PILOT ACTIONS ON THE APPLICATION OF THE DIRECTIVE 2000/60/EC "WATER FRAMEWORK DIRECTIVE"

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MAREMED Working Group on Water Framework Directive

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Introduction

MAREMED – Maritime Regions cooperation for Mediterranean, is a project started in 2010 and co-funded by the MED Programme, that involves 15 partners among Regions and local administrations from France, Italy, Spain, Greece and Cyprus together with the Conference of Peripheral Maritime Regions (CPMR)

The project is dealing with the following themes: maritime policy governance, the integrated management of coastal and maritime areas, fisheries, adaptation to climate change in coastal areas, efforts to reduce pollution and data management.

Its objective is to develop tools for enhancing and coordinating regional, European and Mediterranean policies on these six thematic strategies

Within the first work phase (diagnosis phase), developed during 2010 and 2011, it was carried out an overview of the policies implemented and their governance by the project partners. The second phase, corresponding to this stage, identifies pilot coastal zones in which it will be promoted transnational management initiatives and share operational tools to aid in decision-making for the six thematic strategies.

Objective

FEPORTS, as coordinator of the Water Framework (WFD) Directive Working Group has identified some pilot actions to be developed on this issue. The original envisaged single pilot action has been divided into three actions in order to facilitate their completion since each one may be addressed to different interviewees /groups of experts.

The aim of these pilot actions is to better understand those problems related to the technical and operative aspects of the implementation of the WFD in order to find common problems, best practices, etc, that could improve the implementation process and also to help other regions with their implementation of the WFD. The purpose is to establish a comparative framework on the state of implementation of the WFD among the project participant regions and informing the European Commission on the difficulties and problems found in the Mediterranean area for applying and duly interpreting the WFD.

Pilot actions identified are:

- **Advanced questionnaire.** This questionnaire focuses on several topics inside the WFD like:
    - Intercalibration
    - Water Planning
    - WISE system
    - Transitional waters
    - Sampling
    - Priority Substances

The questionnaire will also take advantage for clarifying those questions from the diagnosis phase questionnaire that were not well asked/answered due to different reasons.

- **Coastal monitoring sampling points**
- **WFD Interpretation and implementation**

Selection of pilot area

In order to make easier the development of the pilot actions, a local area or zone will be chosen for each participant region. The selected area has to be a representative coastal area facing common problems related to water quality/management in the coast. Ideal areas are those close to port areas, river mouths, coastal industrial areas, protected areas with high human pressure, etc…

Participant regions

Participant regions are those involved in MAREMED as partners:

- PACA
- Corse
- Crete
- Emilia-Romagna
- Lazio
- Liguria
- Marche
- Toscana
- Comunidad Valenciana
- Larnaca

Deliverable

A publishable document showing and analyzing main findings and conclusions will be delivered in order to inform the European Commission on the application of the WFD in Mediterranean coastal areas. The document will focus on the participating regions and their pilot areas but conclusions will be extrapolated to other Mediterranean areas if appropriate. FEPORTS will try to involve in these actions other Mediterranean coastal areas in order to have a wider perspective of the problems related to the WFD implementation.

It's expected to print around 600 copies of such document to be distributed among the partners, European Institutions, regional governments, etc. It will be also distributed in PDF format through the Internet.

PILOT ACTION 1: Advanced Questionnaire

This action is aimed at deepening into the understanding of the practical problems and hindrances related to the implementation of the WFD in maritime and coastal areas and identifying common problems / ways of proceeding. The proposed questionnaire is divided into sections and its purpose is to help to better understand the status of the WFD implementation in the considered areas and the use of management tools. Please, take the space you need if you want to remark or comment anything:

Intercalibration

To define the "Good Ecological Status", in the first phase of intercalibration, which ended in 2008, it was not possible to intercalibrate all biological quality elements in all water categories. The existing gaps were due mainly to the lack of development of WFD compliant national assessment methods and the lack of data for some quality elements. The intercalibration exercise was therefore continued in a second phase from 2008 to 2011 in order to achieve comparable and WFD consistent class boundaries for all biological quality elements.

After the conclusions of the last intercalibration meeting (17-18 November):

1. **Is the intercalibration process considered as finished?**
   At the national level, the intercalibration process is carried out by the Ministry of the Environment and Protection of Land and Sea of Italy together with the Central Institute for Environmental Protection and Research (ISPRA). The Regions are only involved in environmental monitoring activities and in providing data on water quality to the Ministry and ISPRA, which are then in charge of carrying out the intercalibration process.
   The state of implementation of the intercalibration process is not known by Marche Region, which has only been involved in the transmission of coastal marine water data gathered during the last years, according to the regulation 979/82 on national monitoring. With regard to the analysis of biological and chemical parameters (dangerous and priority substances), information has been gathered only in the last two years and it has not undergone an intercalibration process.

2. **What are the main problems identified in your country/region respect to the intercalibration exercises?**
   Marche Region has no information on this issue.

3. **Do you think intercalibration exercises have been good enough in order to compare different water bodies in different European regions? Why?**
   The intercalibration process has not allowed an exhaustive comparison among European Regions, and it has not allowed to develop common indicators which are then finely-tuned on regional specificities (for example Mediterranean and Italian specificities).

Water Planning

Regarding River Basin Water Planning:

4. **Has your River Basin Authority (or the correspondent management authority) got some specific DOCUMENT (study, assessment, analysis) for analyzing the previous situation of your River Basin/s?**
   Yes, Marche Region and its Environmental Resource Protection Service can rely on a number of updated and exhaustive studies carried out by the Regional Agency for Environmental Protection (ARPAM). Such studies are planned by the Environmental Resource Protection Service through specific Regional Council Regulations.
   Studies and monitoring activities along the coastal area are aimed at assessing the impacts of human activities and the level of pollutants carried by rivers.

5. **If so, could you give some link to it? Please, do not refer to monitoring networks or tools but documents[1] that analyze or assess the results of these networks or tools.**
   Since 2000, a series of annual ARPAM documents on specific environmental monitoring of coastal marine waters have been produced. Further monitoring activities and specific studies are carried out on a periodical basis, and they are summarised in thematic documents on issues of interest, such as quality of bathing waters, algal surveys, and so on.

6. **Could you identify these concrete studies (title, author, and year) and specify a link to them?**
   Regional Water Protection Plan (DAALR n. 145 del 26/01/2010). The whole document can be found here: http://areeurbane.regione.marche.it/tra/pta/index.htm
   Annual report on coastal marine water and river quality (Marche Region and ARPAM) (2005 – 2010);
   Annual report on bathing water quality (Marche Region and ARPAM) (2009 – 2011);
   Annual report on algal survey (Marche Region and ARPAM) (2005 – 2010);
   Report on Esino, Conero, Musone coastal areas, with special focus on pressures and pollutants present in the area (water and sediments) and a characterisation of biocenosis of marine coastal bottoms (Marche Region and ARPAM).
   All annual reports provide information on the evolutionary trends of water basins, they are used as evaluation standards in order to outline the targets to be reached and maintained, according to the national and European regulatory framework. They are also used for further planning and for identifying all critical issues that need specific and ad hoc interventions in order to be solved.

WISE System

7. **Do you know what WISE system is?**

[1] In the diagnosis phase some of the partners said that they carried out specific studies about the impact of the pressures of human activity on the water in the maritime and/or port areas.

It is a standardised system aimed at transmitting information relevant for the implementation of the WFD through specific modules, which are filled out for Marche Region by the competent authorities in collaboration with the Regional Agency for Environmental Protection (ARPAM). ARPAM provides environmental data and classifications produced during the water monitoring activities.

8. **Does your region use the WISE System? Who?**
   The WISE system is used by the Environmental Resource Protection Service of Marche Region and by the Regional Agency for Environmental Protection (ARPAM), sometimes in collaboration with the Regional Basin Authority, but it has not been standardised as an information process yet.

9. **Do you consider this system useful?**
   Yes, indeed. In addition, it can be an excellent way to verify the effectiveness of the actions carried out and related results. However, a further development and standardisation process is required on specific issues, such as pressures and impacts.

Transitional waters

The WFD does not specify a minimum size for surface water categories, so the criteria for water bodies has been used to identify transitional waters that require designation. The Directive states that a water body must be 'discrete and significant'.

10. **In these terms, have your coastal transitional waters been completely identified and defined?**
    No transitional waters have been identified in Marche Region as of today.

11. **What are the specific problems encountered (if any)?**
12. **Do you have any criteria to identify the size of a "transitional water body"?**
13. **Do you think it is solved the problem for establishing the chemical quality status and ecological potential in the transitional waters of your region?**
14. **Could you list and give a map of the coastal transitional waters of your region?**

Sampling

In order to answer these questions, please, contact someone who deals directly with coastal water analysis:

15. **What are the main problems do you face in order to establish the chemical quality /ecological status of your coastal waters? Please specify if they are technical (what specific problems: for example taking samples, sampling frequency, buoys or sensors access, management and maintenance, analysis time, delays, complexity in determination of certain parameters, uncertainties, etc), financial (lack of budget, lack of funds), administrative (lack of staff, lack of coordination, competences overlapping, lack of law development, etc).**

All aspects listed above are critical, although criticality levels vary and can often be solved by developing specific monitoring programmes.
With specific regard to monitoring, the most critical aspects are:

- Technical instruments with high sensitivity are very expensive, the scarce financial availability does not always allow to purchase these sophisticated instruments;
- The choice and number of sampling points are not always exhaustive: the areas that should be monitored are often very big and thus a trade-off between position and number of sampling points on the one hand, and cost of sampling activities on the other, must be found.

Public Administrations have very small financial resources, and therefore the monitoring activities indicated by the European Directives on water quality cannot always be planned and implemented.

16. **What would be your necessities in order to make your work easier and to fulfill the WFD requirements?**
    As indicated above, the criticalities are at the technical, financial and administrative levels. A better allocation of funds could help to solve many issues and to duly fulfill the WFD requirements. Indeed, it would be good if the WFD itself included a specific Financial Planning section, so that the allocation of financial resources could be more easily carried out at the national and Regional level. In this regard, there is often a "governance" problem, since competences are tranferred from the EU to the national to the Regional level, but the same is not done for funding.

Priority substances

Please: consult to an expert in this issue:

17. **Have you identified <u>the common</u> priority substances to be monitored in your coastal waters?**
    Yes.

18. **Could you <u>list the main</u> priority substances that are being monitored?**
    All substances included in the European lists, with special regard to priority dangerous substances (according to Italian Ministry Decree DM n. 260/2010 "Technical criteria for the classification of the environmental status of superficial water bodies)".

19. **Are priority substances being measured in port waters?**
    Yes, the monitoring activities are carried out by ARPAM and communicated to Marche Region for further planning and specific interventions.

20. **What are the main technical problems encountered when determining <u>these specific</u> substances? Specify for each substance the problem for the determination. For example:**
    WFD threshold levels under the detection range of the equipments used.
    Standardized and intercalibrated methods for marine water bodies.

Example of problems on the determination of priority substances	
Priority Substance	**Determination problem**
Mercury	WFD threshold level under the detection range of the equipment.
Lead	There's no for the moment an appropriate methodology adjusted for salt waters.
Zinc	Problems of contamination in laboratory (blank water has more zinc than the detection level requested in the WFD).
…	…

21. **What do you think about the threshold levels required in the WFD?**

    Threshold levels should be calibrated on Regional characteristics (for instance, the Adriatic sea is different from the Tyrrhenian sea).

22. **Do you think by using the present monitoring/analysis techniques is it possible to fully achieve the requirements of the WFD?**

    No, different assessment techniques should be used in order to take into account the specificities of each site.

PILOT ACTION 2: Coastal monitoring sampling points

This action is aimed to better understand main differences among different countries in water sampling procedures. Some countries set the sampling points at a certain distance from the shore line (for instance 2 km) while others take the samples in the same shore-line. Results derived from the analysis of both samples will be clearly based upon different sampling procedures and therefore they won't be comparable. It's logical to think that a sample gathered 2 kms off the coast, where pollutants are more dispersed, will present more dilute values of certain parameters than a sample gathered in the shore-line close to a river mouth or a port area. According to the diagnostic phase, some Mediterranean countries are facing many troubles due to the bad quality of their coastal waters while others seem to be good status. Are different procedures and places for sampling involved in such results?

Please, give a map and/or geographical coordinates showing the main sampling points for the analysis of the parameters of each coastal water body identified for the WFD in your pilot area (you can also provide information relative to the whole regional coast). Please, specify the distance from the coast of each sampling point and, if available what parameters are measured and the frequency.

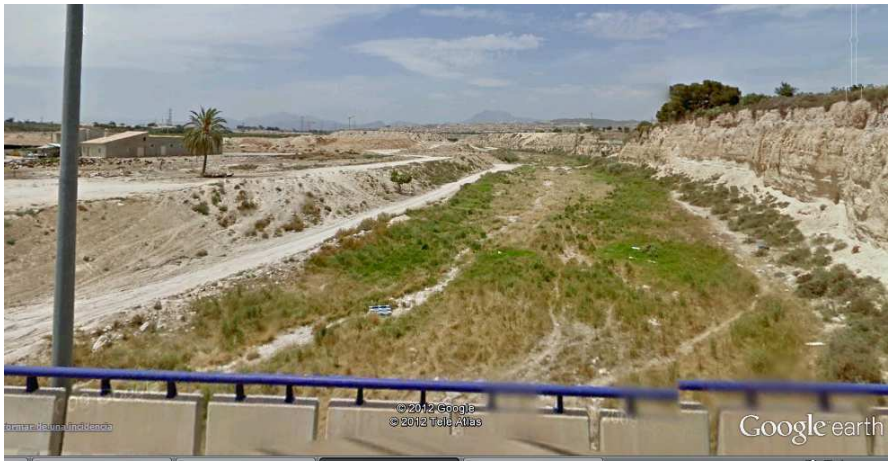
Explain also the criteria followed for the establishment of those sampling points.

In carrying out coastal monitoring activities, bidimensional spatial criteria are mainly used, with sampling points and transects distributed both along the coast and moving from the coast seawards. A further criteria is related to monitoring potential sources of pollution, identifying both areas at risk and pollutant substances; in the latter case monitoring is carried out not only on water bodies, both also on biological indicators (fauna/flora) and on the sediment, so that more complete and exhaustive information can be gathered.

PILOT ACTION 3: WFD Interpretation and implementation

This action aims at finding similar problems among regions related to water management and WFD implementation in Mediterranean coastal areas. A series of reflections are given, followed by some questions. These questions should be answered by Water Quality and Planning Managers in your regions (local or regional authorities). Every answer (yes or no) must be duly explained.

WFD enacts the ideal status of a water mass corresponds to its natural status. In Mediterranean areas there are no rivers like Rhin, Rhône or Danube. On the contrary, we find seasonal rivers similar to this:



WFD uses indicators for rivers with "constant" water, a circumstance that is not very common in the Mediterranean basin. The Mediterranean tackles with floods that oblige these kind of rivers to be regulated (dams, reservoirs, channels, etc) to prevent flooding and also to take advantage of this resource that is so scarce.

Human intervention is sometimes necessary for protecting and improving economical and environmental values. For instance, the river Serpis, in Valencia, flows into the Mediterranean Sea with a very low flow (under its ecological flow), heavy loaded with nutrients that cause eutrophization in coastal areas. A solution to protect the marine ecosystems in this area is to prevent this water to flow into the Sea by treating and diverting it (to irrigation fields/reservoirs/protected wetlands) to generate both economical and environmental wealth. These solutions apparently go against the WFD premises.

1 Could you give an example in your area representing the necessity of human intervention on Water resources in order to protect economical and environmental values?

Yes ☒

No ☐

Describe:

Interventions are carried out all along the river basin, and therefore no interventions are planned on coastal habitats. However, specific actions could be implemented in order to decrease nutrient charges in coastal areas, for instance by adopting sustainable agricultural practices.

2 Irrigation channels that flow into the sea and even rivers have certain amounts of pesticides, herbicides, fertilizers, etc**. Is your region carrying out any action in order to prevent these waters to pollute the sea?**

Yes ☒

No ☐

Describe:

Current actions are related to the assessment of pollutant levels that can be carried by superficial waters, specific interventions are not planned at the moment.

Despite TBT compounds (Tributylin, a priority substance according to WFD) were forbidden in 2008 through the International Convention on the control of harmful anti-fouling systems on ships (AFS-Convention) and even a European Regulation is into force, still some amounts of TBT are detected in coastal water analysis, above all in port areas and shipping routes. Other compounds derived from illegal discharges or accidental spills (PAHs, also priority substances:

anthracene, fluoranthene, etc) are also detected in these areas. They also come from the incomplete combustion of ship fuel. On the other hand, ship propellers turn over the sea bottom, increasing turbidity, affecting fauna and flora (posidonia fields, for instance).

3a Do you face similar situations in your area?

Yes ☒

No ☐

Explain

We have found out accumulation of polluting substances in sediments in harbour and / or river areas (river mouths with channels).

3b Does maritime traffic (and its very high economical value) constitute a limiting factor for the real implementation of the WFD?

Yes ☒

No ☐

Explain

In some coastal areas the impact of maritime traffic is significant. However, in the framework of the WFD, Marche Region evaluates the overall contribution of these highly productive areas on contiguous ones, where a high water quality is strictly maintained.

The maximum mercury level present in biota, according to the WFD is 20 µm/Kg of wet weight. Threshold level for mercury in the European legislation on foodstuffs is 0,5 mg/kg of wet weight (Commission Regulation (EC) N° 466/2001 setting maximum levels for certain contaminants in foodstuffs), i.e. **the mercury threshold level in the WFD is 25 times stricter than in foodstuff legislation**, which for some experts this fact supposes an apparent incoherence. This gives an idea of the highly strict threshold levels of priority substances requested by the WFD compared to other levels.

4 Do you think regulation makes almost impossible to fulfill the requirements of the WFD?

Yes ☐

No ☒

Why?

It is important to consider that the stricter values indicated in the example above are aimed at detecting overall pollutant levels in a body (water) with high dilution capacity. Hence, detecting specific (even low) concentrations in biota indicates that the presence of diffused pollutants in the water medium is critical.

5 Does the laboratory which makes the WFD analysis in your area count on the appropriate equipment and/or procedures for analyzing such strict levels of priority substances?

Yes ☒

No ☐

Why?

The Regional Agency for Environmental Protection (ARPAM) has received specific regional funds in order to purchase technical-scientific equipment aimed at measuring and analysing such priority substances.

6 The suitable equipment for making appropriate analysis of priority substances is very expensive and unaffordable for many institutions. Even the new list of priority substances includes the determination of hormones in very tiny concentration in water. **Do you think there is any pressure or interest group involved in such highly restrictive threshold values set by the Water Framework Directive?**

Yes ☐

No ☐

Why?

7 Do you think there is a coherent proportionality among the cost of implementation of the WFD and the real environmental benefit achieved?

Yes ☐

No ☒

Why?

In many cases quality targets can only be achieved if important economic resources are available, and currently this is a critical issue.

In certain regions, like Valencia Community, there are high environmental values (like coastal marshlands, coastal reservoirs, etc.), which are protected areas (Natura 2000), but they depend on the anthropic action in order to prevail (some of them have an anthropogenic origin). For instance, the Albufera of Valencia depends on the water returns from the irrigation activities (agriculture). Moreover, some coastal marshlands are fed with water coming from agriculture and human activities. By contrast, the WFD considers water uses as anthropogenic pressures, but these uses not only create economic wealth but environmental and ecological wealth despite being semi-artificial areas.

8 Do you have similar examples of anthropogenic high-environmental value sites, like the Albufera, in your area?

Yes ☐

No ☒

Please, describe:

9 Do you think in general the WFD is applicable in your region?

Yes ☒

No ☐

Why?

It provides an effective methodological approach for the assessment of both sustainable use and quality of water in an integrated way.

10 Please, select one answer:

I think the Water Framework Directive is more a:

Solution ☒

Problem ☐

Other ☐

Explain

The WFD is a good solution for improving the sustainability of water resource use, but it is still a problem when it comes to the financial resources required to implement it.

The questionnaire has been completed by:

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