

# Environmental Statement 2017



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# 1

## LETTER FROM THE CHAIRMAN



**ECOPORT**  
Autoridad Portuaria de Valencia



**valenciaport**  
Autoridad Portuaria de Valencia



# 1. LETTER FROM THE CHAIRMAN

The Environmental Statement of the Port Authority of Valencia (PAV) is the most conspicuous sign of our commitment as a port to sustainability, protection of the environment and the environmental performance of its management.

The PAV remains firm in its commitment to transparency in management, allowing public participation of any interested party through the publication of this Environmental Declaration and how it materialises by maintaining the highest environmental, energy and port certifications in force, such as ISO 14001, ISO 50001 or the register EMAS III.

2017 has been an important year for the port management of the PAV, as work has begun on updating the emissions inventory of PAV-Port of Valencia in the years 2015 and 2016, which forms part of the calculation of the carbon footprint; this indicator shows us the result of the implementation of the energy efficiency initiatives rolled out in recent years in the ports managed by the PAV, such as that carried out this year with the installation of photovoltaic panels on the canopies of the PAV Offices car park in the Port of Valencia.

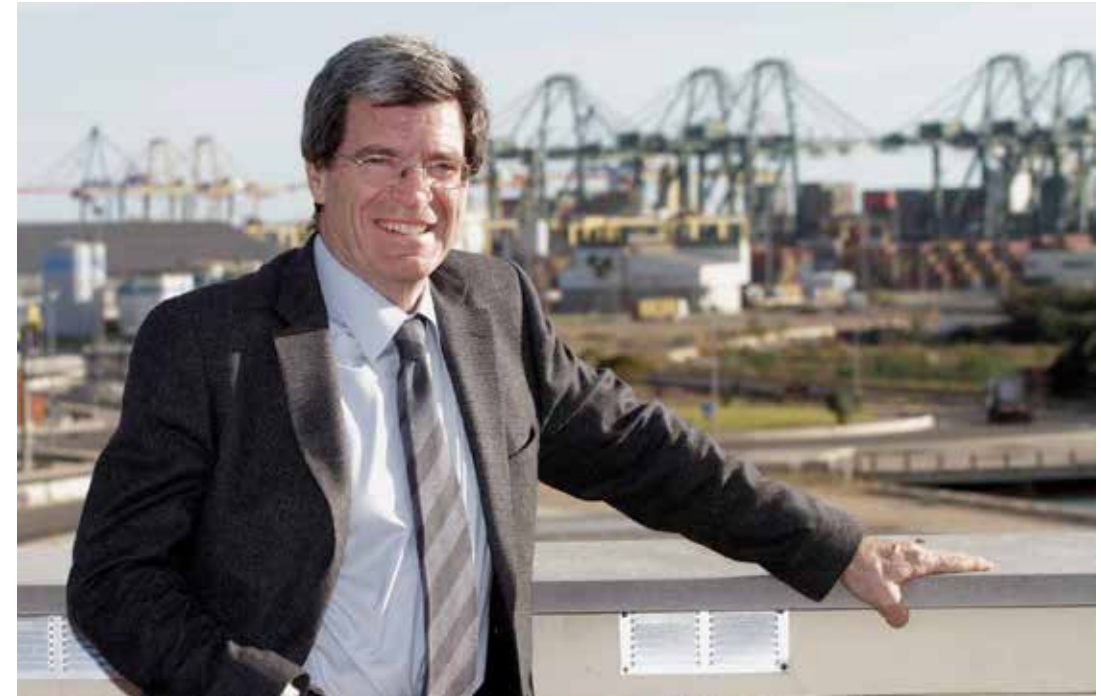
In addition, we launched the procedures for renewal of the PERS (Port Environmental Review System), a reference port management system in the port sector globally and supported by ESPO (European SeaPorts Organization), whose first certification was obtained in 2003.

On the other hand, in 2017, the sewage network in the Port of Valencia was made available to all port users through Board of Director's adoption of conditions for connection to the same and the applicable fees and their publication on the PAV website.

Throughout 2017 work has continued on the projects GAINN (GAINN4MOS and GAINN4SHIP INNOVATION), and CORE LNG as HIVE, which aim to implement technology derived from the use of LNG as a fuel in activities related to maritime transport. These projects are 50% funded by the European Union through its CEF (Connecting Europe Facility) programme.

In addition, and as usual during these last few years, the PAV endeavours to communicate the activities undertaken during 2017; not only through the publication of this Environmental Statement, but also through the publication and distribution of

'Environmental Tips' and relevant news of the Environmental Bulletin. This work is carried through the PAV intranet, in order to raise awareness among both our staff and the port community.



AURELIO MARTÍNEZ ESTEVEZ  
Chairman of the Port Authority of Valencia

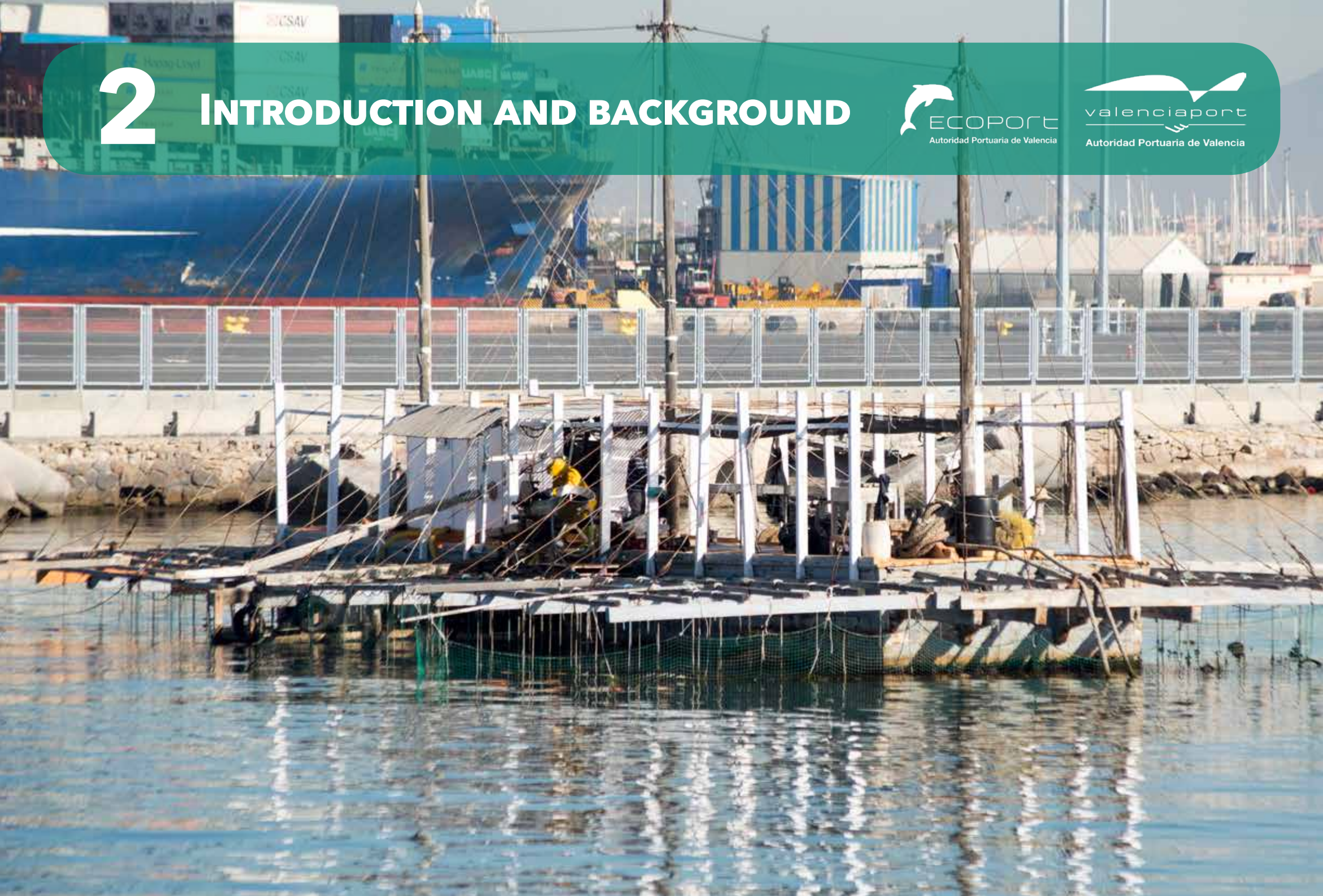
All the information on this Port Authority and its various environmental publications is available on our website: [www.valenciaport.com](http://www.valenciaport.com)

To conclude: I would like to emphasize the efforts made by both PAV staff and all members of the port community, who get involved and collaborate to achieve the targets set through initiatives such as Ecoport II; without which we could not be performing this task of disseminating the results contained in this Statement.



# 2

## INTRODUCTION AND BACKGROUND





## 2. INTRODUCTION AND BACKGROUND

Environmental criteria have been a consolidated part of the Port Authority of Valencia's business strategy for many years, with the commitments it has undertaken under its Environmental Policy falling within a framework of Corporate Social Responsibility. Although, over the years, the Port Authority has pioneered many different environmental initiatives in the three ports it manages, the most important milestones are listed in chronological order below.

In 1998, the PAV launched the ECOPORT project, entitled "Moving towards and environmentally friendly port community", funded by the European Commission's LIFE Programme. This project led to the development of a method to implement environmental management in port facilities. This method has become a benchmark for environmental management in ports at both national and international level and has subsequently been implemented in a variety of port environments.

The ECOPORT project brought about a qualitative change in the PAV's approach to including the environmental variable in its activities. In this way, the foundations were laid for development of the organisation's Environmental Management System, the operation of which is reported in this document. In the same year staff were assigned to work solely on environmental protection.

Thus, on 12 April 2000, the PAV's Board of Directors approved the Environmental Policy, which was last updated on 14 May 2015. In recent years, the PAV has broadened its commitment to environmental management and its Environmental Management System has matured and embraced new challenges.

In 2003, the PAV was the first Spanish port to obtain PERS certification (Port Environmental Review) granted by the Lloyds Register and supported by the ECOPORTS Foundation and the European SeaPorts Organization, ESPO. In 2006, the Environmental Management System achieved ISO 14001 certification and in 2008 it was included in the EMAS (European Eco-Management and Audit Scheme) register of the Valencian Region under entry number 23.

In 2008, the Port Authority of Valencia received the Eco-Excellent Organisation award at Ecofira, following its nomination by the Clean Technology Centre (CTL) of the Ministry of Environment, Territory and Housing.

During this time, the Port Authority of Valencia has also taken on various international commitments, such as the signing in November 2006 of the Sydney Charter for the Sustainable Development of Port Cities, under the auspices of the International Association of Cities and Ports, and the signing in July 2008 of the World Ports Climate Declaration in Rotterdam.

In 2016, the PAV, in its commitment to improvement in terms of climate change and greenhouse gas reduction, calculated and registered the Carbon Footprint of the Port of Valencia in the Registry of Carbon Footprint, Compensation and CO2 Absorption projects, created by the Ministry of Agriculture, Food and Environment, obtaining the seal of "Calculation". Also in 2016, the PAV achieved certification of its Energy Management System according to ISO 50001, integrating environmental and energy policies into a single Management Policy.

In addition, as described below, the PAV is currently involved in numerous initiatives and takes part in various projects with the aim of improving its own environmental performance, as well as that the companies that make up the Port Community, including the continuous improvement it pursues in its activities, which include:

- Improvement of the tools for monitoring the main environmental aspects in the ports that it manages.
- Improving consumption efficiency, through policies, among others, to monitor and measure the consumption of water and electricity in the networks that supply the ports, as well as policies to replace vehicles with others that are more environmentally friendly.
- Monitoring the environmental impacts of the works to expand the ports of Valencia and Sagunto through the Environmental Surveillance Plan.
- Support and encouragement for Port Community companies in implementing Environmental Management Systems in their organisations through the ECOPORT II project.
- Maintenance of the Environmental Management System, which provides the information contained in this Statement and allows us to our environmental performance year after year.



# 3

## PORT DESCRIPTION



# 3. PORT DESCRIPTION

The Port Authority of Valencia, which trades under the name Valenciaport, is the public body responsible for the management and administration of three state-owned ports located on an 80km stretch of the Mediterranean coast in Eastern Spain: Sagunto, Valencia and Gandia.

Valenciaport has an exceptional geographical and strategic location in the centre of the Western Mediterranean arc, in line with the east-west shipping corridor which crosses the Suez Canal and the Gibraltar Straits. This makes Valenciaport the first and last port of call for the main regular shipping companies operating between America, the Mediterranean Basin and the Far East..

## 3.1. LOCATION AND PHYSICAL DATA

Los Puertos de Sagunto, Valencia y Gandía están situados geográficamente en la Vertiente Ibérica Mediterránea, con un clima mediterráneo subtropical de inviernos moderados y veranos bastante calurosos.

Port	Location	Total Surface Area	Total water surface area	Quays and berthing lines
<b>Sagunto</b>	Longitude 0° 13' W Latitude 39° 39' N	2,397,800 m <sup>2</sup>	2,206,000 m <sup>2</sup>	14 quays 5,801m berthing line
<b>Valencia</b>	Longitude 0° 18.1' W Latitude 39° 26.9' N	5,626,534 m <sup>2</sup>	5,746,000 m <sup>2</sup>	27 quays 13,554 m berthing line
<b>Gandía</b>	Longitude 0° W	245,000 m <sup>2</sup>	284 000 m <sup>2</sup>	6 quays 1,289m berthing line



Port of Sagunto. Year 2017



Port of Valencia. Year 2017



Port of Gandia. Year 2017



# 3. PORT DESCRIPTION

## 3.2. LEGAL FRAMEWORK

The legal framework of port authorities is set out in Spanish Royal Decree 2/2011 of 5 September, under which the Consolidated Text of the Law on State Ports and the Merchant Navy was approved.

The Port Authority is a body governed by public law, with its own legal status and equity, which are independent from those of the State. It reports to the public body Puertos del Estado and is responsible for the administration, management, supervision and exploitation of the ports of Sagunto, Valencia and Gandia. Its main functions include managing the public port domain, awarding concessions and authorisations, planning, designing and building any necessary infrastructure, organising surveillance and policing within the port service area and maintaining navigational aids, among others.

The law grants the General State Administration sole jurisdiction over public ports (art.149.1.20th of the Constitution) and establishes that the governing bodies of the Port Authorities shall be appointed by the Autonomous Regions. The Port Authority Valencia's governing bodies are as follows:

- a) De gobierno:
  - Board of Directors
  - Chairman
- b) Managing bodies:
  - Director
- c) Advisory bodies
  - Shipping and Port Council

The Port Authority of Valencia has a system to regularly identify and assess its behaviour in relation to the provisions of legal and other environmental requirements. Thus it ensures compliance with the updating of environmental authorisation and complies with its environmental obligations on a regular basis.

The Valencia Port Authority considers it essential to comply with current legislation and especially environmental legislation. This includes compliance with environmental requirements in aspects such as:

Waste: The production of both hazardous and non-hazardous waste is monitored, as well

as the proper storage, labelling, sorting, transport and management of this waste using duly authorised transport and waste management companies.

Emissions: vehicle inspections are carried out and other types of emissions are monitored such as those generated by the organisation's boiler system.

Water discharges: although this is not a representative aspect as the discharges in the facilities are domestic, from toilets and showers installed in its facilities, it is still monitored.

Noise: noise is regularly measured, thus complying with the applicable legal requirements in this area.

The PAV also encourages its staff and the concessions located in the port facility to comply with environmental legal requirements by providing training on the legal requirements that facilities must comply with such as hazardous waste, environmental responsibility and discharges.

The most important environmental legal requirements applicable to the organisation, most representative in 2017, are described in the following table:

### EMAS

REGULATION (EC) No 1221/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), repealing Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC

REGULATION (EU) No 2017/1505 OF THE COMMISSION of 28 August 2017 amending Annexes I, II and III to Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS)

### GENERAL

Royal Legislative Decree 1/2016, of 16 December, approving the consolidated text of the Law on integrated pollution prevention and control.

Law 5/2014, of 25 July, of the Generalitat, on Territorial Planning, Urban Planning and Landscape, of the Valencian Region.

# 3. PORT DESCRIPTION

Law 6/2014, of 25 July, on Prevention, Quality and Environmental Control of Activities in the Valencian Region.

Law 11/2014, of 3 July, amending Law No 26/2007 of 23 October 2007 on Environmental Responsibility (Official State Gazette no. 162, of 04/07/2014).

Law 21/2013, of 9 December on Environmental Assessment.

Royal Legislative Decree 2/2011, of 5 September, approving the Consolidated Text of the Law on State Ports and the Merchant Navy.

Law 6/2010, of 24 March, amending the consolidated text of the Law on the Environmental Impact Assessment of projects, approved by Royal Legislative Decree 1/2008, of 11 January.

Royal Legislative Decree 1/2008, 11/01/2008, approving the consolidated text of the Law on the Environmental Impact Assessment of projects. (Official State Gazette No. 23, 26/01/2008).

Law No 26/2007 of 23 October on Environmental Responsibility.

## WASTE

Law 22/2011, of 28 July, on waste and contaminated soils.

Law 10/2000 of 12 December, on waste of the Valencian Region

Royal Decree 180/2015, of 13 March, regulating the transfer of waste within the national territory.

International Convention for the Prevention of Pollution from Ships, 2 November 1973 (MARPOL Convention) and subsequent amendments.

Royal Decree 1381/2002 on Port reception facilities for ship-generated waste.

## DISCHARGES AND WATER

Royal Legislative Decree 1/2001, of 20/07/2001, approving the Consolidated Text of the Water Law. (Official State Gazette No. 176, 24/07/2001).

Royal Decree 817/2015, of 11 September, establishing the criteria for monitoring and evaluation of the status of surface waters and environmental quality standards.

## EMISSIONS

Royal Decree 100/2011, of 28 January, which updates the catalogue of potentially polluting activities and laying down the basic provisions for its implementation.

Law 34/2007, of 15/11/2007, on Air Quality and Protection of the Atmosphere. (Official State Gazette No. 275, 16/11/2007).

## NOISE

Royal Decree 1367/2007, of 19 October, implementing Law 37/2003, of 17 November, on Noise, in relation to sound zoning, quality objectives and sound emissions.

Law 37/2003 of 17/11/2003, on Noise. (Official State Gazette No. 276, 18/11/2003).

## CONSUMPTION

Royal Decree 56/2016, of 12 February, which transposes the Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012, relating to energy efficiency, in relation to energy audits, accreditation of service providers and energy auditors and promotion of the power supply efficiency.

## OTHER

Royal Decree 513/2017, of 22 May, approving the Regulation on fire protection installations.

Royal Decree 337/2014, of May 9, approving the Regulation on technical conditions and safety guarantees in high voltage electrical installations and its Supplementary Technical Instructions ITC- RAT 01 to 23.

Royal Decree 1695/2012, of 21 December, approving the National System of Response to marine pollution.

Royal Decree 1027/2007, of 20 July, approving the Regulation of Thermal Installations in Buildings.



# 3. PORT DESCRIPTION

The PAV's main environmental authorisations and obligations include:

- An Environmental Impact Statement for the extension of the Port of Valencia.
- An Environmental Surveillance Plan for the expansion of the Port of Valencia.
- Registration as a producer of small volumes of hazardous waste No. 3631/P02/RP/CV
- Annual declaration of possession of equipment containing PCBs
- Register of potentially polluting activities. Air pollution.
- International Convention for the Prevention of Pollution from Ships, 2 November 1973 (MARPOL Convention).



*Clocktower Building.*

# 3. PORT DESCRIPTION

## 3.3. TRAFFIC FIGURES

				accum.
<b>PAV</b>				
Total traffic (t)	71,469,813	73,559,877	2,090,065	2.92%
Liquid bulk	3,803,068	3,203,487	-599,581	-15.77%
Solid bulk	2,531,577	2,278,857	-252,720	-9.98%
Non-containerised cargo	10,788,437	11,788,513	1,000,076	9.27%
Containerised cargo	53,872,459	55,978,616	2,106,157	3.91%
Fishing	1,991	1,937	-53	-2.68%
Supplies	472,281	308,467	-163,814	-34.69%
Vessels (units)	7,702	7,715	13	0.17%
G.T.	255,887,783	256,175,377	287,594	0.11%
Containers (TEUs)	4,732,136	4,832,156	100,020	2.11%
Passengers (numbers)	910,200	1,062,580	152,380	16.74%
Ferries	506,936	650,252	143,316	28.27%
Cruise ships	403,264	412,328	9,064	2.25%
Cars (units)	776,130	794,954	18,824	2.43%
<b>Port of Valencia</b>				
Total traffic (t)	64,523,917	67,489,331	2,965,415	4.60%
Liquid bulk	1,250,863	1,560,290	309,427	24.74%
Solid bulk	1,388,891	1,603,217	214,326	15.43%
Non-containerised cargo	8,114,037	8,542,767	428,730	5.28%
Containerised cargo	53,315,546	55,491,372	2,175,826	4.08%
Fishing	406	420	15	3.58%
Supplies	454,174	291,265	-162,909	-35.87%
Vessels (units)	6,232	6,180	-52	-0.83%
G.T.	230,807,629	231,287,499	479,870	0.21%
Containers (TEUs)	4,670,810	4,779,749	108,939	2.33%
Passengers (numbers)	910,200	1,029,288	119,088	13.08%
Ferries	506,936	616,960	110,024	21.70%

Cruise ships	403,264	412,328	9,064	2.25%
Cars (units)	582,781	523,797	-58,984	-10.12%

<b>Port of Sagunto</b>				
Total traffic (t)	6,593,139	5,716,363	-876,776	-13.30%
Liquid bulk	2,552,205	1,643,170	-909,035	-35.62%
Solid bulk	1,142,686	675,640	-467,046	-40.87%
Non-containerised cargo	2,329,058	2,897,481	568,423	24.41%
Containerised cargo	552,053	487,229	-64,824	-11.74%
Fishing	266	255	-11	-4.21%
Supplies	16,871	12,588	-4,283	-25.39%
Vessels (units)	1,320	1,288	-32	-2.42%
G.T.	24,204,515	23,610,776	-593,739	-2.45%
Containers (TEUs)	60,914	52,401	-8,513	-13.98%

<b>Port of Gandia</b>				
Total traffic (t)	352,757	354,183	1,426	0.40%
Liquid bulk		27	27	
Solid bulk				
Non-containerised cargo	345,342	348,265	2,923	0.85%
Containerised cargo	4,860	15	-4,845	-99.69%
Fishing	1,319	1,262	-57	-4.30%
Supplies	1,236	4,614	3,378	273.30%
Vessels (units)	150	247	97	64.67%
G.T.	875,639	1,277,102	401,463	45.85%
Containers (TEUs)	412	6	-406	-98.54%
Passengers (numbers)	0	33,260	33,260	
Ferries	0	33,260	33,260	
Cruise ships				
Cars (units)	0	2	2	

# 4 DESCRIPTION OF THE ENVIRONMENTAL MANAGEMENT SYSTEM





# 4. DESCRIPTION OF THE ENVIRONMENTAL MANAGEMENT SYSTEM

## 4.1. ENVIRONMENTAL POLICY

## 4.2. CERTIFICATIONS

### THE PORT AUTHORITY OF VALENCIA'S ENVIRONMENTAL AND ENERGY POLICY

Shipping is an essential element in the flow and exchange of goods. Modern port management and market competition have led port companies to concentrate and increase the volume of their activities and accordingly, they use ever larger amounts of resources, which makes the inclusion of ecoefficient management criteria increasingly more important. One of the business strategy priorities of the Port Authority of Valencia, as the managing body of one of the main port areas in the Mediterranean, is sustainable development, combining respect for the environment with the economic and social growth of port activities in the facilities it manages.

The PAV is committed to developing an environmental and energy management system which, in addition to making all the members of its organisation aware of the responsibilities of sustainable management, also publicises and extends the need to adopt this ethical commitment to all the companies that operate on public port land, and involves customers, suppliers, official bodies, and other companies in the sector in this Environmental and Energy Policy. This commitment is specifically reflected in:

- The incorporation of environmental and energy considerations into public port land planning, organisation, management, and conservation processes to set goals and objectives for the improvement of both systems.
- Regular systematic analysis and assessment of the activities, products, and services of companies that may interact with the environment, in order to be aware of and manage the environmental risks they may create.
- Measuring, monitoring and managing the use of natural resources and energy, including eco-efficiency criteria in general, and energy efficiency criteria in particular, to ensure suitable environmental and energy performance in the services provided.
- Compliance with applicable environmental and energy legislation and requirements, aiming to go further than the demands required by law, whenever possible.
- Prevention and minimisation of emissions, consumption, discharges, noise, and waste produced as a result of its activities, aiming to recover as much as possible of the waste generated.
- Using and encouraging the implementation of the best, most viable technologies in each activity.
- The provision of suitable training and information for employees to encourage awareness and take-up of this policy.

As part of the voluntary commitments taken on to encourage environmental sustainability in the facilities it manages, the PAV supports a number of initiatives in its port community:

- Providing a forum where port companies can participate to establish common environmental initiatives and objectives, facilitate training for port company employees, and share concerns and needs linked to projects, communication and regulatory aspects which help to improve the environmental performance of all the participating firms.
- Encouraging port community companies to adopt the best technologies available to them through their participation in projects.
- Helping companies in the port community to implement energy efficiency improvements.
- Regularly assessing and measuring the impact of activities that take place in port facilities by calculating their carbon footprint.

Similarly, regular reports including a review of environmental initiatives will be drawn up and circulated to customers, suppliers, industry firms, members of the organisation and other stakeholders.

This Environmental and Energy Policy will be published and sent to all the members of the PAV so they can take part in improving the Environmental and Energy Management System. This policy will be updated when appropriate through a process of continuous improvement.

Approved by the Port Authority of Valencia's Board of Directors, on 12th April 2000, amended on 14th May 2015, and last updated on 11th November 2016 to include energy aspects.



Aurelio Martínez Estévez  
Presidente de la Autoridad Portuaria de Valencia



The Port Authority of Valencia is certified under the PERS (Port Environmental Review System) model.



The Port Authority of Valencia has been certified under the ISO 14001:2004 standard since 2006. In October 2017, we renew the certificate to the new standard 14001:2015.

# 4. DESCRIPTION OF THE ENVIRONMENTAL MANAGEMENT SYSTEM



Assurance Statement related to  
The Greenhouse Gas Inventory Report 2010  
of the Port Authority of Valencia

**Terms of Engagement**  
This Assurance Statement has been prepared for the Port Authority of Valencia.

Lloyd's Register Quality Assurance España, S.L. (LRQA), was commissioned by the Port Authority of Valencia to verify its Greenhouse Gas Inventory Report for the calendar year 2010 (the Report). The Report relates to direct GHG emissions, energy indirect GHG emissions and other indirect GHG emissions from the activities of concession companies, ship emissions and transport of goods produced within the port of Valencia, all under normal operating conditions.

**Management Responsibility**  
The management of the Port Authority of Valencia was responsible for preparing the Report and for maintaining effective internal controls over the data and information disclosed. LRQA's responsibility was to carry out an assurance engagement on the Report in accordance with our contract with the Port Authority of Valencia. Ultimately, GHG Inventory and GHG Report have been approved by, and remain the responsibility of the Port Authority of Valencia.

**LRQA's Approach**  
Our verification has been conducted in accordance with ISO14064-1:2009 - specification with guidance for validation and verification of greenhouse gas assertions to provide limited assurance that the Port Authority of Valencia Report has been prepared in accordance with ISO14064-1:2009 - specification with guidance at the organizational level for quantification and reporting of greenhouse gas emissions and removals.

In order to form our conclusions we have:

- Conducted site tours of the facilities, as defined in the operational scope of the Report and reviewed processes related to the control of GHG emissions data and records;
- Verified back to source, the historical data and information for the calendar year 2010 for:
  - Diesel and gasoline consumption by Port Authority of Valencia vehicles within the port of Valencia
  - Electricity consumption; and
  - Diesel, gas and electricity consumption of concessionaries companies.
- Verified at an aggregated level, the historical data and information for the calendar year 2010 for:
  - Fuel oil consumed by vessels from their point of entry into the port until berthed and from berth to exiting the port; and
  - Diesel consumption resulting from the transport of goods to the port of Valencia.

**Level of Assurance & Materiality**  
The opinion expressed in this Assurance Statement has been formed based on a limited level of assurance and at a materiality of the professional judgement of the verifier.



LRQA's Opinion  
Based on LRQA's approach nothing has come to our attention that would cause us to believe that the Report was not prepared in accordance with ISO14064-1:2009 and that the direct GHG emissions, energy indirect GHG emissions and other indirect GHG emissions from mobile combustion sources included in the Report, as summarized in Table 1, are not materially correct.

Fernando Adam  
Lead Verifier  
On behalf of Lloyd's Register Quality Assurance Limited represented by Lloyd's Register Quality Assurance España, S.L.  
C/ Píncisa, 29, 1ª  
28008 Madrid  
España

Dated: 15 February 2010

Table 1. Port Authority of Valencia, GHG Inventory Report 2010

Scope of Emissions according to ISO14064-1	Tonnes CO <sub>2</sub> e
Direct GHG Emissions	229
Energy Indirect GHG Emissions	1422
Other Indirect GHG Emissions from concession companies	154373
<b>Total</b>	<b>156028</b>
Origin of Emissions	
Origin of Emissions	Tonnes CO <sub>2</sub> e
Port of Valencia facilities	1662
Diesel, gas and electricity consumption of concession companies	52078
<b>Diesel consumption resulting from the transport of goods to the port of Valencia</b>	<b>19179</b>
Fuel oil consumed by vessels from their point of entry into the port until berthed and from berth to exiting the port	87905
<b>Total</b>	<b>156028</b>
<b>Indicator : CO<sub>2</sub>e kg per ton of goods transported</b>	<b>2,74 CO<sub>2</sub>e kg</b>

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The English version of this statement is the only valid version. Lloyd's Register assumes no responsibility for versions translated into other languages.

Declaration of the verifier according to ISO 14064 for the calculation of the PAV's carbon footprint for 2010.



Assurance Statement related to  
The Greenhouse Gas Inventory Report 2012  
of the Port Authority of Valencia

**Terms of Engagement**  
This Assurance Statement has been prepared for the Port Authority of Valencia.

Lloyd's Register Quality Assurance España, S.L. (LRQA), was commissioned by the Port Authority of Valencia to verify its Greenhouse Gas Inventory Report for the calendar year 2012 (the Report). The Report relates to direct GHG emissions, energy indirect GHG emissions and other indirect GHG emissions from the activities of concession companies, ship emissions and transport of goods produced within the port of Valencia, all under normal operating conditions.

**Management Responsibility**  
The management of the Port Authority of Valencia was responsible for preparing the Report and for maintaining effective internal controls over the data and information disclosed. LRQA's responsibility was to carry out an assurance engagement on the Report in accordance with our contract with the Port Authority of Valencia. Ultimately, GHG Inventory and GHG Report have been approved by, and remain the responsibility of the Port Authority of Valencia.


**LRQA's Approach**  
Our verification has been conducted in accordance with ISO14064-1:2009 - specification with guidance for validation and verification of greenhouse gas assertions to provide limited assurance that the Port Authority of Valencia Report has been prepared in accordance with ISO14064-1:2009 - specification with guidance at the organizational level for quantification and reporting of greenhouse gas emissions and removals.

In order to form our conclusions we have:

- Conducted site tours of the facilities, as defined in the operational scope of the Report and reviewed processes related to the control of GHG emissions data and records;
- Verified back to source, the historical data and information for the calendar year 2012 for:
  - Diesel and gasoline consumption by Port Authority of Valencia vehicles within the port of Valencia
  - Electricity consumption; and
  - Diesel, gas and electricity consumption of concessionaries companies.
- Verified at an aggregated level, the historical data and information for the calendar year 2012 for:
  - Fuel oil consumed by vessels from their point of entry into the port until berthed and from berth to exiting the port; and
  - Diesel consumption resulting from the transport of goods to the port of Valencia.

**Level of Assurance & Materiality**  
The opinion expressed in this Assurance Statement has been formed based on a limited level of assurance and at a materiality of the professional judgement of the verifier.

Declaration of the verifier according to ISO 14064 for the calculation of the PAV's carbon footprint for 2012.



LRQA's Opinion  
Based on LRQA's approach nothing has come to our attention that would cause us to believe that the Report was not prepared in accordance with ISO14064-1:2009 and that the direct GHG emissions, energy indirect GHG emissions and other indirect GHG emissions from mobile combustion sources included in the Report, as summarized in Table 1, are not materially correct.

Fernando Adam  
Lead Verifier  
On behalf of Lloyd's Register Quality Assurance Limited represented by Lloyd's Register Quality Assurance España, S.L.  
C/ Píncisa, 29, 1ª  
28008 Madrid  
España

Dated: 15 February 2010

Table 1. Port Authority of Valencia, GHG Inventory Report 2012

Scope of Emissions according to ISO14064-1	Tonnes CO <sub>2</sub> e
Direct GHG Emissions	215
Energy Indirect GHG Emissions	1393
Other Indirect GHG Emissions from concession companies	159162
<b>Total</b>	<b>160770</b>
Origin of Emissions	
Origin of Emissions	Tonnes CO <sub>2</sub> e
Port of Valencia facilities	1608
Diesel, gas and electricity consumption of concession companies	52078
<b>Diesel consumption resulting from the transport of goods to the port of Valencia</b>	<b>19179</b>
Fuel oil consumed by vessels from their point of entry into the port until berthed and from berth to exiting the port	87905
<b>Total</b>	<b>160770</b>
<b>Indicator : CO<sub>2</sub>e kg per ton of goods transported</b>	<b>2,66 CO<sub>2</sub>e Kg</b>

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Due to inherent limitations in any internal control, it is possible that fraud, error, or non-compliance with laws and regulations may occur and not be detected. Further, the verification was not designed to detect all weaknesses or errors in internal controls so far as they relate to the requirements set out above as the verification has not been performed continuously throughout the period and the verification carried out on the relevant internal controls were on a test basis. Any projection of the evaluation of controls to future periods is subject to the risk that the processes may become inadequate because of changes in conditions, or that the degree of compliance with them may deteriorate.

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# 4. DESCRIPTION OF THE ENVIRONMENTAL MANAGEMENT SYSTEM

**Assurance Statement related to The Greenhouse Gas Inventory Report 2014 of the Port Authority of Valencia**

**Terms of Engagement**  
This Assurance Statement has been prepared for the Port Authority of Valencia.

Lloyd's Register Quality Assurance España, S.L. (LRQA), was commissioned by the Port Authority of Valencia to verify its Greenhouse Gas Inventory Report for the calendar year 2014 (the Report). The Report relates to direct GHG emissions, energy indirect GHG emissions and other indirect GHG emissions from the activities of concession companies, the emissions and transport of goods produced within the port of Valencia, all under normal operating conditions.

**Management responsibility**  
The management of the Port Authority of Valencia was responsible for preparing the Report and for maintaining effective internal controls over the data and information disclosed. LRQA's responsibility was to carry out an assurance engagement on the Report in accordance with our contract with the Port Authority of Valencia. LRQA's GHG inventory and GHG Report have been approved by, and remain the responsibility of, the Port Authority of Valencia.

**LRQA's Approach**  
Our verification has been conducted in accordance with ISO 14064-3:2009 - Specification with guidance for validation and verification of greenhouse gas assertions to provide limited assurance that the Port Authority of Valencia Report has been prepared in conformance with ISO 14064-1:2009 - Specification with guidance at the organizational level for quantification and reporting of greenhouse gas emissions and removals.

In order to form our conclusion we have:

- Conducted site tours of the facilities, as defined in the operational scope of the Report and reviewed processes related to the control of GHG emissions data and records;
- Verified back to source, the historical data and information for the calendar year 2014 for:
  - Gasoil and gasoline consumption by Port Authority of Valencia vehicles within the port of Valencia;
  - Electricity consumption; and
  - Diesel, gas and electricity consumption of concessionaries companies.
- Verified at an aggregated level, the historical data and information for the calendar year 2014 for:
  - Fuel oil consumed by vessels from their point of entry into the port until berthed and from berth to leaving the port; and
  - Diesel consumption resulting from the transport of goods to the port of Valencia.

**Level of Assurance & Materiality**  
The opinion expressed in this Assurance Statement has been formed based on a limited level of assurance and at a materiality of the professional judgement of the verifier.

**LRQA's opinion**  
Based on LRQA's approach nothing has come to our attention that would cause us to believe that the Report was not prepared in conformance with ISO 14064-1:2009 and that the direct GHG emissions, energy indirect GHG emissions and other indirect GHG emissions from mobile combustion sources included in the Report, as summarized in Table 1, are not materially correct.

**Lead Verifier**  
On behalf of Lloyd's Register Quality Assurance Limited represented by Lloyd's Register Quality Assurance España, S.L.  
C/ Princesa, 26, 1º  
28008 Madrid  
España

**Dated:** 15 February 2016

**Table 1. Port Authority of Valencia, GHG Inventory Report 2014**

Scope of Emissions according to ISO14064-1	Tonnes CO <sub>2</sub> e
Direct GHG Emissions	169
Energy Indirect GHG Emissions	1480
Other Indirect GHG Emissions from concession companies	151451
<b>Total</b>	<b>153100</b>

Origin of Emissions	Tonnes CO <sub>2</sub> e
Port of Valencia facilities	1649
Diesel, gas and electricity consumption of concession companies	49772
Diesel consumption resulting from the transport of goods to the port of Valencia	19825
Fuel oil consumed by vessels from their point of entry into the port until berthed and from berth to leaving the port	85854
<b>Total</b>	<b>153100</b>

**Indicator : CO<sub>2</sub>e kg per ton of goods transported** **2.58 CO<sub>2</sub>e kg**

**CERTIFICACIÓN**

**AUTORIDAD PORTUARIA DE VALENCIA**

ha sido registrada en fecha 15/01/2008 con el número

**ES-CV-000023**

ALANCE DEL SISTEMA DE GESTIÓN MEDIOAMBIENTAL

REGIÓN DE SERVICIOS E INFRAESTRUCTURAS EN LOS PUERTOS DE SAGUNTO, VALENCIA Y GARCIA

**EMAS**

Valencia, España

**DIRECTOR GENERAL DE CALIDAD AMBIENTAL**

**CERTIFICADO DE APROBACIÓN**

Certificamos que el Sistema de Gestión Energética de:

**AUTORIDAD PORTUARIA DE VALENCIA**  
Muelle del Turia s/n  
46024 Valencia  
España

ha sido aprobado por Lloyd's Register Quality Assurance de acuerdo con la siguiente Norma de Sistema de Gestión Energética:

**ISO 50001:2011**

El Sistema de Gestión Energética es aplicable a:

**Gestión de Servicios e Infraestructuras en el Puerto de Valencia.**

Aprobación Certificado No: SG 6044721      Aprobación Original: 26 de Octubre 2016  
Certificado en Vigor: 26 de Octubre 2016  
Caducidad del Certificado: 25 de Octubre 2019

Emiteo por: LRQA España, S.L.  
Por y en nombre de: Lloyd's Register Quality Assurance Limited

Declaration of the verifier according to ISO 14064 for the calculation of the PAV's carbon footprint for 2014.

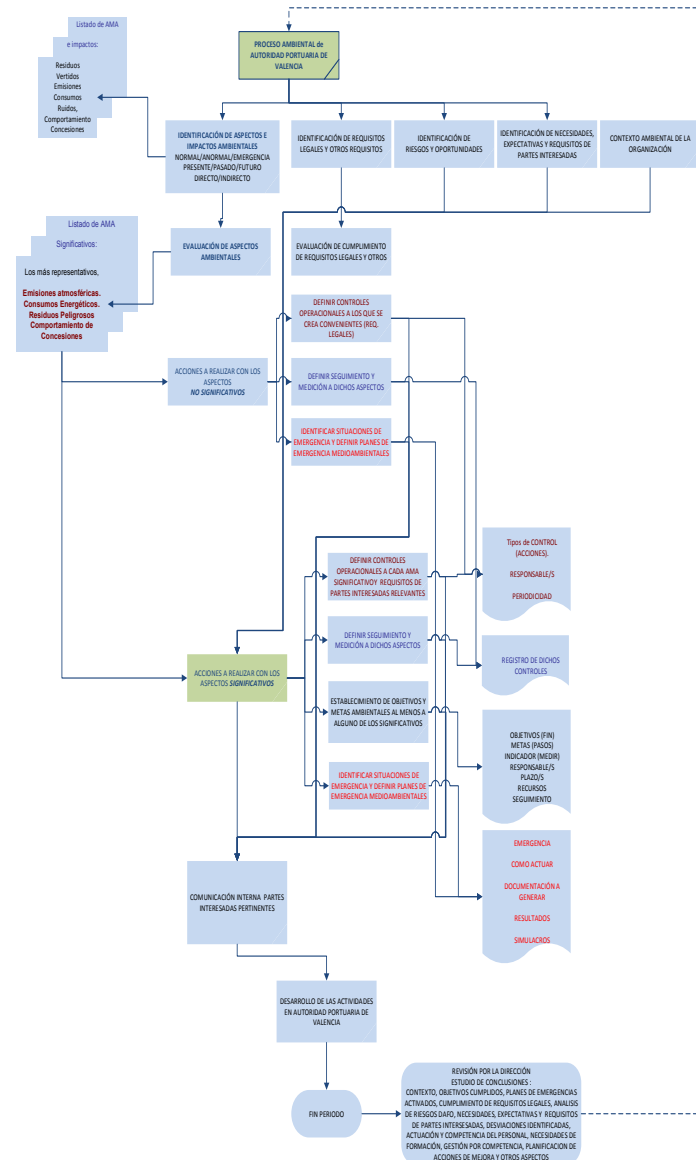
On 15 January 2008, the Port Authority of Valencia was registered by the Ministry of Infrastructure, Territory and the Environment under entry number ES-CV 000023 to certify compliance of its Environmental Management System according to Regulations (EC) No 1221/2009 and 761/2001.

In 2016 the Port Authority of Valencia obtained ISO 50001 certification for the Port of Valencia.



# 4. DESCRIPTION OF THE ENVIRONMENTAL MANAGEMENT SYSTEM

## 4.3. DESCRIPTION



## 4.4. ENVIRONMENTAL ASPECTS

The Port Authority of Valencia’s Environmental Management System documentation includes a procedure to identify and evaluate Environmental Aspects (PMA-03) which, from the perspective of the life cycle, sets out a method to identify and assess the environmental aspects associated with its activities and services, and those generated directly and indirectly in the port facility.

In this procedure, environmental aspects are identified by the person responsible for the environment in the organisation. This includes pinpointing both direct and indirect environmental aspects in normal and abnormal situations. Similarly, potential environmental aspects are identified, based on an analysis of accidents and emergency situations that have taken place, and on a study of the facilities and the activities undertaken.

### THE FOLLOWING ASPECTS ARE CONSIDERED:

**Direct environmental aspect:** element of the activities, products and services of an organisation that can interact with the environment.

**Indirect environmental aspect:** aspect that can result from the organisation’s activities and over which latter does not have full management control.

**Significant environmental aspects** are the first to be taken into account when defining objectives and goals aimed at reducing the impact of these aspects.

**Environmental impact:** any changes in the environment, whether adverse or beneficial, wholly or partially resulting from the environmental aspects of an organisation.

**Normal conditions:** Normal or routine operating conditions.

**Abnormal conditions:** Conditions that, although monitored, are abnormal, such as maintenance, cleaning, start-up, shut-down, etc.

**Emergency situations:** uncontrolled situations, which includes both incidents and accidents.

Direct environmental aspects are evaluated using the method explained in the corresponding EMS procedure. They are each analysed separately using the method mentioned above, which uses the criteria of the frequency with which the environmental aspect occurs and of severity, which is determined by calculating the hazardousness of the aspect and its magnitude.

# 4. DESCRIPTION OF THE ENVIRONMENTAL MANAGEMENT SYSTEM

The frequency of each type of aspect is classified according to three categories: Low, Medium and High. The magnitude and hazardousness, which establish the severity, are classified into the categories Low, Moderate, Medium, and High. Aspects are considered to be significant if their severity is assessed as being High, regardless of the frequency, as shown in the following table.

		Severity			
		Low	Moderate	Medium	High
Frequency	Low				
	Medium				
	High				

Indirect environmental aspects are assessed using the criteria of the frequency with which the environmental aspect occurs and the consequences for each of the identified aspects. The frequency is classified as: Low, Medium and High, and the consequences are classified in the categories: low impact, medium impact, and high impact.

Thus, aspect are considered to be significant if their consequences have a high or medium impact, with a high frequency, as shown in the following table..

		Consequences		
		Low impact	Medium impact	High impact
Frequency	Low			
	Medium			
	High			

Environmental aspects identified in emergency situations are assessed according to the criteria of the frequency, magnitude of the impact and awareness of the environment, and scores previously defined using the methodology established in the EMS are assigned accordingly. Thus the total score is obtained as the sum of the points assigned for each criterion and for each aspect. Once all the identified aspects have been assessed, their scores are ranked from highest to lowest. The top 20% of scores are considered to be significant.

If there are any aspects not included in this segment, but which have the same points as the lowest scoring aspect on the top list, this aspect will also be considered as significant.

The possible environmental impacts of the Port Authority of Valencia’s activities on the environment, both directly and indirectly, as well as the objectives set related to them, are summarised in the following table:

Direct:	Obj.	Indirect	Obj.
Waste generation.		Generation of waste in the port facility	
Air emissions	No. 58 No. 64	Emissions from port operations in the port facility	No. 58 No. 59 No. 64
Water quality		Environmental performance of concessions	No. 61
Noise and visual impact		Noise on roads in the port facility	
Water consumption		Water consumption in the port facility	
Energy consumption	No. 57 No. 61 No. 62	Energy consumption in the port facility	No. 61
Raw material consumption		Raw material consumption in the port facility	

In addition to the environmental aspects described above, the aspect “environmental behaviour of concessions” is established. This is evaluated using the percentage of concessions included in the various levels defined in Ecoport.

Following the evaluation criteria set out in the “Procedure for the Identification and Evaluation of Environmental Aspects”, the table below shows the significant environmental aspects.



# 4. DESCRIPTION OF THE ENVIRONMENTAL MANAGEMENT SYSTEM

Significant Environmental Aspects			
Direct:	Obj.	Obj.	Indirect
Energy consumption	No. 57	No. 61	Environmental performance of concessions
	No. 60		
	No. 62		
		No. 58	Emissions from port operations in the port facility
		No. 59	
		No. 64	

The list of aspects is reviewed each year and updated as necessary.

Objectives are established (see point 4.5) to improve the main aspects and the significant environmental aspects.

In the case of public works, environmental aspects are identified and their significance is assessed through an Environmental Impact Study. The Environmental Impact Statement and the Environmental Surveillance Plan are used to monitor them.

## 4.5. OBJECTIVES AND GOALS

### 4.5.1. PRIOR TO AND PLANNED IN 2017

The following objectives, planned and carried out during 2017, are differentiated by colours according to the legend described below:

	Objective established in previous years that has not yet been achieved.
	Objective planned in the current year, which is linked to objectives established in previous years.
	New objective established in the current year.

#### Objective no. 40: Implementation of a computer tool to manage the EMS

The tool was implemented after solving certain technical problems. **The objective has therefore been completed.**

#### Objective no. 44: improving environmental quality in bulk handling at the Port of Sagunto.

During 2017, the study was completed with actual measurements and with a particle dispersion model, simulating with and without barriers. After the study, the supply contract for filter screen barriers was tendered and awarded.

There was a delay in the start of the work related to the stability of the barriers which was solved at the end year, giving rise to their deployment. The elements that make up the screen of the barrier were received, and it is forecasted that it will be installed and functioning in mid-February 2018. **The objective has therefore been completed.**

#### Objective no. 52: Port of Valencia Energy Study.

The energy study of the Port of Valencia has been completed. In this study, an increase in future demand without the energy supply capacity has been detected. This study resulted in the commissioning of a substation. **The objective has therefore been completed.**

#### No.54: Increase electric vehicle fleet by 1%.

After studying different alternatives, another electric vehicle was purchased that was registered in July. There are now 4 fully electric vehicles. The expected increase was exceeded and therefore **the objective was completed.**

#### No. 55: Study on the possibility of supplying electricity to ships in a Short Sea Shipping line at the Port of Valencia.

Data was collected during the first half of the year. The information was processed and the data was analysed. There is no interest from the user, therefore, **the objective will not be pursued.**

# 4. DESCRIPTION OF THE ENVIRONMENTAL MANAGEMENT SYSTEM

## No. 56 Extend the PAV's electricity control points by 5% compared to the previous year at the Port of Valencia

A study was conducting on the existing control points at the PAV.

Measurement mechanisms were installed at the control points considered within the new scope, so that the total electrical control increased by around 7% compared to the previous year. **The objective has therefore been completed.**

## No. 57 Decrease electricity consumption in PAV buildings at the Port of Valencia by 2% compared to the previous year

Previous studies have been conducted on light comfort, economic viability and criteria have been established for choosing light fittings. Specifications have been drawn up for the purchase of these light fittings. It is expected that the lights in PAV buildings will be changed to LED lamps with lower consumption.

The supply of LED lamps has been put out to tender, so the replacement will not be carried out until 2018. During 2018, it will be possible to compare the consumption to estimate its decrease compared to the previous year. **Objective moved to 2018.**

## No. 58 OBJECTIVE: Calculate the Carbon Footprint of the Port of Valencia for 2016 and validate the result with certification company and registration to MAPAMA.

Finally, the carbon footprint was calculated for both 2015 and 2016. The value obtained for both years was of 2.58 Kg of CO<sub>2</sub>eq/t of moved goods. Validation of the result with the certification company is pending, scheduled for the first quarter of 2018, and its subsequent registration in the MAPAMA. **Objective moved to 2018.**

## No. 59 Installation of a substation at the Port of Valencia.

Technical project currently being drafted.

The project will be sent to Puertos del Estado early next year, following the rules applicable to ports in this regard. Objective continues as expected, during 2018

## No. 60 Study on improving the energy efficiency of the PAV air conditioning facilities in Valencia.

A study was conducted on the state of the plant and the possible improvements to increase its energy efficiency. Parameters were measured. Having detected the shortcomings and possible improvements in the equipment, a summary of alternatives with economic and technical options for decision-making was prepared. Having assessed the alternatives, two engine starters were installed which make the starting curve softer, and the proper functioning was tested.

**The objective has therefore been completed.**

### 4.5.2. NEW OBJECTIVES FOR 2018

The objectives planned for 2018 address the main environmental aspects associated with the PAV's activities and operations that have environmental implications. The objectives have been grouped together based on these criteria, and with the colour code used above:

#### a) ENVIRONMENTAL ASPECTS:

##### AIR:

## No. 62 OBJECTIVE: Replacement of 33% of the motorcycles in the PAV fleet with electric models for the port police

It is planned to replace two motorcycles used by the port police with two electric models.

**Starting point:** The PAV has opted for electric vehicles, already having 4 electric passenger cars.

**Plan:** Expand the fleet of electric vehicles and thus improve the emissions of PAV vehicles.

**Result:** Control emissions. Environmental Policy Lines: Prevent and minimise the emissions, discharges, noise and waste generated as a result of its activity, trying to recover the waste generated as much as possible.



# 4. DESCRIPTION OF THE ENVIRONMENTAL MANAGEMENT SYSTEM

## No. 58 Calculate the Carbon Footprint of the Port of Valencia for 2016 and validate the results with certification company. Registration to MAPAMA

This objective is carried out with the aim of reducing the environmental impact generated by CO2 equivalent emissions, by implementing periodic measurement and control of the carbon footprint of the Port of Valencia, as well as validation of the results by an external agency. In addition, the PAV intends to formalise the work done in this aspect with the MAPAMA.

**Starting point:** The Carbon Footprints for 2008, 2010, 2012 and 2014 are calculated and validated. Registration of the Carbon Footprint for said years in MAPAMA.

**Plan:** Obtain the Carbon Footprint for 2015 and 2016, to analyse the trend. Registration of the Carbon Footprint obtained in MAPAMA.

**Result:** Carbon Footprint Calculation. **Environmental Policy Lines:** Evaluate and periodically measure the impact of the activities carried out in the port facilities by calculating the Carbon Footprint

## No. 64 Improve air quality control in the Port of Sagunto by installing a particle sensor.

This objective is carried out with the aim of expanding the control measures over the activities that may affect air quality.

**Starting point:** expand the air quality control measures, by installing equipment to improve the control.

**Plan:** real time data on the air quality at the Port of Sagunto.

**Result:** improved air quality control at the Port of Sagunto. **Environmental Policy Lines:** Systematically and periodically analyse and evaluate the company's activities, products and services that may interact with the environment, in order to be aware of and manage the environmental risk that may arise.

## PESTS

### No. 63 OBJECTIVE: Implement a Feline Control Plan at the PAV ports.

An overpopulation of cats has been recorded in the port facilities of the PAV, which should be controlled to prevent disease in the animals, as well as to prevent possible contagion of workers.

**Starting point:** An initial study was carried out to identify the cat population and their situation with regard to potential diseases.

**Plan:** prevent possible instances of disease, in both animals and contagion to employees.

**Result:** improvement of the habitat of the cats that coexist in the port area. **Environmental Policy Lines:** Respect for the environment.

## b) IMPROVING PROCESSES & ACTIVITIES

### ECO-EFFICIENCY:

### No. 59 OBJECTIVE: Installation of a substation at the Port of Valencia.

This objective is carried out with the purpose of identifying the expected future use and being able to plan, monitor and improve the energy system in the Port of Valencia, so as to be able to take measures to provide for the same, as well as to develop feasibility studies for renewable energies in the port.

**Starting point:** Provision of current information concerning energy management in the Port of Valencia.

**Plan:** Viable alternatives for action to deal with the future energy demand at the Port of Valencia.

**Result:** Energy assessment of the port. **Environmental Policy Lines:** Integrate environmental and energy considerations into the planning, organisation, management, and conservation processes of the public port domain, serving to set goals and objectives for improving both systems.

## 4. DESCRIPTION OF THE ENVIRONMENTAL MANAGEMENT SYSTEM

### No. 57 Decrease electricity consumption in PAV buildings at the Port of Valencia by 2% compared to the previous year

This objective is carried out with the purpose of reducing electricity consumption at the Port of Valencia, taking concrete actions to achieve this objective

**Starting point:** The buildings have the necessary consumption control.

**Plan:** Carry out the necessary actions by changing currently light fittings for LED technology to reduce electrical consumption compared to the previous year by the established percentage.

**Result:** Reduced electricity consumption. **Policy Line:** Measure, control and manage the consumption of natural resources and energy, incorporating eco-efficiency criteria in general and energy efficiency in particular, to achieve the adequate environmental and energy performance of the services provided

### MANAGEMENT:

**No. 61 OBJECTIVE:** Establishment of an Environmental Energy study of the ports of the PAV 2018-2022. Phase I: Prospective environmental energy analysis within the framework of the ECOPORT III project in the PAV ports.

This objective is carried out with the purpose of identifying the energy exploration of the concessionaires of the ports managed by the PAV.

**Starting point:** in the framework of ECOPORT III, in which the majority of the port community participates, environmental and energy initiatives are carried out involving the members of ECOPORT.

**Plan:** perform a baseline study to carry out joint initiatives.

**Result:** improved energy efficiency. **Policy Lines:** Integrate environmental and energy considerations into the planning, organisation, management, and conservation processes of the public port domain, serving to set goals and objectives for improving both systems.

# 5

## MANAGEMENT OF NATURAL RESOURCES





# 5. MANAGEMENT OF NATURAL RESOURCES

## 5.1. WATER

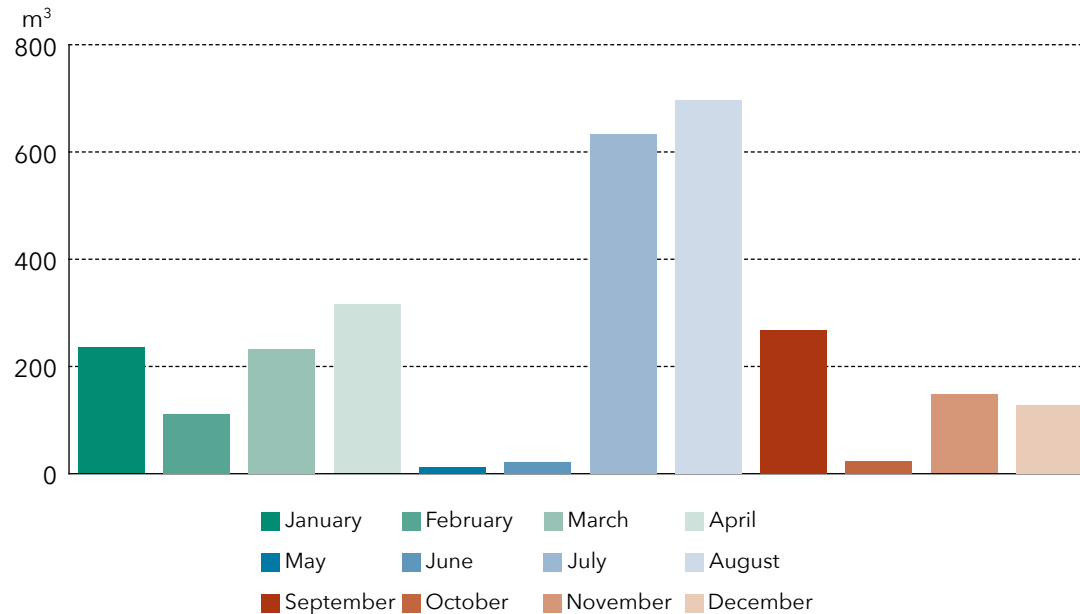
Water consumption at the PAV corresponds to water used in buildings and for watering gardens. Total water consumption at the PAV in 2017 was 37,053 m<sup>3</sup>, 11.3% less than the previous year, where consumption was 41,802 m<sup>3</sup>.

Consumption by ports was distributed as follows:

Consumption at the Port of Sagunto was 2,834 m<sup>3</sup>. The graph shows the monthly consumption.

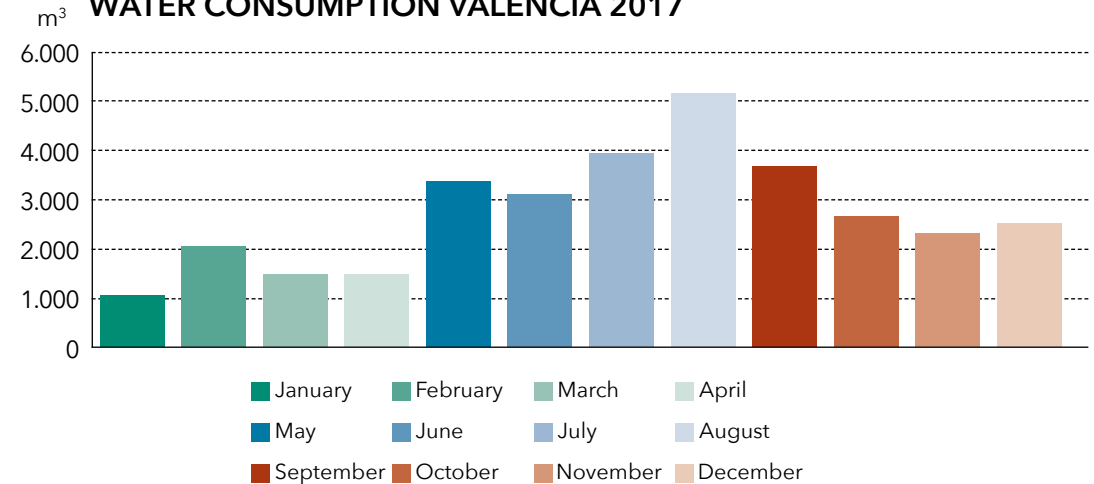
In 2017 consumption at the Port of Valencia was 32,765 m<sup>3</sup>, with monthly consumption as follows:

**WATER CONSUMPTION SAGUNTO 2017**



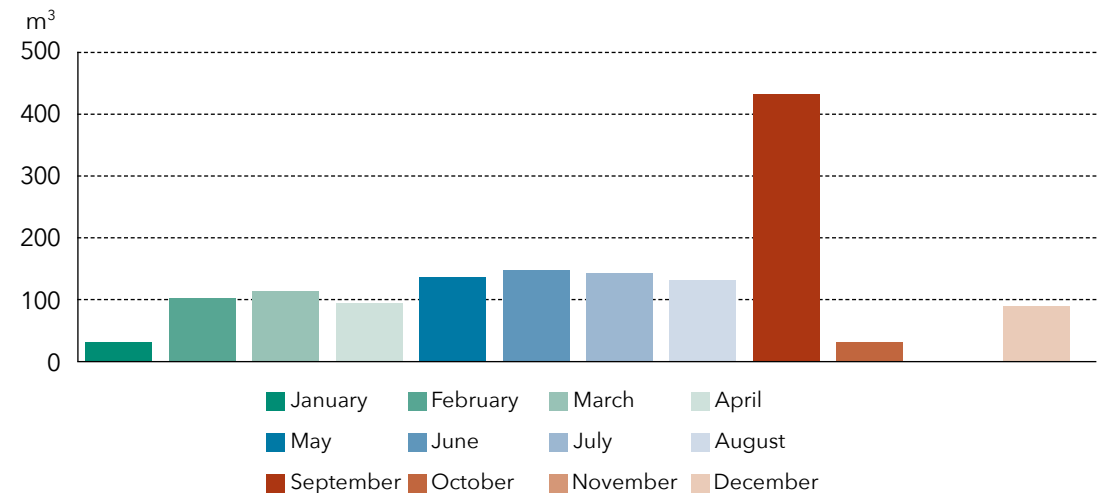
In 2017 consumption at the Port of Valencia was 32,765 m<sup>3</sup>, with monthly consumption as follows:

**WATER CONSUMPTION VALENCIA 2017**



Water consumption at the Port of Gandia was 1,454 m<sup>3</sup>. Monthly consumption was distributed as follows:

**WATER CONSUMPTION GANDIA 2017**

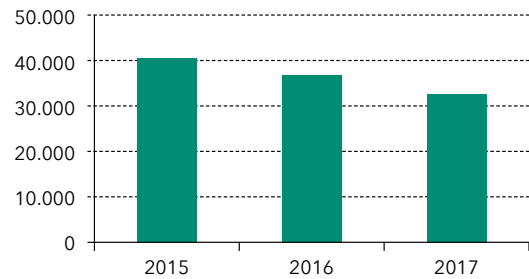


# 5. MANAGEMENT OF NATURAL RESOURCES

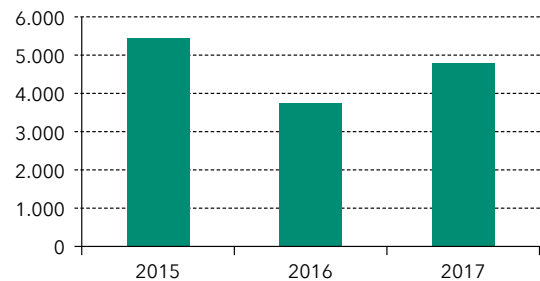
In November there was a change in garden watering, therefore there was no consumption.

The evolution of water consumption at the ports of Sagunto, Valencia and Gandia is shown below:

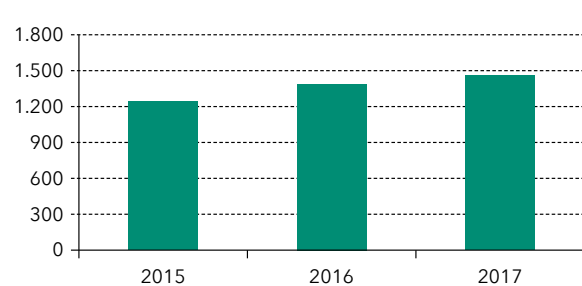
**EVOLUTION OF CONSUMPTION VALENCIA (m³)**



**EVOLUTION OF CONSUMPTION SAGUNTO (m³)**



**EVOLUTION OF CONSUMPTION GANDIA (m³)**



Consumption at the ports of Valencia and Sagunto fell slightly compared to the previous year, which attests to the efficiency of the monitoring and reduction systems introduced over the last few years. At the port of Gandia there was a slight, but not relevant, increase.

## 5.2. ELECTRICITY

In 2017, the Port Authority of Valencia's total energy consumption was 8,264,782 Kwh (8,264.78 Mwh), 8.2% less than the previous year.

The breakdown of the origin of the production of electricity that we consume is as follows:

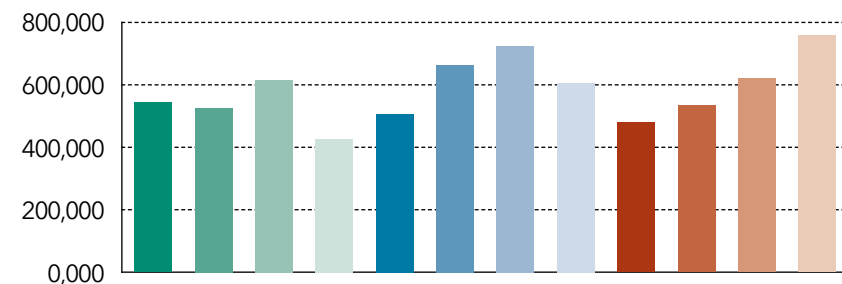
Renewable energy	63.1%
High efficiency co-generation	2.9%
Co-generation	5.2%
CC Natural Gas	6.3%
Coal	8.2%
Fuel/Gas	1.5%
Nuclear	12.2%
Other	0.6%

Source: CNMC (National Commission for Markets and Competition, 2016 (Iberdrola Clientes, S.A.U))

By ports, monthly electricity consumption was distributed as follows:

Total electricity consumption at the Port of Valencia in 2017 was 7,024,627 Kwh (7,024.627 Mwh). Monthly distribution is shown below:

**VALENCIA 2017 CONSUMPTION - Mwh**

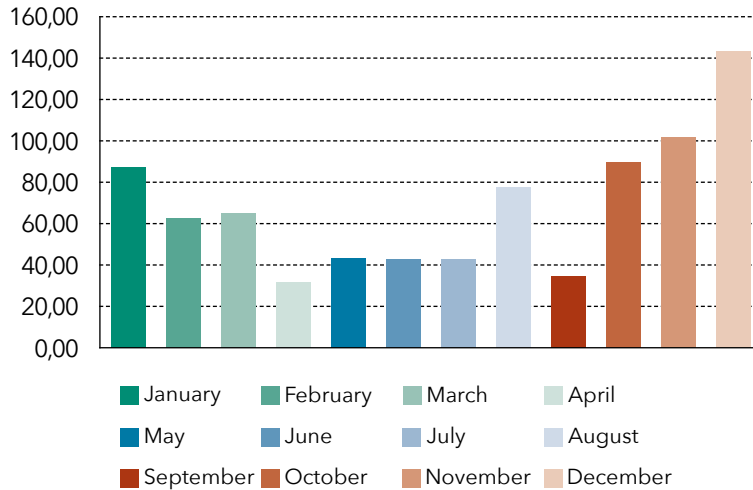


■ January    ■ February    ■ March    ■ April  
■ May    ■ June    ■ July    ■ August  
■ September    ■ October    ■ November    ■ December

# 5. MANAGEMENT OF NATURAL RESOURCES

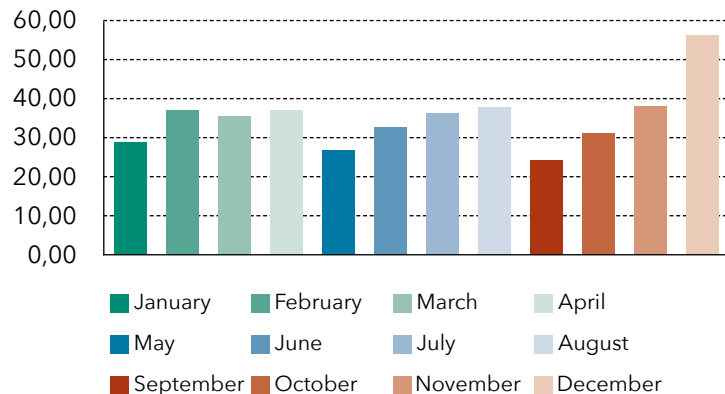
Total electricity consumption at the Port of Sagunto was 821,977 Kwh (821.977 Mwh). Monthly consumption was distributed as follows:

**SAGUNTO 2017 ELECTRICITY CONSUMPTION - Mwh**



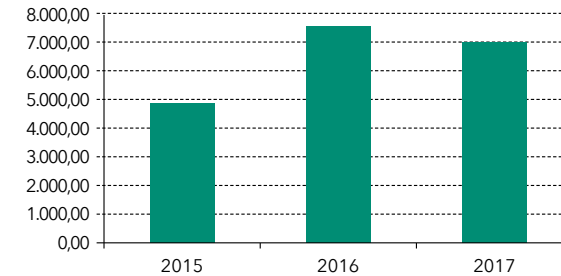
Total electricity consumption in the PAV buildings and roads at the Port of Gandia in 2017 was 418,178 KWH (418.178 Mwh). Monthly consumption is shown below:

**GANDIA 2017 ELECTRICITY CONSUMPTION - Mwh**

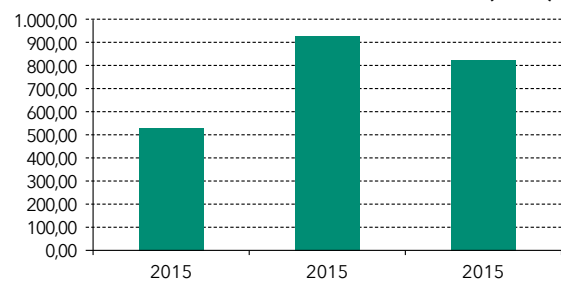


The evolution of electricity consumption at the ports of Sagunto, Valencia and Gandia is shown below:

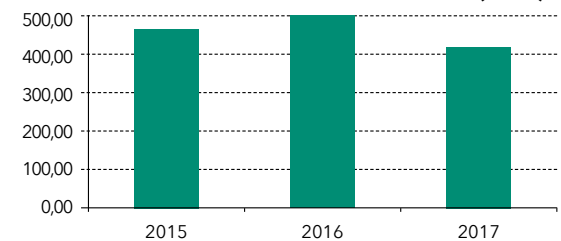
**EVOLUTION OF CONSUMPTION VALENCIA (Mwh)**



**EVOLUTION OF CONSUMPTION SAGUNTO (Mwh)**



**EVOLUTION OF CONSUMPTION GANDIA (Mwh)**



In 2016 the Energy Management System was implemented. Since then, and due to the increase in monitoring and the scope of the system (change of approach in the monitoring, including PAV services not considered until then) and of the actions carried out, a decline in consumption can be seen, which we hope will be consolidated in subsequent years.



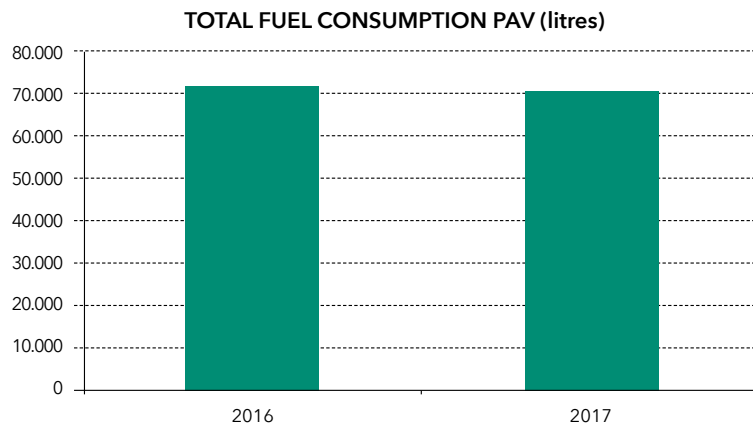
# 5. MANAGEMENT OF NATURAL RESOURCES

## 5.3. FUEL

In 2017, the Port Authority of Valencia's vehicles used 18,846 litres of unleaded petrol, 51,306 litres of Diesel A and had no consumption of Diesel B.

The total consumption was 70,152 litres.

Valencia fuel consumption in litres	2016	2017
Unleaded petrol	25,776	18,846
Diesel A	45,185	51,306
Diesel B		
<b>TOTALS</b>	<b>70,961</b>	<b>70,152</b>



The graph above shows that consumption of fossil fuels has declined slightly compared to the previous year (-1.15%).

The PAV has a gasoline pumps in workshops in Valencia. During 2016, the gasoline re-fuelling service was outsourced. The fuel tank located at the Valencia workshops was made inert.

Data from 2016 is not comparable with the previous years as previously only data on this gasoline pump was used. Now, data refers to any refuelling of vehicles in the PAV.

In 2018 the PAV fleet was made up of the following vehicles:

- Cars: 34 compared to 36 last year
- Vans: 20 compared to 21 last year
- Motorcycles: 3 compared to 3 last year
- Lorries: 4 compared to 2 last year

In addition to the vehicle fleet, the PAV also has several generators and other ancillary equipment that use petrol. These generators are used to create electricity on quay areas when necessary.

## 5.4. PAPER CONSUMPTION

Since 2010, conventional paper has been replaced with "sustainably-sourced" paper (Triotec IQ), certified by the Forest Stewardship Council (FSC). Consumers that purchase FSC paper know that it has been produced sustainably and that using it contributes to conserving forests and the environment.

FSC-certified paper has the following characteristics:

The virgin fibre used to make the paper is obtained via environmentally friendly methods, maintaining the biodiversity of forest eco-systems and ensuring that forests can be used by future generations.

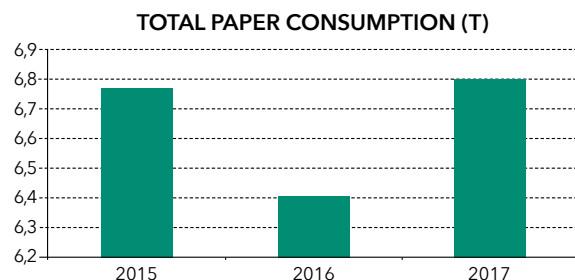
The paper bleaching process is totally chlorine-free.

The rights of local communities who live or work in the forest are respected

The paper consumed at the PAV is 100% ecological paper.

In 2016, 6.8 tonnes of paper were used. Over the last few years, the Port Authority of Valencia has implemented a series of measures aimed at reducing paper consumption, such as the implementation of the austerity plan at the PAV, improving staff awareness, configuring printers to print on both sides of the paper, and reusing paper for drafts, which have managed to reduce paper consumption. However, during 2017, there was an increase of 6% compared to the previous year.

# 5. MANAGEMENT OF NATURAL RESOURCES



## 5.5 SUMMARY OF INDICATORS

In accordance with the requirements of Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 relating to the voluntary participation by organisations in a community eco-management and audit scheme (EMAS), the following indicators were proposed:

\*Average workforce in 2017 = 438. Data facilitated by Human Resources

2017 Indicator	Annual Total	Ratio
Electricity consumption	8,264,782 MWh	18.86 (MWh per employee)
Water consumption	37,053 m3	84.595 (m3 per employee)
Total fuel consumption	692.860 MWh	1.581MWh per employee
Biodiversity	13,974.73 m2	31.90(m2 built-up area per employee)
Paper	6.80 tonnes	0.015 (tonnes per employee)
Hazardous waste	27.74 tonnes	0.063 (tonnes per employee)
Non-hazardous waste	15.91 tonnes	0.036 (tonnes per employee)
Emissions CO2 equivalent ** (direct)	181.647 tonnes CO2 eq	0.415 (tonnes CO2 eq per employee)
Emissions CO2 equivalent ** (indirect)	1677.75 tonnes-CO2eq	3.83 (tonnes CO2 eq per employee)
Total emissions CO2 equivalent ** (direct+indirect)	1859.40 tonnes CO2 eq	4.24 (tonnes CO2 eq per employee)

The annual evolution of the relative indicators calculated is shown below:

Relative indicator	2014	2015	2016	2017
Electricity consumption (MWh per employee)	13.33	14.39	21.04	18.86
Water consumption (m3 per employee)	133.136	115.674	95.985	84.595
Fuel consumption (MWh per worker)	-	-	1.625	1.581
Biodiversity (m2 built-up area per employee)	34.763	34.193	32.649	31.905
Paper	0.017	0.016	0.014	0.015
Hazardous waste	0.006	0.016	0.017	0.063
Non-hazardous waste	0.024	0.021	0.019	0.036
Equivalent CO2 emissions** (direct) (tonnes CO2)	407	383	346	415
Equivalent CO2 emissions** (indirect) (tonnes CO2)	3,114	2,920	4,270	3,830

\*\*Emissions CO 2equivalent: as an organisation, the Port Authority of Valencia does not generate CO2 emissions over and above those associated with the vehicles it owns (direct emissions) and indirect emissions, associated with energy consumption. Total emissions in tonnes of CO2 eq. were calculated using Valencian Region energy data published in 2011 by the Valencian Energy Agency (AVEN)

The electrical emissions coefficient in g of CO2 equivalent/KWh is 203 for indirect CO2 emissions from electricity consumption

The fuel emissions coefficient in g of CO2 equivalent/KWh is 266.54 for diesel, and 249.28 for petrol for direct CO2 emissions

Equivalent CO2 emissions** (direct) (tonnes CO2)	170,37
Equivalent CO2 emissions** (indirect) (tonnes CO2)	2.314,14

\*\*Emissions CO 2equivalent: as an organisation, the Port Authority of Valencia does not generate CO2 emissions over and above those associated with the vehicles it owns (direct emissions) and indirect emissions, associated with energy consumption. The conversion factors relating to 2017 published in the carbon footprint calculator of scope 1+2 for organisations v.11 of the Ministry of Agriculture and Fisheries, Food and Environment were used to calculate the total emissions in tonnes of CO2.

The electrical emissions coefficient in g of CO2 equivalent/KWh is 0.28 for indirect CO2 emissions from electricity consumption

The fuel emissions coefficient in kg of CO2 equivalent/litre is 2.52 for diesel, and 2.18 for petrol for direct CO2 emissions

# 6

## STATE OF THE ENVIRONMENT





# 6. STATE OF THE ENVIRONMENT

## 6.1. WASTE

The Port Authority of Valencia is responsible for managing the waste produced directly by the organisation as the Producer (Law 22/2011, of 28th July, on waste and contaminated soils).

The PAV is also responsible, indirectly, for proper management of waste that is generated in the three port facilities of Valencia, Sagunto and Gandia, managed by the PAV in its position as waste Holder.

### 6.1.1. OWN WASTE

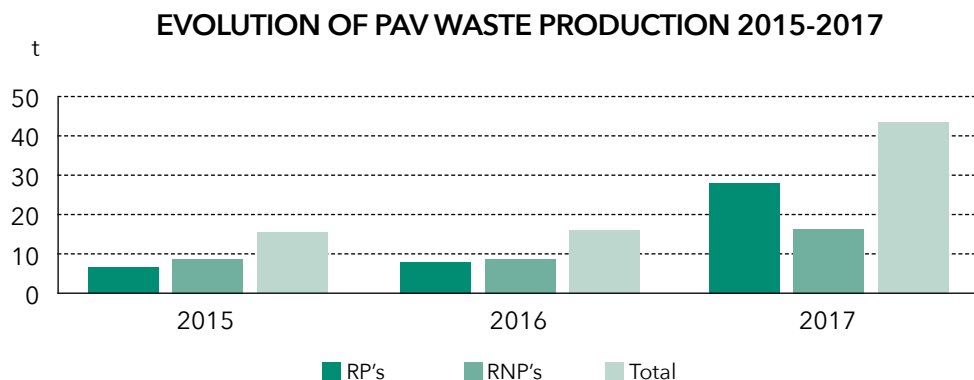
The PAV generates waste from the activities it carries out at its offices in Valencia, Sagunto, and Gandia, at its workshops and at its clinic located in Valencia.

In compliance with Law 22/2011, of 28th July, on waste and contaminated soils, for waste that is directly produced by the company activity, the PAV is defined as a Producer of hazardous waste and of health care waste, with registration numbers 3631/P02/RP/CV and 46/9127/CV, respectively.

In 2017, the PAV's activity generated a total of 43.65 tonnes of waste, of which 15.91 tonnes correspond to non-hazardous waste and 27.74 tonnes was hazardous waste

To analyse the data obtained in 2017, the following graph presents data on the evolution of waste produced by the PAV from 2015 to 2017::

Graph 1.



As can be seen graph 1, there has been an increase in both hazardous and non-hazardous waste production during 2017.

Graphs 2 and 3 below show data on non-hazardous waste and hazardous waste production from PAV's activity during 2017:

A) In 2017 non-hazardous waste production reached 15.91 tonnes.

As has been happening since 2013, graph 2 shows that, in 2017, the most significant volume of non-hazardous waste generated in the PAV corresponds with the headings "Confidential documentation" and "Metals (scrap)".

There has been an increase in the production of confidential documentation and metals (scrap) compared to 2016, increasing from 3.13 tonnes in 2016 to 6.91 tonnes in 2017; and 1.72 tonnes in 2016 to 3.74 tonnes in 2017, respectively.

These waste headings have increased as a result of cleaning various PAV units (files, offices, etc.), which is usually done every 5 years, and cleaning certain stores, mechanical and electrical workshop, etc. owned by the PAV.

There has also been an increase in hazardous waste due to the significant increase in the production of Waste Electrical and Electronic Equipment (WEEEs) and the removal and management of Transformers that contain PCBs, which has meant an annual hazardous waste production of 27.74 tonnes.

There has been a marked increase in the production of WEEEs, from 4.3 tonnes in 2016 to 14.62 tonnes in 2017. This increase is due to the removal, as well as the gradual replacement, of various electrical and electronic equipment, as they had been depreciated and completed their useful life, therefore requiring their replacement.

In 2017 the PAV has voluntarily decided to remove, manage and destroy the Transformers containing PCBs, despite not having completed their useful life, in order to replace this equipment with other more environmentally friendly ones. Waste production from Transformers containing PCBs reached 10.78 tonnes in 2017.

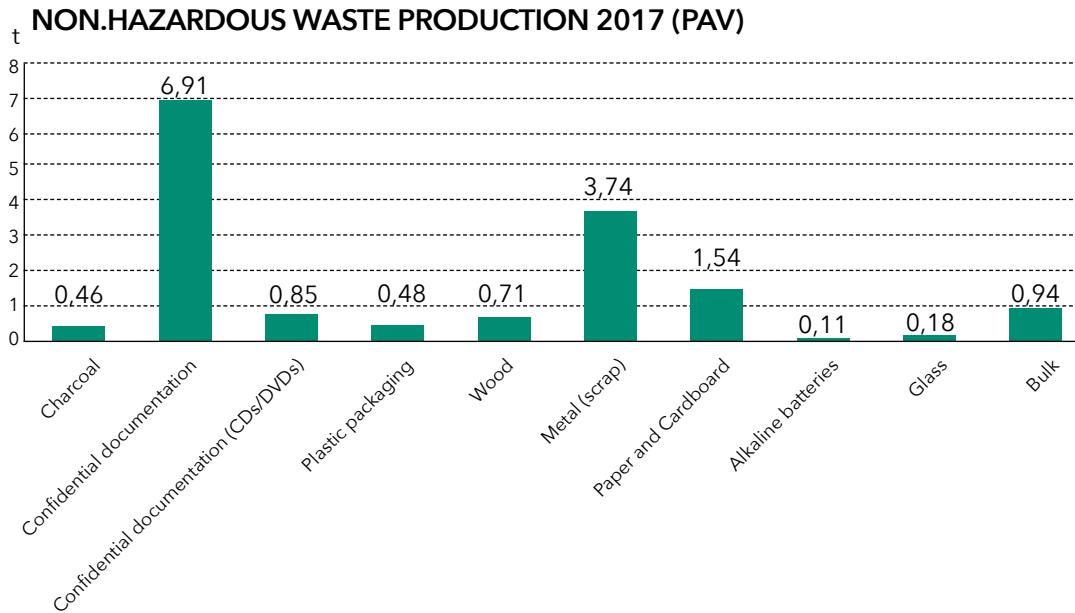
To conclude, it is worth noting that the volume of waste from WEEEs and Transformers with PCBs made up 91.56% of the total hazardous waste production in 2017.

On the other hand, note that the largest volume of waste worth mentioning in this section is "Water-based cleaning liquids" that is generated as a result of the washing of parts in the two washing machines that were installed in the workshops in Valencia. The production of this waste remains stable compared to 2016.

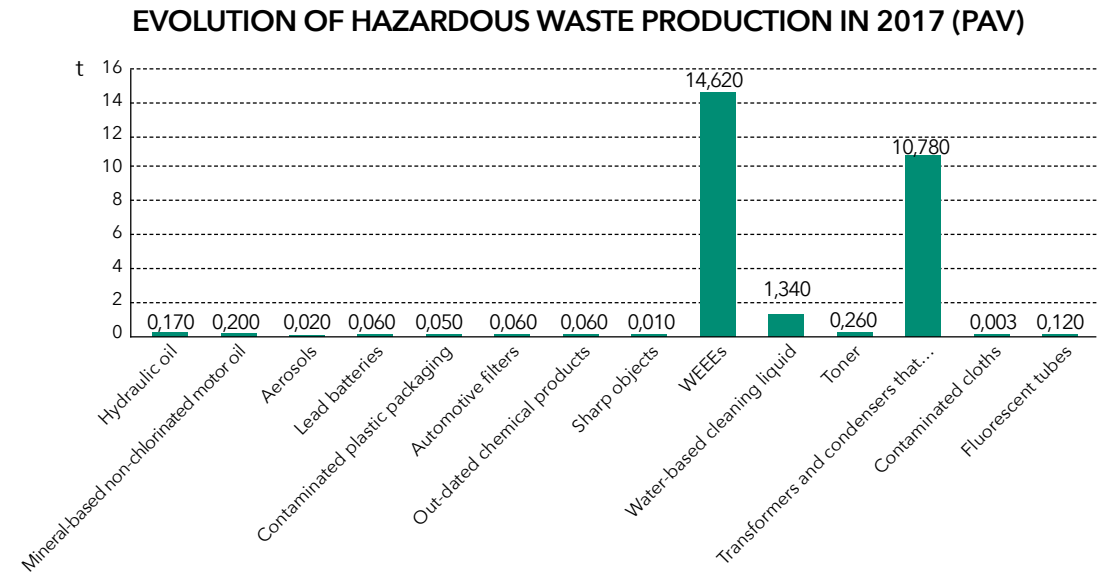
# 6. STATE OF THE ENVIRONMENT

Therefore, the PAV has exceeded the total production of hazardous waste in 2017 by 10 tonnes, communicating this to the competent environmental body promptly and with justification.

Graph 2.



Graph 3.



## 6.1.2. WASTE FROM THE PORT FACILITY

The companies located in the ports managed by the Port Authority of Valencia are obliged to correctly handle the waste they generate in their facilities.

To help manage this waste generated by the companies in the port areas of Valencia, Sagunto, and Gandia, a Waste Transfer Centre (CTR) was set up in the Port of Valencia in 2005 to collect and store the waste generated in the port facilities. This waste is stored in the waste transfer centre for its subsequent transport to the final treatment plants where they will be reused, recycled, recovered or disposed, in any case respecting the waste hierarchy set out in article 8 of the Law 22/2011, of 28 July, on waste and contaminated soils.

Through the waste transfer centre, the Port Authority of Valencia:

- Facilitates the collection and management of the waste generated at the Ports of Sagunto, Valencia, and Gandia.
- Facilitates the paperwork associated with waste removal and management.
- Contributes to maintaining its port facilities in harmony with its environment.

## 6. STATE OF THE ENVIRONMENT

The Port of Valencia's Waste Transfer Centre, located on the Xita Quay, has a total surface area of 3,235.18 m<sup>2</sup>, of which 2,400 m<sup>2</sup> are used to store waste before it is transported for final management.



To store non-hazardous waste, there is one 20 m<sup>3</sup> container for bulk, one 20 m<sup>3</sup> container for wood, several 3 m<sup>3</sup> containers for light packaging and plastics, one 11 m<sup>3</sup> container for glass, two containers of 11 and 25 m<sup>3</sup> for metals (scrap), one 11 m<sup>3</sup> container for used tires and several 3 m<sup>3</sup> containers for cardboard/paper.

In addition, it also has a calibrated weighbridge, and a vehicle authorised to transport hazardous goods.

The companies located in the port areas managed by the Port Authority of Valencia therefore have a facility where it is possible to manage the waste they produce as a result of their activity in a convenient and flexible way, in accordance with current legislation, and benefiting from the savings generated by economies of scale.



*Trailer loaded for the transfer of waste to the final destination plant.*



*Loading of containers containing Hazardous Waste onto the trailer, to later be unloaded at the final destination plant.*

For waste generated indirectly by the PAV, i.e. it appears accidentally or under controlled conditions in the port facilities of Valencia, Sagunto, and Gandia, the PAV has the status of waste holder (in line with the adaptation to Spanish Law 22/2011, of 28th July, on waste and contaminated soils), with registration numbers POS363, POS365, and POS364, respectively.

The waste generated at the port facilities in Valencia, Sagunto, and Gandia is divided into two categories

- Waste generated under controlled conditions, which is deposited in containers installed in the facilities or generated as a result of specific cleaning in which bulky or inert waste, rubble, etc. may be produced.
- Waste generated accidentally as a result of spills caused by traffic accidents, waste that may appear in the sea (such as driftwood, buoys or other marine signage debris), waste arising from maritime pollution emergencies, dumped waste, etc.



# 6. STATE OF THE ENVIRONMENT

As for the volume of waste produced in the three port areas managed by the PAV, there was a total of 43.79 tonnes of waste generated in 2017, broken down in the following manner:

- Controlled waste: a total of 19.2 tonnes of which 17.64 tonnes was non-hazardous waste and 1.56 tonnes was hazardous waste.
- Accidental waste: a total of 24.59 tonnes, broken down into 16.62 tonnes of non-hazardous waste and 7.97 tonnes of hazardous waste.

Therefore, the PAV has been directly or indirectly responsible (as the producer or waste holder) for a total of 37.27 tonnes of hazardous waste and 50.17 tonnes of non-hazardous waste, for a total of 87.44 tonnes of total waste in 2017.

## WASTE GENERATED IN PORT FACILITIES UNDER CONTROLLED CONDITIONS

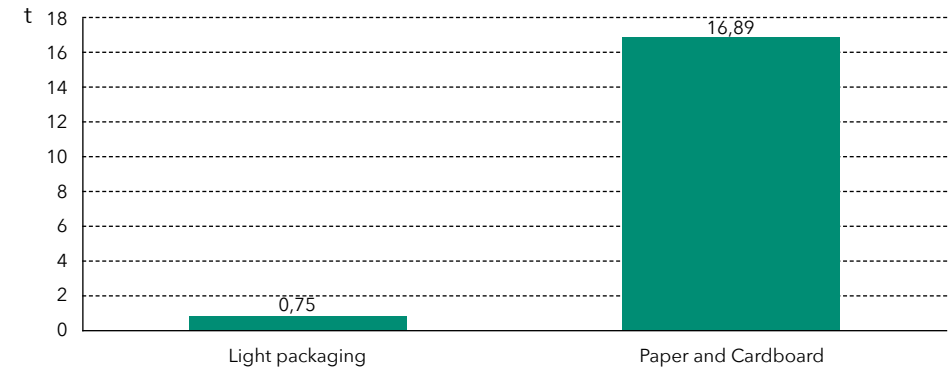
As shown in graphs 4 and 5, the largest volumes of waste during 2017 were paper/cardboard under the heading of non-hazardous waste and end-of-life vehicles under the heading of hazardous waste, with 16.89 tonnes and 1.4 tonnes, respectively.

A) The origin of paper/cardboard is due to the paper and cardboard deposited in the containers installed throughout the port areas of Valencia, Sagunto, and Gandia specifically for this purpose. (See Graph 4)

B) The heading "end-of-life vehicles" appears because in 2017 a vehicle from the port facility was managed and destroyed in an Authorised Treatment Center (CAT), following the mandate of the Court. (See Graph 5).

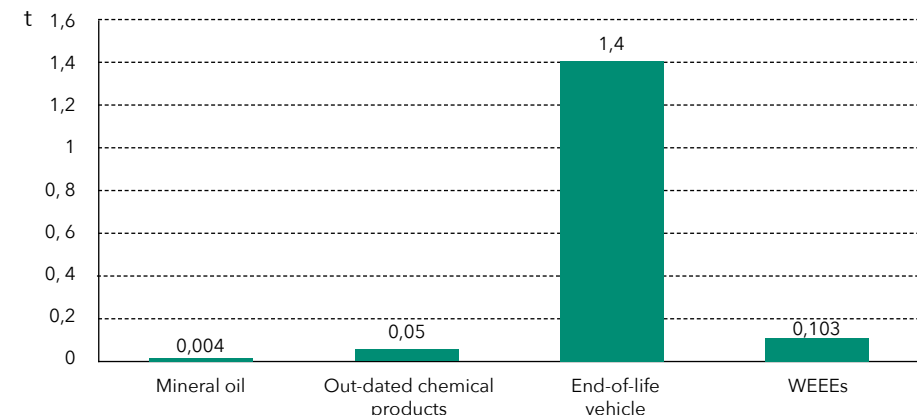
Graph 4.

### PRODUCTION OF NON-HAZARDOUS WASTE OF CONTROLLED ORIGIN IN THE PORT AREA IN 2017



Graph 5.

### PRODUCTION OF HAZARDOUS WASTE OF CONTROLLED ORIGIN IN THE PORT AREA IN 2017



# 6. STATE OF THE ENVIRONMENT

## RESIDUOS GENERADOS EN LOS RECINTOS PORTUARIOS DE ORIGEN FORTUITO

In the case of accidental waste, as can be seen in graphs 6 and 7, the largest volume of non-hazardous waste was "Contaminated soils" with 7.2 tonnes. In terms of hazardous waste, "Floating waste" accounted for the highest figure, with 6.89 tonnes.

A) With regard to the heading "Floating Waste", two types should be distinguished:



Photograph taken during installation of the barrier

- As part of its commitment and respect for the Environment, the PAV has exhaustively monitored the state of the waters of the old Turia river for a number of years, as waste of different types originating from upstream frequently accumulates in the anti-pollution barrier that is installed there. In 2017 a production of 3.62 tonnes was reached.
- Waste produced as a result of the water surface cleaning carried out by the boat Limpia-mar. In this case, 3.58 tonnes of "Floating waste" was produced from this cleaning service in 2017.

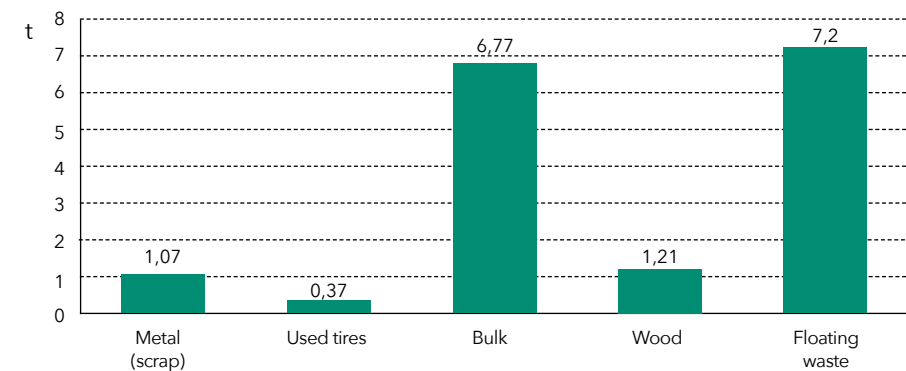


Thanks to the daily monitoring, the corrective actions that may be necessary in order to avoid an impact on the environment are implemented.

B) As for the heading "Contaminated soils" considered as hazardous waste, it should be noted that these occur as a result of the cleaning of spills, both on land and at sea, from traffic accidents that occur in the three port facilities, bilge water discharges to the sea, etc.

Graph 6

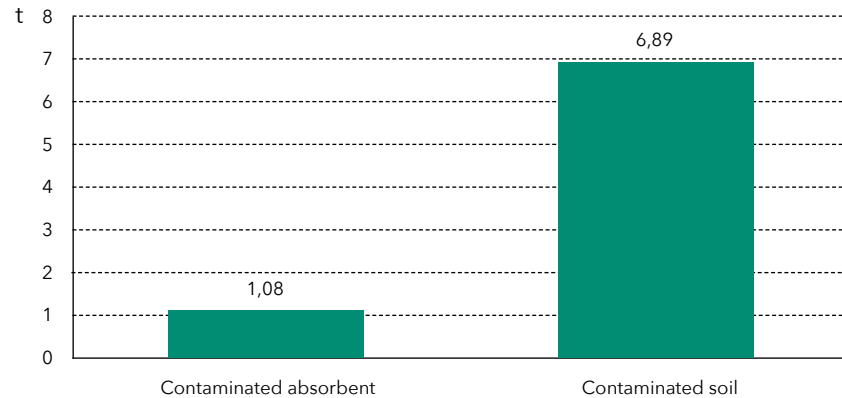
### PRODUCTION OF HAZARDOUS WASTE OF ACCIDENTAL ORIGIN IN THE PORT AREA IN 2017



# 6. STATE OF THE ENVIRONMENT

Graph 7

## PRODUCTION OF HAZARDOUS WASTE OF ACCIDENTAL ORIGIN IN THE PORT AREA IN 2017



### 6.1.3. SHIP-GENERATED WASTE

The Marpol 73/78 International Convention to prevent marine pollution by vessels is one of the tools created under the auspices of the IMO for prevention.

It contains six annexes which include detailed rules on the various sources of pollution. These are:

- Annex I - Rules for the prevention of pollution by oil.
- Annex II - Rules for the control of pollution by noxious liquid substances in bulk.
- Annex III - Rules for the prevention of pollution by harmful substances carried by sea in packaged form.
- Annex IV - Rules for the pollution by sewage from ships.
- Annex V - Rules for the pollution by garbage from ships.
- Annex VI - Rules for the prevention of air pollution from ships.

Royal Decree 1381/2002, of 20 December, on port reception facilities for ship-generated waste and cargo residues, sets out the obligation for all the vessels that berth at the Ports of Sagunto, Valencia, and Gandia to hand over waste subject to the Marpol Convention to an authorised Marpol facility, excluding the exceptions stipulated in the decree.

To comply with article 132 of the consolidated text of the Law on State Ports and the Merchant Marine, the PAV charges a fixed fee to ships that dock in port, whether or not

they use the waste reception service. With this measure, all discharges to the sea are avoided, as ships can discharge all wastes included in Annexes I and V of Marpol Convention as needed.

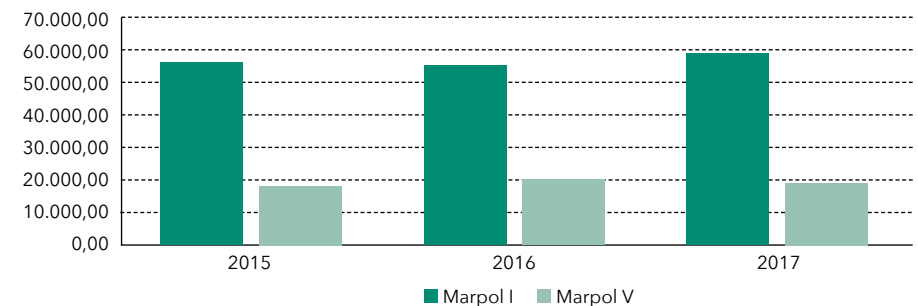
The chart below presents the data on the volume of waste managed during the last five years (Annexes I and V) in each of the three ports managed by the PAV and its evolution over the period of study (Graph 8):

WASTE VOLUMES COLLECTED (m <sup>3</sup> )					
ANNEX	2013	2014	2015	2016	2017
<b>Marpol I</b>	42.223,00	47.565,00	56.725,94	55.499,55	59.450,36
<b>Marpol V</b>	16.257,00	16.149,00	18.261,91	20.094,90	19.335,58

DISTRIBUTION BY PORTS IN 2017 (m <sup>3</sup> )		
PORTS	MARPOL I	MARPOL V
<b>Valencia</b>	53.580,05	17.514,23
<b>Sagunto</b>	5.420,11	1.546,71
<b>Gandía</b>	450,20	274,63
<b>TOTALS</b>	<b>59.450,36</b>	<b>19.335,58</b>

Graph 8

## EVOLUTION OF PRODUCTION OF MARPOL WASTE (ANEXES I AND V) DURING 2015-2017 PERIOD



# 6. STATE OF THE ENVIRONMENT

## 6.2. AIR QUALITY MONITORING

The Port Authority of Valencia checks and monitors quality parameters in its surrounding area and one of the Environmental Policy Department's priority objectives in this field is the monitoring of air quality. The Port Authority of Valencia uses an instrumentation and monitoring network for this purpose which provides continuous data about air quality and enables us to analyse its status practically in real time. In particular, concentrations of the various pollutants affecting air quality in the port facility are monitored, such as particulate matter (measured in PM10, PM2.5 and PM1 concentrations), sulphur dioxide, nitrogen dioxide, carbon monoxide and ozone. At the same time, meteorological data is recorded by five weather stations situated in significant locations around the port facility.

The map below shows the strategic location of the various stations in the Port of Valencia's air quality network.



The sensors are located in an Air Quality Monitoring Station which was positioned on the Transversal Poniente Quay, in line with recommendations made by the Energy, Environmental and Technological Research Centre (CIEMAT). This location on the port-city interface means we can track the evolution of pollutants and their potential impact on the area between the port and the city and hence find timely solutions to possible air pollution episodes. Another particle collector is located on the port-city interface in the area closest to the Nazaret neighbourhood.

There is a regular maintenance and data validation plan for the Air Quality Monitoring Station, the weather stations and the particle collectors to ensure the accuracy of the data they supply.

In addition to the stations shown on the map, there are three more weather stations: two at the Port of Sagunto and another at the Port of Gandia.

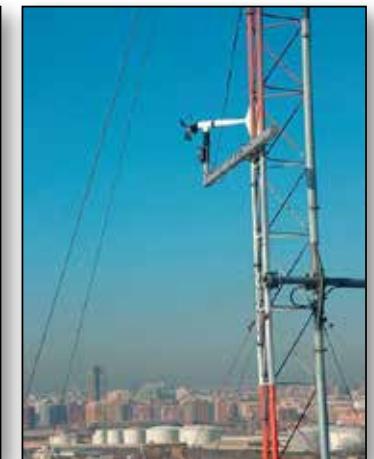
### Air quality monitoring stations



1. East Breakwater Buoy Weather Station



2. Principe Felipe Weather Station



3. Silo Weather Station



# 6. STATE OF THE ENVIRONMENT



4. Xitá Weather Station



5. Turia Weather Station



Sagunto Offices Weather Station



Sagunto East Breakwater Weather Station



Gandia Serpis Quay Weather Station



6. River Turia Particle Collector



7. Immission Station - Particle Collector

## 6.2.1. AIR QUALITY IN THE PORT FACILITY IN 2017

Numerous epidemiological studies have demonstrated the adverse effect on health of occasional or prolonged exposure to high levels of air particles. The most recent studies indicate that smaller diameter particles are responsible for the most important respiratory conditions. Hence there was a clear need to monitor air pollution from particulate matter in terms of not only PM10, but also PM25 and PM1.

The PAV, in addition to measuring the air quality within the port area, has put in place various measures to control operations that could have any impact on air quality.

Among these measures, note the control over the wind direction and intensity variables. When certain intensity and duration values are exceeded, operations concerning the loading, unloading or handling of powdery materials are suspended, all through the air quality control network supervised by the PAV Emergency Control Centre.

To improve and reduce the negative impacts of particle emissions, the PAV has also invested in the construction of physical barriers that minimise the movement of particles in the bulk handling area of Sagunto.

In addition, the inclusion of particle emission minimisation measures is required for any operation performed at PAV sites, such as cleaning the area, equipment maintenance, good handling practices, determination of the maximum height of the pits, in case of storage, etc.

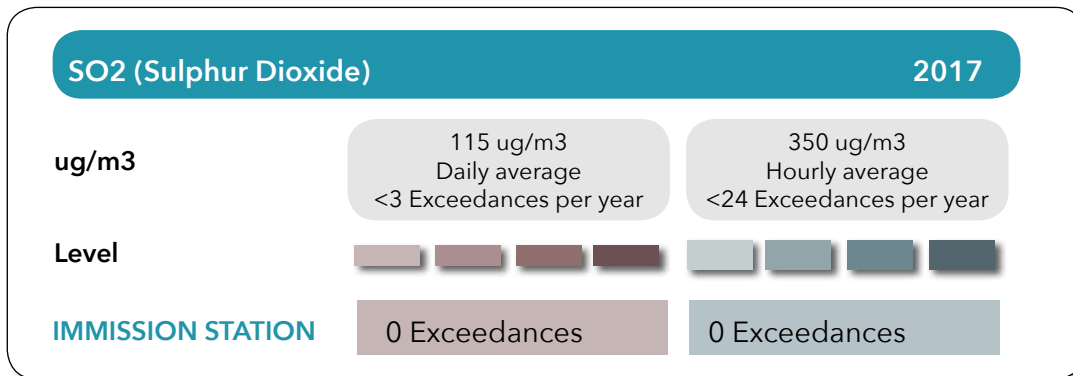
# 6. STATE OF THE ENVIRONMENT

These concentrations are monitored and controlled in accordance with the reference levels established in Spanish Royal Decree 102/2011, of 28 January, on improving air quality.

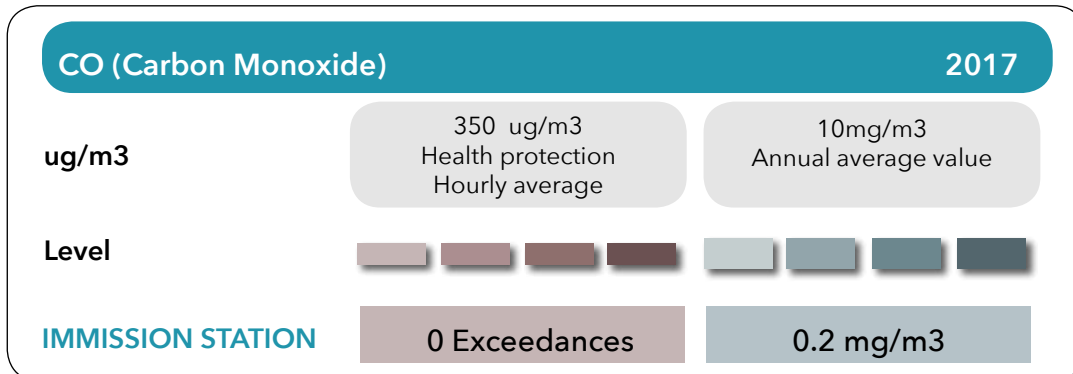
## ASSESSMENT OF THE RESULTS OBTAINED IN 2017 ACCORDING TO REFERENCE STANDARD VALUES

The Port Authority of Valencia draws up monthly reports on the data obtained and evaluates trends in these data in order to identify the possible underlying causes. This is done following tables with colorimetric scales showing the quality limit values in the reference standards and the number of exceedances or cumulative average values in each case.

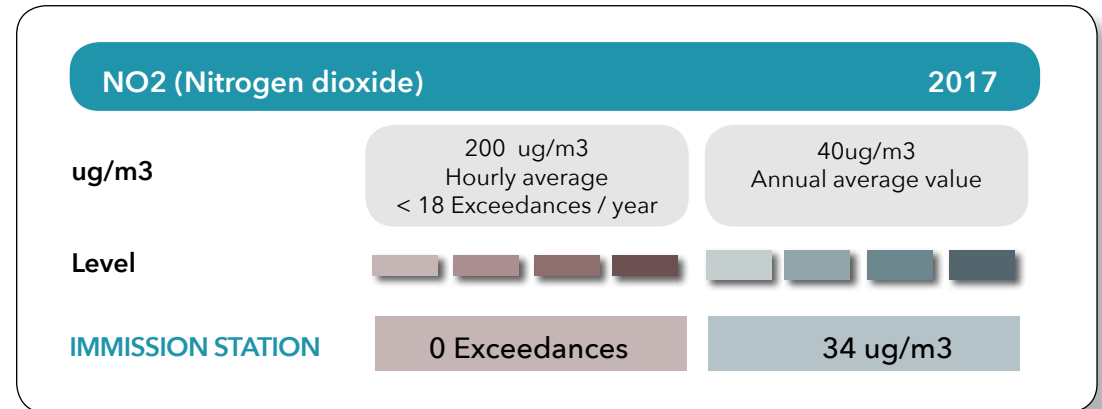
The air indexes recorded in 2017 were as follows:



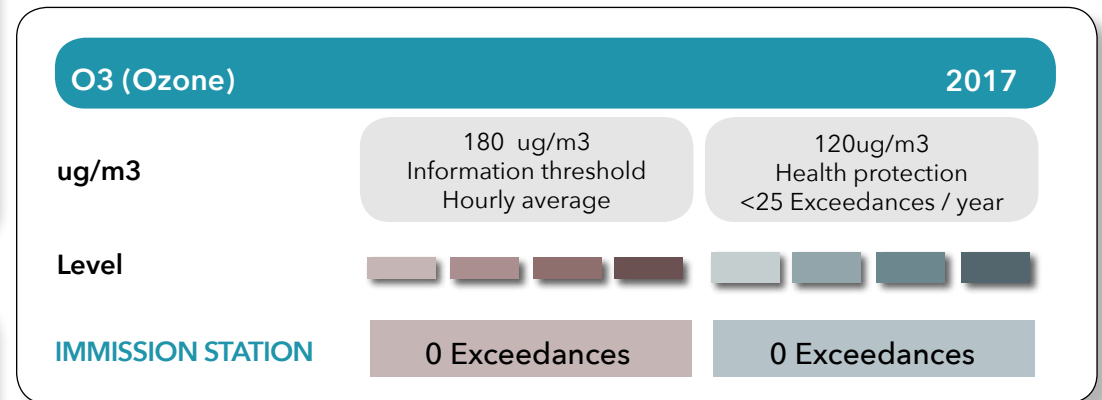
Number of exceedances of sulphur dioxide concentration levels (SO<sub>2</sub>)



Number of exceedances of carbon monoxide concentration levels (CO)

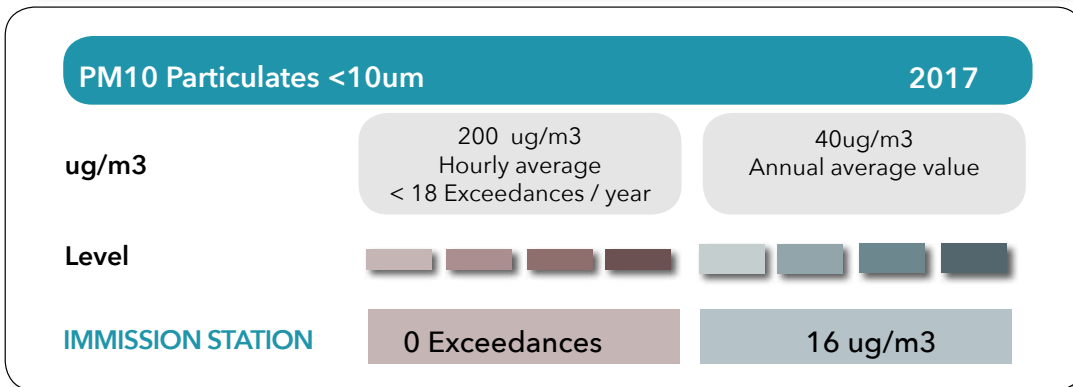
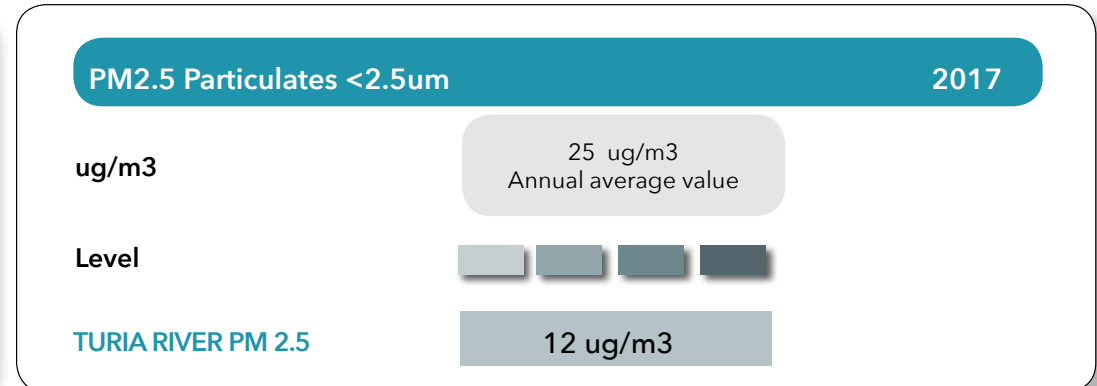
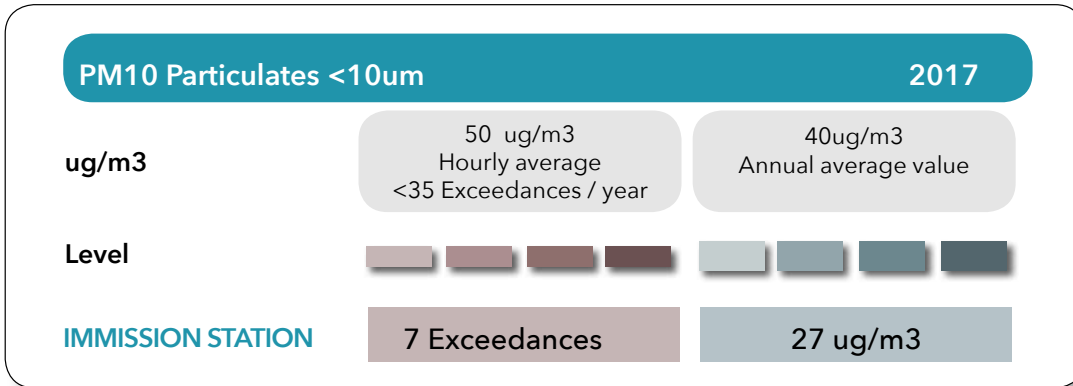


Number of exceedances and average annual value of nitrogen dioxide concentration levels (NO<sub>2</sub>)



Number of exceedances of ozone concentration levels (O<sub>3</sub>)

# 6. STATE OF THE ENVIRONMENT



Number of exceedances and average value of PM2.5 concentration levels

Note: in the tables above ug/m3 = µg/m3 (micrograms per cubic metre)

Number of exceedances and average annual value of PM10 concentration levels

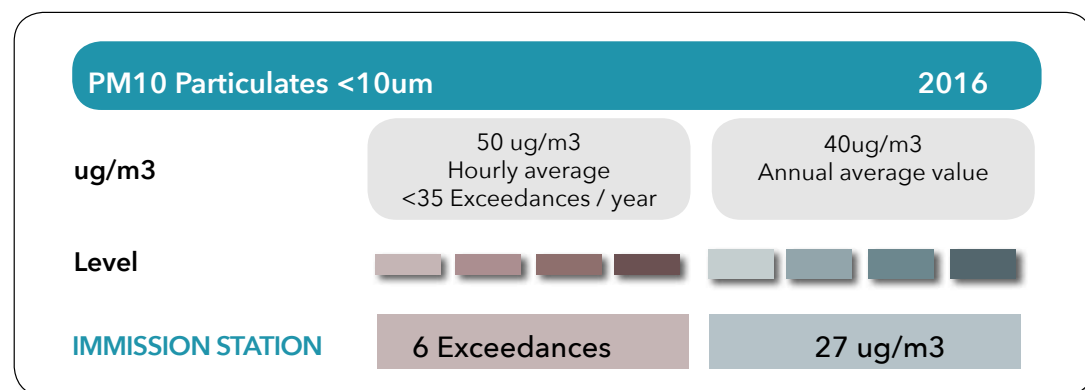
# 6. STATE OF THE ENVIRONMENT

## CONCLUSIONS ON AIR QUALITY RESULTS

Analysis of data for 2017 (January-December) and their assessment with respect to the applicable limit levels led to the following conclusions:

- The hourly limit values for the environmental parameters SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub> and CO were not exceeded at any time.
- The daily limit value was never exceeded for these parameters.
- The annual average value for NO<sub>2</sub> and PM<sub>2.5</sub> was below the annual limit value.
- There has been no improvement of the daily PM<sub>10</sub> value in the data registered in the Turia River PC, on the other hand, in the Immission Station 7 exceedances were recorded, without discounting Saharian dust intrusions.
- The maximum number of exceedances under Royal Decree 102/2011 is 35 for the whole year, therefore the average annual values for PM<sub>10</sub> fall under the admissible annual limit value at both stations.

In conclusion, in 2017 the data registered in both the Immission Station and the River Turia Station did not exceed the limit values for air quality established in Spanish Royal Decree 102/2011, of 28 January, on improving air quality.



## 6.2.2. ENVIRONMENTAL CONCENTRATIONS IN THE AREA SURROUNDING THE PORT OF VALENCIA IN 2017.

Data readings taken in the city of Valencia by the Ministry of the Environment, Water, Town Planning and Housing were collated in order to evaluate the results obtained in the port facility. The statistical data shown in the table below were taken from the Ministry's website:

Annual average values for the city of Valencia:

STATION	SO <sub>2</sub> μg/m <sup>3</sup>	NO <sub>2</sub> μg/m <sup>3</sup>	O <sub>3</sub> μg/m <sup>3</sup>	CO μg/m <sup>3</sup>	PM10 μg/m <sup>3</sup>	PM2.5 μg/m <sup>3</sup>
AVDA. FRANCIA	2	35	48	0.1	24	12
BULEVAR SUR	3	31	47	-	-	-
MOLÍ DEL SOL	3	26	49	0.1	16	14
PISTA DE SILLA	4	37	41	0.2	23	11
POLITÉCNICO	2	23	50	-	14	9
VIVEROS	3	28	51	-	-	-

The average annual values obtained by the Port of Valencia stations are:

STATION	SO <sub>2</sub> μg/m <sup>3</sup>	NO <sub>2</sub> μg/m <sup>3</sup>	O <sub>3</sub> μg/m <sup>3</sup>	PM10 μg/m <sup>3</sup>	PM2.5 μg/m <sup>3</sup>
PORT OF VALENCIA - IMMISSION STATION	4	34	52	0.2	27
PORT OF VALENCIA - RIVER TURIA STATION	-	-	-	-	16

The environmental assessment carried out in line with the regulations indicates that all the parameters are below the level of the "lowest assessment threshold", and in line with the lowest legal limits

In general, the parameters of the Port Authority of Valencia's network stations are normal and correlate with the automatic stations nearby in the city of Valencia.

In 2017, the results of the data obtained from the Port Authority of Valencia's network comply with the limit values for air quality established in Spanish Royal Decree 102/2011, of 28 January, on improving air quality.



# 6. STATE OF THE ENVIRONMENT

## 6.2.3. METEOROLOGICAL DATA

The Port Authority of Valencia currently has eight strategically situated weather stations: five at the Port of Valencia, two at the Port of Sagunto and one at the Port of Gandia.

The information provided by these stations is extremely useful for decision-making in a range of port operations, for instance solid bulk operations, where handling has to be stopped when winds reach a specific speed to avoid the possible release of particles into the air.

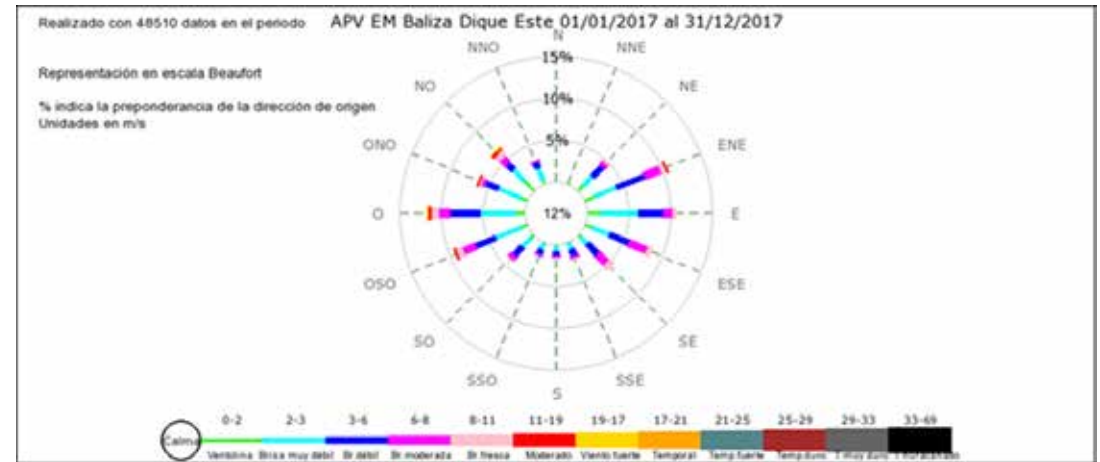
The monthly statistical data recorded at some of the measuring stations in the ports of Valencia, Sagunto and Gandia during 2017 is given below.

### Monthly statistical values from the station MA.V.1. EAST BREAKWATER BUOY. EM.1 - 2017

	DD (°grados)		VV (m/s)				HR (%)			
	Muestras	Media	Muestras	Media	Máx.	Min.	Muestras	Media	Máx.	Min.
Enero	29	338.46	29	4.38	10.35	0.38	31	59.87	91.06	29.37
Febrero	28	44.17	28	4.10	9.26	0.33	28	61.88	82.94	32.46
Marzo	27	37.89	27	4.00	7.60	1.94	30	57.70	81.94	37.24
Abril	27	26.58	27	3.47	6.99	1.97	30	58.15	79.78	39.23
Mayo	31	34.96	31	2.00	7.08	0.70	31	61.68	76.34	39.07
Junio	28	334.01	28	3.40	8.88	0.90	28	54.57	71.11	26.58
Julio	31	45.57	31	1.95	4.40	0.72	31	68.39	78.78	50.45
Agosto	31	35.29	31	3.78	7.08	1.98	31	70.47	85.90	55.92
Septiembre	30	341.94	30	4.24	6.78	2.64	30	67.71	78.33	31.64
Octubre	27	355.73	27	3.32	4.92	2.29	31	68.70	79.22	54.70
Noviembre	30	39.75	30	3.93	8.04	2.48	30	55.22	90.25	33.30
Diciembre	31	62.99	31	5.34	10.82	1.51	31	56.41	76.85	31.31

NOTE: Data calculated on an hourly basis

Wind rose - MA.V.1. EAST BREAKWATER BUOY. EM.1 - 2017



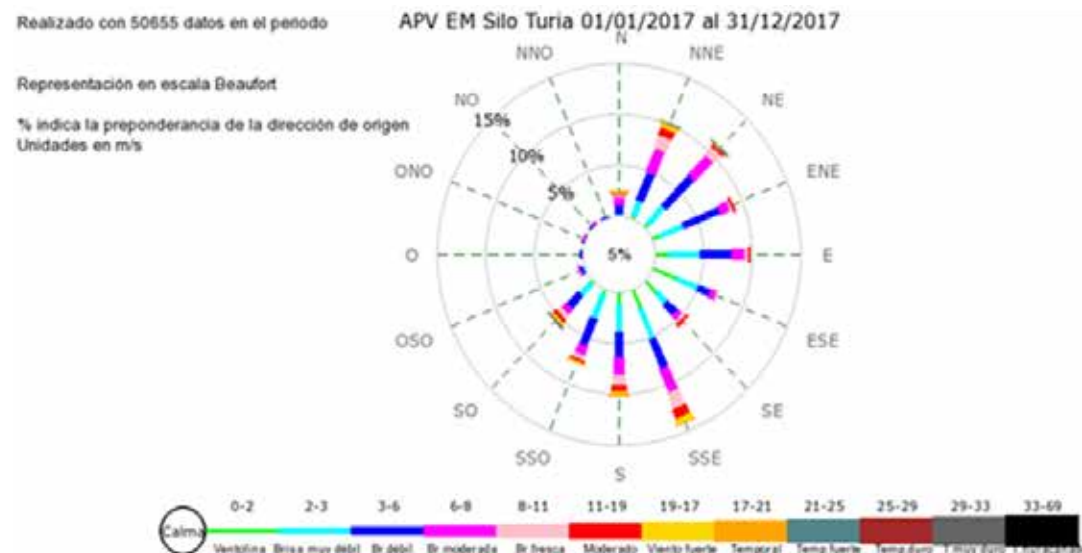
# 6. STATE OF THE ENVIRONMENT

Monthly statistical values from the station MA.V.6.SILO.EM4 - 2017

	DD (°grados)		VV (m/s)			
	Muestras	Media	Muestras	Media	Máx.	Min.
<b>Enero</b>	31	318.82	31	6.69	19.72	2.67
<b>Febrero</b>	28	340.59	28	6.23	15.17	1.85
<b>Marzo</b>	30	339.54	30	5.10	12.07	1.56
<b>Abril</b>	30	330.19	30	3.90	7.95	1.97
<b>Mayo</b>	24	342.76	24	4.21	7.94	1.61
<b>Junio</b>	26	342.81	26	3.79	10.42	1.58
<b>Julio</b>	31	52.24	31	3.96	7.39	2.84
<b>Agosto</b>	31	23.70	31	4.02	9.45	2.15
<b>Septiembre</b>	30	357.42	30	6.26	19.15	2.53
<b>Octubre</b>	31	315.83	29	3.27	6.18	2.29
<b>Noviembre</b>	30	344.33	30	4.45	11.57	2.07
<b>Diciembre</b>	31	349.66	31	6.32	14.07	2.01

NOTE: Data calculated on an hourly basis

Wind rose - MA.V.6.SILO.EM4 - 2017



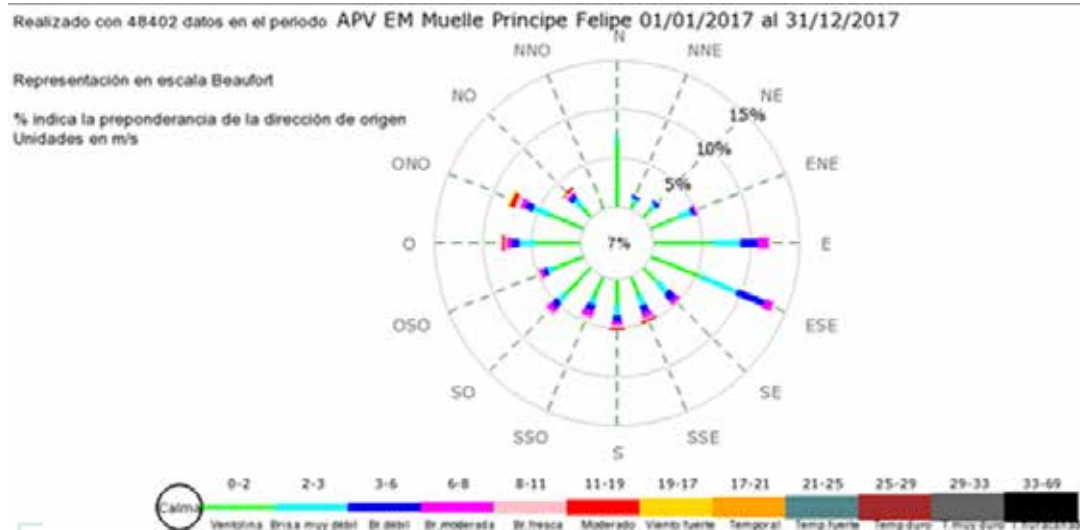
# 6. STATE OF THE ENVIRONMENT

Monthly statistical values from the station MA.V.7.PRINCIPE FELIPE. EM6 - 2017

	DD ("grados)		VV (m/s)				TMP (°C)				HR (%)				RS (w/m2)				PLU (l/m2)
	Muestras	Media	Muestras	Media	Máx.	Mín.	Muestras	Media	Máx.	Mín.	Muestras	Media	Máx.	Mín.	Muestras	Media	Máx.	Mín.	Acumulado
Enero	31	3.13	31	3.41	10.5	0.54	31	10.94	14.83	6.62	31	57.63	84.36	30.17	31	91.87	141.14	5.93	17.10
Febrero	28	6.22	28	3.4	10.77	0.96	28	13.78	16.96	11.08	28	60.80	81.25	31.36	28	124.17	184.87	44.99	5.40
Marzo	25	353.24	25	2.53	6.00	1.02	25	15.00	19.97	11.40	30	60.62	80.17	39.78	25	199.29	244.16	19.62	40.80
Abril	27	2.64	27	1.84	4.98	0.88	27	16.22	18.72	13.68	30	60.15	75.29	43.60	27	210.50	285.76	23.79	1.89
Mayo	31	333.45	31	1.77	5.54	0.24	31	19.76	22.30	16.60	31	57.76	73.88	39.35	31	280.77	336.99	135.96	8.00
Junio	30	309.05	30	1.95	6.16	0.83	30	25.23	28.94	19.11	30	59.55	78.88	27.15	30	281.01	335.16	97.35	8.90
Julio	31	342.07	31	1.59	2.78	0.69	31	25.69	28.45	22.69	31	63.62	74.01	46.44	31	257.68	314.92	79.67	5.40
Agosto	31	27.73	31	1.64	3.50	0.03	30	27.46	30.64	23.73	31	65.34	75.77	48.82	31	203.68	272.06	9.27	1.50
Septiembre	30	348.63	30	2.29	5.51	0.96	30	24.29	28.55	20.54	30	61.07	70.53	31.90	30	186.89	237.63	48.00	2.10
Octubre	27	28.87	27	1.44	3.05	0.77	27	22.09	24.46	19.04	27	68.78	77.39	60.28	27	132.24	185.07	50.39	0.00
Noviembre	30	22.30	30	2.33	8.36	1.06	30	16.14	20.22	12.21	30	53.94	85.70	32.11	30	111.56	141.20	7.10	1.80
Diciembre	31	1.96	31	3.88	9.17	0.84	31	12.88	18.07	9.39	31	55.46	74.47	32.18	31	84.52	116.55	34.23	0.60
Acumulado																			93.49

NOTE: Data calculated on an hourly basis

Wind rose - MA.V.7.PRINCIPE FELIPE. EM6 - 2017

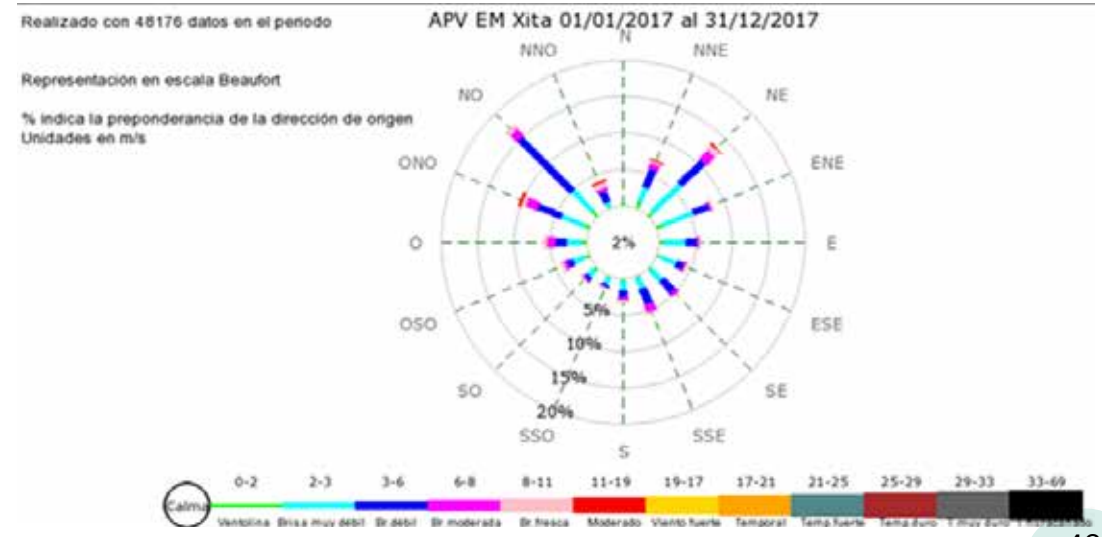


Monthly statistical values from the station MA.V.2. XITA. EM2 - 2017

	DD ("grados)		VV (m/s)				TMP (°C)				HR (%)				PR8 (mb)			
	Muestras	Media	Muestras	Media	Máx.	Mín.	Muestras	Media	Máx.	Mín.	Muestras	Media	Máx.	Mín.	Muestras	Media	Máx.	Mín.
Enero	31	338.18	31	4.11	7.96	1.19	31	11.57	15.26	6.36	31	58.83	80.08	34.83	31	1018.8	1028.9	1007.3
Febrero	28	6.15	28	4.81	9.07	1.12	28	13.76	18.25	10.87	28	63.22	80.64	35.47	28	1018.0	1031.7	1006.8
Marzo	27	8.97	27	4.31	6.65	2.62	27	14.54	19.61	11.08	27	64.89	81.04	43.28	27	1019.2	1026.8	1010.3
Abril	27	17.89	27	3.68	6.84	2.78	27	15.53	18.54	12.57	27	62.95	73.77	50.18	27	1018.4	1027.5	1009.6
Mayo	31	37.89	31	2.84	5.85	1.41	31	20.90	24.06	15.85	31	60.99	75.58	42.22	31	1014.1	1023.6	998.7
Junio	30	36.2	30	3.31	7.54	1.77	30	24.62	28.53	22.19	30	63.96	74.01	29.49	30	1014.6	1019.6	1006.2
Julio	31	40.84	31	2.83	4.91	1.54	31	26.61	28.27	21.50	31	66.21	76.95	46.11	31	1013.3	1022.1	1007.9
Agosto	30	351.58	30	3.59	6.01	2.20	30	26.08	28.06	22.23	30	69.04	76.33	52.45	30	1016.0	1020.5	1010.3
Septiembre	30	341.59	30	4.27	9.67	2.61	30	23.37	26.69	19.34	30	63.58	72.96	36.68	30	1016.7	1022.8	1005.2
Octubre	27	0.64	27	3.41	6.72	2.36	27	21.20	23.39	18.46	27	67.73	74.53	56.52	27	1020.8	1025.5	1010.0
Noviembre	30	328.12	30	4.17	9.00	2.86	30	15.49	19.51	11.39	30	52.12	78.00	31.77	30	1018.6	1027.6	1007.0
Diciembre	29	295.25	29	5.13	8.72	2.76	29	12.50	17.53	9.10	29	51.81	63.97	33.53	29	1021.8	1035.0	996.5

NOTE: Data calculated on an hourly basis

Wind rose - MA.V.2. XITA. EM2 - 2017





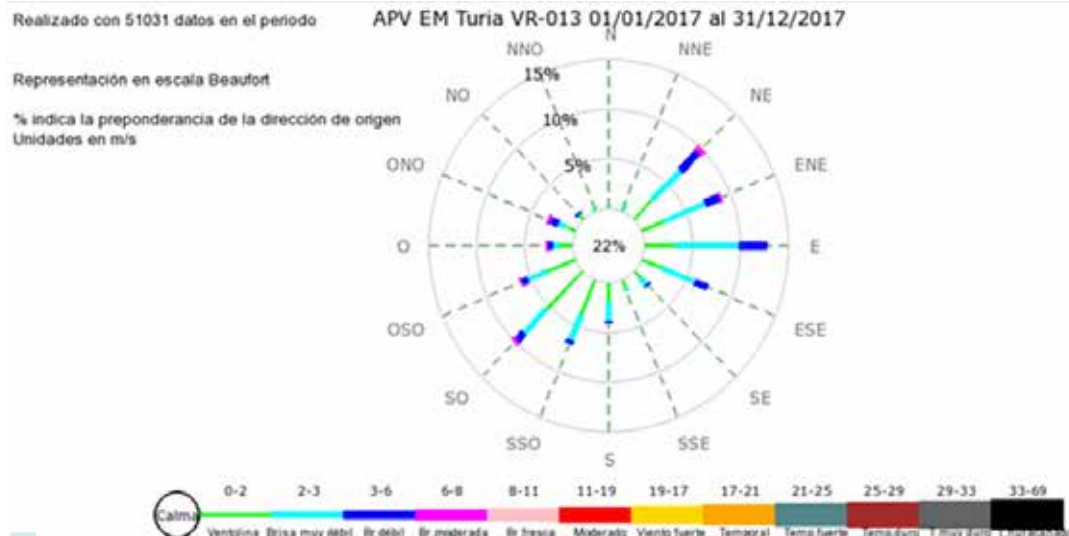
# 6. STATE OF THE ENVIRONMENT

Monthly statistical values from the station MA,V.6. TURIA. EM5 - 2017

	DD (*grados)		VV (m/s)				TMP (°C)				HR (%)				PRB (mb)			
	Muestras	Media	Muestras	Media	Máx.	Min.	Muestras	Media	Máx.	Min.	Muestras	Media	Máx.	Min.	Muestras	Media	Máx.	Min.
Enero	31	17.73	31	1.98	6.25	0.40	31	11.28	14.88	7.09	31	59.35	83.44	35.51	31	1019.5	1028.5	1010.6
Febrero	28	26.24	28	1.41	4.26	0.32	28	13.57	17.68	10.78	28	62.23	84.96	31.99	28	1018.2	1031.1	1006.5
Marzo	30	24.56	30	1.32	3.48	0.54	30	14.91	20.08	10.83	30	61.33	84.26	39.75	30	1017.9	1026.5	1007.2
Abril	30	359.51	30	1.29	2.87	0.54	30	16.32	20.13	11.47	30	60.69	79.63	43.10	30	1017.8	1027.0	1006.7
Mayo	31	34.00	31	1.42	2.04	0.68	31	20.70	23.54	17.06	31	59.99	74.15	41.46	31	1015.7	1025.8	1001.1
Junio	30	343.91	30	1.44	2.13	0.89	30	25.39	29.04	20.23	30	58.93	78.56	26.71	30	1014.6	1019.2	1005.8
Julio	31	358.14	31	1.69	3.25	0.86	31	26.62	27.79	22.60	31	63.93	75.57	45.47	31	1014.5	1021.8	1008.6
Agosto	31	18.63	31	2.32	3.92	1.41	31	26.92	29.67	23.29	31	65.22	75.57	50.70	31	1014.8	1019.2	1009.2
Septiembre	30	358.25	30	2.37	4.82	1.70	30	23.95	27.66	19.88	30	61.40	69.68	35.77	30	1015.5	1021.6	1003.9
Octubre	27	355.85	27	1.84	3.04	1.40	27	21.56	24.16	18.69	27	65.73	72.09	56.78	27	1019.6	1024.4	1008.9
Noviembre	30	11.72	30	1.97	3.92	1.40	30	15.54	19.65	11.41	30	52.02	76.92	33.36	30	1017.6	1026.8	1006.4
Diciembre	31	25.07	31	2.75	5.80	1.13	31	12.43	17.82	8.60	31	53.00	70.56	33.40	31	1021.6	1034.5	995.6

NOTE: Data calculated on an hourly basis

Wind rose - MA,V.6. TURIA. EM5 - 2017

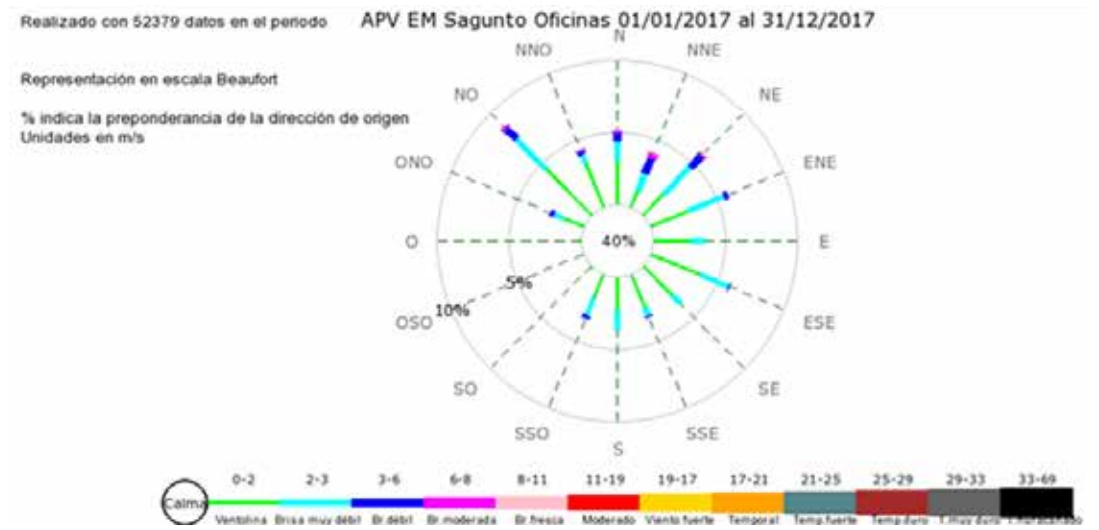


Monthly statistical values from the station MA.S.1. OFFICES.EM1 - 2017

	DD (*grados)		VV (m/s)				TMP (°C)				HR (%)				PRB (mb)			
	Muestras	Media	Muestras	Media	Máx.	Min.	Muestras	Media	Máx.	Min.	Muestras	Media	Máx.	Min.	Muestras	Media	Máx.	Min.
Enero	31	349.74	31	1.44	6.84	0.28	31	11.24	14.60	6.10	31	57.08	82.90	26.45	31	1014.72	1023.92	1005.67
Febrero	28	5.45	28	1.50	4.44	0.24	28	13.61	19.15	11.18	28	61.54	82.69	30.14	28	1013.27	1026.32	1002.07
Marzo	30	2.81	30	1.24	4.80	0.24	30	14.74	20.51	11.28	30	60.71	80.54	33.43	30	1012.93	1021.35	1002.07
Abril	30	28.90	30	1.08	2.57	0.34	30	16.04	19.25	11.49	30	60.16	75.37	38.64	30	1012.85	1022.25	1001.66
Mayo	31	11.03	31	1.21	2.40	0.45	31	20.26	22.84	16.30	31	60.94	74.98	42.14	31	1010.15	1020.27	995.16
Junio	30	16.39	30	1.08	2.34	0.57	30	24.99	29.70	20.21	30	59.79	73.75	25.67	30	1008.66	1013.53	998.88
Julio	31	14.08	31	1.27	2.84	0.61	31	26.18	27.46	22.39	31	65.08	74.40	43.04	31	1008.48	1015.65	1003.09
Agosto	31	23.49	31	1.22	3.28	0.48	31	26.39	29.60	22.12	31	65.38	73.81	48.80	31	1009.42	1014.16	1003.88
Septiembre	30	356.05	30	1.22	3.66	0.59	30	23.28	27.13	19.25	30	61.16	70.92	33.26	30	1010.31	1016.74	998.55
Octubre	31	356.75	31	0.70	1.64	0.28	31	21.04	23.44	18.51	31	63.67	74.21	48.34	31	1014.92	1019.84	1003.85
Noviembre	30	340.97	30	0.82	3.09	0.08	30	15.47	19.88	11.16	30	48.00	77.88	26.31	30	1012.84	1022.13	1002.29
Diciembre	31	27.64	31	1.24	3.98	0.11	31	12.75	17.90	9.00	31	47.74	69.81	21.86	31	1016.61	1029.76	990.25

NOTE: Data calculated on an hourly basis

Wind rose - MA.S.1. OFFICES.EM1 - 2017





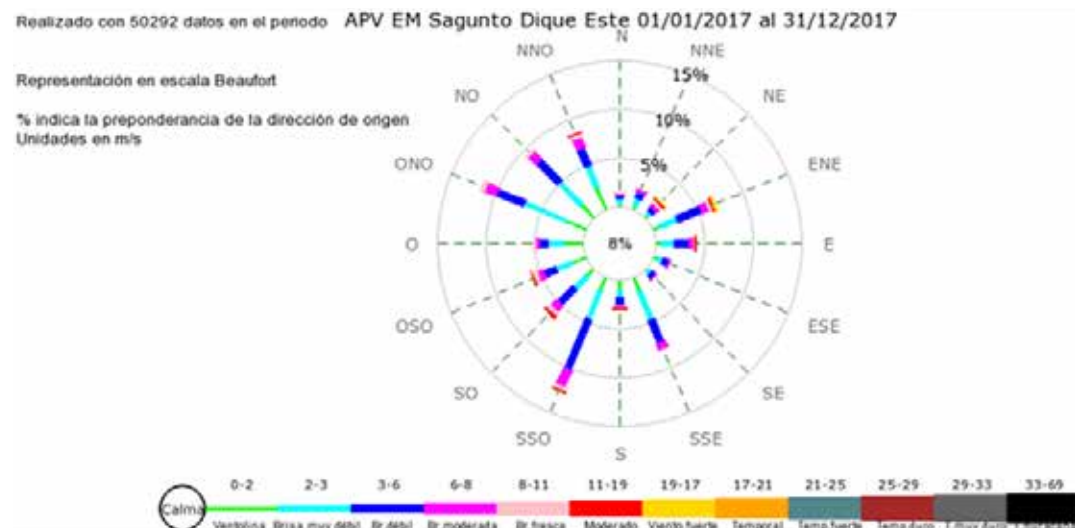
# 6. STATE OF THE ENVIRONMENT

Monthly statistical values from the station MA.S.1. EAST BREAKWATER EM2 - 2017

	DD (°grados)		VV (m/s)				RS (w/m2)			
	Muestras	Media	Muestras	Media	Máx.	Min.	Muestras	Media	Máx.	Min.
<b>Enero</b>	29	7.42	29	4.57	14.95	1.32	29	378.47	472.12	72.50
<b>Febrero</b>	23	30.36	23	3.87	9.00	1.23	23	413.91	473.17	364.65
<b>Marzo</b>	27	39.36	27	4.49	9.40	1.19	27	395.60	499.23	348.54
<b>Abril</b>	30	35.20	30	2.73	6.85	1.70	30	389.06	551.19	339.40
<b>Mayo</b>	31	35.74	31	2.78	4.49	1.52	31	362.95	443.27	330.52
<b>Junio</b>	29	17.76	30	2.91	5.58	2.06	29	383.12	527.06	342.21
<b>Julio</b>	31	18.86	31	3.40	5.50	2.53	31	400.97	562.52	351.66
<b>Agosto</b>	31	1.10	31	3.43	8.64	1.93	31	21.28	0.00	0.00
<b>Septiembre</b>	30	42.89	30	3.57	8.46	2.02	30	0.00	0.00	0.00
<b>Octubre</b>	31	41.16	31	2.72	5.03	1.57	31	0.00	0.00	0.00
<b>Noviembre</b>	30	32.80	30	3.48	7.02	1.48	30	0.00	0.00	0.00
<b>Diciembre</b>	31	47.00	31	5.22	10.00	1.91	31	0.00	0.00	0.00

NOTE: Data calculated on an hourly basis

Wind rose - MA.S.1. EAST BREAKWATER EM2 - 2017



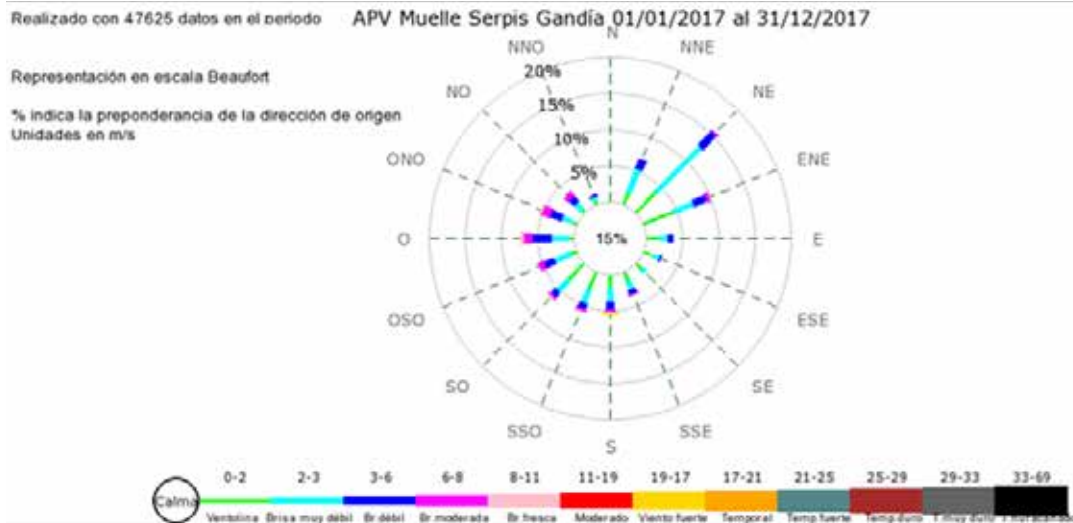
# 6. STATE OF THE ENVIRONMENT

## Monthly statistical values from the station MA.G.EM1. SERPIS QUAY - 2017

	DD (*grados)				VV (m/s)				TMP (°C)				HR (%)				RS (w/m2)				PRB (mm)			
	Muestras	Media	Muestras	Media	Máx.	Mín.	Muestras	Media	Máx.	Mín.	Muestras	Media	Máx.	Mín.	Muestras	Media	Máx.	Mín.	Muestras	Media	Máx.	Mín.		
Enero	30	25.96	31	3.12	14.35	0.12	31	11.39	15.73	7.26	30	74.15	88.60	55.21	31	103.92	149.22	37.46	31	1017.9	1026.4	1008.4		
Febrero	28	25.42	29	2.48	5.82	0.19	28	13.72	18.05	10.59	24	60.50	82.44	42.21	28	147.21	216.15	32.81	28	1017.1	1030.0	1004.9		
Marzo	26	32.26	26	2.77	5.64	1.51	26	15.36	21.11	11.63	19	56.71	75.11	35.59	26	236.58	279.79	39.82	26	1017.7	1025.1	1009.3		
Abril	25	20.12	24	2.94	6.09	1.80	25	15.89	19.13	14.61	22	61.69	75.11	46.56	25	248.25	312.72	150.44	25	1016.6	1025.6	1007.3		
Mayo	29	20.17	29	1.48	3.72	0.03	31	20.21	22.91	16.99	30	68.46	83.60	48.26	31	259.61	333.54	103.31	31	1013.6	1023.4	1001.8		
Junio	30	24.61	30	2.53	3.85	1.32	30	24.58	29.99	20.02	30	68.97	90.46	24.27	30	301.27	344.10	103.99	30	1012.3	1017.7	1005.1		
Julio	31	24.25	31	1.77	4.63	0.65	31	26.31	28.51	22.46	31	74.82	87.08	57.06	31	255.02	332.96	62.50	31	1011.8	1020.4	1006.6		
Agosto	31	16.00	31	2.84	6.05	1.51	31	26.24	28.58	22.69	31	78.99	92.10	62.36	31	245.10	306.59	79.40	31	1014.2	1018.8	1009.1		
Septiembre	29	5.27	29	2.93	4.44	1.72	29	23.77	26.04	21.35	29	70.90	84.22	31.74	29	232.50	291.54	114.40	29	1013.1	1021.3	1003.5		
Octubre	26	29.57	26	2.03	3.83	1.44	26	21.79	23.52	19.63	26	68.05	79.22	58.48	26	185.86	241.77	82.56	26	1019.4	1024.4	1010.9		
Noviembre	30	27.27	30	2.27	3.03	1.40	30	16.14	20.22	12.21	30	48.94	80.70	27.11	30	152.71	181.65	40.47	30	1017.3	1026.1	1005.8		
Diciembre	31	32.38	31	2.88	6.74	1.61	31	12.68	18.07	9.39	31	50.46	69.47	27.18	31	117.69	155.58	63.21	31	1021.4	1033.8	996.3		

NOTE: Data calculated on an hourly basis

### Wind rose - MA.G.EM1. SERPIS QUAY - 2017



## 6.3. NOISE QUALITY CONTROL NETWORK

The Port Authority of Valencia checks and monitors noise emissions in the port area. Monitoring noise quality is another of the Environmental Policy Department's priority objectives.

The Port Authority of Valencia has three sound level meters to carry out this monitoring which are strategically situated on the port-city interface and enable noise quality to be analysed practically in real time.

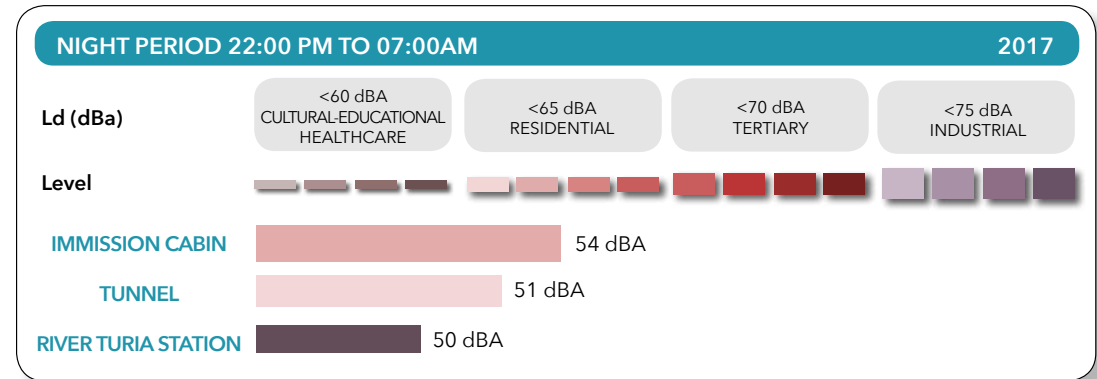
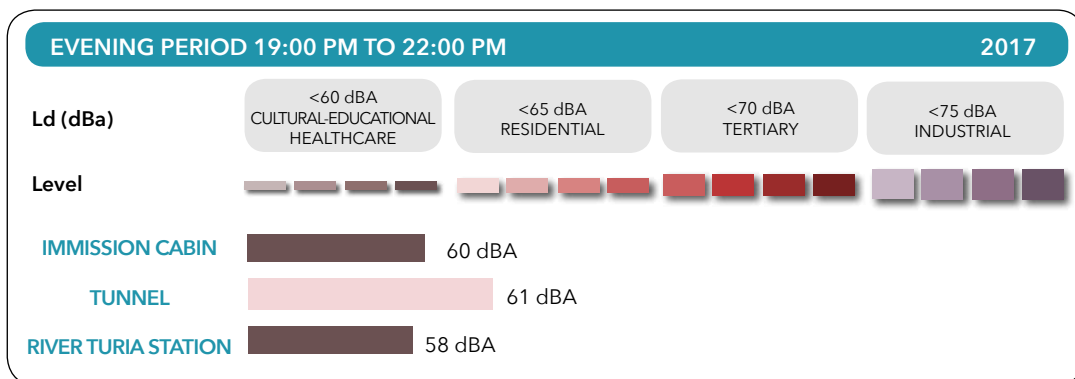
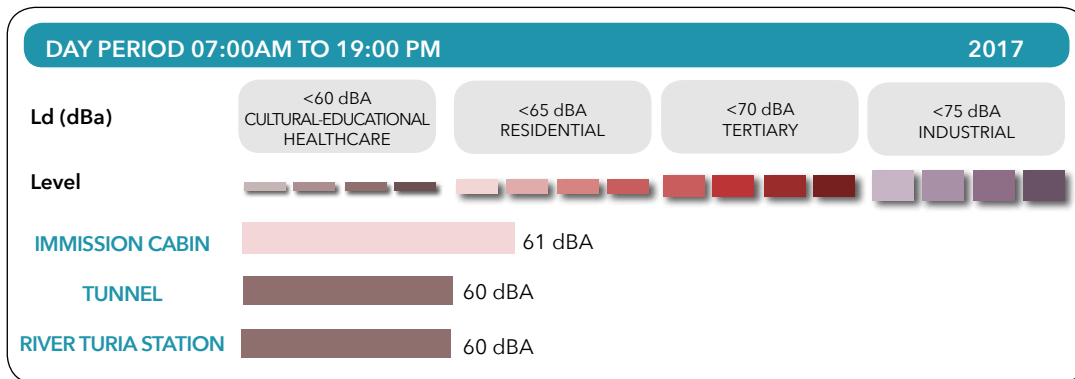
The locations of the noise monitoring terminals are shown below:



# 6. STATE OF THE ENVIRONMENT

## 6.3.1. RESULTS OBTAINED IN 2017 ACCORDING TO THE REFERENCE STANDARD VALUES

Throughout 2017, monthly reports were drawn up about the evolution of the data recorded in order to identify trends. The graph below shows the annual average per station in 2017, using as a reference the noise quality objectives applicable to existing built-up areas in Table A of Annex II in Spanish Royal Decree 1367/2007, of 19 November, for the three evaluation periods (the annual average for daytime and evening should be less than 75 dB and for night-time it should be less than 65 dB):



Examination of the data in the annual period assessed (January-December 2017) shows that all stations measuring noise levels met the noise quality objectives for predominantly industrial use areas established by Spanish Royal Decree 1367/2007 of 19 October, implementing Spanish Law 37/2003, of 17 November, on noise, in terms of noise zoning, quality objectives and noise emissions.

## 6.3.2. STATIC SOUND MAPS

Some years ago, the Port Authority of Valencia drew up static maps for the ports of Gandia, Sagunto and Valencia. In situ readings were taken at a number of representative sites in the port facilities during the day and night and these were then used to draw up the noise maps.

These maps showed that the impact of the noise generated in the area around the ports of Gandia, Sagunto, and Valencia were generally confined to the service area.

Creating the static map for the Port of Gandia involved taking readings for 10 minutes in each one-hour period at 32 monitoring sites. The readings were taken over two days, one with vessels in the port and the other without in order to analyse their impact on noise levels in the area.

Continuous readings were subsequently taken over 24 hours at two representative monitoring sites close to the port-city interface.

# 6. STATE OF THE ENVIRONMENT



*L<sub>day</sub> (without vessels in port) Port of Gandia*



*L<sub>day</sub> (with ships in port) Port of Gandia*

These maps showed that noise levels emitted to places outside the noise generating areas during the day, in the evening and at night, recorded from 30th November to 1st December 2009, fell within the noise immission limit values applicable to port infrastructure and operations as established in Spanish Royal Decree 1367/2007 for predominantly industrial use sectors.

### 6.3.3. PREDICTIVE SOUND MAPS

The predictive maps at the ports of Sagunto and Valencia were updated in 2011. Work began on updating the predictive noise map for the Port of Gandia in 2012 and this was completed in late 2013. Version 8 of the Predictor calculation software was used with the HARMONOISE NOMEPORTS model for these updates.

In the case of the Port of Valencia, the initial information used for the 2008 map was updated and adapted to new circumstances of the port (road traffic, the type of operations carried out, noise power of the machinery used in each area, work schedules and shifts, etc.) in order to make the calculations.

Based on all this information and after a modelling process, the software was used to draw a series of maps divided by operations, schedules, etc., which provide a tool for managing noise levels in the port area. An analysis of these maps leads to the following conclusions:

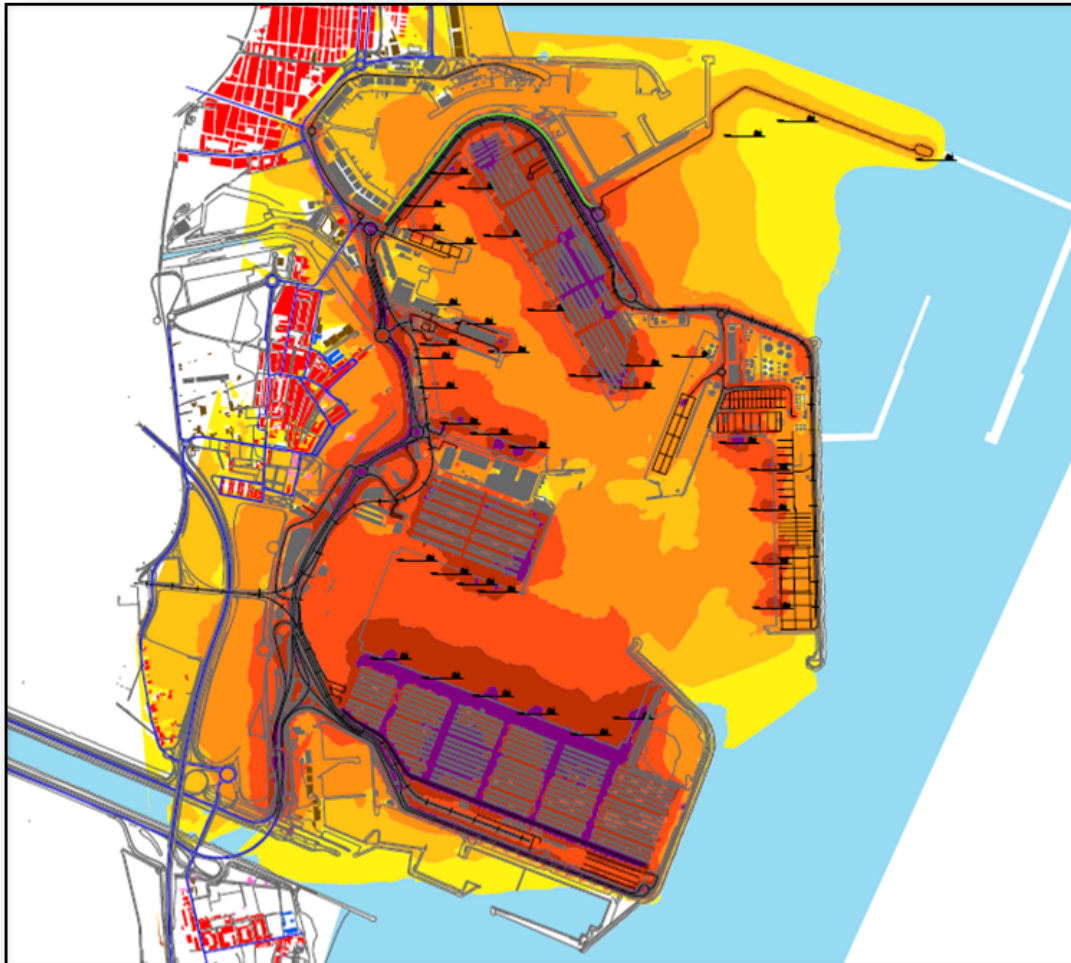
- The most significant noise source during the day/evening is road traffic.
- The most significant noise source during the night is industrial noise.
- Average L<sub>den1</sub>: most affected by industry.
- Trains have no significant impact on noise levels in the port.

The compliance maps show that at no point in the adjoining built-up area did noise levels from port activities exceed the 60 dB(A) established in Spanish Royal Decree 1367/2007 during the day, or the 50 dB(A) set for night-time.

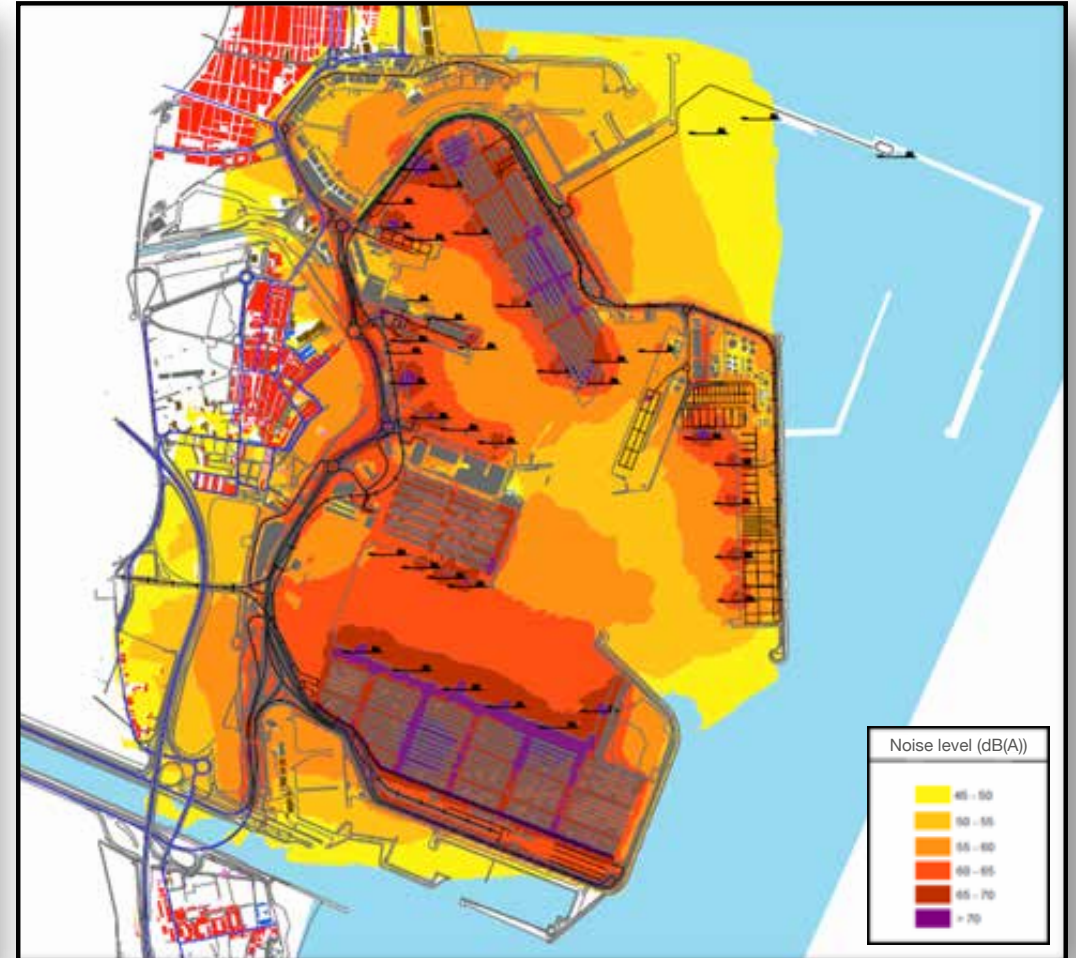


# 6. STATE OF THE ENVIRONMENT

In 2016, the predictive noise map of the Port of Valencia was updated, including the new northern expansion. The new maps are presented below.



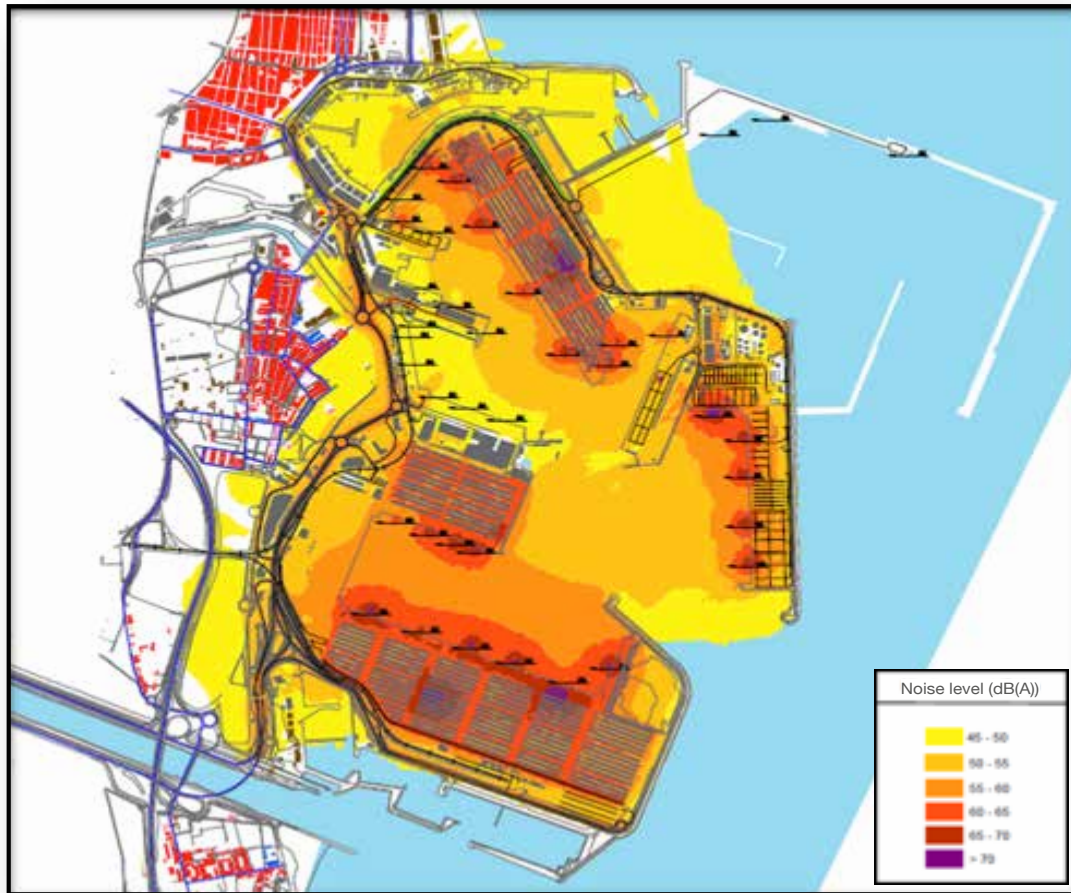
Lday Port of Valencia



Levening Port of Valencia

1 Lden. Average noise generated during the day, the evening and the night-time

# 6. STATE OF THE ENVIRONMENT



*Port of Valencia*



*Total Ld Port of Sagunto*

The main conclusion that can be drawn from the above sound maps is that the residential areas closest to the port infrastructures are not exposed, by the activity of the Port of Valencia, to levels higher than those set out in table A1 of annex III of Royal Decree 1367/2007.

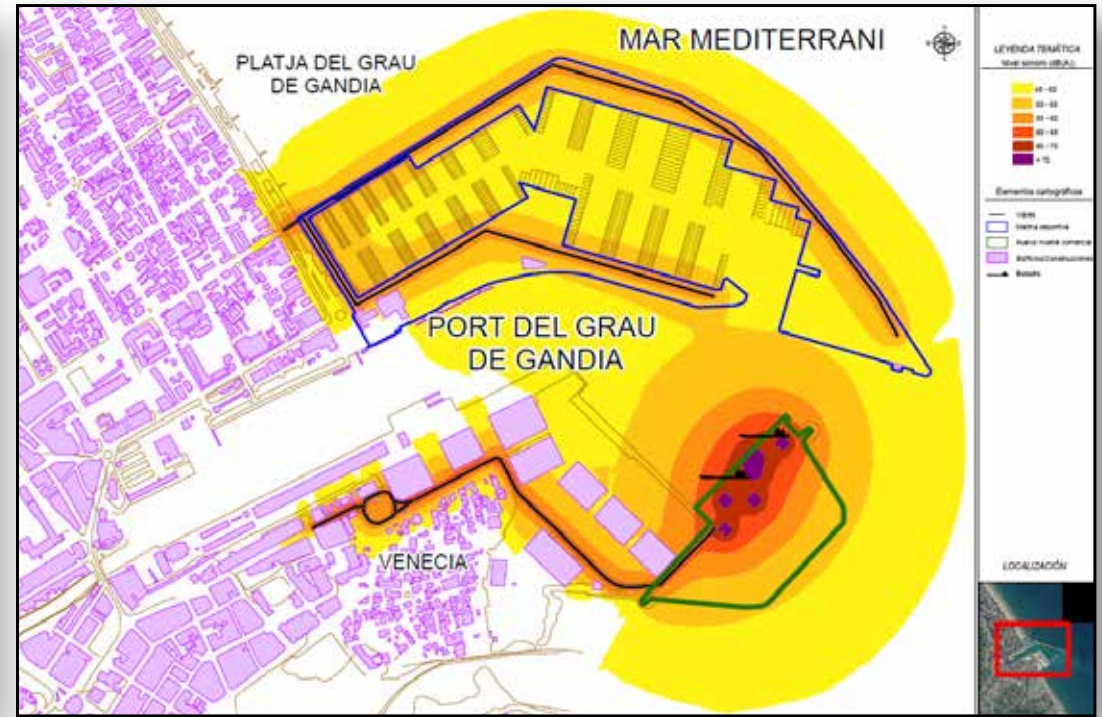
The method employed in the Port of Valencia was also used in the Port of Sagunto to measure all noise-generating sources in the facility based on the operations carried out in each area. The results are shown in the figures below.



# 6. STATE OF THE ENVIRONMENT

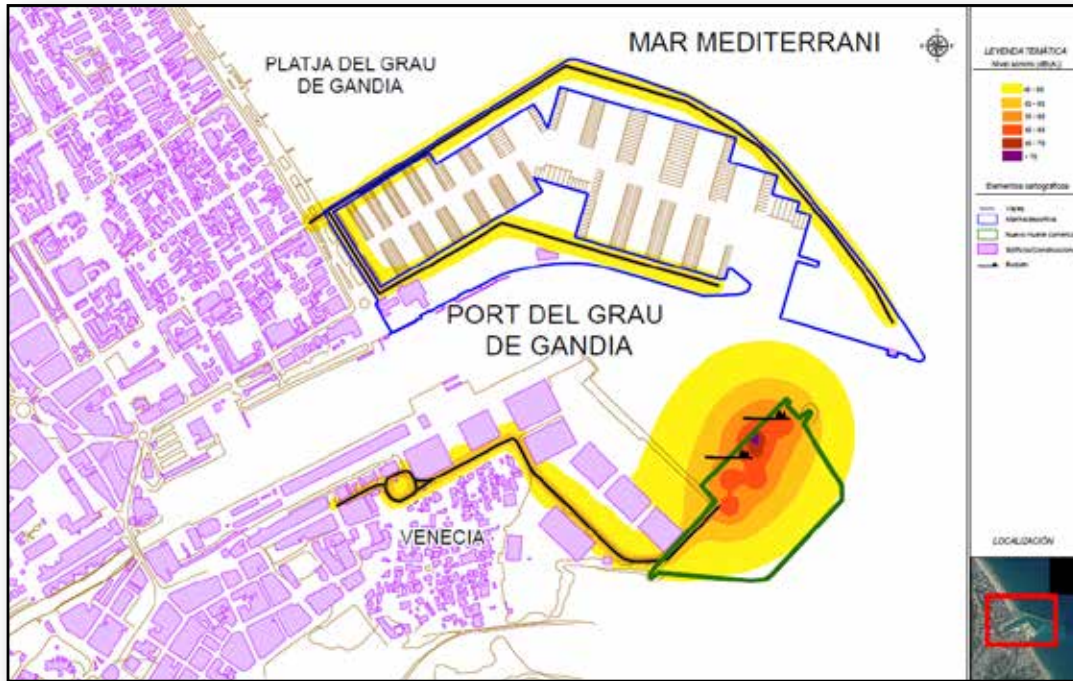


Total Ln Port of Sagunto



Total Ld Port of Gandia

In addition, a predictive study was carried out in May 2013 of the new extension planned for the Port of Gandia. The maps for daytime and night-time are shown below:



Total Ln Port of Gandia

The conclusion drawn from the above studies is that in no case do the noise levels obtained in the prediction exceed the noise quality objectives set out in Valencian Regional Government Law 7/2002 in adjacent or nearby areas.

## 6.4. WATER QUALITY

### 6.4.1. QUALITY OF WATER BODIES IN THE PORT FACILITY IN 2017

The Water Framework Directive (2000/60/EC) states that Member States must protect, improve and regenerate all bodies of surface water with the aim of achieving good surface water status at the latest 15 years after the date of the entry into force of the Directive, i.e. by 2015. The Directive goes on to say that Member States shall protect and enhance all artificial or heavily modified bodies of water, as is the case in the ports of Valencia, Sagunto, and Gandia, with the aim of achieving good ecological potential and a good chemical status, all in accordance with the guidelines set out in the Royal Decree 817/2015, of 11 September, establishing the criteria for monitoring and evaluation of the status of surface waters and environmental quality standards.

In 2013, ROM 5.1.13 was published on the "Quality of coastal waters in port areas" (hereinafter ROM 5.1-13), prepared by Puertos del Estado, which contains the standards and protocols for analysis and assessment of intra-port waters of the Ports of Valencia, Sagunto, and Gandia. This document is compatible with Royal Decree 817/2015 and is specifically developed for application in ports, which is why the PAV is implementing this methodology in the three port facilities it manages in order to assess the environmental quality of their waters.

### 6.4.2. AREAS OF STUDY

In 2017, regular sampling campaigns were conducted to monitor water quality in the three ports managed by the Port Authority of Valencia:

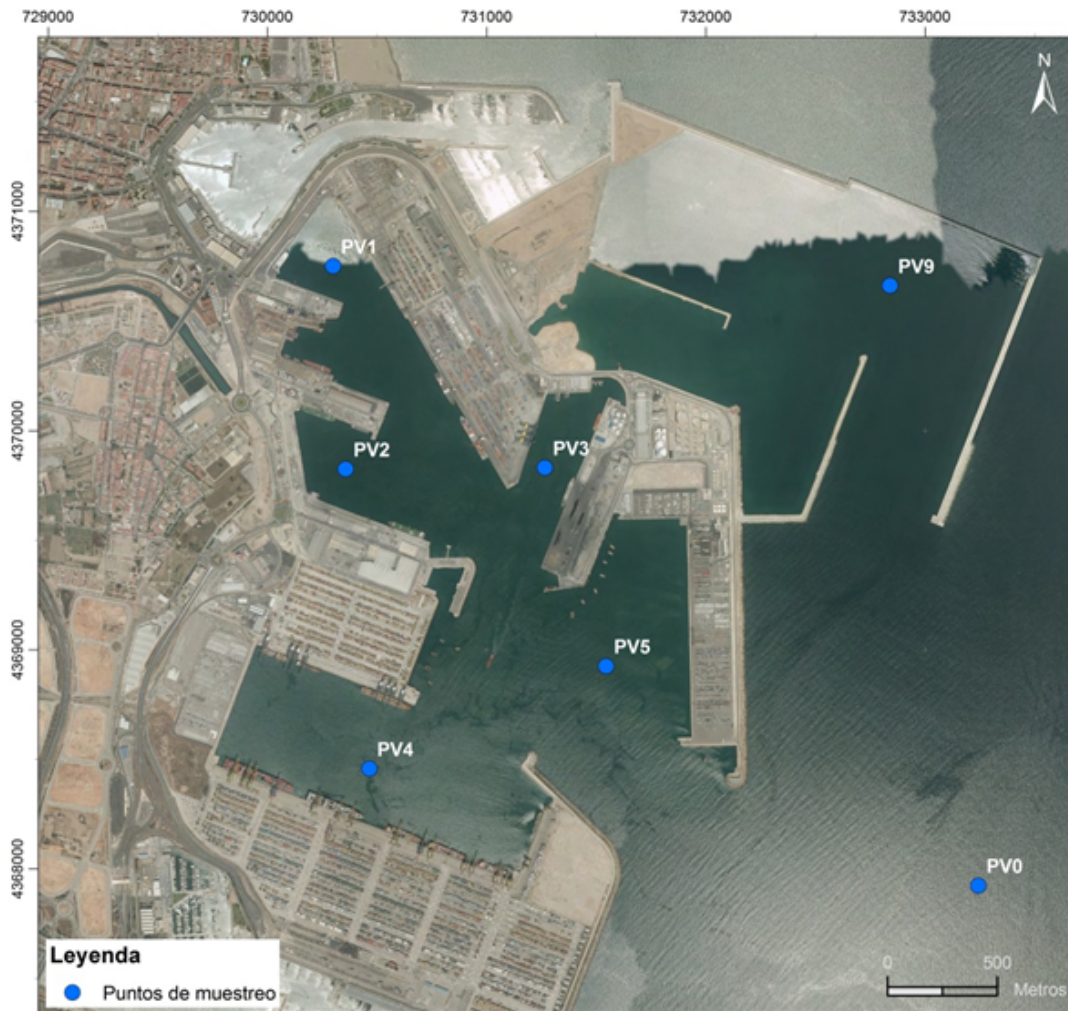
- Port of Valencia
- Port of Sagunto
- Port of Gandia

The areas of study include both intra-port waters (mass of water heavily modified by the presence of ports), as well as a control station representative of the extra-port waters (mass of coastal water) in each port.

The sampling sites used in each of the port facilities are shown below:



# 6. STATE OF THE ENVIRONMENT



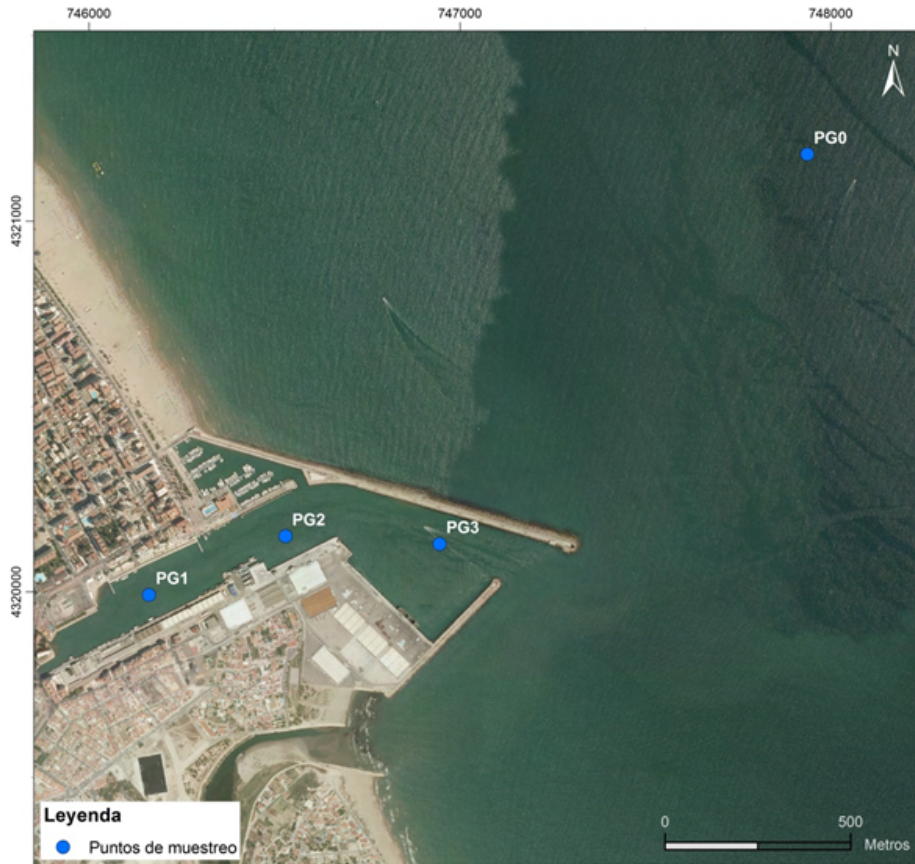
Distribution of sampling sites at the Port of Valencia



Distribution of sampling sites at the Port of Gandia



# 6. STATE OF THE ENVIRONMENT



Distribution of sampling sites at the Port of Gandia

## 6.4.3. DETERMINATION OF THE PORT AQUATIC MANAGEMENT UNITS (PAMUS)

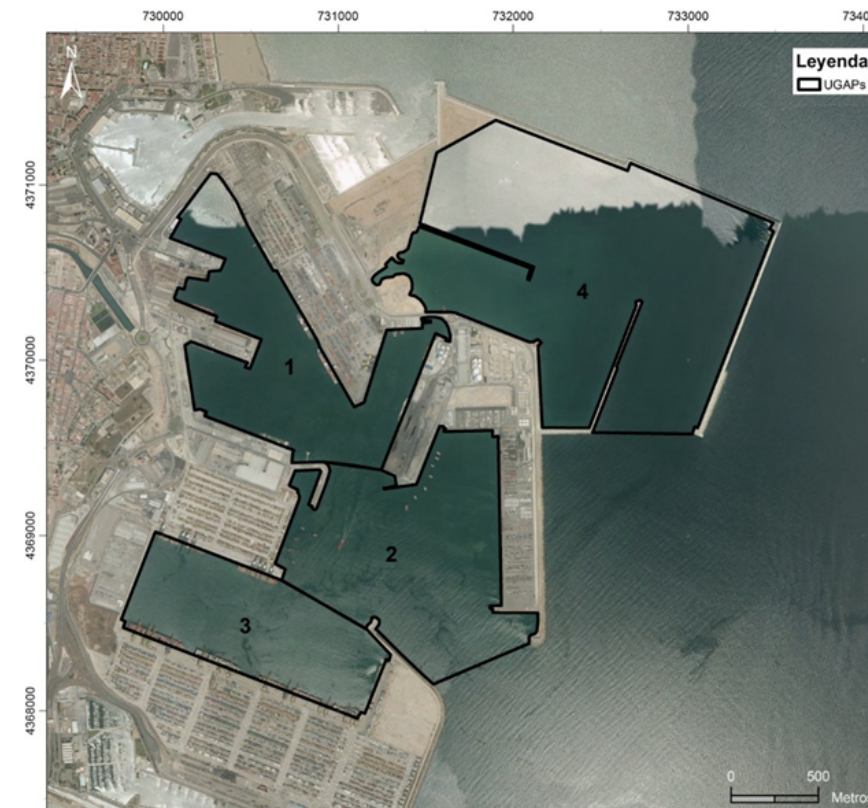
In order to assess the environmental quality of port waters following the criteria established in ROM 5.1-13, the Port Aquatic Management Units (hereinafter PAMU) have been delimited and typified as a management instrument for the water environment in the port service area (PSA). In this context, these PAMUs are the basic units for the management of port water quality, and have been created according to the following aspects:

- Uses and activities that are developed in the PSA
- Physical and hydromorphological characteristics
- Hydrodynamic conditions.

All PAMUs have been typified as:

CATEGORY	CLASS	TYPE
Coastal waters	Heavily modified waters	CM3: Mediterranean coastal waters with low renewal rate

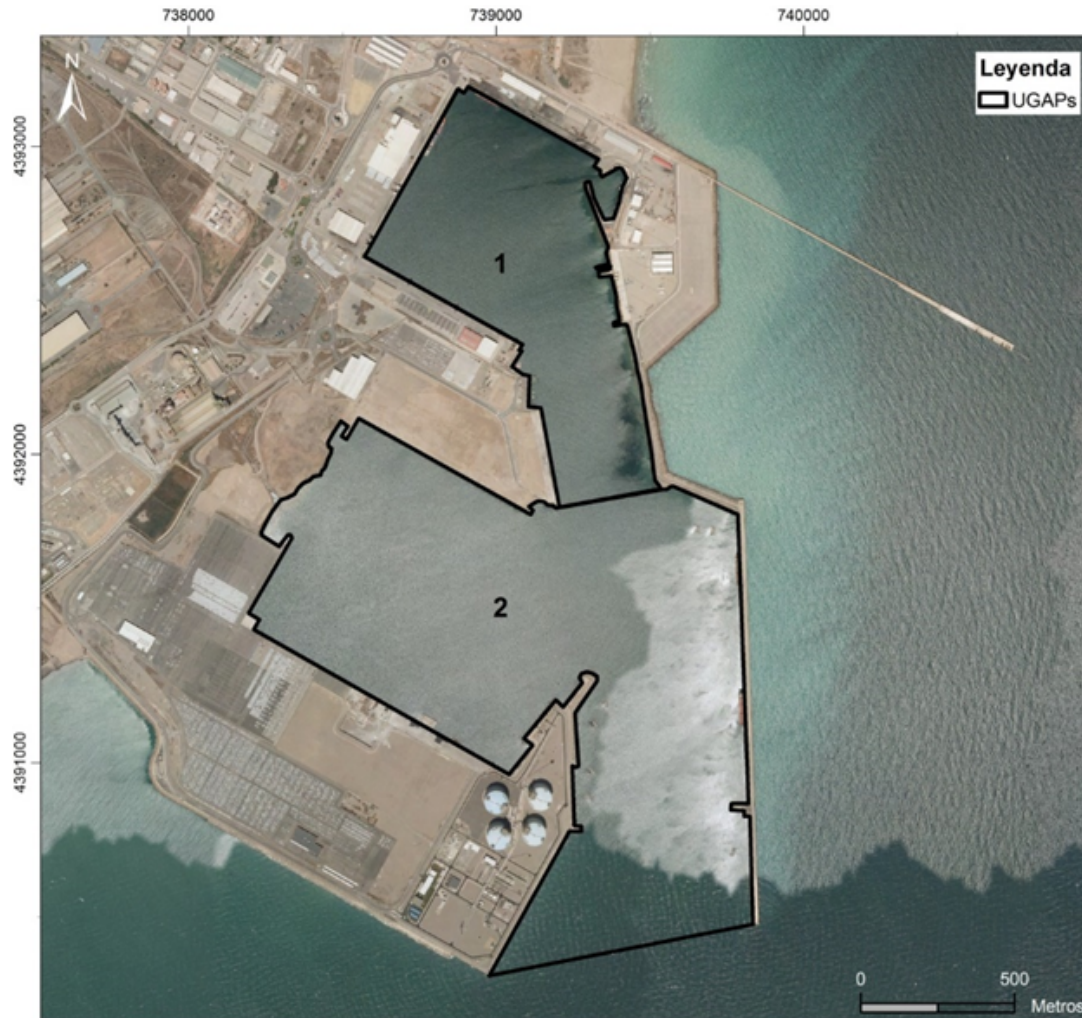
The PAMUs considered for each port are listed below:



PAMUs established for the Port of Valencia



# 6. STATE OF THE ENVIRONMENT



PAMUs established for the Port of Sagunto



PAMUs established for the Port of Gandia

# 6. STATE OF THE ENVIRONMENT

## 6.4.4. VARIABLES STUDIED

El seguimiento de la calidad de las aguas intraportuarias se ha realizado en base a los indicadores considerados para la evaluación de la calidad ambiental en la ROM 5.1.13., que son, para cada una de las UGAP, los siguientes:

- Sediment CP quality indicators: Organic Quality Index (ICO)
- Indicators of biological water quality: phytoplankton (concentration of chlorophyll a) and benthic invertebrates (BOPA)
- Water CP quality indicators: turbidity, oxygen saturation, total hydrocarbons, faecal contamination and nutrients
- Chemical quality of water and sediment: priority substances and other pollutants

The variables analysed both in situ and in the laboratory during 2017 are shown below:

SAMPLE	IN SITU MEASUREMENTS	LABORATORY ANALYSIS	SAMPLING SITES
Water column	Chlorophyll a Temperature Salinity Dissolved oxygen Turbidity Total hydrocarbons	Faecal contamination: E. coli and intestinal enterococci.	PORT OF VALENCIA: PV1, PV2, PV3, PV4, PV5, PV9 and PV0.
		Nutrients: nitrates, nitrites, ammonium and phosphates.	PORT OF SAGUNTO: PS1, PS2, PS3 and PS0.
Sediment	- Redox potential	Total organic carbon	PORT OF VALENCIA: PV2, PV3, PV4, PV5, PV9, PV0
		Kjeldahl nitrogen	PORT OF SAGUNTO: PS1, PS2, PS3, PS0
		Total phosphorus Benthic invertebrates (BOPA)	PORT OF GANDIA: PG1, PG2, PG3, PG0.

Table with the variables analysed for the ecological potential study.



# 6. STATE OF THE ENVIRONMENT

SAMPLE	LABORATORY ANALYSIS	SAMPLING SITES
	Compounds of tributyltin (TBT's), 1,2-Dichloroethane, Alachlor, Aldrin, Arsenic, Atrazine, Cadmium, Chlorfenvinphos, Chloroalkanes C10-13, Chlorpyrifos, Copper, Chromium VI, Total DDT, Di (2-ethylhexylphthalate (DEHP), Dichloromethane, Dieldrin, Brominated diphenyl ethers, Diuron, Endosulfan, Endrin, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclohexane, Isodrin, Isoproturon, Mercury, Nickel, P, P'- DDT, Pentachlorobenzene, Pentachlorophenol, Lead, Selenium, Simazine, Terbutilazine, Carbon tetrachloride, Trichloromethane (chloroform), Trifluralin, Zinc	PORT OF VALENCIA: PV5
<b>Water column</b>	Compounds of tributyltin (TBT's), 1,2-Dichloroethane, Arsenic, Cadmium, Chloroalkanes C10- 13, Copper, Chromium VI, Total DDT, Di (2-ethylhexylphthalate (DEHP), Dichloromethane, Brominated diphenyl ethers, Hexachlorobenzene, Hexachlorobutadiene, Mercury , Nickel, P, P'-DDT, Lead, Selenium, Terbutilazine, Carbon tetrachloride, Trichloromethane, Zinc	PORT OF SAGUNTO: PS3
	Nonylphenol, Octylphenol	PORT OF GANDIA: PG3
<b>Sediment</b>	Cadmium, Lead, Copper, Nickel, Zinc, Arsenic, Mercury, Chromium VI, Polychlorinated Biphenyls (PCBs), Tributyltin compounds (TBTs), HAPs	PORT OF VALENCIA: PV1, PV2, PV3, PV4, PV5 and PV9.
		PORT OF SAGUNTO: PS1, PS2 and PS3.
		PORT OF GANDIA: PG1, PG2 and PG3.
		PORT OF VALENCIA: PV5
		PORT OF SAGUNTO: PS3
		PORT OF GANDIA: PG3

Table with the variables analysed for the chemical status study.

# 6. STATE OF THE ENVIRONMENT

In situ continuous readings of the various hydrological variables were taken throughout the water column with the aid of a high-precision CTD oceanographic profiler (model SBE 19Plus V2). A laboratory accredited by ENAC, the Spanish National Accreditation Body, carried out the laboratory tests

The sampling level, the sampling method and the analysis method of the variables studied are detailed below.

VARIABLE	UNITS	SAMPLE LEVEL	SAMPLING METHOD	ANALYSIS
Temperature	°C	Water column profile	SBE 19plusv2 Multi-parameter profiler	Thermometry
Salinity	PSU	Water column profile	SBE 19plusv2 Multi-parameter probe	Conductimetry
Dissolved oxygen	Mg/l and % sat.	Water column profile	SBE 43 sensor fitted to a SBE 19plusv2 Multi-parameter profiler	Polarographic method
Turbidity	NTU	Water column profile	Seapoint sensor fitted to SBE 19plusv2 Multi-parameter profiler	Nephelometry
Chlorophyll a	µg/l	Water column profile	Cyclops-7 sensor fitted to SBE 19plusv2 Multi-parameter profiler	Fluorometry
Nutrients	µg/l	Integrated in the water column	Hydrographic hose	UV-VIS Spectrophotometry
Faecal contamination: Intestinal enterococci/E.coli	CFU/100 ml	Surface	Sterile Bottle	ISO 7899-2/ ISO 9308-1
Total hydrocarbons	ppb	Water column profile	Cyclops-7 sensor (ultraviolet) fitted to a multi-parameter profiler	Fluorometry
Polychlorinated biphenyls (PCBs)	µg/l	Integrated in the water column	Hydrographic hose	CG/MS chromatography
Compounds of Tributyltin (TBTs)	µg/l	Integrated in the water column	Hydrographic hose	CG/MS chromatography
Nonylphenol, Octylphenol	µg/l	Integrated in the water column	Hydrographic hose	CG/MS chromatography
Biocides: aldrin, dieldrin, endrin, isodrin, alachlor, atrazine, chlorfen- vinphos, hexachlorocyclohexane, chlorpyrifos, diuron, endosulfan, isoproturon, simazine, terbuthylazine, trifluralin, pentachlorobenzene, pentachlorophenol, hexachlorobenzene, p,p'-DDT, pentachlorophe- nol, Sum total DDT.	µg/l	Integrated in the water column	Hydrographic hose	CG/MS chromatography
Bromodiphenyl ethers: 2.2',4.4',5.5'- Hexabromodiphenyl ether (PBDE 153); 2.2',4.4',5.6'- Hexabromodiphenyl ether (PBDE 154); 2.2',4.4',5- Pentabromodi- phenyl ether (PBDE 99); 2.2',4.4',6-	µg/l	Integrated in the water column	Hydrographic hose	CG/MS chromatography

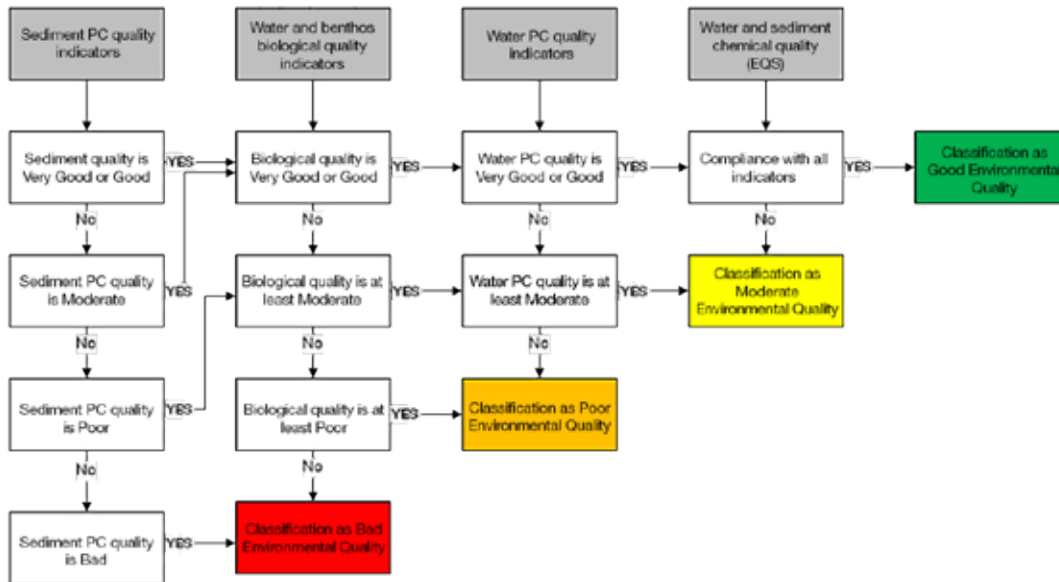
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VARIABLE	UNITS	SAMPLE LEVEL	SAMPLING METHOD	ANALYSIS
Pentabromodiphenyl ether (PBDE 100); 2,2',4,4'- Tetrabromodiphenyl ether (PBDE 47); 2,4,4'- Tribromophenol ether (PBDE 28)				
Chloroalkanes: Chloroalkanes (C10-C13)	µg/l	Integrated in the water column	Hydrographic hose	CG/MS chromatography
Phthalates: Bis(2-ethylhexyl) phthalate	µg/l	Integrated in the water column	Hydrographic hose	CG/MS chromatography
Trihalomethanes Chloroform.	µg/l	Integrated in the water column	Hydrographic hose	CG/MS chromatography
Organochlorines: 1,2-Dichloroethane; Dichloromethane.	µg/l	Integrated in the water column	Hydrographic hose	CG/MS chromatography
Heavy metals: Arsenic, Cadmium, Copper, Chromium VI, Mercury, Nickel, Lead, Selenium, Zinc	µg/l	Integrated in the water column	Hydrographic hose	Inductively coupled plasma mass spectrometry (ICP/MS)
VOCs: Hexachlorobutadiene, Carbon tetrachloride	µg/l	Integrated in the water column	Hydrographic hose	CG/MS chromatography
Cadmium, Lead, Copper, Nickel, Zinc, Arsenic, Mercury, Chromium VI	mg/kg	Sediment	Van Veen grab	Inductively coupled plasma mass spectrometry (ICP/MS)
Polychlorinated biphenyls (PCBs)	mg/kg	Sediment	Van Veen grab	CG/MS chromatography
Compounds of tributyltin (TBTs)	mg/kg	Sediment	Van Veen grab	CG/MS chromatography
HAPs	mg/kg	Sediment	Van Veen grab	CG/MS chromatography
COT	mg/kg	Sediment	Van Veen grab	IR spectroscopy
Kjeldahl nitrogen	mg/kg	Sediment	Van Veen grab	Volumetric titration
Total phosphorus	mg/kg	Sediment	Van Veen grab	Spectroscopy
Benthic invertebrate fauna (BOPA)		Sediment	Van Veen grab	Optical microscopy

# 6. STATE OF THE ENVIRONMENT

## 6.4.5. WATER QUALITY MONITORING RESULTS IN 2017

The environmental quality of heavily modified PAMUs is evaluated based on the hierarchical integration of the quality elements indicated in the following figure:



As shown in the figure, the final classification of the water bodies can be: Good, Moderate, Deficient or Poor.

The table below presents the results obtained for each PAMU and port, with the different indicators:

Port	PAMU	CF sediment quality indicators	Indicators of water and benthos biological quality	CF water quality indicators	Chemical quality of water and sediment	CLASSIFICATION OF ENVIRONMENTAL QUALITY
VALENCIA	PAMU 1	GOOD	GOOD	GOOD	COMPLIANT	GOOD
	PAMU 2	GOOD	GOOD	GOOD	COMPLIANT	GOOD
	PAMU 3	GOOD	GOOD	GOOD	COMPLIANT	GOOD
	PAMU 4	GOOD	GOOD	GOOD	NE*	GOOD
SAGUNTO	PAMU 1	GOOD	GOOD	GOOD	COMPLIANT	GOOD
	PAMU 2	GOOD	GOOD	GOOD	NOT YET GOOD	MODERATE
GANDÍA	PAMU 1	MODERATE	MODERATE	GOOD	NOT YET GOOD	MODERATE

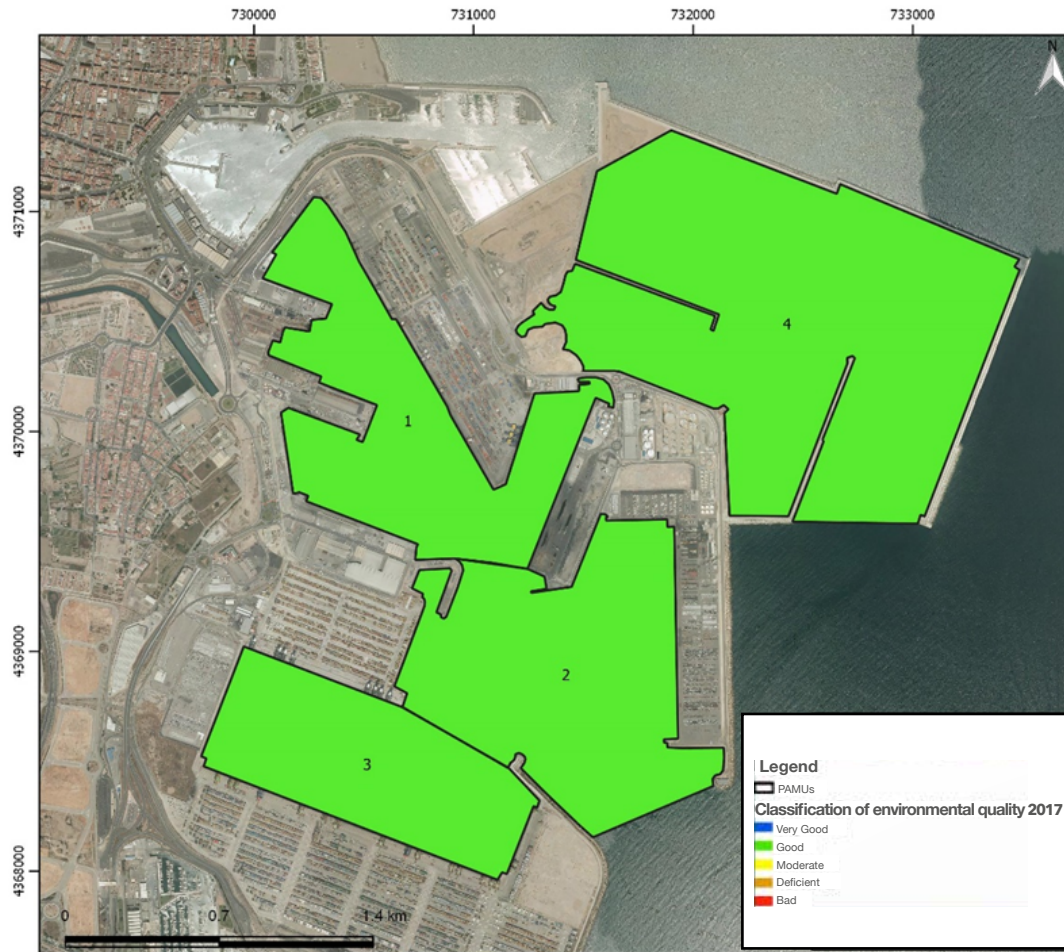
\*NE = No Evaluable

Based on the results of the monitoring of each of the indicators, we can conclude that the classification of environmental quality is Good at two PAMUs of the Port of Valencia and one at the Port of Sagunto, and Moderate for all other PAMUs at the ports of Valencia, Sagunto and Gandia, thus the water quality is improved over the previous year.

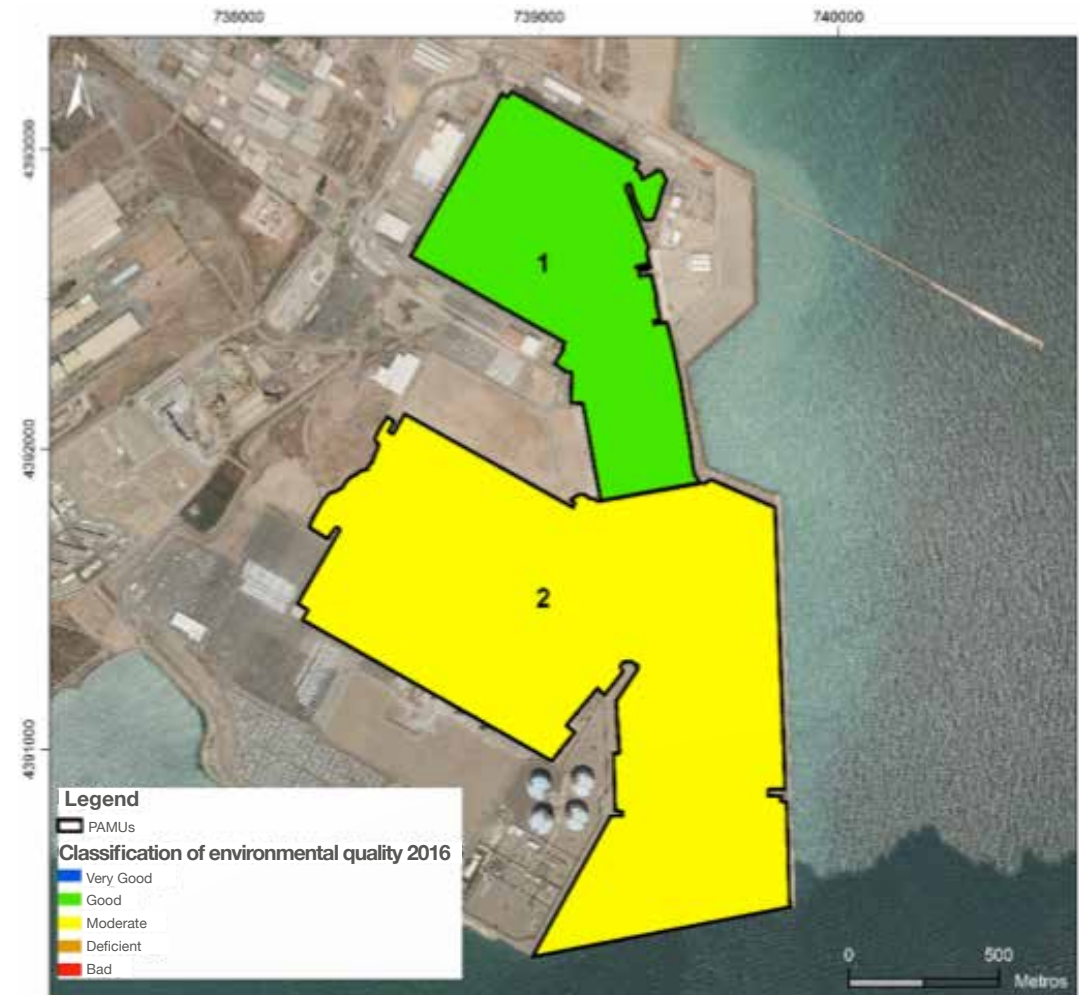


# 6. STATE OF THE ENVIRONMENT

The results obtained for each PAMU and port are shown below:



Evaluation of the Port of Valencia



Evaluation of the Port of Sagunto

# 6. STATE OF THE ENVIRONMENT



Evaluation of the Port of Gandia

The PAV also endeavours to minimise any possible impact on water quality through schemes such as clearing floating waste from the port's water surface. To that end, in 2003, the Spanish Maritime Safety Agency, which belongs to the Directorate General for Merchant Shipping gave the vessel LIMPIAMAR III to the Port Authority of Valencia, which took over this service. The service is currently outsourced to a private company.

The vessel is mainly intended to collect solid and liquid floating waste and to assist the service for tackling episodes of accidental marine pollution, for which it is considered an additional unit.

In 2017, the LIMPIAMAR III removed and handled a total of 185 m<sup>3</sup> of floating waste, largely plastics, wood and other by-products.





## 6. STATE OF THE ENVIRONMENT

### 6.5. DREDGING MANAGEMENT

The accumulation of sand and lime deposits in the entrance channels to the ports and in the construction of new quays means that from time to time the Port Authority of Valencia carries out maintenance dredging to enable access and manoeuvrability in the ports it manages.

No dredging operations were carried out in 2017.

### 6.6. ENVIRONMENTAL SURVEILLANCE PLAN

In 2008, work began on the Port of Valencia extension. In line with the requirements set out in the project's Environmental Impact Statement (EIS) of 30th July 2007, the works have a comprehensive Environmental Surveillance Plan to ensure compliance with corrective and preventive measures in the construction and operational phases, and guarantee that impact levels do not exceed those specified in the impact assessment.

In order to comply with the above, the Plan requires monitoring of the following environmental factors:

- Water and sediment quality
- Marine ecosystem
- Fishing resources
- Evolution of shellfish resources
- Birdlife
- Air pollution
- Noise pollution
- Archaeological field surveys
- Coastal dynamics.

In addition, and to comply with the EIS's requirements, a study was carried out in 2008 into the project's possible effect on the dispersion of discharge from the Cabañal overflow channel and the Vera sewer outlet. The study found there was no change in the initial situation.

In April 2012, the first phase of the extension works was completed with the main result being the enclosure of waters in the new dock. In August 2012, work began on the 'Cruise Quay - Phase 1' and was completed in December 2013.

Environmental monitoring of the aforementioned vectors continued throughout 2017, although work reduced considerably during this period

The Environmental Surveillance Plan has been monitored since the works began in 2008, and the data gathered and set out in the reports for 2008-2017 show that the environmental impact of the operations is within the forecast margins and therefore they do not significantly affect the surrounding area

### 6.7. SOIL MANAGEMENT

During 2017, the PAV did not carry out any specific environmental characterisation study of the soil or groundwater at the Ports of Valencia, Sagunto and/or Gandia.

In the Security, Environment and Facilities area of the PAV, environmental checks of the concessions were performed, carrying out the following actions:

- Compilation of the Soil Situation Reports submitted by the concession holders/authorised companies subject to the provisions of Spanish Royal Decree 9/2005, of 14th January, establishing the list of activities that potentially pollute the soil and the criteria and standards for the declaration of contaminated soils (hereinafter, Royal Decree) before the competent environmental body.
- Request for more detailed supplemental reports, data or analysis to assess soil contamination, in accordance with the provisions of Article 3.3 of the Royal Decree, which the environmental body has requested, either ex officio or through the Integrated Environmental Authorisation
- Report, through the PAV Internal Viability Reports, the obligations that companies must fulfil in relation to the soil.

## 6.8. VISUAL IMPACT

The Port Authority of Valencia paid special attention once again to the port facility's green areas. In 2017, the total surface area of green areas at the Port of Valencia was 37,221.05 m<sup>2</sup>, of which 20,432.33 m<sup>2</sup> correspond to grass areas and 16,788.72 m<sup>2</sup> to garden areas without grass. Garden areas without grass have increased slightly compared to the previous year, due the planters installed in the Nautical Services Dock and the trees planted in the grounds of the Railway Control Centre building.

The total surface area of gardens and green areas at the Port of Gandia was 1,675.00 m<sup>2</sup>, of which 425.00 m<sup>2</sup> were grass lawns and 1,250.00 m<sup>2</sup> garden areas, including trees, shrubs, ground cover plants, flowers, palm trees and hedges, etc.

The total surface area of gardens and green areas at the Port of Sagunto was 7,369.00 m<sup>2</sup>, of which 3,059.00 m<sup>2</sup> were grass lawns and 4,310.00 m<sup>2</sup> garden areas, including trees, shrubs, ground cover plants, flowers, palm trees and hedges, etc.

Sprinkler and drip irrigation systems are used to maintain these green areas, which contributes to reducing water consumption.

## 6.9. OTHER ACTIONS

### 6.9.1. SPECIFIC ACTIONS CARRIED OUT IN 2017

This section lists the specific activities carried out during 2016 at the environmental level.

- Installation in 2017 of a 20-foot container for the storage of various materials and tools used during the clean-up operations of the dirt that accumulates in the old Turia riverbed river next to the anti-pollution barrier.
- Installation of solar panels for lighting carpark C of the Port Authority of Valencia.
- Clean-up of the Venecia beach at the port of Gandia.
- Collaboration with WPCI/PIANC on the working group WG174 "Sustainability Reporting for Ports"
- Participation during May in the "I European Environmental Ports Conference" in Antwerp (Belgium).
- Participation during June in the "3rd Green Energy Ports Conference", in Vigo.
- Participation during June in the meeting to launch the NEPTUNES (Noise Exploration Program to understand noise emitted by seagoing ships) project in Hamburg (Germany).
- Participation during November in the local CONAMA "Cities connect naturally" at the roundtable on climate change and sustainable transport, in Valencia.
- Participation during November in "Ecofira 2017: International Environmental Solutions Fair," held in Valencia.



# 7

## EMERGENCY RESPONSE



ECOPORT  
Autoridad Portuaria de Valencia



valenciaport  
Autoridad Portuaria de Valencia



# 7. EMERGENCY RESPONSE

One of the Port Authority of Valencia's priorities is to ensure the ports of Sagunto, Valencia, and Gandia maximise safety levels, whilst also maintaining efficient cooperation channels with other organisations which have jurisdiction in police, civil defence, fire prevention, sea rescue, and pollution prevention matters.

Therefore, it is essential to make the spectacular increase in port traffic in the ports managed by the PAV compatible with safeguarding the integrity of people, the environment, infrastructure, and goods, in the defence of the public interest.

To achieve this objective, the Port Authority has its own Port Police service, a fire station that works closely with the Valencia City Council, equipment to handle fuel spills operated by specialist staff, and an emergency ambulance amongst other resources, which are operational 24 hours a day, 365 days a year. These resources, and contact with other authorities which may be called upon to intervene, are coordinated by the PAV's Emergency Control Centre.

Through this Centre, the Port Authority of Valencia supervises dangerous goods operations, handles emergencies, and takes part in preventive industrial, operational, occupational, and environmental safety operations at the ports of Sagunto, Valencia, and Gandia, both on land and in port waters.

INCIDENTS	2013	2014	2015	2016	2017
Urgent medical assistance	179	209	236	218	287
Total number of spills	37	32	20	20	11
<i>Minor spills in the water</i>	11	16	16	12	4
<i>Minor spills on land</i>	26	6	4	8	7
Recovery of objects	14	12	20	11	10
Port closure	6	6	9	16	12
Fires	7	11	6	1	7

The Control Centre's staff and equipment are on permanent alert to intervene immediately in any incident that may take place. In the meantime, the Centre's equipment is constantly maintained, procedures are improved, staff are trained, and technological innovations are implemented.

The most important training courses include emergency drills and exercises which are regularly carried out. In 2017, the following drills were carried out.

EMERGENCY DRILLS	2013	2014	2015	2016	2017
<b>1. PAV Emergency Plans</b>					
<b>1.1.- Led by the PAV:</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>7</b>
Fire drill	5	1	5	6	7
Fuel spills	0	2	1	1	0
Other	1	3	1	--	-
<b>1.2. In conjunction with other organisations</b>	<b>2</b>	<b>5</b>	<b>1</b>	<b>3</b>	<b>1</b>
In different terminals	2	3		1	-
In conjunction with other entities	--	--	--	2	1
In conjunction with mooring services	--	2		--	-
<b>2. Security drills:</b>	<b>20</b>	<b>27</b>	<b>20</b>	<b>11</b>	<b>11</b>
<b>Total</b>	<b>28</b>	<b>38</b>	<b>28</b>	<b>21</b>	<b>19</b>

The following training initiatives have been carried out for all CCE staff:

- A 40-hour English technical maritime language course (SMCP of the OMI) for CCE staff
- A training day to refresh and update knowledge of the Self-protection Plan, External Emergency Plan and Internal Maritime Plan.
- A training day on port railway security.
- A training day on practical knowledge of the Port of Sagunto.

In addition, thirteen training sessions were given on the Port Self-Protection Plan, general knowledge, risks, available resources, etc... for the staff of Bombers Valencia with theoretical chat, guided tour and navigation and practice sessions aboard tugboats, etc.

# 7. EMERGENCY RESPONSE

The following drills related to the PAV Emergency Plans were also carried out: **1st quarter:**

Fire in the engine room of a moored tugboat. **2nd quarter:**

- Fire in the PAV workshop building
- Fire originating in an electrical panel in the office building of the Port of Sagunto.
- Arson at the Port of Gandia. **3rd quarter:**
- There were no drills during the vacation period **4th quarter:**
- Fire on the second floor of building 2 of the PAV Management complex
- Fire in the PAV Occupational Hazards Prevention building (Clinic)
- Fire in the Clocktower building.

• Drill simulating health assistance to a crew member suffering from a contagious disease. Existing coordination procedures and mechanisms with Foreign Health and with the corresponding bodies of the Generalitat and 112-CV were tested.





# 8

## INNOVATION AND COOPERATION PROJECTS



# 8. INNOVATION AND COOPERATION PROJECTS

To implement responsible environmental policies at the PAV, it is essential to acquire technical and practical knowledge which can be gained by taking part in cooperation and innovation projects. The PAV deploys the fruits of its participation in these projects directly, by implementing the lessons learned in its own management activities and indirectly, by making the knowledge acquired available to third parties for implementation in their facilities.

The PAV encourages participation, both its own and that of the companies that are part of the Port Community, in all innovative programmes and projects whose objectives dovetail with those stated in its Environmental and Energy Policy mentioned above. This participation facilitates updated knowledge of the latest trends, techniques, and technologies available to control and monitor the environmental status of the ports that it manages, as well as the subsequent transfer of this knowledge to the Port Community.

## 8.1. COMPLETED PROJECTS

To date, the PAV has participated in the following projects: More detail is provided from 2010:

- **ECOPORT PROJECT (1998)** - the European Commission's LIFE Programme
- **INDAPORT PROJECT (2000)** - Ministry of Science and Technology's Technological Research Promotion Programme (PROFIT)
- **HADA PROJECT (2002)** - the European Commission's LIFE Programme
- **ECOPORTS PROJECT (2002)** - European Commission's Fifth Framework Programme
- **SECURMED PROJECT (2004)** - European Commission's Interreg IIIB Programme
- **SIMPYC PROJECT (2005)** - the European Commission's LIFE Programme
- **MADAMA PROJECT (2005)** - the European Commission's Interreg IIIB Medocc Programme
- **NOMEPORTS PROJECTS (2005)** - the European Commission's LIFE Programme
- **ELEFSINA BAY PROJECT 2020 (2007)** - the European Commission's LIFE Programme

- **ECO-LOGISTYPORT PROJECT (2008)** - the European Social Fund's Empleaverde Programme
- **IMPROVING ENVIRONMENTAL MANAGEMENT AT THE PORTS IN THE GULF OF HONDURAS (2008)** - Funding from the Inter-American Development Bank and the Spanish Agency for International Cooperation.
- **EFICONT (2009)** - the Ministry of Development's National R&D Plan.
- **CLIMEPORT PROJECT (2009)** - the European Commission's MED Programme

### GREENCRANES PROJECT (2012)

The GREENCRANES project (Green Technologies and Eco-Efficient Alternatives for Cranes and Operations at Port Container Terminals) had a total budget of €3,688,000, 50% of which was funded by the European Union through the Trans-European Transport Network (TEN-T) programme. The project's objective was to demonstrate the viability of new technologies and alternative fuels through pilot schemes implemented in port container terminals (PCTs). The ultimate goal was to provide decision-making criteria and recommendations that can be used to draft European policies and enable the logistics and port industry to make informed decisions.

The project was coordinated by the Valenciaport Foundation, and its partners included the PAV, Noatum, ABB, Konecranes, the Port Authority of Koper (Slovenia), and the Italian Ministry of Infrastructure and Transport, the Port Authority of Livorno, RINA SpA, Global Service Srl, and the Sant'Anna School of Advanced Studies (Italy).

The main outcome of the project was the design of two port machinery prototypes powered by natural gas. In addition, the feasibility of using this type of fuel in container terminal machinery operations was also studied.

The project was completed in November 2014.

### GREENBERTH PROJECT (2013)

The GREENBERTH project (Promotion of Port Communities' SMEs role in Energy Efficiency and GREEN Technologies for BERTHING Operations) has a budget of €1,616,115 and is 75% funded by the European Union's regional funds under the MED programme. The project lasted 30 months.

# 8. INNOVATION AND COOPERATION PROJECTS

GREENBERTH is led by the PAV, and partnered by the Mediterranean's leading ports, such as Marseilles (France), Livorno and Venice (Italy), Koper (Slovenia), and Rijeka (Croatia). The project also has technological partners which include FEPORTS (the Valencian Region Port Institute for Studies and Cooperation), the University of Cadiz, and the Centre for Research and Technology Hellas/Hellenic Institute of Transport (CERTH/HFT).

The basic aim of the Greenberth project is to encourage SME access to opportunities in the port sector **in the application of solutions to improve energy management and the implementation of renewable energies**, with a special focus on portvessel operations.

The most important outcomes of the project were:

- 1.- Preparation of reports on the energy efficiency diagnosis, the identification of needs and the participation of SMES in port activities.
- 2.- Design of the Energy Plans for ports in the Mediterranean.
- 3.- Development of action plans for the application and transfer of available technology, which included three pilot projects.
  - a. Replacement of traditional engines in the port fleet with more efficient and less polluting alternatives,
  - b. Implementation of On-Shore Power Supply (OPS) technology and
  - c. Replacement of traditional engines engines more efficient, less polluting engines in port terminal machinery and truck fleets.

The project was completed in June 2015.

## MONALISA 2.0 PROJECT (2013)

The project's main objective is to promote Motorways of the Sea (MoS) through the application of various measures aligned with the EU's policies on shipping

The PAV participated in this project by coordinating the vessel components in the maritime section, and the port facility component in the land section for accidents or incidents focusing not only on large passenger vessels but also on other vessels or facilities at risk.

The results aimed for in the project were to draw up documents on contingency plans in ports and the guidelines to be followed, as well as carrying out a pilot experiment consisting of a mass port evacuation exercise and drawing up the corresponding report on this drill.

MONALISA 2.0 had 39 members from 10 EU countries. The project is 50% funded by the EU through the Trans-European Transport Network Executive Agency and has a budget of €24,317,000.

The project was completed in December 2015.

## SEA TERMINALS PROJECT (2014)

The SEA TERMINALS (Smart, Energy Efficient and Adaptative Port Terminals) project had a budget of € 6,273,896 and 50% EU funding through its TEN-T programme. The project lasted 22 months.

The project was coordinated by the Valenciaport Foundation and its partners included the PAV, Noatum, Terberg, NACCO, the Technological Institute of Energy (ITE), EDAE, Ampliatel, Baltic Ports Organization and the Italian Ministry of Infrastructure and Transport, in addition, as implementing agencies, to the Port Authority of Livorno, Global Service Srl, Offshore LNG Toscana and the Sant'Anna School of Advanced Studies (Italy).

The aim of SEA TERMINALS was to promote the evolution of the port industry toward a progressive and effective low-carbon operational model, the integration of smart and energy-efficient technologies (concepts of hybrid engines, liquefied natural gas as fuel, heavy electric vehicles) through innovative energy efficiency and business solutions, focusing on the handling of machinery and equipment for heavy work.

SEA TERMINALS was based on the lessons learned from the project GREENCRANES, mentioned earlier.

The project was completed in December 2015.



## 8.2. CURRENT PROJECTS

### CORE LNG AS HIVE PROJECT (2014)

The CORE LNG AS HIVE project (Core Network Corridors and Liquefied Natural Gas) has a budget of €33,295,760, with 50% funding from the EU through its CEF programme (Connecting Europe Facility)

The main objective of this project is to provide Spain and Portugal with a suitable infrastructure and operational framework for the deployment of a global LNG supply network for use in transport within the network formed by the Mediterranean and Atlantic corridors, and the connection zone through the Strait of Gibraltar.

The project consortium is composed of different types of representatives (public and private) from different sectors (energy, education, transport...), thus allowing different interests to be considered and ensuring the market-oriented approach of the work included in this proposal.

The pilot actions to be implemented include the following:

- Adaptation of the SAGGAS terminal at the Port of Sagunto to supply LNG to ships as fuel.
- Basic project to convert tugboats from diesel to LNG.
- Basic project to install a LNG/CNG supply plant at the Port of Valencia.

The project is expected to be completed in December 2020.

### GAINN4SHIP INNOVATION PROJECT (2015)

The GAINN4SHIP INNOVATION Project (LNG Technologies and Innovation for Maritime Transport for the Promotion of Sustainability, Multimodality and Efficiency of the Network) has a budget

of €15,025,564 with 50% funding from the EU through its CEF programme (Connecting Europe Facility).

GAINN4SHIP INNOVATION aims to implement European environmental regulations through the conversion of Diesel engines to LNG (Liquefied Natural Gas) engines on a Fast-Ferry vessel that provides regular service in the Canary Islands. This project includes final engineering projects on the prototype LNG-fuelled vessels and their adaptation to the current vessels.

The expected results include:

- Definition of environmental indicators for vessels adapted to the use of LNG,
- Definition of technical fuelling solutions;
- Control of methane emissions into the atmosphere of the prototype vessels adapted to LNG;

The project is expected to be completed in December 2018.

### GAINN4MOS PROJECT (2015)

The GAINN4MOS Project (Sustainable LNG Operations for Ports and Shipping - Innovative Pilot Actions) has a budget of € 41,314,934, with 50% funding from the EU through its CEF programme (Connecting Europe Facility).

GAINN4MOS aims to improve the Motorways of the Sea (MoS) network in 6 member states (Spain, France, Croatia, Italy, Portugal and Slovenia) through engineering studies to rehabilitate existing vessels and/or undertake new constructions, development of LNG port infrastructures, fuelling stations and a large number of pilot projects.

GAINN4MOS includes 14 detailed engineering studies on LNG infrastructures and stations for the provision and conversion of vessels and/or the construction of new ships and 11 prototypes (4 reconversions and 7 LNG supply stations in nodal ports).

The project is expected to be completed in September 2019.

## 8.3. INVOLVEMENT IN COOPERATION PROJECTS

As part of the objectives included in its Environmental Policy, the PAV is committed to cooperating with third parties in disseminating and sharing the knowledge it has accumulated in protecting the port environment and in extending environmental management to other areas. Accordingly, it takes part in cooperation projects, sharing its knowledge and thus contributing to improving the environment.

### PARTICIPATION IN THE EUROPHAR EEIG

The PAV has been a member of the EUROPHAR European Economic Interest Grouping since 1997 and is currently head of the group. The Group's members include the Port Authorities of Toulon in France, as well as Genoa, Livorno, Piombino and Salerno in Italy. Other Spanish, French and Italian companies and institutions are also part of the Group, mainly linked to the fields of security and environmental port protection.

EUROPHAR is a privileged tool for the communication and promotion of the PAV's policies in the international arena, as well as a cooperation tool for the development of R&D+i projects. In recent years, EUROPHAR has participated in numerous projects such as the SIMPYC Project and the SUPPORT "Security Upgrade for Ports" project, under the 7th Programme, which ended in 2014. Also worth mentioning is its participation in the GREEN-CRANES and GREENBERTH projects as part of the Advisory Board.

In 2017, EUROPHAR collaborated on European project proposals such as PORTICO, whose aim was to create a SMARTPORT through the management of information of the networks installed in the ports. This proposal was presented in the H2020 programme.

In addition to the above, EUROPHAR has supported different project initiatives such as the SAURON safety project whose objective is to improve the management and visualization of risk in the physical and cyber-security combination in the port environment.

Finally, it should be noted that with all its experience, EUROPHAR is an international reference in the fields of environmental protection and port security at the European level.

## 8.4. TRAINING

The PAV aims to provide the necessary environmental training and awareness, as set out in its environmental policy. This is understood not only as a way of improving staff knowledge, but also as a means to acquire new skills and abilities that will make the ports of Sagunto, Valencia and Gandia more competitive. Thus, training courses and sessions are scheduled every year to enhance knowledge in line with the environmental activities carried out. As far as possible, and as set out in the ECOPORT II project, these activities are carried out in conjunction with the rest of the Port Community.

In 2017 various environmental tips were drawn up for training purposes, as part of the Ecoport II project's training plan.

### INFORMATIVE EMAILS

A series of environmental tips were sent monthly to both the PAV staff through the employee website, as well as to the concessions of the PAV port facilities.

# 9 COMMUNICATION AND PUBLICATIONS





The proximity of the Port Authority of Valencia to its stakeholders means it is more aware of their demands and concerns, and also serves as a basis for designing and developing specific actions to comply with its commitments. One of the PAV's objective is to provide as many professionals and organisations as possible with access to information about the areas they operate in.

## 9.1. COMMUNICATION

The PAV uses various communication channels to make this information available to its stakeholders. These include the following:

### **THE PORT AUTHORITY OF VALENCIA'S WEBSITE**

The PAV's web site ([www.valenciaport.com](http://www.valenciaport.com)) continues to be one of the organisation's major communication platforms across the different areas, including environmental aspects.

### **THE ECOPORT II PROJECT'S WEBSITE**

The website of the Ecoport II project ([www.ecoport.valenciaport.com](http://www.ecoport.valenciaport.com)) aims to be a portal for members of the port community to exchange information about environmental performance initiatives and to share tools promoted by the PAV to enhance the performance of those involved.

## 9.2. ENVIRONMENTAL INSIGHT SESSIONS

The PAV continued to maintain contact with institutions, customers, and other stakeholders about the environmental activities of its ports in 2017.

The Port Authority played host to 218 visits, all of which featured an Environmental component. During the year, approximately 9,307 people came to the PAV from various organisations and centres including, among others, representatives of the Embassy of Japan, Delegation of Raminatrans, General Administration of Ports of Buenos Aires, Delegation of Nichirei Holding Holland B.V, Delegation of the Turkish Ministry of Transport, Delegation of Mitsubishi Electric and Arola, Delegation of the City Council of Pohang, Delegation of Mediterráneo Señales Marítimas and Delegation of SICO (Silk Road International Cultural & Economic Cooperation Organization).

There were also technicians visiting from: School of Civil Engineers of Madrid, EDEM School of Entrepreneurs, Universidad Politécnica de Valencia, Universidad Católica de Valencia, Official Chamber of Commerce, ITENE Foundation, Avans Breda University, Iowa State University, Russian Presidential Academy of National Economy and Public Administration.

## 9.3. COOPERATION AND PARTICIPATION IN FORUMS AND SEMINARS

In 2017, the PAV took part in a great number of congresses and conferences about the environment in relation to ports, both national and international. These included:

- 25Th Master's degree in Port Management and Intermodal Transport - Valenciaport Foundation (Valencia, April 2017)
- Unctad Course on Port Management (Buenos Aires, Argentina, May 2017)
- Medports conference (Marseilles, France in July 2017)

## 9.4. PUBLICATIONS

The publications produced by the PAV include monographs and specific guides on particular subjects, others providing information on its activities, as well as periodicals. Thus, it is necessary to distinguish between those made this year and publications prior to 2017.

### 2017 PUBLICATIONS

#### 2016 ENVIRONMENTAL REPORT

As a key element of its environmental communication, once again the Port Authority of Valencia has published the Environmental Report that includes the actions that have been carried out in environmental matters during 2016.



#### ADVANCE ENVIRONMENTAL INFORMATION 2017

One of the Port Authority of Valencia's aims is to disclose the environmental actions carried out during the period.

For this reason, advance environmental information was produced for the 2017 period for dissemination to the Organization and the general public.



#### ENVIRONMENTAL NEWSLETTERS

The Port Authority of Valencia began publishing an environmental newsletter three times a year in 1998, which features all the latest national and international news and information of environmental interest in the port industry.

In 2017, continuing the trend of recent years, the environmental newsletters have become one of the port industry's preferred channels to remain up to date with the latest environmental information. The newsletter contains the following information:

- An editorial on environmental issues.
- An article written by an expert in environmental issues in the shipping-port industry.
- Opinion piece by a port community company.
- News bites on environmental issues in ports.
- Environmental legislation developments.
- Forthcoming events.

The following newsletters were published in 2017:

- Environmental newsletter No. 50, published in March 2017
- Environmental newsletter No. 51, published in September 2017
- Environmental newsletter No. 52, published in November 2017



# 9. COMMUNICATION AND PUBLICATIONS

## PRE-2017 PUBLICATIONS

The publications produced by the PAV in previous years included:

### GUIDE FOR THE CALCULATION AND MANAGEMENT OF THE CARBON FOOTPRINT IN PORT FACILITIES BY LEVELS

This guide was published to support port companies in calculating and reducing their greenhouse gas emissions and was drafted by a team from the Port Authority of Valencia, the Universitat Politècnica de Valencia and the Valenciaport Foundation, which spent the year working on its drafting.

The extensive document includes the methodology for calculating and managing the carbon footprint, adapted to the needs of the port community and based on the study of good energy-environmental practices and successful energy efficiency projects over the last 8 years implemented in the ports of Valencia, Sagunto and Gandia. The Guide proposes the inventory and study of the different emissions sources of greenhouse gases directly produced by the consumption of fossil fuels, and the indirect emissions from electricity consumption. It also includes other emissions derived from activity in the terminals.



### BOOK: "LIVING THE PORT ENVIRONMENTALLY. A TOUR OF THE PORTS OF SAGUNTO, VALENCIA AND GANDIA"

The Port Authority of Valencia, aware of the social, economic and environmental value of the Ports of Sagunto, Valencia and Gandia, published this book "Living the Port Environmentally", to discuss its responsible management of these historic spaces, vital in the development of both the municipalities in which they are located, as well as their citizens, workers and employees, through their environmental protection and their integration into the society to which they belong.

With this book, the PAV provides a transparent and integrative view of all the actions that it carries out for the sustainable development of its ports, so that the port activities fulfil the current maximum levels of respect and environmental protection and without compromising their future economic, social and environmental capacity.



### "ENVIRONMENTAL INITIATIVES" BROCHURE

In 2011, the Port Authority of Valencia published an Environmental Initiatives brochure in Spanish and English, which details the activities the PAV carries out to protect the environment, as well as its response to the commitments undertaken in its Environmental Policy.

### GREENBERTH PROJECT BROCHURE AND NEWSLETTER

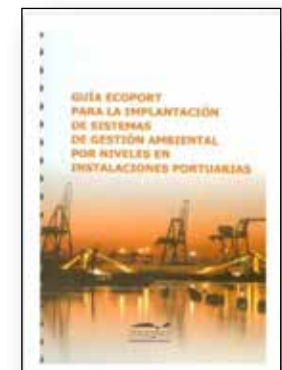
Brochures and a newsletter were published as part of the Greenberth project to promote the initiative in various national and international forums.

### E4PORT GUIDE TO THE IMPLEMENTATION OF ENERGY MANAGEMENT SYSTEMS IN STAGES IN PORT FACILITIES

This guide sets out a specific method to assess significant energy aspects that are applicable to port activities, as well as a three-tiered management model for concessionaires and port service providers to implement energy management systems in line with current standards.

### ECOPORT GUIDE TO IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT SYSTEMS IN STAGES IN PORT FACILITIES.

The port community is made up of many different-sized companies, and diverse environmental realities and activities, which means that adopting an Environmental Management System can require different measures of varying complexity in each case. In order to enable companies to participate in this project, bearing in mind their individual characteristics, the PAV has developed a guide which divides the requirements of an Environmental Management System into five stages, in line with the ISO 14001 standard and the EMAS II Regulation.





# 9. COMMUNICATION AND PUBLICATIONS

In this method, companies are assessed according to their environmental situation, they start off from the stage which best fits this situation, and work progressively towards reaching higher levels until they arrive at the last stage, which ensures full implementation of an environmental management system. Companies are therefore provided with low-cost, easy access to this system.

## ECO-EFFICIENCY GUIDES

The Port Authority of Valencia (PAV) has published five eco-efficiency guides to promote sustainability criteria in the companies located in the ports managed by the PAV: Sagunto, Valencia and Gandia. The guides feature various proposals and programmes which enable goods and services to be produced using fewer natural resources, thus reducing pollution through environmentally and economically efficient procedures.

These guides were compiled after a detailed eco-efficiency and sustainability study in the PAV-managed ports, and enable eco-efficiency criteria to be applied in the following areas: energy eco-efficiency, the creation of a greenhouse gas inventory, water use, the generation of waste, and the use of materials in public works.

## ENVIRONMENTAL RISK ASSESSMENT IN PORT FACILITIES GUIDE

This guide aims to be an efficient, user friendly tool for companies in the ports of Sagunto, Valencia and Gandia that wish to carry out their own environmental risk assessment, according to the standard UNE 150.008.



## BEST ENVIRONMENTAL PRACTICE GUIDE

In 2000, a series of Best Environmental Practice guides began to be compiled in the framework of the Ecoport project, in order to raise awareness among the groups working in the port facilities about the importance of applying environmentally friendly criteria in their daily work. Each guide focuses on a specific port activity and provides useful tips to be applied in the standard procedures corresponding to their particular field, as well as the legislation applicable to each case. The guides published so far include:

- Offices (published in 2000, reprinted in 2006 and 2009)
- Workshops (published in 2000, reprinted in 2006 and 2009)
- Road haulage (published in 2004, reprinted in 2009)
- Solid bulk handling and storage (published in 2005, reprinted in 2009)

## PORT AUTHORITY OF VALENCIA'S ENVIRONMENTAL REPORT (ANNUAL SINCE 2001)

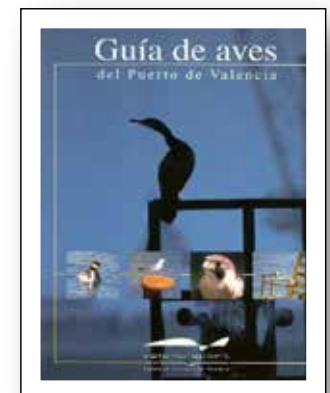
In 2002, the publication of the Port Authority of Valencia's Environmental Report (the first Spanish port to do so) detailed all the environmental activities carried out in 2001 and aimed to take the lead in informing society as part of its continuous improvement process.

Since then, the Port Authority of Valencia has published these reports on a yearly basis, highlighting the organisation's special interest in respecting and protecting the environment. The reports set out the main environmental protection activities carried out in the ports of Sagunto, Valencia, and Gandia, as well as the main environmental parameters and indicators associated with them. They also provide a detailed description of the results obtained.



## PORT OF VALENCIA BIRDLIFE GUIDE

Though the publication of the Port of Valencia Birdlife Guide, the PAV aims to disseminate the wide variety of birds that can be seen in the port environment, providing experts with basic knowledge they can use to study and monitor these species, whilst helping the general public to identify the birds that fly over our ports throughout the different seasons.



# 9. COMMUNICATION AND PUBLICATIONS

The idea for this guide came from the ECOPORT project and its publication meets two objectives, firstly, to respond to society's demand for information on the biodiversity of our port, and secondly, to comply with the commitment to "promote awareness and provide suitable training for employees, thus encouraging the development of this policy", as stated in the PAV's Environmental Policy.

## FISHING RESOURCE GUIDE

This guide compiles the species that are sold by the Sagunto, Valencia, and Gandia fishing guilds. A special feature of the guide is that it presents the different species in their natural habitat.



## PORT OF VALENCIA UNDERWATER FLORA AND FAUNA GUIDE.

In line with its environmental policy commitments, the PAV carried out a study of the underwater flora and fauna at the Port of Valencia, in conjunction with the University of Valencia. The special morphological characteristics of the port environment, the wide variety of commercial activities and the shipping traffic in this inter-ocean port make this study an efficient tool to get an insight into the biodiversity of the port facility. The study also showcases the wealth and importance of the living beings that inhabit the port enclave, as well as providing a starting point to subsequently establish the possible effects of port activities on the flora and fauna.

The guide was published as a result of this study and all the images it contains were all taken at the



Port of Valencia. The species featured are the most representative in the area under study, but only represent a small part of the extraordinarily broad catalogue of species living in port water.

## DVD OF THE PORT AUTHORITY OF VALENCIA'S ENVIRONMENTAL ACTIVITIES

A DVD has been made of the main environmental activities undertaken by the Port Authority of Valencia in the ports it manages (Sagunto, Valencia, and Gandia) to showcase the most relevant environmental activities and the results obtained, thus contributing to enrich the environmental knowledge of the various players taking part in port activities, and helping other port authorities that have similar environmental problems.



# 10 GREEN ACCOUNTING





# 10. GREEN ACCOUNTING

## 10.1. ENVIRONMENTAL SPENDING

In 2017, the PAV spent €4,347,155.06 on protecting and improving the environment. The breakdown of these costs is shown in the following table:

ENVIRONMENTAL EXPENSES AND COSTS	FINANCIAL YEAR 2017	FINANCIAL YEAR 2016
<b>STAFF COSTS</b>	<b>264.562,37</b>	<b>251.268,22</b>
<b>OTHER OPERATING EXPENSES</b>	<b>3.834.826</b>	<b>3.274.163,75</b>
<i>Collection of waste generated by vessels</i>	3.209.188,13	2.638.057,12
<i>Repairs and upkeep</i>	381.473,83	373.346,94
Independent professional services	94.150,61	115.352,31
Supplies and materials consumed	11.993,14	11.535,40
Other services and other expenses	138,020,86	135.871,98
<b>DEPRECIATION AND AMORTISATION CHARGE</b>	<b>247.766,12</b>	<b>278.459,81</b>
<b>TOTAL ENVIRONMENTAL COSTS AND EXPENSES</b>	<b>4.347.155,06</b>	<b>3.803.890,78</b>

## 10.2. TANGIBLE AND INTANGIBLE ASSETS

The PAV made the following investments in intangible and tangible assets for improving the environment. The breakdown of these assets is shown in the table below:

ENVIRONMENTAL ASSETS (Gross amounts)	31/12/2016	PERIOD AD- DITIONS (+)	DISPOSALS (-)	31/12/2017
Maritime accesses	3.748.162,71	-	-	3.748.162,71
Breakwater and dock works	148.247,29	-	-	148.247,29
Berthing works	91.772,15	-	-	91.772,15
General facilities	285.057,81	-	-	285.057,81
Pavements and roads	5.899,45	-	-	5.899,45
Floating material	126.147,18	-	-	126.147,18
Sundry equipment	473.398,82	327.731,60	-	801.130,42
Computer software	14.909,00	-	-	14.909,00
Industrial property	3.270,00	-	-	3.270,00
Land	63.534,43	-	-	63.534,43
<b>TOTAL ENVIRONMENTAL ASSETS</b>	<b>4.960.398,84</b>	<b>327.731,60</b>		<b>5.288.130,44</b>
DEPRECIATION AND AMORTISATION OF ENVIRONMENTAL ASSETS	31/12/2016	PERIOD AD- DITIONS (+)	DISPOSALS (-)	31/12/2017
Maritime accesses	1.134.443,05	78.185,16	-	1.212.628,21
Breakwater and dock works	56.447,56	2.969,28	-	59.416,84
Berthing works	58,270,62	3.068,88	-	61.339,50
General facilities	163.905,59	16.540,98	-	180.446,57
Pavements and roads	4.745,67	395,58	-	5.141,25
Floating material	59.350,44	9.546,18	-	68.896,62
Sundry equipment	469.922,92	3.807,56	-	473.730,48
Computer software	14.909,00	-	-	14.909,00
Industrial property	3.270,00	-	-	3.270,00
<b>TOTAL DEPRECIATION AND AMORTISATION OF ENVIRONMENTAL ASSETS</b>	<b>1.965.264,85</b>	<b>114.513,62</b>		<b>2.079.778,47</b>

# 11 SUSTAINABILITY INDICATORS



# 11. SUSTAINABILITY INDICATORS

Our Environmental Reports always include a summary of the environmental indicators used to provide information about the PAV's activities.

The PAV has been working with three groups of indicators since 2011. The first group comes from the Global Reporting Initiative (GRI) method, adapted to the characteristics of port activities, as defined in the MESOPORT project.

The second group is made up of the indicators established in EMAS III Regulation (EC) 1221/2009.

III. The PAV is also working on a third group of sustainability indicators that are included in the PAV's Sustainability Report and were created by the Puertos del Estado Sustainability Working Group. These indicators aim to standardise criteria for reporting on the sustainable behaviour of the Spanish port system, but are not included in this Statement.

This Statement only lists the most relevant indicators from the first group, and those from the second group, as required by EMAS III Regulation (EC) 1221/2009.

## FIRST GROUP:

### A 14 Total number and volume of significant accidental spills.

See Chapter 7. Emergency response

### A 15 Initiatives to mitigate environmental impacts of port authority activities

**Certifications:** See Chapter 4. Description of the Environmental Management System, section

#### 2. Certifications:

- Standard UNE EN ISO 14001:2015 on Environmental Management since 2006.
- Standard UNE EN ISO 50001:2011 on Energy Management since 2016.
- EMAS III certification since 2008.
- PERS (Port Environmental Review System) Certificate, last renewed in 2015.

#### Water quality:

- Cleaning floating waste from the water surface: using the Limpiamar III vessel See Chapter 6, paragraph 6.4.5. 2017 water quality monitoring results.
- Combating pollution caused by fuel spills: through the emergency plans. The APV has equipment to mitigate the effects of pollution. See Chapter 7. Emergency response
- Water quality control network. See Chapter 6. State of the environment, section 6.4. Water Quality.

#### Air quality: See Chapter 6. State of the environment, section 6.2. Air quality control:

- Control networks, Chapter 6. State of the environment.
  - Noise quality control network, section 6.3.
  - Air quality monitoring, section 6.2.

#### Waste management:

- A Waste Transfer Center (CTR) that facilitates waste collection. See Chapter 6. State of the environment, section 6.1. Waste, sub-sections 6.1.1. Own waste and 6.1.2. Waste from the port facility.
- The PAV has an indirectly managed port service to collect Marpol I, IV and V waste. See Chapter 6. State of the environment, section 6.1. Waste, sub-section 6.1.3. Ship-generated waste.

#### Innovation and cooperation projects: See Chapter 8. Innovation and cooperation projects

### A 17 Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.

No fines or non-monetary sanctions for non-compliance with environmental laws and regulations have been imposed

## SECOND GROUP:

See Chapter 5. Management of Natural Resources, section 5.5. Summary of indicators.



# 12 RECOMMENDATIONS FOR IMPROVEMENT



# 12. RECOMMENDATIONS FOR IMPROVEMENT

In the last section of this statement, the Port Authority of Valencia would like to promote the improvement of our environment as far as possible, encouraging readers, whether they are an industry, a government body, a local resident or any other stakeholder interested in the management system, to implement best practices that will undoubtedly result in current and future generations being able to enjoy clean and healthy port facilities:

- Reduce the waste you generate at source whenever possible.
- Reuse what may look like waste in another part of the process.
- Separate different types of hazardous waste and non-hazardous waste
- Manage this waste correctly through duly authorised transport and waste management companies
- Do not throw unauthorised substances into the sewer system
- Check your vehicle(s). Remember they need regular servicing. This will reduce fuel consumption • and prevent unwanted emissions.
- The sea belongs to everyone. Do not throw any solid or liquid substances into port waters.
- Water is a precious resource. Only use the water you need, no more. Use drip irrigation systems for your plants, use low-flush toilets, and reuse water whenever you can.

We must not forget that:

**“WE ARE NOT ONLY THE INHERITORS OF THE EARTH, THE RIVERS,  
THE MOUNTAINS AND THE WIND;**

**WE ARE THEIR GUARDIANS AND TRUSTEES” Kyoto Protocol**



# 13 VERIFICATION AND VALIDATION





# 13. VERIFICATION AND VALIDATION

This environmental statement was verified in an internal audit by C Más Innovación de Sistemas, S.L. on 28th May and 2nd June 2017, and in an external audit carried out by DNV GL Business Assurance España on 17th, and 18th July 2017.

Verification body: DNV GL BUSSINESS ASSURANCE ESPAÑA, S.L. - ES-V-0005

## **VERIFIER:**

This is the seventh annual statement registered with the Valencian Regional Government under the number E/CV/000023