

# EROCIPS

## Emergency Response to coastal Oil, Chemical and Inert Pollution from Shipping



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### WP 7: Environmental Monitoring

#### Task 7.1.1a: Protocol for Selection of the Monitoring Area and Monitoring Sites

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## 1. Introduction

The assessment of the environmental impact of coastal oil, chemical and inert pollution resulting from a shipping accident requires the existence of baseline data characterising the “before impact situation” to be compared with the “after impact situation” in both short- and long-time ecological evaluations. Environmental base-lining data acquisition should be conducted according to standardised monitoring protocols to assure the protection of particularly sensitive ecological targets. In this context, the selection of the monitoring area and monitoring sites is a major issue and should be carefully planned. According to the studies performed so far, five steps should be followed: (1) selection of the monitoring area; (2) identification of sensitive zones in the monitoring area; (3) identification of historically contaminated zones; (4) identification of zones that can be used as reference; and (5) selection of monitoring sites.

## 2. Selection of the monitoring area

The selected monitoring area should preferentially include sensitive zones, such as those protected by European Union (EU) legislation (e.g. Special Areas of Conservation under the Habitats Directive; Special Protection Zones under the Birds Directive) and others considered of high ecological importance even if they are not protected by legislation (e.g. areas protected under the Ramsar Convention on Wetlands<sup>1</sup>), zones with low levels of chemical contamination to be used as reference and also historically contaminated sites. To select the monitoring area, the following steps should be followed:

1. **Identification of risk areas in the coastal line:** These are the areas having a high probability of being affected by chemical pollution resulting from a shipping accident; the identification of these areas should take into consideration their distance to important marine traffic routes, permanent and seasonal currents, winds and other relevant parameters.
2. **Delimitation of the monitoring area inside the risk area:** This should be done taking into consideration that the area should be large enough to be representative of different ecosystems (e.g. estuaries, open coast, rocky shore and mobile sediments), and that it should include zones that can be used as reference zones, sensitive zones that need protection and historically contaminated sites. However, it should not be so large to put the monitoring program at risk due to economic, technical or other reasons. At this step, a first delimitation should be carried out after appropriate documentation concerning the area. This first delimitation should be refined after points 2, 3 and 4 of the protocol.

## 3. Identification of sensitive areas

Sensitive areas may be those protected by national and/or EU legislation, and/or particularly sensitive zones or specific habitats that are not protected by legislation but have a high ecological or economic importance. Therefore, here, we will have three steps.

1. **Identification of zones/areas protected by legislation**, which include:
  - a. Special Areas of Conservation (SACs) – Nature 2000;
  - b. Special Protection Zones (SPZ) under the Birds Directive 79/409/CEE;
  - c. Areas protected under the RAMSAR convention on wet lands;
  - d. Biosphere reserves – UNESCO;
  - e. Biogenetic Reserves under the Bern Convention;

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<sup>1</sup> The Ramsar Convention on Wetlands is an intergovernmental treaty signed in Ramsar (Iran), in 1971, which provides the framework for national action and international co-operation for the conservation and wise use of wetlands and their resources.

[www.ramsar.org](http://www.ramsar.org)

- f. National and regional protected areas of each partner (i.e. National Parks, Natural Parks, Nature Reserves, Protected Landscapes, Natural Monuments, Classified, Sites of Special Scientific Interest, Heritage coast, etc.).
2. **Identification of other ecological important areas:** these may be nesting areas, nursery areas and others with a high ecological relevance at regional, national and/or European levels.
3. **Identification of zones with a high economic importance:** these may be, for example, fishery, aquaculture and touristy areas.

Sensitive areas should be identified after adequate documentation, *in situ* visits and expert consultation if necessary (e.g. ecologists, ecotoxicologists).

## 4. Identification of historically contaminated zones

The inclusion of these zones in the monitoring area is important for two main reasons: first, because some of the populations may be already in a “life-threatening situation” and the arrival of more pollution may cause their disappearance; second, the already existent pollution may cause an additional risk for the teams involved in cleaning or other adopted measures to decrease the impact of the accident.

Historically contaminated zones should be identified after adequate documentation, *in situ* visits and expert consultation if necessary (e.g. ecologists; ecotoxicologists, human health authorities).

## 5. Identification of zones that can be used as reference zones

The choice of these zones is of crucial importance for the monitoring study and for future evaluations of accident impacts. They should be:

1. Representative of the diversity of ecosystems (e.g. estuarine, rocky shore) present in the monitoring areas and, in the most situations, more than a sampling site should be included; and
2. Ideally, the monitoring program should include at least two reference zones for each type of ecosystem.

## 6. Selection of the monitoring sites

Monitoring sites should be selected considering the following:

1. **Types of ecosystem present in the monitoring area:** if different ecosystems are present, sites in the different ecosystems should be included.
2. **Different types of habitats and abiotic factors influencing the distribution of the species present (e.g. sediment type):** ideally two (but at least one) reference sites should be included per type of habitat.
3. **Presence of sensitive zones:** sites in these zones should be included.
4. **Historically contaminated sites:** These or at least the more important ones should be included.
5. **Reference zones:** sites to be used as reference for different ecosystems, habitats and other important factors should be included in the study; ideally, two reference sites (but at least one) should be included for each type of ecosystem and two reference sites for different types of habitat or other ecologically important variables.

## **7. Mapping and characterisation of the monitoring area and sites**

Parameters for the correct characterisation and mapping of the monitoring area and sites should be clearly provided, including:

1. Position of the monitoring area in the country.
2. GIS referenced cartography of the monitoring area, with different ecosystems, sensitive zones, historically contaminated zones and other relevant aspects.
3. Characterisation of each monitoring area (e.g. type of habitat, type of vegetal cover, type of sediment, etc.).
4. Routes and other ways of accessing the area.
5. Co-ordinates (latitude and longitude) of the monitoring sites (GIS).
6. Characterisation of each monitoring site (e.g. type of habitat, type of sediment, etc.).