

## ASSESSMENT THE PORT WATERS QUALITY. APPLICATION OF MONITORING PROGRAM ON THE ROM 5.1-05, IN THE PORT OF LAS PALMAS-CANARY ISLANDS – SPAIN.

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Environmental management

### INTRODUCTION

The Canary Islands are a fragmented territory, where the ports are important for their socioeconomic development: trade, traffic of passengers, industrial activities, fisheries, tourism and leisure. Therefore, the port development must be in harmony with the European legislation of environment protection about waters and coastal areas (Directives 2000/60/CE, 92/43/CEE and 2006/7/CE).

In order to manage the quality of the port masses of water, Ports of the State (Spain) has edited inside the Program Recommendation of Maritime Works (Recomendación para Obras Marítimas (ROM)), a new methodological tool. This methodological tool, ROM 5.1-05: Quality of coastal waters in port waters, that chases the aims exposed in the Water Framework Directive 2000/60/CE (from now WFD) and its last purpose, it is to act as document base in the planning and system development of management of the quality of the port waters.

The Recommendation is based in four programmes: Delimiting use and characterization of the water masses Program, Assessment and Management of Environmental Risks Program, Environmental monitorization Program and Pollutants Episodes Management Program. In this work, we present the implementation of the first and third program of the ROM 5.1-05 in Port of Las Palmas.

### PORT OF LAS PALMAS

The Port of Las Palmas is located to the NE of the Island of Gran Canaria (Canary Islands) inside the city of Las Palmas of Gran Canaria (approximately 400.000 inhabitants). It is the biggest point of supplies of the Atlantic African Coast. We have identified 10 potential impact types (naval repairs, bunkering, fishing activities, traffic of containers or tourism cruise) included several emissaries and outlet channels that they spill in the port waters. The harbour of Las Palmas is closed with a Site of Community Importance (Marine Area of La Isleta), and it includes several beaches.

#### *Delimiting use and characterization of water masses Program*

Protocol of ROM determined the characterization of water masses by types of residence times, bottom and categorization of coastal waters. Our characterization has two types of water masses: the Zone I (inside docks waters), modified mass water (M2) and Zone II (outside dock waters) like unmodified water mass (N4).

#### *Environmental Monitorization Program*

Monitorization program use two types of environmental indicators: Ecological State or Ecological Potential Indicators (Dissolved Oxygen, Turbid, Total Hydrocarbons, Detergent, Chlorophyll "a", Kjeldahl Nitrogen, Total Phosphorus, Total Organic Carbon, Heavy Metals, PCBs and PAHs) and Chemical Quality Indicators (List of Priority Substances of the Annexe X of the WFD). This way, from the identified pressures, we selected the Chemical Quality Indicators to measuring in every mass of water.

Afterwards, we located six points of sampling by water mass, such as the ROM 5.1-05 proposes for valuation the Ecological State or Ecological Potential Indicators. The points of sampling of the Chemical Quality Indicators are located with the Ecological State or Ecological Potential Indicators. These points are distributed representatively on the all mass water.

## CONCLUSIONS

Nowadays, there is scanty information about the quality of the waters of the Port of Las Palmas. Due to this circumstance, we have adopted a conservative attitude at the moment of selecting the priority substances and designing the mesh of sampling. Of this form, we will obtain results about of the states of the quality of the port waters.

Starting from these results, we will apply the necessary corrects for improving the quality of the waters without preventing the port development.

## REFERENCES

- Directiva 92/43/CEE del Consejo, de 21 de mayo de 1992, "relativa a la conservación de los hábitats naturales y de la flora y fauna silvestres" (Real Decreto 1997/1995, Real Decreto 1193/1998).
- Directiva 2000/60/CE del Parlamento Europeo y del Consejo de 23 de octubre de 2000 "por la que se establece un marco comunitario de actuación en el ámbito de la política de aguas".
- Directiva 2006/7/CE del Parlamento Europeo y del Consejo, de 15 de Febrero de 2006 relativa a la "gestión de la calidad de las aguas de baño" y por la que se deroga la Directiva 76/160/CEE.
- ROM 5.1-05 (2005) "Recomendaciones para Obras Marítimas 5.1, La calidad de las aguas litorales en áreas portuarias". Puertos del Estado. Ministerio de Fomento.