hooded crows was communicated to "Comité de Rarezas de SEO/birdlife" due to its unique sighting in eastern latitudes.



Plano d transectos de observación



Evolution of heat maps regarding sighting abundance, which kept increasing in 2019.



Movement distribution of yellow-legged gulls marked with GPS in 2018/2019

Without a doubt one of the greatest conclusions of this research in 2018 has been the capture and banding of three European storm petrels (*Hydrobates pelagicus melitensis*) at Escombreras Island on 05/16/2018. It was the first time this significant bird was registered in the island. For that purpose, 58 meters of Japanese nets were placed for some days from sunset until late at night.



Nets were placed intending to capture European storm petrels at Escombreras Island



European storm petrel (*Hydrobates pelagicus melitensis*). Photo by Jacinto Martínez

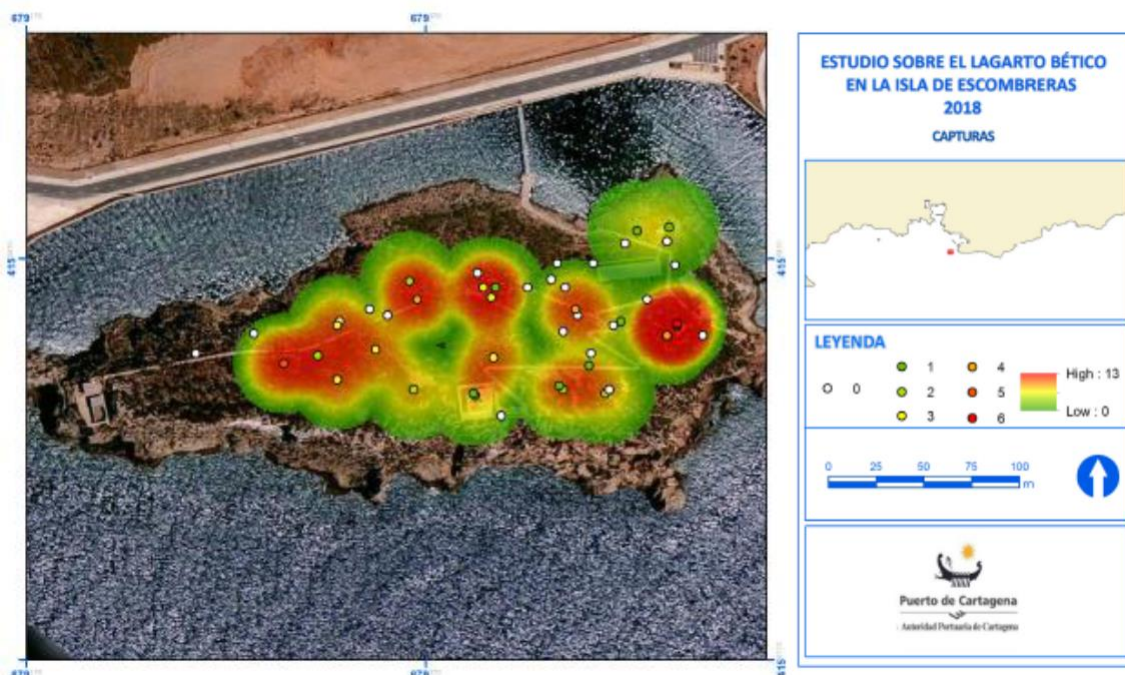
First European storm petrel banded at Escombreras Island. Its importance lies in the exploration of these birds around the island as breeding and calving point, which is foreseen to take place in the future, and encourages future researches on the island's avifauna.

Genetic research on jeweled lizards' population (*Timon lepidus nevadensis*) at Escombreras Island

Recent genetic researches have been developed to differentiate Lacerta and Timon lizards' genres. Those populations found in southern Spain might match to Timon Lepidus nevadensis (subspecies which has been hardly researched and whose conservation status is globally and nationally "almost threatened", according to IUCN, and could soon become "threatened" due to its restricted distribution area.

The abundance of this reptile at Escombreras Island (unique coastal island where lizards have been found), its morphology and apparent lack of resources around the island in order to protect that great population encouraged the Port Authority of Cartagena to commission a genetic research, whose purpose was to know about its origin, relationship, diet and long-term viability in the island.

The companies in charge were Mendijob, S.L., Arenariasur, and the University of Porto, together with the mandatory authorization by Dirección General del Medio Natural of the Region of Murcia. Along this research, 62 specimens were captured (38 were different, 21 females and 19 males).



Heat map, location of captures.

The definite DNA report is still pending to be received from the University of Porto.



The ocellated lizard (*Timon lepidus*) on Escombreras Island. Images by Jacinto Martínez and Sergio Eguía.

Yellow-legged Gull Population Control and Mazarrón's Lighthouse Sea Birds Monitoring

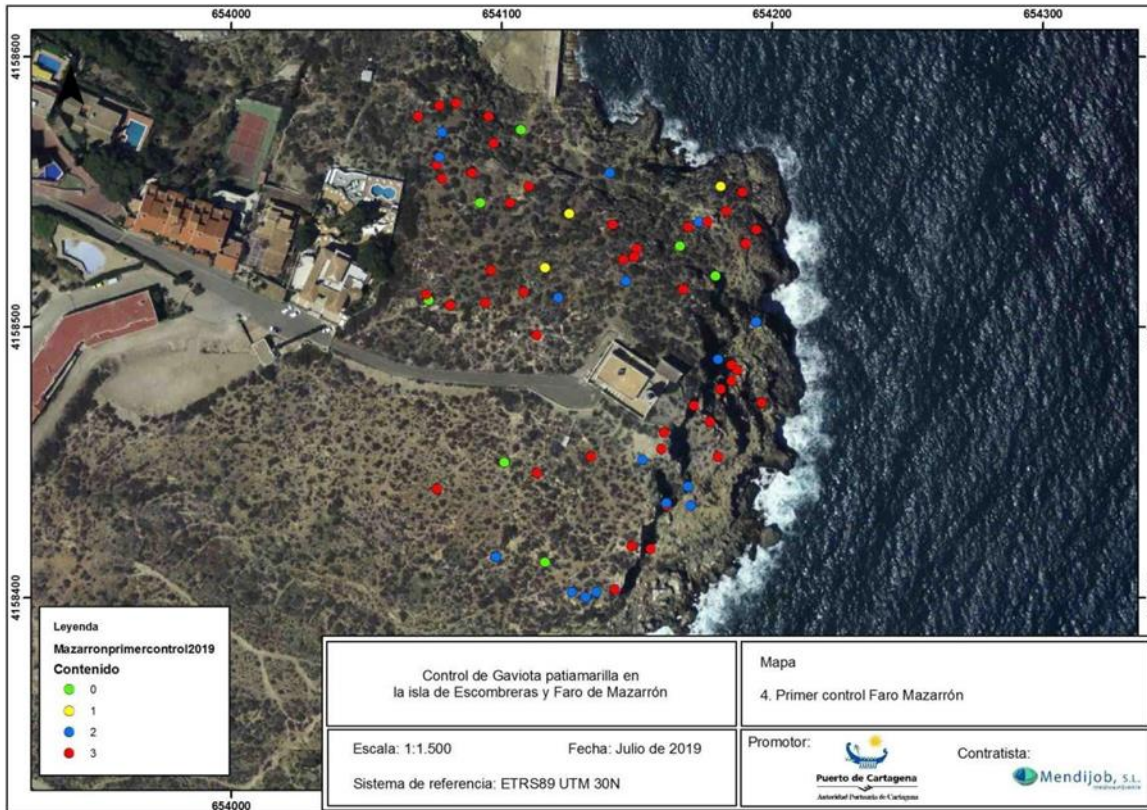
The maintenance and management of navigational aid is defined by Law as an exclusive competence of the port authorities. Mazarrón's Lighthouse, located at the top of a mound near the fishing port of the said locality, is part of the navigational aid provided by the Port Authority of Cartagena.

The Autonomous Government of Murcia authorized a control campaign to reduce the excessive population of Yellow-legged Gulls, as well as the preparation of a study on the presence in the area of other sea birds such as the Audouin's Gulls, Cory's Shearwaters, European Storm-petrels and Cormorants. Despite the fact that the said Authority did not allow the removal of specimens, during the period between March and July 2018, we were authorized to destroy 158 nests and to preserve 312 eggs, and prohibited from placing poison baits or removing adult specimens, because they were not included in the authorization the Autonomous Community provided.

The control campaign carried out on nesting pairs of Yellow-legged Gulls in Mazarrón's Lighthouse environment resulted in the gradual reduction of the colony. The space left by this species is being quickly colonized by new seagulls coming from nearby Isla de Mazarrón's and Isla Plana's islands. The main purpose of the control campaign was to move these nesting pairs beyond our coast.



Mazarrón's lighthouse and nests distribution within the first control in 2019



During the campaign, we could verify the presence in Mazarrón Bay of several protected birds of special value, such as the European Storm-petrels, Audouin's Gulls, European Shags and Cory's Shearwater. In 2017 we only detected Balearic Shearwaters specimens at the bay of Cartagena.



European storm petrel (*Hydrobates pelagicus melitensis*) at Mazarrón's bay. Photo by Sergio Eguía

Escombreras chamomile

Escombreras Island also harbors an endemic plant species that only exists in Cartagena's coasts: **the Escombreras Chamomile (*Anthemis chrysantha*)**. This small seasonal plant, which emerges with the first autumn rains and remains active until summer, is still present at Escombreras Island despite the strong competition from the rest of vegetation and the pressure from the great colony of Yellow-legged Gulls.

This species is classified as "critically endangered" in the "Atlas and Red Book of the Vascular Flora of Spain" (*Atlas y Libro Rojo de la Flora Vasculare de España*) - published by Bañares et al., in 2003, and as "endangered species" in the Regional Catalogue of Protected Wild Flora of the Region of Murcia (Decree 20/2003, published in regional official gazette 131). The Polytechnic University of Cartagena conducts periodic studies on the distribution and conservation status of this plant. These studies, together with the controls on the population of Yellow-legged Gulls and other species in the island, and the restricted access and permanent monitoring by the Port Authority of Cartagena, make this natural area one of the sites of the Region of Murcia with the best-preserved coast.

The Escombreras Chamomile has been declared Plant of the Year 2017 by the Spanish scientific dissemination website "*Los porqués de la naturaleza*" (whys and wherefores of nature).



Escombreras chamomile (*Anthemis chrysantha*) flowering at Escombreras Island

The Port Authority of Cartagena actively participates in the protection of this unique species. It provides financial support to the preservation project promoted by the Polytechnic University of Cartagena and the Ministry of Agriculture, Food and Environment and MAGRAMA.

During spring in 2020, three new chamomile's micro-reserves were made in order to protect and geolocate 152 feet of extension. Doing so, the survival of this species is ensured regarding any possible opportunist species coming out to prey them.

PROYECTO PARA LA CONSERVACIÓN DE LA MANZANILLA DE ESCOMBRERAS EN EL LITORAL DE LA REGIÓN DE MURCIA

Anthemis chrysantha



inicio / anthemis chrysantha / proyecto de conservación / eventos / publicaciones / redes sociales / galería / contacto



For further information on the protection measures taken on this specimen, please check:

- <https://custodiadelgarbancillo.es/2015/03/02/conservacion-de-la-manzanilla-de-escombreras/>
- http://www.abc.es/natural/ventana-biodiversidad/abci-estratega-manzanilla-escombreras-planta-2017-201612191247_noticia.html
- http://www.regmurcia.com/servlet/s.SI?sit=c.365.m,1050&r=ReP-30486-DETALLE_REPORTAJESABUELO



Chamomile's fee with protection

Sierra de la Fausilla Mountain Range: Reforestation of the quarry from which the material for the Escombreras's dock's extension was extracted.

The works to reforest the quarry used for the extraction of aggregates and stone for the expansion works of Escombreras's dock took place in 2007 over a 7.48 hectares surface. For this purpose, we observed the guidelines set for by the Polytechnic University of Cartagena.

We planted native species, which favors a quick integration into the environment. The predominant species planted are the Aleppo Pine, the European Fan Palm, and the Cartagena Cypress (*Tetraclinis articulata*), as well as other species of lower category, such as Fennel, Goji berries, Ziziphus Lotus, Asteriscus Maritimus and Caper Bushes.

In 2018 the same company specialized in the maintenance of the area is still in charge. The said maintenance included the improvement of the forest area, phytosanitary treatments, shape pruning, weeding, tree pits placement and preventive phytosanitary treatments against the processionary moth pest.

This year, in addition to the usual treatment applied to eliminate the processionary caterpillar, actions have been taken to eliminate the "Tomicus", a small perforating insect that had begun to affect some pines. New anti-rabbit fences have also been put in place and relief irrigation has been carried out in the summer to mitigate, partly, the extreme drought in the area. In this sense, it should be pointed out that since the plantation was carried out it has only been artificially irrigated twice in 12 years, achieving a complete adaptation to the environmental conditions of the area.



Reforestation status in 2011

Status in summer 2013



Reforestation status in spring 2019

Along 2019, adequacy, consolidation and reforestation work in different areas in Punta Aguilones several landslides and danger of collapse were completed. For that purpose, these actions are focused on both the consolidation of geological structures around the mountain and the plantation of more than 8.000 species of indigenous bushes such as Tetraclinis articulate (Cypress in Cartagena), entrances adequacy, signaling, safety fence and irrigation systems budgeted at €2.000.000.



Slopes consolidation and plantation



Top-platforms' plantation



Slope plantation

Adaptation and signposting of the Aguilones Battery's path

With regard to the reforestation and adaptation of the *Sierra de la Fausilla* mountain range (SCI ES6200025 and SPA ES0000193) carried out in 2017, we would like to point out that the objectives of the Port Authority are the adaptation, signposting and enhancement of the path that leads to the Aguilones and Conejos Military Batteries, both declared SCI and located within an area with high natural values.

The Aguilones Battery, built between 1929 and 1933 and located in the Sierra de la Fausilla SPA, has been declared an Asset of Cultural Interest since 1997. This is one of the 24 military constructions that formed the line of defence of the Cartagena Naval Base that currently has no use whatsoever and is freely accessible to enjoy the excellent views of the port and the natural spaces that surround it.

New actions are also being developed to adapt spaces for public use, such as tree planting, in order to facilitate the use of these spaces for society and meet the needs of collectives and associations that demand us to be able to better enjoy the port environment.



Path leading to Aguilones' Military Battery at Sierra de la Fausilla by the port.

After this area's adequacy, reforestation and signaling, a new leisure space to enjoy the nature for all citizens has been opened. This way, all people will safely walk and know about the values of nature in Sierra de la Fausilla and the port natural environment at Escombreras's dock.

Carabineros path departs from this place, between Escombreras and El Gorguel which conformed the GR-92 until a few years ago. It is foreseen to be renovated and signaled to adapt one of the greatest paths on the Mediterranean coast.



Panels at the parking area at the beginning of Aguilones' path



Photo from Carabineros route to the military fortresses on Conejos and Aguilones' coast.

Study of biological communities on the seabed in front of Calacortina

The purpose of this study, commissioned to the environmental consultant C&C Medio Ambiente and the University of Murcia, was to learn about marine biodiversity, the possible existence of species and areas of the seabed suitable for possible pilot experiences of environmental restoration and also to check the presence of interesting species that could act as carbon sinks.

Six bionomic transects were performed (2017) from 5m to 15m, obtaining the following result:

- ✓ Location of a living individual of the *Pinna rudis* (*Nacra*) mollusc, different from the common *Nacra*
- ✓ Location of invasive species named *Asparagopsis taxiformis*, spread along the entire coastline
- ✓ Abundance of dead Bush of *Posidonia Oceánica*
- ✓ Areas with a good state of conservation that makes visible the planting of species such as *Posidonia oceánica* or *Cymodocea nodosa* as carbon sinks
- ✓ Benthic communities with high biodiversity, taking into account that they are in a port environment



Invasive seaweeds *Asparagopsis taxiformis*



Specimen of *Pinna rudis*, in front of Calacortina, 10m. depth

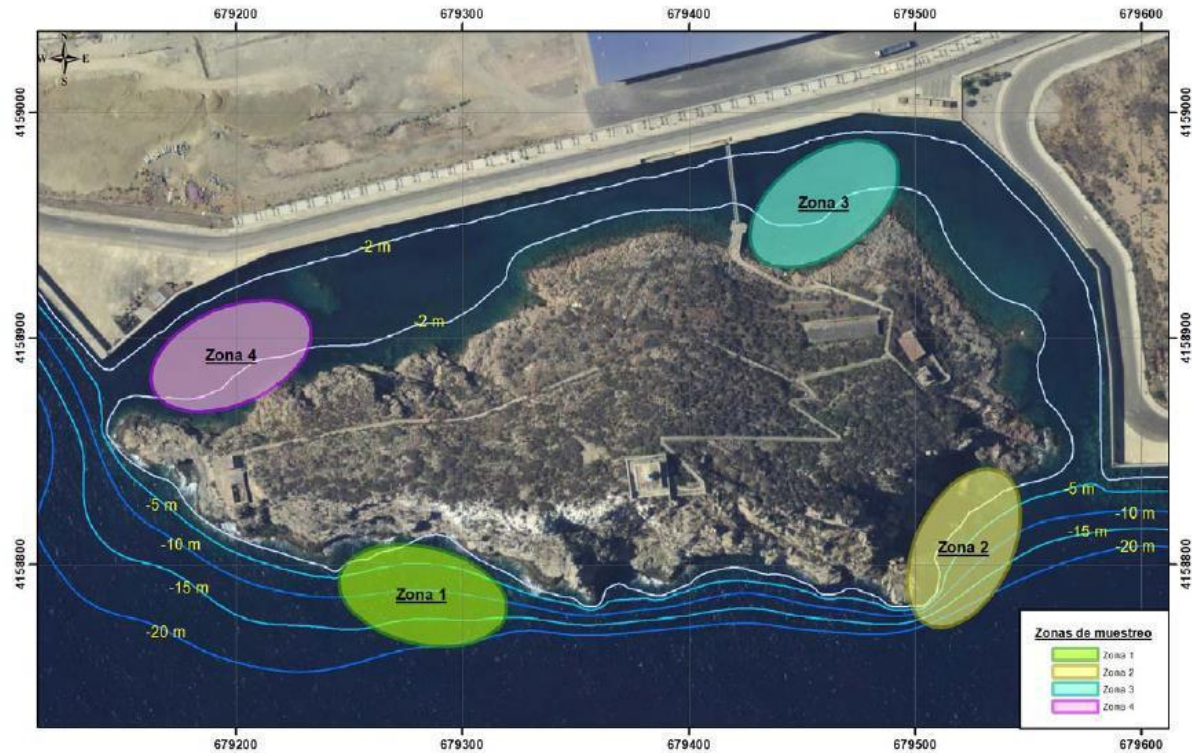


Oculina patagónica specimen in the middle of *Ellisolandia elongata*, 4 m. depth

Study on the biological communities at Escombreras Island's sea bottom

This study was developed in 2019 by C&C Medio Ambiente together with the University of Murcia. It was mainly aimed at meeting the marine biodiversity, and also the presence of species with a high ecological value used as carbon sinks, and the presence of invasive species. In other words, it is aimed at meeting the conservation status of the marine ecosystem related to that adjacent area.

This study was stated in accordance with objectives 13 and 14 among the SDO, whose main purpose is to fight climate change and its effects, and also preserve and use oceans, seas and marine resources sustainably.



Research areas' delimitation

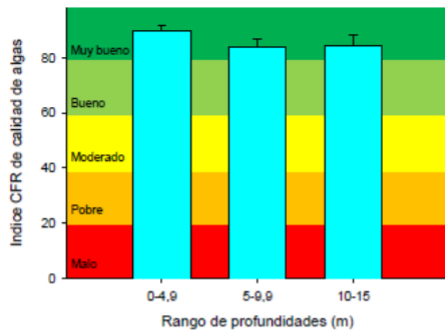


Figura 5. Índice CFR de calidad de las comunidades algales en la zona de estudio 2. Las barras muestran el valor medio \pm la desviación estándar.

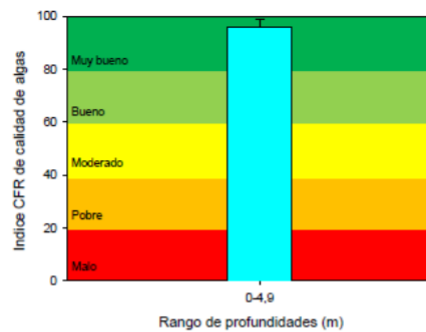


Figura 6. Índice CFR de calidad de las comunidades algales en la zona de estudio 3. Las barras muestran el valor medio \pm la desviación estándar.

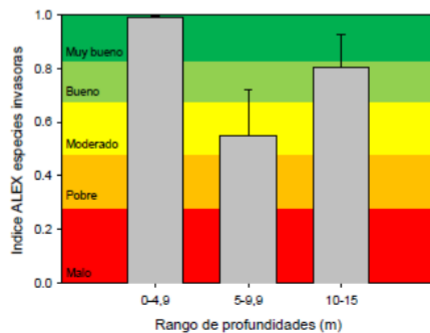


Figura 8. Índice de especies invasoras ALEX_{EQR} en la zona de estudio 1. Las barras muestran el valor medio \pm la desviación estándar.

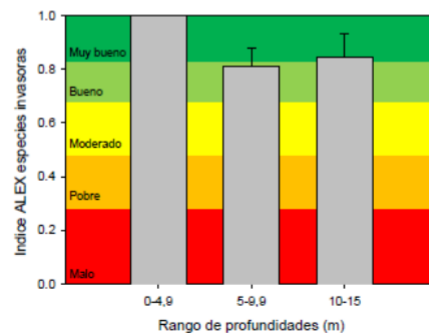


Figura 10. Índice de especies invasoras ALEX_{EQR} en la zona de estudio 2. Las barras muestran el valor medio \pm la desviación estándar.

Examples of the results shown by all the calculations of algal communities' quality and ALEX index on invasive species.



Foto 7. Estrella roja *Echinaster sepositus* en la franja batimétrica de 5-9,9 m del área de estudio 1.

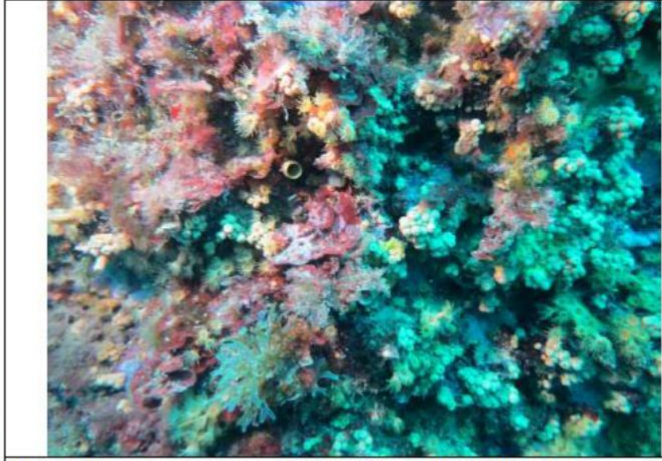


Foto 21. En las paredes más verticales se localiza el hábitat roca infralitoral de modo calmo, escasamente iluminada, dominada por invertebrados (Estación 2; Rango profundidad 10-15 m).



Foto 8. Presencia de opistobranquios (mancha azul) en la franja batimétrica de 5-9,9 m del área de estudio 1.



Foto 22. Coral estrellado *Astroidez calycularis* con la estrella roja *Echinaster sepositus* (Estación 2; Rango profundidad 10-15 m).

This study's conclusions show that the area presents high biodiversity to be that close to the port. It makes us think that the constant port traffic does not represent any serious damage to this ecosystem.

Quality levels in algal communities is good or very good in all areas. The level of invasive species represents good or very good parameters, except for areas 1 and 4, where *Asparagopsis taxiformis* can be found.

Areas 1 and 2 are the most representative ones in terms of species receiving carbon. This fact makes the carbon footprint improve at the port.

10 Emergency situations response

The complexity of the port and the wide variety of companies installed within it makes it necessary to assess the possible risks that could arise from any incidental situation, as well as the procedures to be followed in each case. For this purpose, we have an Internal Emergency Plan (fifth revision made on March 5th, 2007), which includes the corresponding Safety Study, which is currently being revised, and a Maritime Interior Plan (PIM) that replaces the Contingency Plan for Accidental Marine Contamination (PICCMA) (completed and approved in 2016). The PICCMA plan became the Maritime Interior Plan (PIM) when Royal Decree 1695/2012 on the National Marine Pollution Emergency Response was passed on December 21. Our Internal Emergency Plan (PEI) is coordinated with the Chemical Industry External Emergency Plan (PLANQUIES) implemented at Escombreras Valley.

In order to have a quick and effective response to any incident, in 2000 we signed an agreement with the Fire-Fighting and Rescue Service (SEIS) of the local government of Cartagena. Thanks to this 10-year term Agreement, the Fire-Fighting and Rescue Service (SEIS) has been integrated into the Intervention Group included in our Internal Emergency Plan (PEI), and assists the Port Authority in carrying out reports on fire safety and conducting inspections of facilities and fire protection systems, when required.

Likewise, subject to the said Agreement, the Port Authority of Cartagena provided the Fire-Fighting and Rescue Service (SEIS) with new equipment and tools, and trained its staff on Fire Fighting Techniques on Vessels. The €600,000 provided under this agreement was distributed as follows: €480,000 to acquire two special Vacuum Trucks and one vacuum trailer, and €120,000 for training courses on Fire-Fighting on Vessels for the Staff Service (courses were held at the Jovellanos Center in Gijón).

This Agreement has been renewed with a new financial envelope. This allows the Port Authority of Cartagena to keep a closer technical collaboration with the Fire-Fighting and Rescue Service (SEIS), which raises the safety level of the Port's Service Zone and ensures a permanent fire extinguishing service specialized in port risks.

Within the framework of this Agreement, on June 27, 2010, the Cartagena Port Authority handed over to the Fire-Fighting and Rescue Service (SEIS) a new urban vacuum truck. This vehicle stands out for its versatility and operability and is made of a new plastic material called "ecopolyfire" that provides lightness and a good resistance to blows, deformations and corrosion as main features. This new urban vacuum truck can be easily repaired, has a flexible distribution of compartments and is 100% recyclable.

In 2016, we acquired a four-wheel drive Toyota vehicle adapted to the needs of our fire brigade. In 2017, a new lightweight self-pump vehicle is scheduled to be delivered.



Last vehicle delivered to the Fire Fighting Department of Cartagena as part of the First Intervention equipment of the port

Responsiveness is evaluated each year by performing drills and periodic exercises.

On May 05th, 2018, a simulation of the Maritime Internal Plan (PIM) was carried out. It consisted in simulating a fire on a ship anchored with transport of phenol and a spill into the sea. The simulation was possible thanks to the collaboration of the Spanish Navy, the Red Cross, Mooring Services Providers and Tug-operators, the National Maritime Rescue Service, Pelicam, the Maritime Authority, the Fire Brigade, the Emergency Service of the Region of Murcia (112), and companies like SGS, Tecnos, Ecolmare and, of course, the Port Authority of Cartagena.

Emergency Mobile Unit carried out a drill called "Region of Murcia 2018" where the port took active part on 04/25/2018 http://www.ume.mde.es/Galerias/Descargas/RED_350.pdf

In 2019, we have also participated in some activities developed by MARSEC 2019, in one of its scenarios where they simulated an emergency drill, and a diving activity in polluted waters, together with a leakage of fuel in a vessel, what made necessary the activation of the self-protection plan. <https://www.defensa.com/espana/doce-puntos-costa-espanola-escenarios-ejercicio-seguridad-marsec>

During 2019, we also carried out the two usual exercises of deployment and placement of anti-pollution barrier in Cala Cortina Beach. The barrier is usually placed in June and retired in late September. This drill was performed by personnel from the Port Authority of Cartagena, together with the National Maritime Rescue Service (with the "Salvamar Mimosa" vessel) and external contractor staff.



Barriers deployment at an oil terminal



Drill by Marsec 05/15/2018



Drill by Marsec 05/08/2019

Our Control Centre, located within the Local Centre of the National Maritime Rescue Service, coordinates all actions in case of emergency and is operational 24 hours, 365 days a year. This Control Centre is fitted with:

- Fixed and mobile telephone communication systems, and terrestrial and marine radio stations.
- Closed circuit surveillance systems with 48 cameras and simultaneous recording.
- Automatic detection system of presence, fire and gases in certain areas.
- Computerized access control system with automatic number plate readers and access cards.
- Fiber optic network for transferring information and data between all premises of both docks.
- Real-time measurement system for air pollutants and meteorological data.
- PA system in the Dry Bulk Terminal.
- Control by traffic lights of the tunnels of the service road between Santa Lucía District and Escombreras's dock.

In 2015, we completely renewed our Control Centre by updating its equipment, changing the surveillance and communication systems, switching from analogue to digital systems and bringing up to date all systems.

We carried out improvement works on the tunnels of the service road between Cartagena's dock and Escombreras's dock. We enhanced their security system and adapted them to the requirements set for by Royal Decree 635/2006 on the minimum safety requirements for State Roads and Tunnels.

In 2017 the safety elements of the tunnels and service road were renewed.

In order to improve safe navigation, as well as the control and identification of the ships and vessels that navigate in the port waters, or in nearby waters, we installed an Automatic Identification System (AIS) of ships, which we have been able to integrate in the State Ports AIS network and in the AIS-Live Worldwide network.

The section of the perimeter fence enclosure that runs along the access road to the Liquid Bulk Terminals, the Multipurpose Quay and the railway access at Escombreras's dock has been completed.

The number of CCTV cameras has been increased: one has been installed in tunnels to facilitate the reading of vehicle license plates, another has been installed in the "Podadera" and several more along the section of the aforementioned perimeter fence.



APCT's barriers deployment exercise

Emergencies in 2019

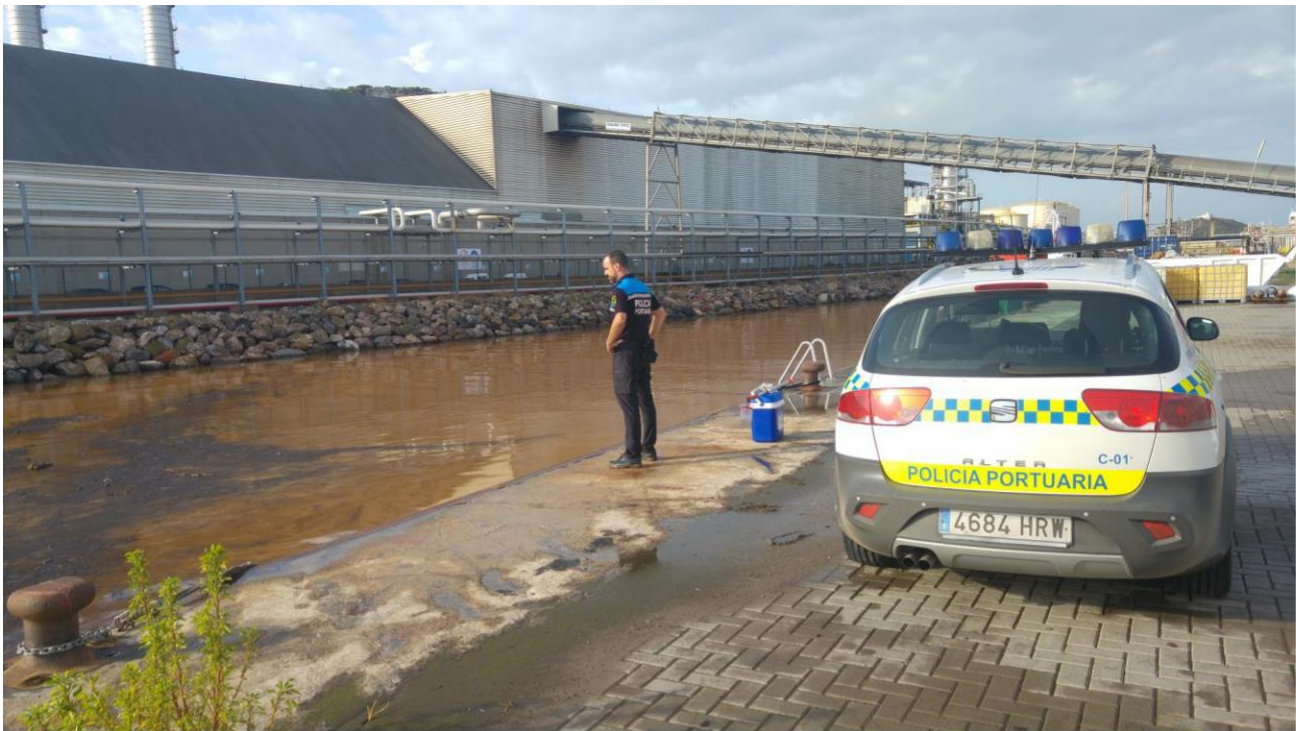
There have been seven activation of the Maritime Interior Plan (PIM):

- Four diesel spills from uncertain origin located in underwater
- Two operational spills in the sea of slight significance
- One spill from El Fangal's riverbed caused by storms

And four activations of the International Emergency Plan (PEI):

- One fire at FFCC's railway works
- One occupational accident among land staff during some works on a vessel in S. Lucía

- One occupational risk on board
- One leakage of Cemesa while returning back from anchoring-provision services



Spills of polluted material and reeds at the dock on September 13th, 2019 caused by heavy storms. This spill was dammed at the end of EL Fnagal's riverbed, and removed without significant consequences thanks to those anti-pollution barriers placed at Repsol's surroundings.

Bonuses given to vessels for good environmental practices during 2019

Throughout 2019, the Port Authority of Cartagena received 312 requests for bonuses for vessel's capacity to encourage good environmental practices and good waste management. Out of these applications, 263 were approved and 62 were denied for the lack of documentation or because port operations were not included in the scope of their ISO 14001.

Along 2019, no exemption certificates were granted by the Maritime Captainty of Cartagena for the undelivered waste from vessels, in accordance with Ministerial Order 1392/2004 of May 13th, regarding the granting of exemptions under Article 9 of Royal Decree 1381/2002 of December 20th on port reception facilities for ship-generated waste and cargo residues.

These exemption certificates were related to oily waste and were granted pursuant to Section 10.4 of Ministerial Order 1392/2004. In some cases, the aforementioned bonuses may be 3% of the vessel's capacity and are granted when the vessels comply with the provisions of section 27.5 of Act 48/2003 and with the Second Temporary Provision of the FOM/818/2004 order passed by the Ministry of Public Works and Transport on the application of port taxes. In addition, it is necessary to have a UNE-EN ISO 14001/2004 Certification and an environmental liability insurance against accidental spills. In other cases, such bonuses are granted under section 80.10 B) of Act 48/2003 substituted by Act 33/2010, and consist of 50% of the waste disposal levy. To receive the said bonus, vessels must have discharged its waste in the previous port and have paid its corresponding levy.

A new risk map at the liquid bulk terminal at Escombreras's dock was made in order to describe all those operations carried out by concessionary companies at the terminal. It was also aimed at identifying hazardous substances found and their risk features, together with compiling all the representative scenarios for each company. It also includes a layout where all the mapping, and pipe content and loading arms around the terminal are represented. Doing so, we have compiled in just one document all the necessary information related to this subject area's potential risks arising from the presence of hazardous substances.

In relation to the control of possible risks and incidents related to safety, prevention or the environment, 89 preventive newsletters have been processed. During 2018, a total of 12 companies have also been certified in order to train them to work with the Port Authority. The total number of companies that have obtained this certification is 169. This validation guarantees that these companies comply with all labor legal requirements in the prevention of labor risks.

11

Training and communication

During 2019, we continued our ongoing training activities, which included courses related to safety, prevention and the environment.

Within the Training Plan, 14 internal training actions have been carried out for the development of competency-based management. It was attended by 154 workers for a total of 2.647 hours.

Summary of the total number of training actions carried out:

| TRAINING COURSES 2018 | HOURS | No OF WORKERS | TOTAL HOURS |
|--|------------|---------------|--------------|
| FORKLIFT TRUCKS | 6 | 4 | 24 |
| CONFINED SPACES | 6 | 5 | 30 |
| FIRE FIGHTING | 6 | 1 | 6 |
| ECONOMIC AND FINANCIAL MANAGEMENT | 11 | 1 | 11 |
| ENVIRONMENT (LEVEL 1) | 15 | 22 | 330 |
| PORT REGULATIONS (LEVEL 1) | 16 | 2 | 32 |
| PORT OPERATIONS AND SERVICES (LEVEL 1) | 16 | 25 | 400 |
| PORT POLICE RECYCLING | 30 | 52 | 1.560 |
| DEFIBRILLATORS | 4 | 25 | 100 |
| LABOUR RISK PREVENTION (LEVEL 1) | 16 | 2 | 32 |
| ELECTRIC RISKS | 6 | 7 | 42 |
| PORT SECTOR AND STRATEGY (LEVEL 1) | 16 | 1 | 16 |
| INDUSTRIAL SAFETY (LEVEL 1) | 16 | 1 | 16 |
| HEIGHT WORKS | 8 | 6 | 48 |
| TOTAL | 172 | 154 | 2.647 |

For further information on environmental aspects and on broader issues related to the Port of Cartagena, please check: www.apc.es.

You can also check the latest news on the port activities at "Boletín Dársenas", the official gazette of the Port Authority of Cartagena available on our website every month.

Our Annual Report and Services Guide, which is published every two years, provide supplementary public information on the port's activities.

Our "Internal Newsletter" is our most recent communication channel to report on the latest news on a monthly basis. It provides public information on the different work centres of the port and the various functions of its workers. This newsletter includes a section on healthy living in line with the company's objective of encouraging physical and psychological improvement of the workforce.



dársenas
 BOLETÍN INFORMATIVO DE LA **AUTORIDAD PORTUARIA DE CARTAGENA**

Boletín N° 108 Septiembre / Octubre

Cartagena primer puerto europeo en exportación de animales vivos.
 En los últimos años, las exportaciones de ganado vivo han aumentado de forma exponencial en el Puerto de Cartagena, multiplicándose por 25 desde 2010, año de inicio de este tráfico con 22.000 cabezas.
[Seguir leyendo >](#)

El Puerto de Cartagena despliega una importante actividad comercial.
 El pasado mes de julio la Autoridad Portuaria de Cartagena, participó en la Asamblea General de MEDPorts Association, celebrada en Marsella. MEDPorts reúne a los 25 puertos más importantes del mundo.
[Seguir leyendo >](#)

La APC sede de la jornada anual de la Asociación Española de Tráfico a corta distancia.
 El próximo 20 de noviembre la Asociación Española de Promoción del Transporte Marítimo de Corta Distancia celebra su Conferencia Anual 2019 en Cartagena con:
[Seguir leyendo >](#)

PUERTO RESPONSABLE ESPACIO RSC

La APC nominada a los premios EMAS por su compromiso ambiental.
 La Autoridad Portuaria de Cartagena, que ostenta la Presidencia del Club EMAS de la región de Murcia, está nominada a los premios EMAS por su compromiso ambiental.
[Seguir leyendo >](#)



614.812 visits

2.840 views

6.896 followers



12.694 followers

2.545 followers



In order to address the issues related to requests for information, complaints and suggestions, the Port Authority of Cartagena has a Customer Service. It is a direct means of communication between the Port of Cartagena and its clients that coordinates the activities necessary to give an effective response to such requests for information, complaints and suggestions received.

During 2019, we received 344 queries, of which 2676 were requests for information, followed by 23 complaints, 5 claims, 3 data collection enquiries, and 7 suggestions.

As for "Consultations According to Reception Media", the most used means during 2019 was e-mail with 51% of queries, followed by 45% of website queries.

In 2018, 3 complaints, 1 suggestion and 10 information requests environmentally- related were handled. Most of the requests are related to potable water quality control tests and complaints were based on soiling episodes at El Portús beach since neighbors attribute them to mooring vessels. Likewise, the website of the Port Authority of Cartagena received 614.812 visits throughout the year, with a daily average of 1.684 visits.

Please, contact our Customer Service Centre through the following means: Website: www.apc.es

E-mail: sac@apc.es

Electronic site: <https://sede.apc.gob.es/sede.electronica>

By phone: +34 900 777 200 and +34 968 325800

By fax: +34 968 325815

You can also find us in Facebook, Twitter and YouTube.

In person, at:

Former Yacht Club of Cartagena,
Plaza Héroes de Cavite s/n, 30201
Cartagena - Murcia



Customer Service headquarters. The background of the picture shows the Military Arsenal, the Naval Museum, the Polytechnic University of Cartagena and the Port Authority's Headquarters.



835 students from 27 schools visited our facilities, together with 123 people belonging to several cultural, economic or institutional groups to get to know our work and all infrastructures found at the port.

Along 2019, 116 public activities were authorized, 221 days of occupancy at the port (land and sea).

12

EMAS Club - Region de Murcia

On December 9, 2009, the celebration of the Region of Murcia EMAS Club founding took place at the Events Hall of the University, Companies and Innovation Department of the Autonomous Government of Murcia. The event was chaired by Mr Francisco José Puche Forte, General Director of the Industry, Energy and Mining Department of the Autonomous Government of Murcia, the EMAS Club's foundation ceremony in the Region of Murcia.

The purpose of this new non-profit association is to contribute to the continuous improvement of the environmental performance of organizations and society in general, as well as to promote the dissemination of EMAS (Eco-Management and Audit Scheme, Regulation [EC] 1221/2009), collaborate with the different administrations for the development of initiatives and contribute positively to the regional economy.

Industrial companies, SMEs, administrations and organizations of all kinds can join this association. The only requirement is that they are entered in the EMAS register, a recognition that distinguishes leading and excellent organizations in their environmental management. The official headquarters of the association is located at the building of the former "Cartagena Yacht Club". The Port Authority of Cartagena was unanimously selected President of the EMAS Club by its members.

One of the main activities of the EMAS CLUB is to disseminate the European Community Eco-Management and Audit Scheme (EMAS) and to share the experiences and best practices carried out over the years by EMAS-accredited companies, benefiting from these synergies and history combined.

For this purpose, the EMAS club has active profiles in social networks and a website where it collects the main news of interest. For further information on the companies affiliated to the EMAS Club, please check <https://www.clubemas-rm.org>. Likewise, a specific section has been set up within this website for companies that so wish to share their EMAS reports.

The following organizations are member of the EMAS club: Port Authority of Cartagena, Fruca Marketing, Laboratorios Munuera, Fosfatos de Cartagena (Timab Ibérica), Cartago Marpol, Cadagua, and Ership.

During 2018, the EMAS CLUB of the Region of Murcia carried out activities to promote environmental responsibility. These activities exposed the experiences and best practices that all companies adhered to the EMAS register have been implementing over the years. Please, find below the most outstanding activities held by the EMAS Club in the Region of Murcia:

- ✓ Participation in the World Summit Meeting on Climate Change (COP25) in Murcia
- ✓ Participation in mitigation sessions on climate change in Cartagena
- ✓ Participation in SDO meeting organized by La Verdad on November 20th, 2020
- ✓ Participation in the drafting on Circular Economy as a Spanish Strategy
- ✓ Participation in the drafting on Circular Economy as a Spanish Strategy
- ✓ The two "coffees for the environment" events with Ecoembes professionals due to the World Environment Day, and with member of the Companies' Environment Association of Murcia (AEMA)



Environment coffee on May 17, 2019

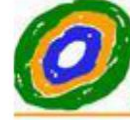
EMAS club - Region de Murcia
Address: Plaza Héroes de Cavite, s/n
30201 Cartagena
Web: www.clubemas-rm.org
E-mail: presidente@clubemas-rm.org



Puerto de Cartagena



Ership



CARTAGO MARPOL, S.L.
EMPRESA MARPOL AUTORIZADA
GESTOR DE RESIDUOS PELIGROSOS Y NO PELIGROSOS



cadagua



Passenger services provided by EMAS companies at the cruise terminal



Multipurpose terminal at Escombreras' enlargement, wind energy operation

Blazquez and Ership shipping agencies are two great examples that prove how the Port Community of Cartagena is embracing the journey to better competitiveness, environmental management and image through the voluntary adherence to EMAS registry, driven by the Port Authority of Cartagena.

13

RSC – Inter-university chairs - acknowledgements

With regard to the Environment, the Environment Committee is the main communication and participation means open to the entire Port Community and is represented by concession companies, cargo-handling companies, agencies and port workers.

On November 21, 2019, the Environment Committee held a meeting in order to deal with the following matters:

- 1- Previous minutes' Reading and approval
- 2.- Sustainability report 2018
- 3.- 2018 EMAS APC Environmental statement
- 4.- Objectives and Goals report and Status for 2019/2020
- 5.- 2019 EMAS AWARDS nomination to the port
- 6.- Current environmental actions, future projects

The environment committee plays an effective role regarding communication and consultancy between users and body composing the port community.

Main actions on Social Corporate Responsibility:

- ✓ Within the framework of the "Inter-University Chair of Environment Port Authority of Cartagena- Campus Mare Nostrum", organized with the Universities of Murcia (UMU) and Polytechnic of Cartagena (UPCT), 4 scholarships were announced for end-of-degree and end-of-master studies. This Chair of Environment, organized in collaboration with the universities of Murcia (UMU) and Polytechnic of Cartagena (UPCT), aims to establish a permanent structure of collaboration between these institutions and the Port Authority in research and development projects related to environmental improvement.
- ✓ The Port Authority and UCAM comprise the APC-UCAM International Chair on Social Corporate Responsibility, which will be boosted among businesses, clients, and local authorities that work on the development of social responsibility strategies as part of their actions. Furthermore, it will promote new initiatives in order to benefit both the sustainability and life quality in this geographic environment such as Santa Lucia neighborhood with the momentum project.
- ✓ IV charity race "Puerto de Cartagena" to the benefits of the Spanish Association against Cancer.



IV 10K charity race Port of Cartagena

- ✓ Firm commitment to introduce Sustainable Development Goals, working on identifying and prioritizing those objectives on which the port has more influence in order to achieve a positive impact on society and accomplishment global goals before 2030.
- ✓ Project implementation in Santa Lucia together with Factoria Cultural searching for five innovative ideas which improve, revitalize and incorporate this neighborhood and its environment through summoning an ideas competition. Commitment to achieving innovative solutions providing mobility between Santa Lucia and the Port, art interventions appealing to people or technologies boosting the users' experiences are just some of the challenges all participants will have to face.

Puerto de Cartagena
 Autoridad Portuaria de Cartagena

**EL PUERTO
 IMPULSA A LOS
 VALIENTES**

Programas de activación laboral y la
 reinserción en el sistema educativo en el
 barrio de Santa Lucia

#PuertoDeValientes



- ✓ Project start-up, supported by Obra Social La Caixa in order to foster employment among the youth in Santa Lucia (Cartagena). This project lies on five key points to work activation and personal growth. Participants will be expected to improve their labor opportunities through identifying and encouraging their skills, boosting their commitment and motivation levels. Along this process, participants will be helped by several professionals focusing on their labor future by employing a defined strategy according to their preferences and objectives.
- ✓ Open visits to Cabo de Palos's lighthouse



Cabo de Palos's Lighthouse

- ✓ World Environment Day. We educate students from Maristas Cartagena School on SDO, providing information on what they are, and afterwards, focusing on most present at the port. As an example, they were able to know about an activity carried out with José M^a Lapuerta's students last year, which allowed them to know about several sectors and record a video where they were given the chance to speak about their experience to other students coming later on.
- ✓ "SENDA PUNTA DE AGUILONES" opening. This pathway is a certified diversion of GR 92 great route "El camino del Mar Mediterráneo", located partially in the protected area called ed Natura 2000 "Sierra de la Fausilla", where LIC and ZEPA provide it some protection.
A hiking route was held, together with a plantation session of several indigenous species in the area refurbished at the quarry, which was used during Escombreras's enlargement works.



Chair on Environment Education

The Cartagena Port Authority, aware of the permanent work that must be done on the environment, launched in July 2015 the Chair of Environment with the Polytechnic University of Cartagena and the University of Murcia, through the Campus of International Excellence "Mare Nostrum 37/38", by signing a Collaboration Agreement with both Universities.

The creation of this Chair has been configured as a permanent structure of collaboration between the Port Authority, the Polytechnic University of Cartagena and the University of Murcia, aimed at channeling R&D&I actions, technological and scientific assistance, training and dissemination in the environmental field.

Its Permanent Commission, made up of representatives of the Port Authority of Cartagena and both Universities, is responsible, among other matters, for defining and approving the specific objectives of the Chair and all those matters necessary to achieve them, the activities and projects to be developed, the annual report and the appointment of associate members of the Chair, institutional collaborators or external collaborators for the development of specific study, advisory or research activities.

Since it was set up, the activity of the Port Authority has been carried out through important collaboration and involvement in different training, academic or informative activities, as well as in research activities of interest to the Port Authority y related to the protection, conservation or improvement of the environment. Particularly noteworthy are the different calls for research projects and professional initiation grants, the awarding of prizes for TFG and TFM, or participation in activities aimed at the dissemination and reflection of all those aspects related to the objectives of the Chair, mainly in the field of biodiversity and responsible management of species and habitats, environmental stewardship of the territory, the management of natural resources or the design of measures aimed at conservation, sustainable use or the improvement and restoration of natural heritage and biodiversity.

Along 2019, three researching projects were developed: **“Analysis, distribution, sources, and destination of micro-plastic polymers at Cartagena’s and Escombreras’s docks, and Calacortina”**, found on page 36; **“Study on quays’ and dams’ role at the port to recruit fingerlings, and as a habitat for grown-up fish found on rocky sea bottom – PUREHABITAT”**, whose report is still pending, and **“Assessment of the impact of cruise ships’ impact at Cartagena’s dock”**, shown on page 61 in the chapter about air emissions.

These projects were complemented with an investigation contract on ecology and conservation of marine birds at the port’s environment, shown in “Natural Environment” chapter on page 73.

After these four projects, we keep on fostering investigations carried out by Universities in the Region of Murcia regarding the improvement of port environment. We are also focused on linking students and the society with the port, what allows us to keep walking towards sustainability.



2019 Award ceremony (end of degree-end of master’s degree)

The APC-UCAM International Chair on Social Corporate Responsibility has been created, which will be boosted among businesses, clients, and local authorities that work on the development of social responsibility strategies as part of their actions. Furthermore, it will promote new initiatives in order to benefit both the sustainability and life quality in this geographic environment such as Santa Lucia neighborhood.

Further information about SCR on

<http://www.apc.es/webapc/compromiso/rsc/gestionandors>





Blue pathway to Calacortina

Blue pathway's conditioning Port of Cartagena

Blue pathways represent the link between blue-flagged beaches or ports, and they contribute to the sustainable use of the coast. For all the municipalities awarded, that mean san excellent acknowledgment to their work and natural heritage's and ethnological coast's restoration. In addition, blue pathways play a social role since they represent wonderful places where everybody may enjoy nature, and also, a structuring role by means of our society's development, health, and well-being. This pathway connecting the blue-flagged Royal Yacht Club in Cartagena with Calacortina, in possession of a blue flag, has been awarded a new blue flag.

SENDERO AZUL DEL PUERTO DE CARTAGENA

Autonomía Portuaria de Cartagena

SENDERO AZUL DEL PUERTO DE CARTAGENA

Este recorrido sigue en este tramo de costa en gran parte el itinerario del sendero de gran recorrido GR 93 - E 12 que transcurre por todo el litoral mediterráneo. En el caso de este tramo entre la bandera azul del Club de Regatas y la bandera azul de Cala Cortina discurre por un sendero perfectamente definido siendo un equipamiento deportivo y recreativo de gran calidad. Tanto en seguridad como en interés paisajístico cultural, tanto en la zona urbana como en la playa hay servicios de aparcamiento y toda la oferta que el usuario necesita para una estancia gratificante y placentera.

This route goes along this section of the coast as part of the long distant trail GR 93 - E 12, that runs along the entire Mediterranean coast. This section, between the blue flag of Club de Regatas (Regatta club) and the blue flag belonging to Cala Cortina, runs along a perfectly defined section which makes it a high quality sport and recreational equipment, both security wise and of cultural and landscape interest.

Both in urban areas and along the coast, there are public parking and all services users might need for a pleasant and gratifying stay.

DATOS TÉCNICOS
 Distancia: 5 km.
 Altitud máxima: 4 metros.
 Altitud mínima: 27 metros.
 Desnivel: 23 metros.
 Duración estimada: 1h. 30', sin paradas.

TÉCNICAL DATA
 Distancia: 5 km.
 Maximum altitude: 4 meters.
 Minimum altitude: 27 meters.
 Slope: 23 meters.
 Estimated duration: 1h. 30', no stops.

RECORRIDO PARA MARCHA NÓRDICA
 El recorrido es apto para la práctica de la marcha nórdica, tanto por las características del itinerario como por el terreno a transitar. Esta especialidad deportiva y recreativa requiere un equipamiento y una técnica básica específica que, bien utilizados puede considerarse una práctica completa muy saludable.

TRAIL FOR Nordic WALKING
 This trail is apt for the practice of Nordic walking, both due to the characteristics of the route and the unevenness there is in itself. This sport and recreational specialty requires a basic specific technique and equipment that, when used well, Nordic walking can be considered a very healthy and complete exercise.

RECORRIDO PARA SENDERISMO Y CARRERA
 Este recorrido es para realizarlo a pie como paseo, marcha ligada o en carrera, ya que en ida y vuelta tiene más de 10.000 pasos en los 18 km que lo suplen las instalaciones. Para ello está perfectamente señalizado por medio de flechas, marcas de pintura y los cartiles interpretativos que le conforman. Todo el recorrido se desarrolla sobre superficie dura compacta artificial, por lo que es conveniente llevar el calzado y el equipamiento necesarios para esta actividad, según la responsabilidad que se quiera para realizarlo. Es muy importante llevar siempre la mochila adecuada según la climatología de cada momento del año y las características de cada persona.

TRAIL FOR HIKING AND RUNNING
 This is a trail to do on foot or a walk, fast walking or for racing, since in round trip, along the 18 km path, there are more than 10,000 steps. The path is properly marked with arrows, paint marks and safety boards. The entire route is developed on hard artificial compact surface, so it is convenient that you wear the necessary shoes and equipment for this activity depending on the activity you wish to carry out. It is very important that you always carry the suitable equipment according to the climate, the time of the year and the characteristics of each individual.

RECOMENDACIONES Y SEGURIDAD PERSONAL
 • Procure seguir las señales del recorrido.
 • Hay que prestar especial atención al tráfico rodado en los pocos cruces de calzada del recorrido.
 • Cualquier resaca que pueda generar el usuario deberá incluirse en una paquetería o contenedor.
 • Es muy importante respetar la práctica deportiva o recreativa de otros usuarios manteniendo una actitud positiva al compartir el sendero o el carril bici.
 • Es muy importante respetar la práctica deportiva o recreativa de otros usuarios manteniendo una actitud positiva al compartir el sendero o el carril bici.

RECOMENDATIONS AND PERSONAL SECURITY
 • Follow the signs of the path.
 • Be very careful and aware of the traffic on the few road crossings you will come upon throughout the route.
 • Any vomit that may be generated must be thrown in a bin or container.
 • It is very important to respect other users' sport or recreational activities, showing a positive attitude when sharing the path or the bike lane.



Acknowledgments

Regional Business Awards for Sustainable Enterprise Development in 2007, 2008, 2013 and 2017.



2007



2008



2013



2017 [Check the news](#)

European Business Awards for the Environment 2014, an award that the General-Directorate of Environment of the European Commission convenes every two years, and that the Biodiversity Foundation, which depends on the Ministry of Agriculture, Food and Environment, arranges and organizes in Spain.

The Port of Cartagena has been awarded the second prize in the special category of Business and Biodiversity for the environmental policy that it has applied for years, for being a pioneer in the port system in terms of sustainability and environmental conservation, and for leading between the Port Community and its area of influence the development of business activities under the environmental respect and social responsibility criteria.



Prizes award ceremony held on June 5, 2014

http://www.casareal.es/ES/Actividades/Paginas/actividades_actividades_detalle.aspx?data=12012

EMAS Nominee AWARDS 2015 in the category of Small Organizations. The ceremony was held in Barcelona on May 20, 2015.



Further information on: http://ec.europa.eu/environment/emas/emas_for_you/news/news_en.htm

The Government of Spain awarded the Port Authority as an example of good environmental management within the framework of public administration, specifically for the **II General Report on the Status of Green Public Procurement in the General State Administration, its Public Agencies and in the Social Security Management Entities, which was issued on June 2015.**

Available on:

https://www.miteco.gob.es/es/ministerio/planes-estrategias/plan-de-contratacion-publica-ecologica/segundoinformegeneralsobreelestadodelacontratacionpublicaverdeenlaage_tcm30-88970.pdf



In 2016, we were finalists in the European Sea Ports Organization (ESPO) Awards, which this time focused on the management of the natural environment in European ports. The five finalist ports were Bremen, Cartagena, Riga, Dunkirk and Guadeloupe.

Cartagena was the only Mediterranean port to be a finalist in this edition, in which Bremen's German port was finally the winner.

To participate, applicants must belong to the ESPO and have the ECOPORTS seal of environmental management.

<http://www.espo.be/news/espo-award-2016-shortlisted-projects-port-of-cartagena> <http://www.espo.be/news/bremenports-wins-espo-award-2016>



In 2019, we have been awarded EMAS AWARDS “Premios de la Unión Europea”, in Micro and Public Organizations’ modality, to acknowledge our commitment with environment and society along the last ten years. The ceremony took place on November 25, at Guggenheim Museum in Bilbao.



https://ec.europa.eu/environment/emas/emas_for_you/emas_awards/emas_awards_2019_en.htm



2019 Emas Awards ceremony – 11/25/2019

14

Verification and validation

This environmental statement has been verified:

- By an external Audit carried out on July 13,14 and 15, 2020 by the verification Boyd: Lloyd's Register Quality Assurance España, S.L.

Auditor: Fernando Adam Matamala

No ES-V-0015

This Environmental Statement shall be updated every year and validated by an accredited entity; it shall be also submitted before the Regional Administration.

For further information on the Environmental Statement 2016, please check our website <http://www.apc.es> . You can also request further information at our Customer Service headquarters at:

Port Authority of Cartagena

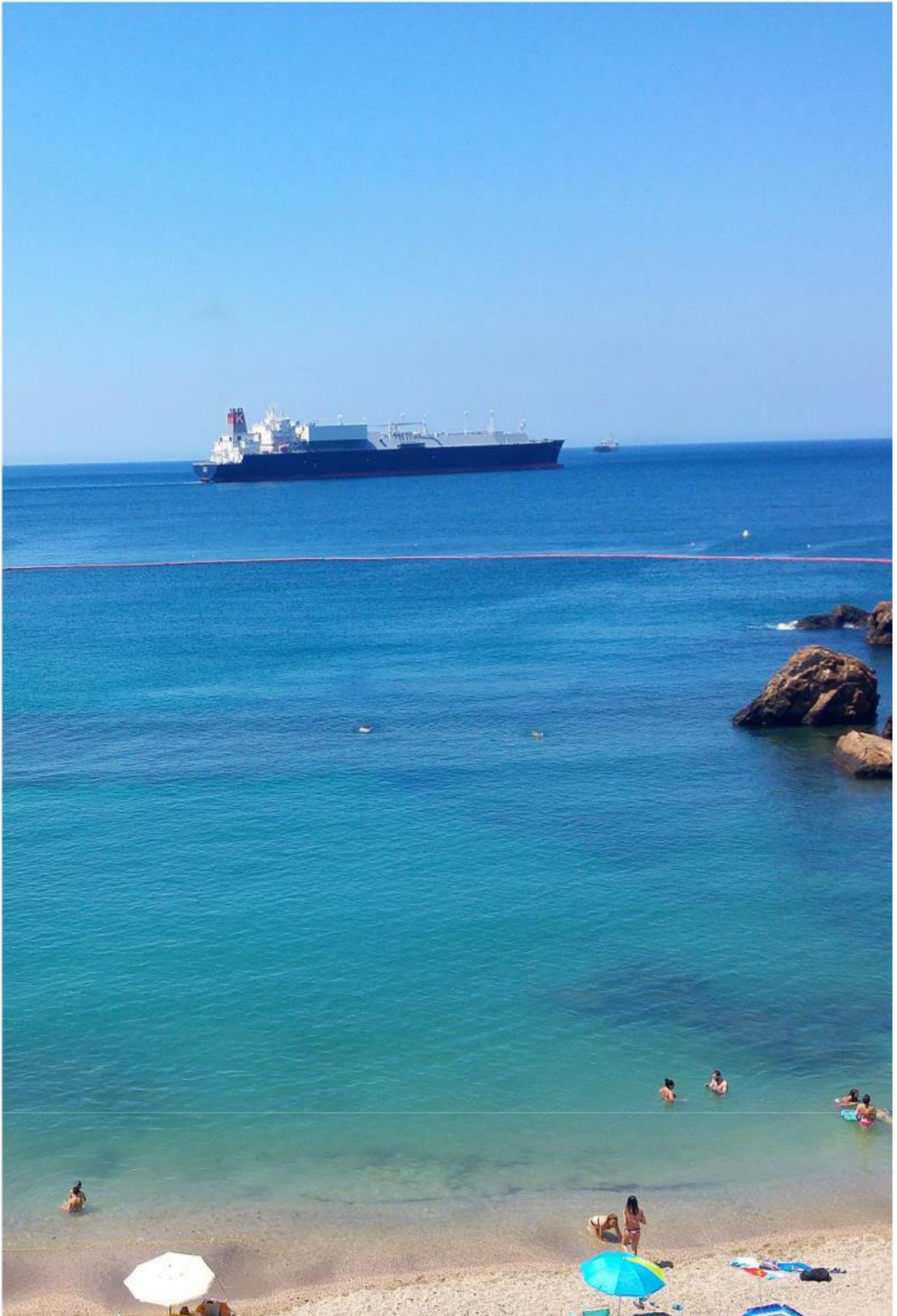
Plaza Héroes de Cavite, s/n - 30.201 – Cartagena - Murcia

Phone: +34 968325800 - Fax: 968 325815 - e-mail SAC: sac@apc.es



EMAS AWARDS
WINNER 2019
Micro and small
Public organisations





Calacortina's beach



Fecha de Emisión Actual: 2 Septiembre 2019
Fecha de Caducidad: 1 Septiembre 2022
Número de Certificado: 10216150

Aprobaciones Originales:
ISO 14001 - 2 Septiembre 2004

Certificado de Aprobación

Certificamos que el Sistema de Gestión de:

Autoridad Portuaria de Cartagena

Plaza Héroes de Cavite s/n, 30201 Cartagena, Murcia, España

ha sido aprobado por Lloyd's Register Quality Assurance Limited de acuerdo con las siguientes normas:

ISO 14001:2015

Números de Aprobación: ISO 14001 – 0036927

El alcance de esta aprobación es aplicable a:

ISO 14001:2015

Administración, gestión y control de servicios e infraestructuras del Puerto de Cartagena, de acuerdo a las leyes vigentes en el sistema portuario español de titularidad estatal.

Gilles Bessiere

Area Technical Manager

Emitido por: Lloyd's Register Quality Assurance España, S.L.U.

en nombre de: Lloyd's Register Quality Assurance Limited



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Fecha de Emisión Actual: 2 Septiembre 2019
Fecha de Caducidad: 11 Marzo 2021
Número de Certificado: 10216151

Aprobaciones Originales:
OHSAS 18001 - 7 Septiembre 2011

Certificado de Aprobación

Certificamos que el Sistema de Gestión de:

Autoridad Portuaria de Cartagena

Plaza Héroes de Cavite s/n, 30201 Cartagena, Murcia, España

ha sido aprobado por Lloyd's Register Quality Assurance Limited de acuerdo con las siguientes normas:

OHSAS 18001:2007

Números de Aprobación: OHSAS 18001 – 0036928

El alcance de esta aprobación es aplicable a:

OHSAS 18001:2007

Administración, gestión y control de servicios e infraestructuras del Puerto de Cartagena, de acuerdo a las leyes vigentes en el sistema portuario español de titularidad estatal.

Gilles Bessiere

Area Technical Manager

Emitido por: Lloyd's Register Quality Assurance España, S.L.U.

en nombre de: Lloyd's Register Quality Assurance Limited



001

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Page 1 of 1





Fecha de Emisión Actual: 12 Noviembre 2020
Fecha de Caducidad: 1 Septiembre 2022
Número de Certificado: 10307296

Aprobaciones Originales:
ISO 45001 - 12 Noviembre 2020

Certificado de Aprobación

Certificamos que el Sistema de Gestión de:

Autoridad Portuaria de Cartagena

Plaza Héroes de Cavite s/n, 30201 Cartagena, Murcia, España

ha sido aprobado por Lloyd's Register de acuerdo con las siguientes normas:

ISO 45001:2018

Números de Aprobación: ISO 45001 – 0036928

El alcance de esta aprobación es aplicable a:

Administración, gestión y control de infraestructuras y servicios del puerto de Cartagena de acuerdo a las leyes vigentes en el sistema portuario español de titularidad estatal.

Daniel Oliva Marcilio de Souza

Area Operations Manager - South Europe

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en nombre de: Lloyd's Register Quality Assurance Limited



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Regulatory framework

Please, find below the law provisions applicable to the activities carried out by the Port Authority of Cartagena:

- ✓ Royal Legislative Decree 2/2011 of September 5, which approved the Consolidated Text of the State Ports and Merchant Navy Act (TRLPEMM).
- ✓ Environmental Responsibility Act 26/2007 passed on October 23.
- ✓ Royal Decree 2090/2008 on the rules for the partial development of the Environmental Responsibility Act 26/2007.
- ✓ Waste and Contaminated Soils Act 22/2011 passed on July 28.
- ✓ Royal Decree 952/1997 on the modification of the rules for the enforcement of the Toxic and Hazardous Waste Basic Act 20/86.
- ✓ MAM (Environmental Executive Order) 304/2002 passed on 08/02/2002: Waste Assessment and Removal operations and European Waste List published in the Spanish Official Gazette No 43 on 19/02/2002.
- ✓ Royal Decree 9/2005 passed on 14/01/2005 establishing the list of activities that could potentially cause soil pollution and the standard criteria to determine whether soils are polluted or not. Published in the Spanish Official Gazette No 15 on 18/01/2005.
- ✓ Air Quality and Atmosphere Protection Act 34/2007 passed on 15/11/2007. Published in the Spanish Official Gazette No 275 on 16/11/2007.
- ✓ Act 42/2007 on Natural Heritage and Biodiversity (published in the Spanish Official Gazette No 299 on 14/12/2007).
- ✓ Executive Order 833/1975 passed on 06/02/1975 to develop the Atmospheric Environment Protection Act 38/1972 approved on December 22. Published in the Spanish Official Gazette No 96 on 22/04/1975.
- ✓ Royal Decree 100/2011 of January 28 on the update of the list of activities that could potentially cause air pollution, and the establishment of the basic provisions for the implementation thereof.
- ✓ Royal Decree 102/2011 passed on January 28 on the improvement or air quality.
- ✓ Noise Act 37/2003 passed on 17/11/2003. Published in the Spanish Official Gazette No 276 on 18/11/2003.
- ✓ Royal Decree 1513/2005 passed on December 16 to develop the Noise Act 37/2003 of November 17 on the assessment and management of environmental noise.
- ✓ Royal Decree 1367/2007 passed on October 19 to develop the Noise Act 37/2003 of November 17 on noise zoning, quality objectives and noise emissions.
- ✓ Royal Executive Order 1/2001 passed on 20/07/2001 to approve the consolidated text of the WATER Act. Published in the Spanish Official Gazette No 176 on 24/07/2001.
- ✓ Royal Decree 60/2011 passed on January 21 on the environmental quality rules within the field of water policy.
- ✓ Royal Executive Order 1/2008 passed on 11/01/2008 to approve the consolidated text of the Environmental Impact Assessment Act for infrastructures project. Published in the Spanish Official Gazette No 23 on 26/01/2008.
- ✓ Act 6/2010 of March 24 on the modification of the consolidated text of the Environmental Impact Assessment Act for infrastructures project approved by Royal Executive Order 1/2008 of January 11.
- ✓ Royal Decree 1084/2009 of July 3 in substitution of Royal Decree 1381/2002 on vessel-generated waste collection facilities in ports.
- ✓ Environmental Urgent Measures Act 11/2012 passed on December 19.
- ✓ Royal Decree 1695/2012 passed on December 21 on the approval of the National Marine Pollution Emergency Response Support System in substitution of Royal Decree 253/2004 of February 13.
- ✓ Act 5/2013 passed on June 11 to modify the Integrated Prevention and Control of Pollution Act 16/2002 of July 1, and the Waste and Contaminated Soil Act 22/2011 of July 28.
- ✓ Environmental Assessment Act 21/2013 passed on December 9.
- ✓ Royal Decree 594/2014 of July 11 on the approval of the Segura River Basin Management Plan.
- ✓ Royal Decree 817/2015 of September 11 on the establishment of the monitoring and evaluation criteria to know the surface water status, and of environmental quality standards. MARITIME WORKS REQUIREMENT (ROM) 5.1-2013 on water quality.
- ✓ MARPOL Convention 73/78 for the Prevention of Pollution from Ships and its subsequent standard-setting developments.
- ✓ Royal Decree 865/2003, of July 4th, which establishes the hygienic and sanitary criteria for the prevention and control of legionnaire's disease. Published in the Spanish Official Gazette No 171 on 18 July 2003.
- ✓ Royal Decree 140/2003 of February 7th laying down the health criteria for the quality of water for human consumption. Published in the Spanish Official Gazette No 45 on 21/02/2003.
- ✓ Royal Decree 1367/2007 passed on October 19, 2007 to develop the Noise Act 37/2003 of November 17th on noise zoning, quality objectives and noise emissions. Published in the Spanish Official Gazette No 254 on 23/10/2007.

The most significant environmental authorizations and obligations are:

- ✓ Registration as Small Proceso d Harzardous Waste
- ✓ Waste record
- ✓ Sewage spill authorization

DECLARACIÓN DEL VERIFICADOR MEDIOAMBIENTAL SOBRE LAS ACTIVIDADES DE VERIFICACIÓN Y VALIDACIÓN



Lloyd's Register Quality Assurance España, S.L.U, en posesión del número de registro de verificadores medioambientales EMAS ES-V-0015, acreditado para el "Administración, gestión y control de servicios e infraestructuras del Puerto de Cartagena, de acuerdo con las leyes vigentes en el sistema portuario español de titularidad estatal.", con el código NACE 52.20, declara haber verificado que el emplazamiento

AUTORIDAD PORTUARIA DE CARTAGENA **Plaza Héroes de Cavite s/n** **30201 Cartagena, Murcia, ESPAÑA**

según se indica en la declaración medioambiental "DECLARACIÓN AMBIENTAL 2019 versión 1ª de los datos correspondientes al año 2019, cumple todos los requisitos del Reglamento (CE) nº 1221/2009 del Parlamento Europeo y del Consejo, de 25 de noviembre de 2009, relativo a la participación voluntaria de organizaciones en un sistema comunitario de gestión y auditoría medioambientales (EMAS), el REGLAMENTO (UE) 2017/1505 DE LA COMISIÓN de 28 de agosto de 2017 por el que se modifican los anexos I, II y III del Reglamento (CE) n.º 1221/2009 y el REGLAMENTO 2026/2018 DE LA COMISIÓN del 19 de diciembre de 2018 por el que se modifica el anexo IV del Reglamento (CE) nº 1221/2009.

Mediante la firma de esta declaración, declaro que:

- la verificación y validación se han llevado a cabo respetando escrupulosamente los requisitos del Reglamento (CE) nº 1221/2009, nº 1505/2017 y 2026/2018
- el resultado de la verificación y validación confirma que no hay indicios de incumplimiento de los requisitos legales aplicables en materia de medio ambiente;
- los datos y la información de la Declaración Medioambiental **2019** de la organización, reflejan una imagen fiable, convincente y correcta de todas las actividades de la organización, en el ámbito mencionado en la declaración medioambiental

El presente documento no equivale al registro en EMAS. El registro en EMAS sólo puede ser otorgado por un organismo competente en virtud de los Reglamentos (CE) nº 1221/2009, 1505/2017 y 2026/2018. El presente documento no servirá por sí solo para la comunicación pública independiente.

| | |
|-----------------------------------|-------------------------|
| Fecha de la Verificación inicial: | 18 de junio de 2008 |
| Fecha de Verificación actual: | 2 de septiembre de 2019 |
| Caducidad de la Verificación: | 1 de septiembre de 2022 |
| Fecha de la Validación anual: | 11 de noviembre de 2020 |
| Caducidad de la Validación: | 1 de septiembre de 2021 |

LRQA Ref nº: SGI6001064

Hecho en Bilbao, el 11/11/2020

Firma:

18023690Q
OLGA RIVAS (R:
B86612140)

Digitally signed by
18023690Q OLGA
RIVAS (R: B86612140)
Date: 2020.11.13
09:37:41 +01'00'

Nombre: Olga Rivas
En nombre de Lloyd's Register Quality Assurance España, S.L.U.
C/ Las Mercedes, 31-2º Edificio Abra 3 - 48930 Las Arenas (Getxo), Vizcaya
ENAC, Nº. ES-V-0015



CERTIFICADO DE INSCRIPCIÓN EN EL REGISTRO

La Consejería de Agricultura y Agua, certifica que el centro de la organización:

AUTORIDAD PORTUARIA DE CARTAGENA

situado en Plaza Héroes de Cavite S/N, 30201 Cartagena

ha sido registrado con el número

ES-MU-000017

De acuerdo al Reglamento (CE) Nº 761/2001 del Parlamento Europeo y del Consejo, de 19 de marzo de 2001, por el que se permite que las organizaciones se adhieran con carácter voluntario a un sistema comunitario de gestión y auditoría medioambientales (EMAS) para las actividades de:

"ACTIVIDADES ANEXAS AL TRANSPORTE MARÍTIMO"

Fecha de la inscripción: 18 de agosto de 2008.



Firmado
**EL DIRECTOR GENERAL DE PLANIFICACIÓN,
EVALUACIÓN Y CONTROL AMBIENTAL**



(*)La validez del presente Certificado de Inscripción en el Registro EMAS está condicionada al mantenimiento de la organización en el citado registro, así como a la renovación del mismo, mediante resolución expresa otorgada por el Organismo Competente. En caso de cancelación, se debe entregar el presente Certificado ante dicho Organismo Competente.



Puerto de Cartagena

Autoridad Portuaria de Cartagena

Environmental Statement 2019



Sanwich terns (*Thalasseus sandvicensis*) Photo by S.Eguía



**EMAS AWARDS
WINNER 2019**
Micro and small
Public organisations

GESTIÓN AMBIENTAL
VERIFICADA
ES-MU-000017



Compromiso con el
Desarrollo Sostenible
REGIÓN DE MURCIA



**OBJETIVOS
DE DESARROLLO
SOSTENIBLE**