IH cantabria

INSTITUTO DE HIDRÁULICA AMBIENTAL

ROM 5.1:
A management system for Spanish harbours.

Available in: http://www.puertos.es/es/programa_rom/rom_51_05_en.html

1. Introduction

2. Methodology

3. Validation

4. Conclusions

1. Introduction

2. Methodology

3. Validation

4. Conclusions

Water Framework Directive (2000/60/CE; WFD):

"Establishes a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater".

2015: Good Ecological Status

Specified uses

Social and economic benefits

Hydromorphological changes

*"Good Ecological **Status**"*

Recognition of Heavily Modified Water Bodies (HMWB)

Bodies which as a result of physical alterations by human activity are **substantially changed in character**

*"Good Ecological **Potential**"*

Article 4:

"Member States may designate a water body as heavily modified, when the changes to the hydromorphological features (...) have significant adverse effects on *navigation* (...), including *port facilities*"

Uses with special social and economic relevance

Good Ecological Potential

1. Introduction

Ports

Significant risk of failing to meet their environmental objectives

Operational monitoring

"establish the status of **bodies identified as being at risk**, and assess any changes in the status resulting from the programmes of measures"

Spanish National Port Administration

Satisfy the **operational monitoring** requirements established by WFD for seaport water bodies at risk

(Spanish Standardization of Maritime Works)

ROM 5.1. Quality of coastal waters in seaport areas

- ❑ Scientifically and technically robust
- ❑ Contribute to seaports water quality management
- ❑ Concordance with underlying principles of the WFD

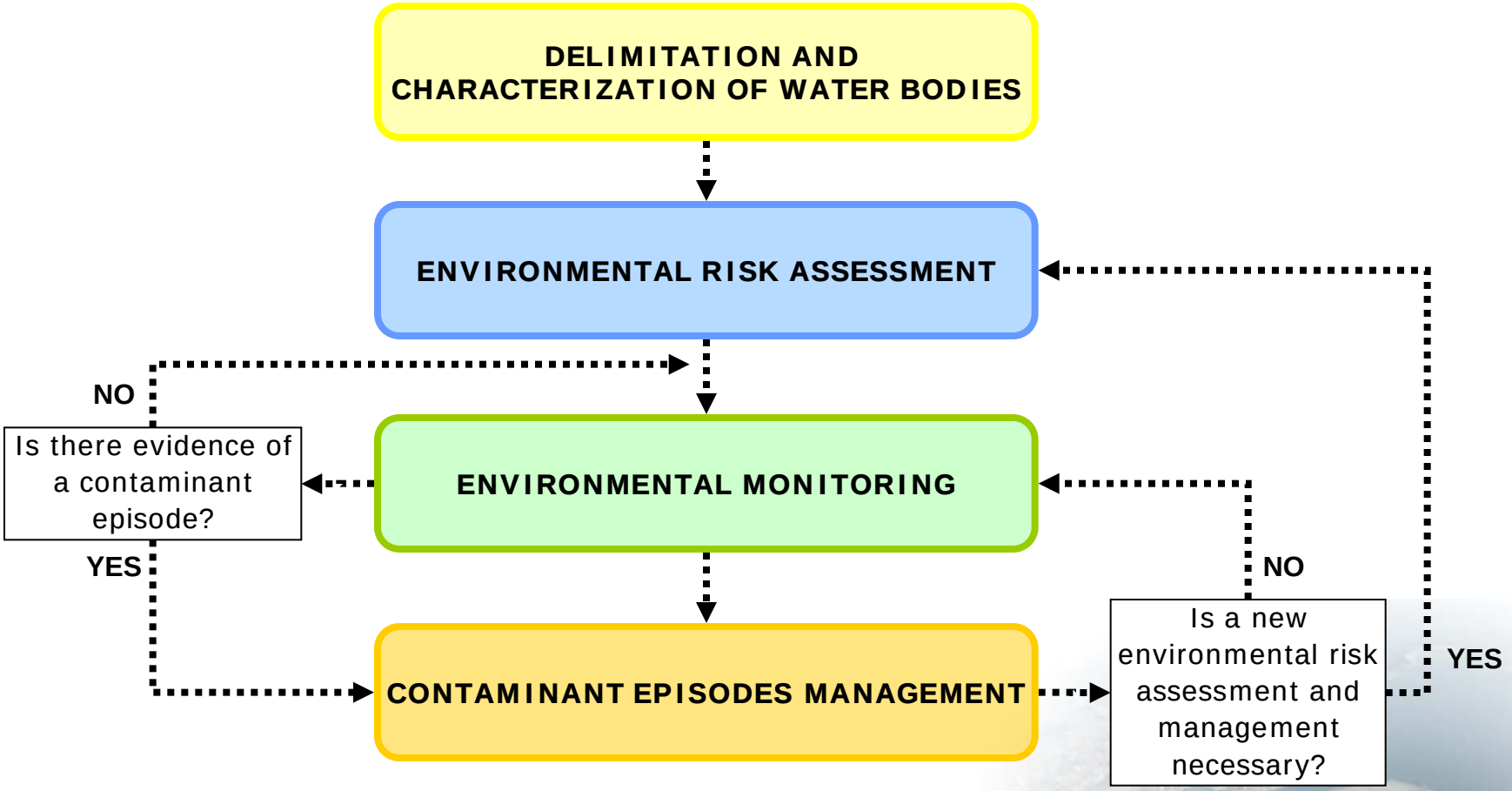
1. Introduction

2. Methodology

3. Validation

4. Conclusions

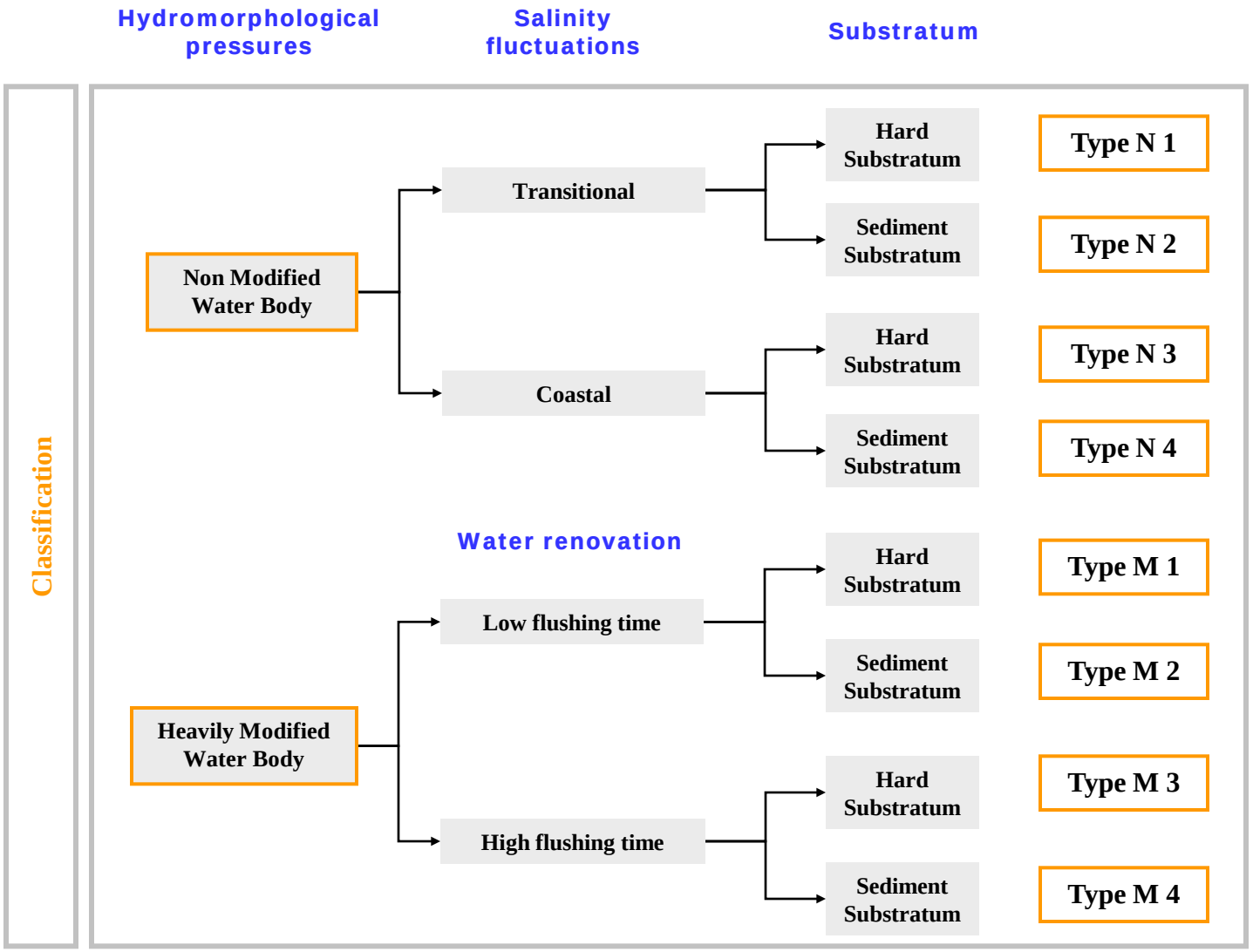
2. Methodology



2. Methodology

- DELIMITATION AND CHARACTERIZATION OF WB
- ENVIRONMENTAL RISK ASSESSMENT
- ENVIRONMENTAL MONITORING
- CONTAMINANT EPISODES MANAGEMENT

Main goal is to classify the aquatic area into different management units: water bodies.



2. Methodology

DELIMITATION AND CHARACTERIZATION OF WB

ENVIRONMENTAL RISK ASSESSMENT

ENVIRONMENTAL MONITORING

CONTAMINANT EPISODES MANAGEMENT

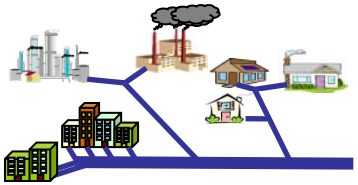
Main goal is to obtain the environmental risk of each contaminant source with the aim of applying measures to reduce it.

✓ Identification of contaminant sources

Localization of contaminant sources

Characterization of contaminant sources

Substances, Concentration, Flow rate



✓ Estimation and assessment of environmental risk (R_i)

R_i = Probability x Consequences x Vulnerability

- Low
- Moderate
- High

✓ Risk Management

Contaminant source with a "moderate" or "high" environmental risk, will require the establishment of measures to reduce its risk to a low level.

2. Methodology

- DELIMITATION AND CHARACTERIZATION OF WB
- ENVIRONMENTAL RISK ASSESSMENT
- ENVIRONMENTAL MONITORING
- CONTAMINANT EPISODES MANAGEMENT

Main goal is to assess the chemical quality and the ecological potential of water bodies.

Chemical quality

Priority substances (Directive 105/2008/EC)

One out all out

Ecological potential

Soft bottom quality index

Water quality index

Calidad del medio bentónico \ Calidad del medio pelágico	10	9	8	7	6	5	4	3	2	1
10	100	90	80	70	60	50	40	30	20	10
9	90	81	72	63	54	45	36	27	18	9
8	80	72	64	56	48	40	32	24	16	8
7	70	63	56	49	42	35	28	21	14	7
6	60	54	48	42	36	30	24	18	12	6
5	50	45	40	35	30	25	20	15	10	5
4	40	36	32	28	24	20	16	12	8	4
3	30	27	24	21	18	15	12	9	6	3
2	20	18	16	14	12	10	8	6	4	2
1	10	9	8	7	6	5	4	3	2	1

- Very good ecological status
- Good ecological status
- Insufficient ecological status
- Deficient ecological status
- Bad ecological status

2. Methodology

DELIMITATION AND CHARACTERIZATION OF WB

ENVIRONMENTAL RISK ASSESSMENT

ENVIRONMENTAL MONITORING

CONTAMINANT EPISODES MANAGEMENT

The **Programme of Contaminant Episodes Management** has the objective to detect contaminant episodes, find their origin and apply measures in order to solve water quality problems.

1. Introduction

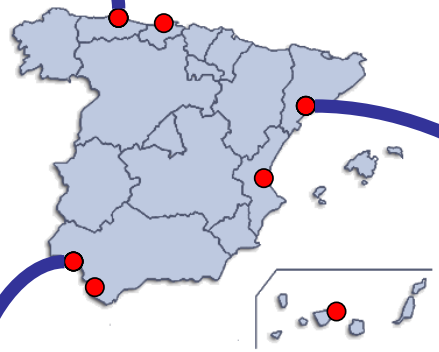
2. Methodology

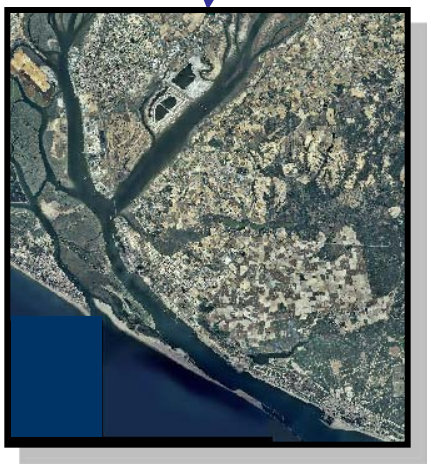
3. Validation

4. Conclusions

3. Validation

Port of Gijón





Port of Huelva

Port of Tarragona

1. Introduction

2. Methodology

3. Validation

4. Conclusions

4. Conclusions

- Different studies carry out in the Atlantic Ecoregion have shown that port environmental problems are not solve just by reducing its environmental objectives but performing specific methodological procedures.
- ROM 5.1 has developed a number of approaches to provide port authorities a unique, standardised and coherent tool to satisfy the operational monitoring demanded by WFD to bodies at risk of failing environmental objectives.
- ROM 5.1. has been tested at different Spanish ports, in the Mediterranean, the Atlantic Ocean and the Cantabrian Sea in order to create baseline studies able to establish a strong scientific background.
- The indicators and methodologies established in ROM 5.1 have been incorporated in the guidance document of the Spanish Ministry of Environment to apply the WFD in port heavily modified water bodies (Spanish Norm ARM/2656/2008).

Available in: http://www.puertos.es/es/programa_rom/rom_51_05_en.html

THANK YOU FOR YOUR ATTENTION