Port of Huelva

MANAGEMENT OF POLLUTED DREDGED MATERIALS IN THE PORT OF HUELVA

Madrid, 23 May 2016
PORT OF HUELVA
GENERAL INTRODUCTION
Located in the southwest of Spain under 150 nautical miles from the Strait of Gibraltar.

In the heart of main global maritime shipping routes.
Traffic Statistics

MILL. TONS

Year | Tons
--- | ---
2008 | 20.6
2009 | 17.6
2010 | 22.1
2011 | 26.6
2012 | 28.5
2013 | 26.4
2014 | 27.4
2015 | 27.4
Types of Goods

2015 TONS

- General Cargo: 21,599,664
- Liquid Bulk: 5,136,077
- Solid Bulk: 1,481,861
- Other: 1,593,845
- Total: 27,376,986
Port Area

Area of protected waters: 1120 Ha.
Land area: 1700 Ha.
Navigation canal: length (15 Km) and width (300 m).
DREDGES IN THE PORT OF HUELVA:

- HISTORY
- ENVIRONMENTAL AND ENGINEERING ISSUES
- FUTURE ALTERNATIVES
HISTORICAL MINING ACTIVITY BECAUSE THE SPANISH PYRITE BELT IS LOCATED IN HUELVA.
THE HISTORICAL POLLUTION OF RIVERS (HEAVY METALS) DUE TO ACID DRAINAGE MINE, CARRIES A HIGH SEDIMENT POLLUTION TO THE ESTUARY OF HUELVA, WHERE THE PORT IS LOCATED.

Odiel river:
PpH 3.35
Al (4.500 ton/year)
Fe (2.800 ton/year)
Zn (2.600 ton/year)
Mn (1.500 ton/year)
Cu (1.200 ton/year).

Tinto river:
PpH 2.63
Fe (5.000 ton/year)
Al (1.200 ton/year)
Zn (900 ton/year)
Cu (500 ton/year)
Mn (200 ton/year).
REGULATION ON NATURA 2000 NETWORK AND NATURAL PROTECTED AREAS

Protected areas: 12000 Ha. Includes Port Area, mainly inland waters
REGULATION ON ENVIRONMENTAL IMPACT ASSESSMENT

Port requirement: \(500,000 \text{ m}^3/\text{year}\)

\(20,000 \text{ m}^3/\text{year}\)
Dredged materials are managed according to the "Recommendations for the management of dredged material" (CEDEX, 1994), developed in accordance with the Conventions of London (1972) and OSPAR (1992) as the only legal references in the subject.

Dredged sediments were excluded from the scope of Law 10/1998 of 21 April, waste. Law 22/2011, of July 28, waste and contaminated soils introduces the concept of "not dangerous sediment".

The new guideline for the management of dredged material was approved.

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<thead>
<tr>
<th>Category</th>
<th>Description</th>
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<tbody>
<tr>
<td>Category A</td>
<td>Green</td>
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<tr>
<td>Category B</td>
<td>Yellow</td>
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<tr>
<td>Category C</td>
<td>Orange</td>
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LOCATION OF THE ENCLOSURES

Investment: 17,164,498.24 €

Experimental (1994):
1,187,761.46 €
370,000 m³

Number 1 (1996):
4,293,132.77 €
1,900,000 m³

Number 2 and 3 (2006):
11,683,604 €
3,400,000 m³

Number 4:
13,092,397.57 €
1,700,000 m³

ENVIRONMENTAL AND ENGINEERING ISSUES
MANAGEMENT TECHNIQUE USED SINCE 1994

Emerging enclosure next to the coast
Use of materials available in the area.

Use of impervious core or use of weather stripping blades.

Riprap protection or energy dissipative beach.
PERFORMANCE OF THE ENCLOSURE
ENVIRONMENTAL MONITORING OPERATIONAL PHASE

Temperature: Normal Values

pH: 7.5 to 8.4 (Seawater: 8)

Dissolved oxygen: close to or even higher than the percentage of saturation (100%).

Salinity and TDS: Normal Values

Turbidity: Normal Values

Heavy metals: Arsenic, Cadmium, Copper, Mercury, Lead.
CONCLUSIONS OF THE ENVIRONMENTAL MONITORING

✓ Sedimentation and effective containment of materials inside the enclosure, and therefore clean effluent

✓ Dredging operations have not led to a decline in water quality for the area of operation

✓ The concentrations of substances around the enclosure are lower than those detected at the point identified as "White", located in waters of the Ria de Huelva, near the industry.
Main goals:

- Investigate new long-term management options for dredged material.
- Technical, economic and environmental assessment for different management options.
- Coordination between the different administrations and entities.
- Define sustainable strategies for dredging operations management.
- Establish communication and awareness channels.
IT WOULD BE A PLEASURE THAT YOU VISIT US!

THANK YOU FOR YOUR ATTENTION

PORT OF HUELVA
Avda. RS Colombina Onubense, 1
21001 Huelva, España
Tel. +34. 959.493.100
Fax. +34. 959.493.101
www.puertohuelva.com

Alfonso Peña López-Pazo: aplopezpazo@puertohuelva.com
Rocío López Picón: rlp@puertohuelva.com