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EUROPEAN PROJECT MAREMED

"Maritime Regions Cooperation for the Mediterranean"

"Water Framework Directive"
Pilot Action:
"Implementation of the Water Framework Directive in Coastal Areas"

Identification of common issues among Mediterranean Regions

FEPORTS

GENERALITAT VALENCIANA

MAREMED PROJECT
Maritime REgions cooperation for the MEDiterranean

Implementation of the Water Framework Directive in Coastal Areas

Identification of common issues among Mediterranean Regions

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1 INTRODUCTION

The Water Framework Directive (WFD) establishes that Member States shall protect and enhance all artificial and heavily modified bodies of water, with the aim of achieving good ecological potential and good surface water chemical status at the latest 15 years from the date of entry into force of the Directive. In two years from now the main objectives set by the WFD have to be reached. However many improvements have still to be done. In 2013 Spain or Greece haven't yet published their River Basin Management Plans, France or Italy have to improve in a second phase some aspects according to the recommendations set by the Commission despite they are fulfilling the dates. The intercalibration process has still some problems to be tackled and the characterization of transitional waters is still quite unclear for certain parameters. On the other hand there's a general feeling among the experts of the Mediterranean regions that suggest the WFD doesn't face a quite common issue in this area: droughts and water scarcity. This document collects the results of some questionnaires delivered to the partners of MAREMED and the analysis of the situation on the implementation of the WFD based on interviews and presentations of members of the Water General Direction of the Valencia Region (Spain). Other sources of information have been used (reports of the EU, Mediterranean Regions, ONGs, etc).

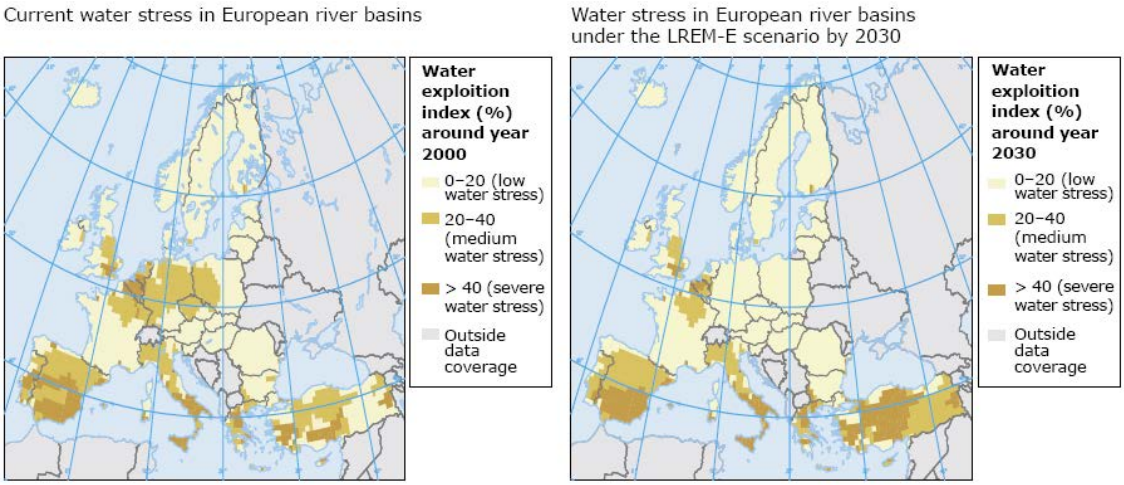
1.1 The problem

According to the European Drought Centre[1], although not consistent for all assessed regions due to the highly spatial and temporal nature of precipitation, a long-term trend (1900-2005) on droughts and rains could be observed, showing a significant precipitation increase for Northern Europe and a decrease for the Mediterranean region. Recent studies suggest there is a link between these two phenomena.

WFD focuses on water quality issues meanwhile in the Mediterranean Regions quality cannot be addressed while serious droughts problems are present. Despite water scarcity and droughts are different phenomena; they are liable to aggravate the impacts of each other. In some regions, the severity and frequency of droughts can lead to water scarcity situations, while overexploitation of available water resources can exacerbate the consequences of droughts.

The next map shows water stress in European river basins:

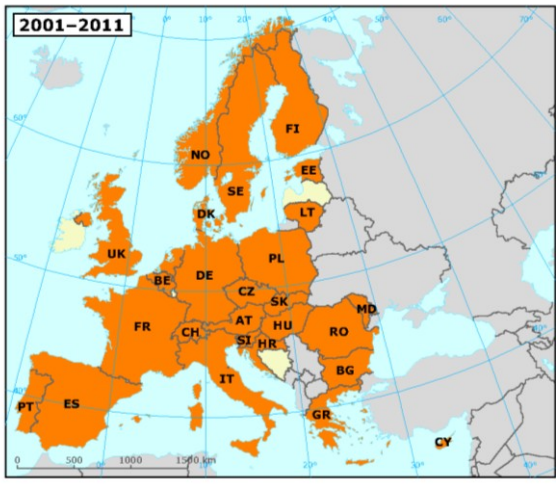
[1] Droughts and climate change. Henny A.J. van Lanen, Lena M. Tallaksen, Gwyn Rees - Hydrology and Quantitative Water Management Group, Centre for Water and Climate, Wageningen University, Wageningen.



Source: European Environmental Agency

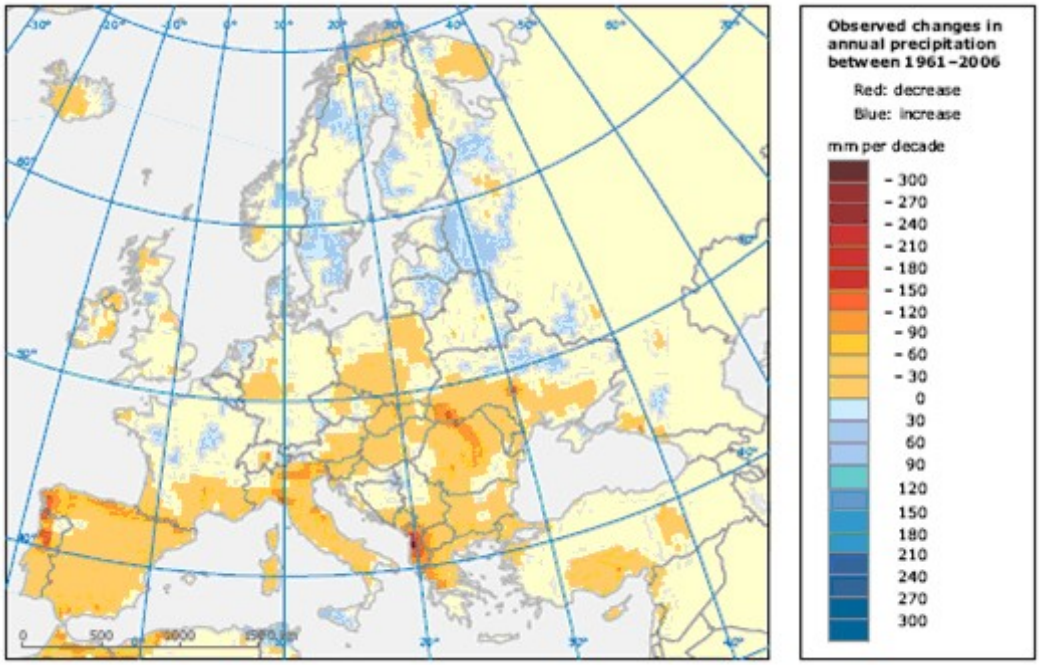
In the Mediterranean region, the Spanish coast, South of Italy and some areas in Greece present severe water stress. The rest of Mediterranean areas suffer medium water stress in general.

The next figure shows observed drought episodes in Europe during the last decade:



As it can be seen, drought is a phenomenon that occurs or has occurred practically in all Europe. The most severe cases are in those areas suffering high water stress. Over the past thirty years, droughts have dramatically increased in number and intensity in the EU. According to the European Environmental Agency, the number of areas and people affected by droughts went up by almost 20% between 1976 and 2006.

Several indicators can be taken into account to illustrate the severity of a drought event. The level of precipitation may be one of these indicators. The following graph shows the observed changes in annual precipitation between 1961 and 2006. The whole Mediterranean area presents a decrease of precipitations:



Source: European Environmental Agency

On the other hand, at present there are in the Mediterranean sites of high environmental value that have a clear anthropogenic origin (like some coastal wetlands, lagoons and marshlands). According to the WFD, "Member States shall collect and maintain information on the type and magnitude of the significant anthropogenic pressures to which the surface water bodies in each river basin district are liable to be subject", among them "estimation and identification of other significant anthropogenic impacts on the status of surface waters (…)", including impacts caused by agriculture or water transfers. The next case will show the complexity of the management of these issues in a typical Mediterranean region.

2 A CASE STUDY: THE JUCAR RIVER

2.1 Some data

The Jucar (in Valencian, Xúquer, in Aragon, Xúcar) is a river of the Iberian Peninsula, located in eastern Spain and belonging to the Jucar Basin, mainly located at the Valencia Region. It has a length of 497.5 km, passes through the provinces of Cuenca and Albacete (Region of Castilla-La Mancha) and Valencia (Region of Valencia), and flows into the Mediterranean Sea. It was called *Sucro* by the Romans. It rises at 1,700 masl, on the southern slope of the hill of San Felipe (Universal Mounts) in the area known as the Eyes of Valdeminguete and close to the springs of the rivers Cuervo (Tagus basin), Guadalaviar-Turia, Cabriel (Jucar basin) and Tagus itself, in the Iberian Mountain Range. Arguably the major mountain ranges of the border between Cuenca and Teruel, in particular, the Universal Mounts, constitute the main *divortium aquarum* or primary watershed between the rivers of the Atlantic slope and those draining into the Mediterranean including obviously, the Ebro river basin with the spring of Jiloca river in the underground of Pozondón moorlands (northern Universal Mounts).

The river system in its header is snowy-rainy origin with a spring maximum and a plentiful flow rate. In its middle and lower course it depends more on seasonal rainfalls, peaking in autumn coinciding with the "cold drop[2]" so characteristic of the Valencian lands. As a result of torrential rains, the Jucar has reached the highest flow rates in Spain after the Ebro.

2.2 River uses

The main uses of its middle course are for reservoirs. The river is stocked in a series of reservoirs for the production of hydroelectric power, the regulation of the river to prevent flooding and for irrigation and human consumption. The Cofrentes nuclear power plant uses Jucar waters for cooling the plant. In addition, the excess energy in peak hours is used to pump water to the reservoir of La Muela located on Cortes de Pallas butte, which helps to increase the hydroelectric power potential in the plants of the Jucar riverbed (Cortes de Pallas Hydroelectric Power Plant). The last sections of the course wedged between mountains provide underground feeding of some artesian springs.

Jucar River: Composition made with pictures of Wikipedia

In its low course, the Jucar opens in the plain after passing through the canyons and gorges where is located the Tous reservoir, and from that moment, flow levels decrease due to heavy use for irrigation on the upper and lower riverbanks (Ribera Alta y Baja). This area is the flood

[2] "Cold Drop" = Short and very torrential precipitation

plain of great economic importance to agriculture, being the most densely populated area of the course. The plain is formed by contributions from both the same Jucar and its tributaries Magro and Albaida.

The reservoirs and irrigation channels, dams for hydropower production or industrial uses (examples of Cofrentes, where waters are used for cooling Jucar the thermonuclear plant, and many others), drinking water supply, inland waterways (in the last km and in the ditches that drain into the Albufera), freshwater fishing (sport fishing) and tourism are some of the important uses of the river, the most important and used in the Valencia. And the use of the waters of the Jucar in the final stretches of the river (marina and fishing contests) show the use so intense and therefore the enormous economic value of this river. It is likely that this river is, relative to its flow rate, the most used and the most economic value that is among the rivers of Spain.

So, summarizing, main uses of the Jucar River are:

- Hydropower production
- Cooling systems for thermonuclear power plant
- Industrial uses
- Irrigation
- Fishing
- Leisure boating
- Drinking water

2.3 Analysis

The Jucar River is a complex system from the point of view of its uses, actors involved and the environmental commitment set out by the WFD. On October 4, 2012, the European Court of Justice condemned Spain for failing the deadlines set by the Water Framework Directive covering the new water plans in a large number of Spanish River Basin Districts - they had to be approved in December 2009 - and their public consultation. Jucar Basin, which was selected as one of the “pilot basins” for the implementation of the WFD has not yet approved its River Basin Management Plan. This analysis will try to show the problems and difficulties in the management of this river and its basin and why the RBMP is still pending of approval.

A sentence found in a recent newspaper illustrates the magnitude of the problem of water availability in the Valencian Region and in the Spanish Eastern coast in general:

"The municipality of Aspe received yesterday the first two cubic hectometres of water from the Júcar through the transfer to the Vinalopó, representing the culmination of a historical claim of 592 years and gives free rein to Alicante farmers to irrigate the fields" [3]

As seen, the problem isn't only political, geographical or social but historical. Even the implications are cultural. It also occurs in other areas of the Valencia fertile plains like in "L'Horta", where the millennial "Tribunal de las Aguas" (Court of Water) meets every Thursday in order to discuss, set and fix conflicts on irrigation water among the farmers in the irrigation communities of the area. Its origin is completely unknown to us, although it is likely to be an evolution, based on previous Andalusian traditions. Some historians place its origins in Roman times.

Of all the peninsular Spanish Districts, "probably the District affecting Jucar and Albufera is which is in a worse situation" according to some ecologist organizations (Xúquer Viu, SEO/BirdLife, Acció Ecologista-Agró, Ecologistes en Acció y WWF-Valencia)[4] . They have also indicated that, currently, the planning process of the Jucar District is paralyzed until the territorial delimitation occurs.

On the other hand, the position of the responsible of water resources and quality of the Valencia Government is that the River Jucar is a typical West Mediterranean river and its "natural status" corresponds to the reality. The features of this kind of rivers are:

- Short-lived
- Intermittent
- Present water during rain seasons
- Very poor flow rate at the end of the course

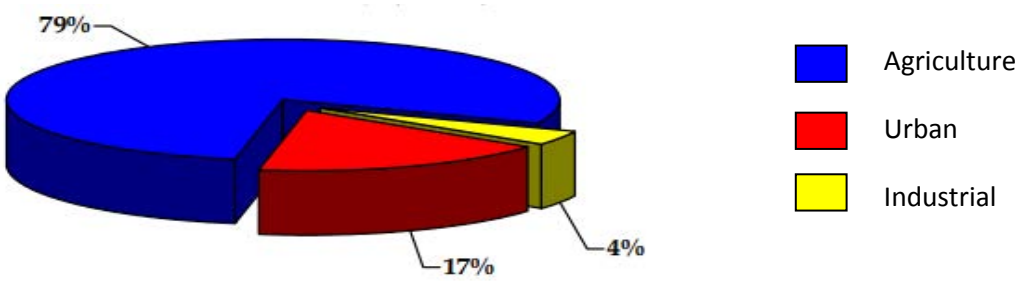
Ecologists state the poor situation of the river and its degradation is due to water transfers (Jucar-Vinalopó) and the high demand of its water for agricultural, industrial and urban uses.

Water demands

The main demand of water in the basin of the Jucar corresponds to agriculture, 2820 Hm^3 in 2005, representing nearly 80% of the total demand in the basin.

[3] LAS PROVINCIAS – Valencia, 21 September 2012 "El agua del trasvase Júcar-Vinalopó ya riega los campos alicantinos"

[4] EL PAÍS – Valencia, 5 Noviembre 2012 "La Directiva del Agua se incumple en el Jucar, denuncian los ecologistas"



The total demand was in 2005 of 3593,85 Hm^3.

The average flow of the Jucar river is around 49,22 m^3/s, although the river's flow is quite intermittent and torrential. This flow would suppose 1552 Hm^3 per year. Despite the rough calculation, clearly the demand (~3600 Hm^3/year) is very high (more than the double of the average flow). Clearly with these figures, it is expected the river hasn't got any flow near the end of its course. Indeed, this "rough" calculation coincides with the situation reported by the ecologist group "Xúquer Viu" (Júcar Alive) in January 2013[5], which condemned the lack of environmental flow in the river. In fact, 14 km from the river's mouth there's no any flow arriving the sea during weeks, even months; just a thin water layer flowed the day of their protest.

Representatives of the ecologist platform "Xúquer Viu" protesting in Cullera's Irrigation Dam on January 2013
Source: Blog del Agua – Actualidad del ciclo integral del agua - http://blogdelagua.com

So the low and irregular flow at the end of the river's course seems not only be due to the natural status of the river, the climatic circumstances, evaporation, filtration or the intermittence of precipitations but an intensive use for irrigation and the presence of water transfers from this "loss-making" river to another (Transfer Júcar-Vinalopó).

[5] Blog del Agua – Actualidad del Ciclo Integral del Agua, 5th January 2013

Water transfers always have been a polemic issue in Spain since there are many actors involved, from farmers, to private companies, passing by political interests.

Jucar Vinalopó Transfer[6]

The Jucar-Vinalopo transfer is a curious case of conflictive and long-lasting water planning management influenced by political interests and lobbies of users and different stakeholders. Historically this transfer is claimed since the XV century. This conflict is part of the reason by which the Jucar River Basin doesn't have yet its River Basin Management Plan.

We part from the basis that the Júcar River (south Valencia, Spain) has a deficit flow due to the high demands besides the natural features of a Mediterranean Spanish river and the Vinalopó aquifer (South Alicante) is overexploited (that's why a water transfer was needed).

The Vinalopó-Alicante system is a space characterized for the shortage of water resources but a great development of underground waters. These underground waters have allowed the water supply in most of the municipalities of the province and, at the same time, the development of a very advanced agriculture, well known for its efficiency and productivity. In order to alleviate the serious problems caused by an excessive exploitation of the underground water and to restore the former hydric balance, the Hydrologic Plan of the Jucar River in 1988, anticipated the necessity of creating an interbasin diversion from the Jucar River to the Vinalopó. This one was approved unanimously and it was declared of general interest by the State and their works were included in the Hydrologic Plan of 2001.[7]

The chronology of this transfer is:

In 1998 the Jucar River Basin Management Plan was approved. This plan included the piping Júcar-Vinalopó and the transfer of water resources from the Júcar to Vinalopó also was declared of general interest, under the government of Jose María Aznar (PP, 1996-2004). The maximum amount to be transferred yearly was set in 80 Hm^3. Once the environmental impact statement was approved in 2000, a year later it was approved the National Water Plan Act which included this transfer in the list of investments. Also in 2001 it was signed an agreement between the "Users Central Council of the Vinalopó" and the state company in charge of the transfer works, "Aguas del Júcar" which sets out the obligations and rights (finance, flows, rates, etc) for the construction and operation of the transfer. Of the 80 Hm^3/year it was expected that 45 were intended to irrigation and 35 to supply. In November 2002, under the same government that planned and approved the transfer, the first stone of the works was placed in Cortes de Pallas in the medium-high part of the river course in order to ensure high quality water for the supply and despite the flow rate problems that the river already had due to the high water demand.

The piping, of about 70 kilometres, was divided into seven sections, from the Cortes reservoir to Villena. The planned investment is 230 million Euros, financed by Aguas del Júcar (32.61%),

[6] Information extracted and adapted from "Chronology of Júcar-Vinalopó transfer", CEDEX, 10 September, 2012

[7] LÓPEZ ORTIZ, María Inmaculada; MELGAREJO MORENO, Joaquín. "El trasvase Júcar-Vinalopó: una respuesta a la sobreexplotación de acuíferos". Investigaciones Geográficas. N. 51 (en.-abr. 2010). ISSN 0213-4691, pp. 203-233

ERDF funds (34.78%) and users (32.61%). In December 2003, the European Commission announced the award of 80 million Euros in ERDF funds to finance the implementation of the works, establishing a series of environmental conditions (environmental flow, pumping replacement program, contributions to the Albufera, etc.)

Cortes de Pallás Dam, the original intake of the Jucar-Vinalopó water transfer. Source: Ribera Express

In 2004, after the change of government (Jose María Zapatero, PSOE, 2004 - 2011), the Ministry of Environment constitutes the Jucar-Vinalopó Transfer Technical Commission. At the beginning of 2005, the Commission presents its conclusions. In September the Contract between Aguas del Júcar and the Users Central Council is terminated for failure. In October, the new Ministry of Environment (different party than in 2002) announced unilaterally the re-routing of the Júcar-Vinalopó, moving the point of extraction to the Marquesa Dam in the low course of the river Júcar (near its mouth). This fact presumably would reduce the environmental impact on the lack of flow of the Júcar but the quality of water would be worse or useless for supplying purposes (more suspended solids due to returns of irrigation channels and high salinity) and there will be an increase of the power costs (water has to be pumped in all the stretches). The change in the routing would also triplicate the costs of the works, since the works with the original routing were already ongoing. In that year there's a strong social movement in Alicante against the change of the extraction point, since the people (irrigation communities and general population) wanted the better quality of water and not to delay more the transfer. This demonstration is also supported by the regional government (PP). On the other side there are ecologist groups, left-wing political parties (PSOE, EU), the communities of irrigators of the Júcar River and the Central Administration (State) through the Ministry of Environment.

Demonstration in 2005 in Alicante supporting the former routing of the Júcar-Vinalopó Transfer
Source: UCE

On July 2005 the works of the original routing were stopped when they were almost 70% finished. In June 2006 the Environmental Impact Statement for the new route is approved. In July the works of the five new stretches are awarded. In December, the European Commission announced the increase of ERDF funds to finance the infrastructure to 120 million Euros.

On February 2007 Aguas del Júcar signs a new agreement with the Júcar Basin Authority whereby the latter will be responsible for distributing the flow rates of the water transfer for future users of the conduction. In July, the Government Commissioner in Valencia, Antonio Bernabé, placed the first stone of the new route in Llanera de Ranes.

New routing of Jucar-Vinalopó Transfer (from Cullera to Villena) - Source: vinalopodigital.net

The new route of the conduction has an approximate length of 90 kilometres, including the last 3 sections of the original layout. The planned investment is 320 million Euros, financed jointly by the European Commission with ERDF funds and the Government of Spain. This amount doesn't consider the money already invested in the prior routing.

In 2010, Acuamed a public Company under the Ministry of Agriculture, Feed and Environment, absorbs the functions of Aguas del Júcar and Aguas del Segura. This company also manages the desalination plants along the Spanish Mediterranean coast. On November 19, Júcar water begins to fill the pool of San Diego in the Upper Vinalopó. Water comes from Cullera, in the lower part of the course.

In September 2012 there's a new agreement between Acuamed and the Community to empty the pool of San Diego (5 Hm^3) and to fill it again with 12 Hm^3 more once the works for repairing some leaks are done.

San Diego Pool in Villena, the end point of the Júcar-Vinalopó transfer. Source: fecoreva.es

Finally in January 2013, one year after the change of government (Mariano Rajoy, PP, December 2011) the community of irrigators and Acuamed deal the change of the transfer routing to the original project supported by the former government of Jose María Aznar and which was stopped in 2005 by the government of PSOE.

This new negotiation is expected to be hard since the Valencian irrigators (Community of irrigators of the Júcar) are against the transfer from Cortes de Pallás because it would mean in theory a decrease in the supply to their fields.

2.4 Conclusions

This conflict seems to be far away of its resolution. The European Commission conditioned the funding of the original routing of the transfer (and the following modification) to the fulfilment of certain conditions related to the WFD in the Júcar River: environmental flow rate, pumping replacement program, water contributions to the Albufera, etc. This would mean an increase in the price of water for paying the infrastructures. Just to mention that the price of water in Spain is one of the lowers in Europe, being 4 times lower than in Netherlands, for instance. The EU sets the principle that "who uses the water, must pay". In 2010 the cost of this resource for the user should have been the cost of the service. A report released by the EU in July 2007 states that the construction of water infrastructure "should be considered an option when others have been totally discarded." Thus, the transfers, the construction of desalination plants and dams appear as an extreme option for the environmental or social damage which can lead to. The EU considers that the "major projects" have feasibility problems "and cause

social and political problems between donors and receivers." Therefore, the UE points out that these infrastructures are not the most appropriate. It's important to note that both options in the transfer routing were planned and approved coinciding with each change of political sign in the government and also both passed the Environmental Impact Statement. This millionaire infrastructure has been put over any consideration of the environmental or social damage at long term. With a historical perspective, it seems quite clear that also political interests have influenced in each option. On the other hand, public information sometimes is insufficient and depending on the interests could be oriented to a favourable stance or just to the contrary. Local lobbies often convince the general population to adopt certain positions based on the lack of knowledge and to the protection of the immediate interests both in time and space. Sometimes a solution for a region is a problem for another one. This is the case. That's why it is very important to manage these issues from a global point of view. The problems of a river basin are the problems of the whole river basin district since, as we have shown, the decisions and actions of one river inside the same basin could affect other areas in the same basin; and we cannot only consider the economical damage in a certain moment of the History and in a certain area of the geography; even historical claims not always are rightful since a claim of the XV century has never taken into account the environmental impact or the sustainability of present and future generations.

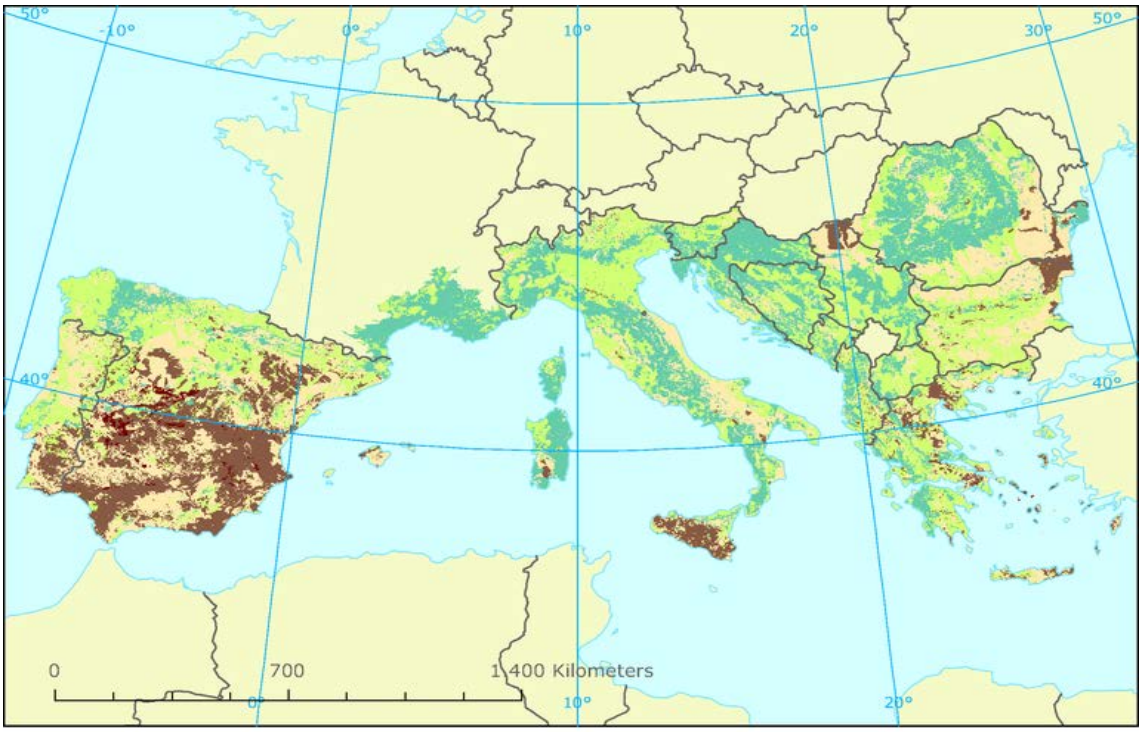
If among the possible solutions of the overexploitation of the Vinalopó aquifer without jeopardizing the local economy we don't consider the possibility of carrying out important infrastructures, what could have been done? It seems clear that restoring the aquifers in the Vinalopó needed the supply of water from somewhere, and letting the local economy (agriculture mainly) to die wasn't an option. Therefore, a solution environmentally acceptable and energetically efficient would need an important infrastructure, a fact that was supported by all the parties involved, even the EU. However the management of this issue has been from the beginning at the mercy of each governing party and the pressures and interests of the different stakeholders. Perhaps a major change at European level in the governance on these issues (vital resources like water), that last over the pass of the years and the different governing terms should be considered in order to avoid to perpetuate situations that affect the society and the environment at long term.

3 SOME MESSAGES TO THE EUROPEAN UNION

The issue of droughts and water scarcity cannot be obviated in the European policies related to water quality and thus in the WFD. In fact, the word drought appears only 5 times in the WFD, four of them in the "Whereas" section. Terms such as "water or hydric stress" or "scarcity" don't appear in the Directive. To this respect; some issues have been identified by the team working in WFD issues under MAREMED project together with the Head of Resource Planning and Water Quality of the Directorate General of Water - Valencian Regional Ministry of Presidency. Main examples have been taken from the Valencian and Spanish experience in these matters in order to better illustrate the situation in the Mediterranean European countries.

MAREMED diagnosis phase and the following surveys carried out suggest WFD was released without taken into account the huge differences between countries that don't present

droughts or water scarcity problems and those countries presenting severe scarcity, hydric stress and lack of water resources.



Index of sensitivity to desertification (SDI), 2008

	< 1.2	Non affected areas or very low sensitivity to desertification
	1.2–1.3	Low sensitivity areas to desertification
	1.3–1.4	Medium sensitivity areas to desertification
	1.4–1.6	Sensitive areas to desertification
	> 1.6	Very sensitive areas to dersertification

Source: European Environmental Agency

Big areas of Spain, Sicily and some spots in Greece are sensitive or very sensitive to desertification. The presence of sever water stress matches with high sensitivity to desertification.

These countries have historical conflicts for water distribution, especially Spain, which depends on water transfers between rivers, which complicates the adoption of suitable river basin management plans.

For over 100 years, water policy and management in Spain have been instruments of economic and social transformation. Significant public and private investments in water supply infrastructures have equipped Spain with over 1,200 major dams, 20 major desalination plants – with more under construction – and several inter-basin water transfers. The system has been apparently very successful, with an increase in overall water availability, strong associated economic development and few urban water supply shortages. This success has been supported by a widespread consensus among a strong and largely closed water policy

community made up of water managers, irrigators, electric (hydropower) utilities and developers. However, today this historical agreement is in crisis. The environmental damages caused by past policies are now evident, but there are still unsatisfied claims for water, especially in those regions with devastated water ecosystems, such as the Segura, Jucar or Tajo river basins. On the other hand, there is a growing ecological consciousness that is supported in its claims by the water policy objectives of the WFD. Water users and stakeholders who previously had little say in policy decisions are also contesting the long-term privileges of large historic water users with long-term use rights over water. In addition, the growing power of the country's autonomous regions means that inter-regional conflicts over water allocation decisions are becoming more frequent.

Water Transfers in Spain Source: Revolve Magazine - Nuria Hernández-Mora & Francesc La Roca

The recent Marine Strategy Framework Directive however has a degree of flexibility for its implementation that is not considered in the WFD. This flexibility is surely a result of the poor experience in the implementation of the WFD.

The Marine Strategy Framework Directive sets in the recital number 34 that in view of the dynamic nature of marine ecosystems and their natural variability, (…) it is essential to recognise that the determination of **good environmental status may have to be adapted over time.** Accordingly, it is appropriate that programmes of measures for the protection and management of the marine environment be **flexible and adaptive and takes account of scientific and technological developments** (…).

To this respect, 'flexible' deadlines or even a 'moratorium' could be considered in order to adequate the situation of certain regions/countries to the reality of the present time. Perhaps this could be "unfair" since other countries have done a great effort for meeting the deadlines;

however, when talking about water resources and quantity, it isn't the same Denmark than Greece. Maybe these considerations were not taken into account when the WFD was conceived.

Problems like the one that is facing the Jucar River Basin is a clear example of the 'snake biting its tail': Investments such as water desalination plants should comply with the River Basin Management Plan, which is under development and not yet approved; however there is an urgency from the EU in order these plants to begin running when several criticalities are not yet solved due to economical factors.

After 2004, Spanish water policy appeared to abandon large hydraulic works in rivers and focused instead on the promotion of desalination as the new supply alternative. The new "AGUA" program (Actions for Water Management and Use) envisaged the construction of some 20 desalination plants along the Mediterranean coast (from Barcelona to Almeria) to provide the water that would otherwise have been supplied through the Ebro transfer. At the same time the implementation of the EU-WFD was prioritized, with an increased emphasis on economic rationality, demand management, ecological conservation and social participation.

However, the reaction of the traditional water policy community was effective enough to change the course of action after the 2008 re-election of the socialist government. The new management team in the Ministry of the Environment, Rural and Marine Affairs – which is responsible for water policies – was unable to complete the planning process under the EU-WFD, which has been blocked until now, while the inter-regional conflict gained momentum. New national elections in 2011 had once again changed the territorial balance of power, producing a new political map dominated by the conservative party, both at national and regional levels[8].

The WFD departs from an ideal situation in which water masses should be as they were at their origin. However, in many Mediterranean basins, water shortages, flooding problems, together with the particular characteristics of soil and climate, have led to an IRREVERSIBLE transformation of the territory, so that the main ecological spaces have at present, in many cases, a human origin. What is considered as a pressure for the WFD shouldn't be considered as such. The Spanish East, for example, without agriculture would be a desert today.

The WFD considers water uses as anthropogenic pressures, but in certain regions these uses not only create economic wealth, but environmental and ecological wealth being these water masses artificial sites (anthropogenic origin).

For instance, la Albufera is the result of the returns of traditional irrigation. Since 1990, the Albufera Nature Reserve has been included as a Ramsar Site in the list of wetlands of international importance for birds. The growing of rice is a traditional use of these waters since the 18th century; it has great economic and environmental importance because in the rice fields are where the water of the lake is purified and there still exist plant and animal species that have disappeared from the lake itself. These also provide food and shelter for many birds.

[8] Revolve's Water Around the Mediterranean special report in association with the Union for the Mediterranean, pages 61-63.

Albufera in Valencia, an example of anthropic-origin high environmental value. Source: Juan Luis Moreno

The salines in the south of the region have a high environmental value and they have industrial origin. The two salt lakes of Torrevieja and La Mata are a protected natural park.

La Mata and Torrevieja Salines. Source: http://www.yourspain.net

The salt lake of La Mata is declared an important area for bird life. The history of the lakes goes back to the 13th century when the first licenses were given by the king for the harvest of salt. Now, they are still the biggest and oldest salt lakes in Europe, they are producing the salt for the cold winters on the roads of Northern Europe. The salt lakes are connected by the sea by two channels allowing the depth of the lakes to be altered for the salt production. There is very little vegetation in the salt lake (to high level of salinity) but they are at least 2000 different species of birds, like 1500 flamingo's.

Water policies in Mediterranean basins should be different than in Atlantic or Northern basins. Water scarcity suggests a different management model. The same premises could not be applied for such different conditions between countries with water abundance and those suffering severe hydric stress.

The WFD only addresses ecological water quality problems in ecosystems. It neither considers the ecological quality in areas where water uses are produced thanks to that same use (as we remember, for the WFD, an use is a pressure), nor considers the problems of quantity, which are precisely our basins basic problem. Many of our quality problems derive from the problem of the quantity.

A typical Mediterranean dry river bedin Valencia Region Source: Google Maps

Knowledge of the regions in water management is basic in order to solve water quality –and quantity- problems. In order not to get wrong in the diagnosis of the real problems, regions should be taken into account in a wider way.

Regions have at present more powers or competencies in water management issues which supposes necessarily their involvement in the implementation of the European Policies. The problem lies perhaps in the political interests which underlie in the management of scarce resources in the Mediterranean as water for irrigation or human consumption.

The criticalities for the implementation of the WFD in Mediterranean countries are at technical, financial and administrative levels. A better allocation of funds could help to solve many issues and to duly fulfil 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 transferred from the EU to the national and to the Regional level, but the same thing is not done for funding.

According to the WFD, the use of economic instruments by Member States may be appropriate as part of a programme of measures. The principle of recovery of the costs of water services, including environmental and resource costs associated with damage or negative impact on the aquatic environment should be taken into account in accordance with, in particular, the polluter-pays principle. An economic analysis of water services based on long-term forecasts of supply and demand for water in the river basin district will be necessary for this purpose. Despite these economical assessments were carried out, at present there important financing problems and uncertainties with regards the establishment specific budgetary lines to the WFD implementation.

In coastal areas, the interfluve areas (areas that do not belong to any basin, located between the mouths of different riverbeds) are numerous and constitute the largest part of the coast. That's where populations are often located and where productive irrigation are situated. Clearly the interconnection at coastal level between different basins is essential to implement efficient measures to solve the problems. Pedagogy should be made on this issue and put in

value the importance of interconnections between river basins and users as optimal route for a more efficient management of water resources.

Rivers in Valencia Region and interfluves areas Source: Author and Wikipedia

This idea corresponds precisely with the concept of river basin district, as unit of management and planning; a concept that is above of the river basin, i.e., the management can and must be done by the conjunction in the same area of several indivisible river basins. The concept of river basin should never be limiting to this integration of several basins for a better shared management. Only in this way the deficits of a basin can be compensated with the surpluses from another one; alternation which also occurs occasionally. This management type allows

taking advantage from synergies, to take a better profit from the hydric works and, in many cases, it is the only option.

4 PILOT ACTIONS - QUESTIONNAIRES

FEPORTS, as coordinator of the Water Framework (WFD) Directive Working Group has identified some 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**

4.1 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:

4.1.1 INTERCALIBRATION

Introduction

According to the European Commission information, the aim of the intercalibration exercise (referred to in the Directive -Annex V section 1.4.1-) is to harmonise the understanding of 'good ecological status' in all Member States, and to ensure that this common understanding is consistent with the definitions of the Directive.
Intercalibration is a complex task that takes into account current scientific knowledge about the structure and functioning of aquatic ecosystems, and how human activities influence them. The process of defining 'good ecological status' **does not take account of socio-economic factors**.
Although the WFD defines which biological elements must be taken into account when assessing ecological status, it allows the Member States to be flexible for defining the details of their own assessment system. **That is why the purpose of intercalibration is not to harmonise assessment systems, but only their results**.

The first step in the intercalibration exercise was to select sites representing ecological status at the boundaries between the "high" and "good" and between the "good" and "moderate" classifications. The selection was made by Member States in 2003 and 2004 on the basis of their understanding of good ecological status. On September 2005, the Commission published the register of sites in a Commission Decision published in the Official Journal of the EU. The site had to have a boundary that most closely represents high-good (HG) or good-moderate (GM) status, according to Member State's assessment of the ecological quality status.

Regarding the coastal and transitional waters of the countries involved in the project MAREMED were identified the following water bodies in the Mediterranean for the registration of the points that form the intercalibration network:

Spain	Arenys-Matar
	Cabo de Gata
	Hospitalet-Ametlla
	Puerto de Almería
	Tossa-Sant Feliú
France	Baie de La Ciotat
	Baie de La Ciotat 2
	Campoloro
	Campoloro 2
	Estuaire du Rhône
	Étang de Lapalme
	Île du Levant
	Île du Levant 2
	Pertuis charentais
	Thau
Greece	S. Evvoikos gulf
	Saronikos gulf
	Thessaloniki gulf
Italy	Antignano
	Carbonifera
	Castagneto
	Cattolica
	Cesenatico
	Conero
	Golfo di Milazzo
	Imperia
	Marinella — Foce del Magra
	Miramare
	Porto Cesareo
	Punta Licosa
	Punta Mesco
	Laguna di Venezia — Bacino meridionale
	Trappeto
Cyprus	Limassol Bay

The intercalibration work is led by Working Group A on Ecological Status under the WFD Common Implementation Strategy, and the technical work is coordinated by the European Commission's Joint Research Centre (JRC) in ISPRA, Italy. The intercalibration exercise is carried out within 14 Geographical Intercalibration Groups (GIGs). These are groups of Member States that share ecological types of rivers, lakes and coastal/transitional waters, and can thus compare monitoring results between themselves. The Geographical Intercalibration Group the countries participating in MAREMED belong to is called Mediterranean-CME.

To define "good ecological status", the intercalibration exercise defines the upper and lower boundaries of good ecological status, i.e. the "high-good" and the "good-moderate" boundaries. The outcome of the intercalibration exercise establishes the boundaries of good ecological status applicable to all national classification systems.
The intercalibration was carried out at the level of the biological quality elements, comparing the classification results of the national monitoring systems for each biological element and for each common surface water body type among Member States within the same GIG.

The results of the intercalibration exercise published in 2008 for the Mediterranean-CME group for Coastal and Transitional Waters applied only for coastal waters (not transitional) and the typology was developed for specific quality elements only.

The biological quality elements intercalibrated were benthic invertebrate fauna, Phytoplankton and macroalgae and they only applied for certain circumstances. In this exercises of intercalibration it was not possible to intercalibrate all biological quality elements in all water categories. The existing gaps are 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 so called second phase from 2008 to 2011 in order to achieve comparable and WFD consistent class boundaries for all biological quality elements.

It is assumed that the second phase of intercalibration ended in December 2011, but in January 2013 it has not yet published the report of conclusions so it can therefore be assumed that a consensus has not yet been reached for certain values of biological, physicochemical and hydromorphological indicators. In this respect it was intended that part of the questionnaire of the Pilot 1 exercise dedicated to intercalibration.

Answers to questionnaire

Since it was quite difficult to access information of the Mediterranean Intercalibration Group, the questions were designed to try to discern the knowledge about the Intercalibration process in its second phase and the progress of the same in each of the participating regions. The questions asked were:

1. ***Is the intercalibration process considered as finished?***
2. ***What are the main problems identified in your country/region respect to the intercalibration exercises?***
3. ***Do you think intercalibration exercises have been good enough in order to compare different water bodies in different European regions? Why?***

The answers were not satisfactory according to what was envisioned. In all cases it is shown a more or less pronounced decoupling of regional governments in the intercalibration process, as they are mainly national institutions or groups of experts (including universities) designated for this purpose which are responsible for collecting the data and attending the meetings of these groups giving results in front of national environmental agencies, as is the case of ISPRA in Italy or HCMR in Greece. But in almost all cases it was considered that in the last quarter of 2012 intercalibration exercises had not yet ended.

	Intercalibration process Status	Problems identified
Crete	Process not finished (2015). They refer to HCMR	They refer to HCMR

Larnaca	Intercalibration process is considered as finished	No information on this issue available
Valencia	Intercalibration process is considered as finished	
Emilia-Romagna	Intercalibration process is considered as finished	They classify Phytoplankton using the parameter chlorophyll "a" No values for Reference Conditions for the macrozoobenthos EQB
Marche	Intercalibration process is considered as finished (they refer to ISPRA)	No information on this issue available
Liguria	This question should be addressed at national level (they refer to ISPRA)	No information on this issue available
Tuscany	We think the process is completed	No information on this issue available
Lazio		
PACA	The intercalibration process is not totally completed	It is not achieved for the phytoplankton descriptor (abundance) and the fish descriptor for transitional waters
Corsica	Not totally. Some parameters are still in discussion. Eg. benthic communities of the sediment	Final EC control didn't agree with the intercalibration Criteria to correct are not always clear or very difficult to apply. Reference values adapted to Corsica due to their "low perturbations" in waters (very good state of their waters)

Respect to the main problems identified in each participant region/country in the intercalibration process, Italian partners always refer to ISPRA in order to know about those problems. The only Italian partner that has identified some problem is Emilia Romagna, related to the classification of the Phytoplankton (using the parameter "chlorophyll a") and the lack of reference values for the macrozoobenthos EQB. Corsica also reported problems related to their very good status of their waters since they had to use their own reference values that are

not comparable to the rest of regions. An interesting remark, that summarizes the general feeling on this issue is the one given by PACA region:

"Generally speaking, the challenge is to make all scientists work in perfect synergy. Indeed, each scientist developed its own methods and means to enforce them. But intercalibration is a large scale project that requires a precise job. Scientists must work as managers, constraint by deadlines and with limited funding".

As regards the utility of the intercalibration process, there is a wide set of different opinions and point of views among the partners:

	Utility level	Intercalibration process Status / Remarks given
Crete		HCMR is responsible for the intercalibration exercise of marine and coastal waters in Greece
Larnaca		
Valencia		The unsolved problems on some parameters and kind of body waters don't make this system totally useful.
Emilia-Romagna		Yes, they do think so, because all water bodies are represented
Marche		The intercalibration process has not allowed an exhaustive comparison among European Regions, and it has not allowed developing common indicators which are then finely-tuned on regional specificities (for example Mediterranean and Italian specificities).
Liguria		This question should be addressed at national level
Tuscany		The intercalibration process was managed by the Ministry of the Environment and ISPRA with the data provided by ARPAT
Lazio		
PACA		Intercalibration is an innovative method in so far as it relies on the pooling of all the scientific data of each Member state. It obliges Member States to examine their methods, their results and make them consistent with other countries, and on all biological parameters.
Corsica		Yes, for parameters with methods which have been quite well intercalibrated (so results are comparable).

Useful Unknown Not enough useful Useless

Conclusions

With respect these answers and the remarks given by the interviewees, it seems clear the Intercalibration Process is a very good tool since the sharing and linking of scientific data facilitates the comparison and then the harmonization of thresholds by quality elements. Intercalibration of water bodies is especially important since often overcomes administrative boundaries, because River basin Authorities detain prerogatives upon one or more regions within a same state, and also because EU water bodies ignore also Member States' boundaries (International River Basin). Intercalibration method is also relevant for territories which share similar geo-physical and hydrological features (Liguria/PACA or Languedoc-Roussillon/Cataluña for instance). However there's a feeling on the intercalibration process that has not allowed for the moment an exhaustive comparison among European Regions, and it has not allowed developing common indicators which are then finely-tuned on regional specificities.

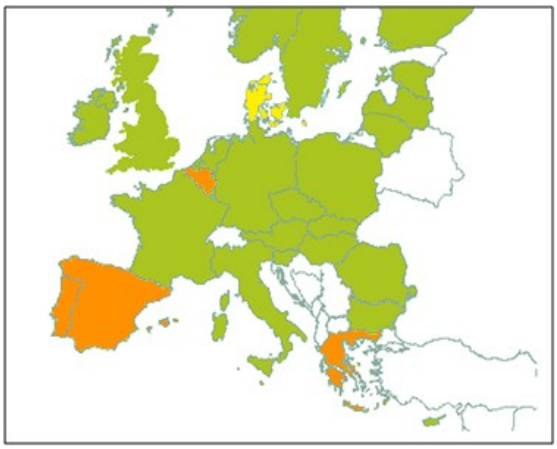
4.1.2 WATER PLANNING (River basin management plans- RBMP)

Introduction

Article 13 of the WFD establishes that Member States shall ensure that a river basin management plan is produced for each river basin district lying entirely within their territory. The deadline for publishing the River Basin Management Plans was, according to the Directive, 9 years after the date of entry into force of the WFD (22nd December 2009). Despite this deadline, some EU Member States haven't yet published their plans.

In 2009, during the MAREMED's diagnosis phase of the WFD implementation, Spain, Portugal, Greece and Belgium still hadn't published their RBMP. Denmark had approved it but not yet published. In 2013, at the end of the MAREMED's pilot action phase, Spain, Portugal, Greece and Belgium haven't yet approved nor published their RBMP. This document will analyze the reasons of such fact for Spain and Greece as participants in MAREMED project.

Status of the implementation of River basin management plans



2010

2012

This is the situation for the participant partners according to the Country-specific assessments for EU Member States and Norway (SWD(2012)379 Volumes 3-30) published by the Environment Directorate-General of the European Commission:

SPAIN

With the exception of the River Basin District of Distrito Fluvial de Catalonia (ES100) Spain has not reported RBMPs to the Commission. A Court ruling of the European Court of Justice (ECJ) against Spain on the failure to adopt and report River Basin Management Plans for all of their respective River Basin Districts took place at the end of 2012. Specifically, for the river basins involved in the project (Valencia region as partner and Cataluña as associated):

RBD	Name of RBD	Status consultation	Consultation	Status adoption
ES070	Segura	Pending	-	Pending
ES080	Jucar	Pending	-	Pending
ES091	Ebro	Completed	12/05/2012-12/11/2012	Pending
ES100	Cuenca Fluvial de Cataluña	Completed		Adopted

A court ruling was issued against Spain by the European Court of Justice (ECJ) because Spain had failed to notify all competent authorities in accordance with Article 3. In this case the Court also emphasized the importance of designating the River Basin Districts in accordance with the hydrological boundaries rather than administrative boundaries. Spain has since complied and the case is closed.

The recommendations given by the Commission respect to the RBMP in Spain were:

“The most urgent recommendation is that all Spanish RBMPs should be adopted and reported. Given the lack of adoption of the plans in many Spanish regions, it is difficult to ensure that there is an effective coordination in the implementation of the WFD, including the setting of objectives and exemptions, and the definition of the necessary measures. The implementation of the WFD shall be coordinated across the RBDs, including with third countries in the international RBDs, to ensure the achievement of the environmental objectives established under Article 4, and in particular all programmes of measures need to be coordinated for the whole of the RBD, including within a Member State”

GREECE

Greece has not reported RBMPs to the Commission. The Greek authorities informally reported that the consultation process on the RBMPs for those 10 RBDs was expected to be finalised in October 2012 and the RBMPs were expected to be approved by November 2012.
For Crete (GR13) and the Aegean Islands (GR14) the consultation process was expected to start in November 2012.
The status of the RBMP of Crete is:

RBD	Name of RBD	Status consultation	Consultation	Status adoption
GR13	Crete	Pending	-	Pending

According to the last information available in the European Commission's webpage (DG Environment) is "Consultations are to be announced in Crete (GR13)". The special webpage that provides all the information on the earlier steps of implementation of the Water Framework Directive in Greece also informs consultations for GR13 are not opened and will be announced.

Two court rulings have been issued against Greece by the European Court of Justice (ECJ):

- For failing to submit the reports required under Article 5 of the Directive, on Characterisation of the River Basin Districts, review of the environmental impacts of human activity and economic analysis of water use. Greece has since complied and the cases are closed.
- On the failure to adopt and report River Basin Management Plans for all of their respective River Basin Districts

Answers to questionnaire

Questions asked to partners where:

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?***

5. ***If so, could you give some link to it? Please, do not refer to monitoring networks or tools but documents[9] that analyze or assess the results of these networks or tools.***

6. ***Could you identify these concrete studies (title, author, and year) and specify a link to them?***

Respect to these questions, the objective is to assess both the degree of knowledge at regional level on this issue and to know the status of implementation of the RBMP in the participant regions.

[9] 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.

Respect to the existence of the document analyzing the previous situation, answers were:

	Is there a document identified?	Identification	Link
Crete	YES	K.S. Chartzoulakis, N.V. Paranychianakis, A.N. Angelakis, Water resources management in the Island of Crete, Greece, with emphasis on the agricultural use, Water Policy, Volume 3, Issue 3, 2001, Pages 193-205, ISSN 1366-7017, 10.1016/S1366-7017(01)00012-5	http://www.sciencedirect.com/science/article/pii/S1366701701000125
Larnaca	YES	River Basin Management Plan, Ministry of Agriculture, Natural Resources and Environment. Water Development Department	http://www.moa.gov.cy/moa/wdd/WDD.nsf/All/015E6A9F628D86F9C22579E900322AB7/$file/FINAL2011.pdf
Valencia	YES	Initial Document of Strategic Environmental Assessment - El Jucar Hydrographic Confederation -2009	http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/participacion-publica/2009_p_023_documento_inicial_tcm7-146330.pdf
Emilia-Romagna	YES	Water Protection Plan	http://ambiente.regione.emilia-romagna.it/acque/temi/piano-di-tutela-delle-acque
Marche	YES	Annual report on coastal marine water, and river quality, on bathing water quality, on algal survey, 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	http://www.arpa.marche.it/index.php/temi-ambientali/acqua/itemlist/category/18-acqua
Liguria	NO	-	www.adbpo.it www.appenninosett

			entrionale.it
Tuscany	YES	Basin Plan / Reports	http://www.adbarno.it http://www.autoritabacinoserchio.it http://www.abtevere.it
Lazio	YES	The Regional Water Protection Plan, concerns both the interventions essential to achieve or maintain the environmental quality objectives than the measures essential to assure the qualitative and quantitative protection of the water system.	http://www.regione.lazio.it/rl_ambiente/?vw=contenutidettaglio&id=17
PACA	YES	Reports	http://www.rhone-mediterranee.eaufrance.fr/donnees-documents/index.php
Corsica	YES	Shéma Directeur d'Aménagement et de Gestion des Eaux, Bassin de Corsica, DCE, Comité de Bassin, Collectivité Territoriale de Corsica; Rapport d'Evaluation Environnementale et Avis de l'Autorité Environnementale, Bassin de Corsica, DCE, Comité de Bassin, Collectivité Territoriale de Corsica; Document d'Accompagnement du SDAGE, Bassin de Corsica, DCE, Comité de Bassin, Collectivité Territoriale de Corsica; Programme de Mesures 2010-2015, Bassin de Corsica, DCE, Comité de Bassin, Collectivité Territoriale de Corsica	www.eaurmc.fr www.rhone-mediterranee.eaufrance.fr www.rhone-mediterranee.eaufrance.fr/donnees-documents www.documentation.eaufrance.fr

Despite almost all the answers were positive, few of them really addressed to a specific document analyzing the previous situation of the river basin considered before the development of the RBMP according to the premises of the WFD.

The document of Crete is mainly focused on water resources for agricultural use. Although the document generally describes the situation of water resources in the island of Crete, it isn't aimed at assessing the previous situation of the basin before the RBMP.

Larnaca refers to an annual report that couldn't be opened and to the Cyprus River Basin Management Plan in English:

http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/1AE1F4E1B33E432CC22578AF002C0E71/$file/RBMP_EN.pdf?openelement

This document is aimed at addressing the WFD premises. It has a brief description of the River Basin and an economic analysis of water use which could be assimilated to a description of the previous situation.

The document mentioned by Valencia Region corresponds to an initial document for the Jucar River Basin Plan. It is dated in December 2009, 4 days before the deadline for publishing the RBMP according to the WFD timeline, which shows the lack of commitment and the numerous problems faced by the Spanish Authorities for developing their RBMPs. The document is the basis for the realization of the reference document forwarded by the Environmental Authority to the stakeholders in the consultation process. This document was prepared by the Jucar Hydrographic Confederation (CHJ) as the promoter of the Water Plan of the River Basin Authority, and is addressed to the environmental body, in this case the Ministry of Environment.

Regione Emilia Romagna refers to the Water Protection Plan (WPP - 2005) were it is analyzed the previous situation of the river basins. After this analysis their River Basin Plan was updated according to the WFD premises. The WPP's preliminary document was approved by the Regional Council in 2003 after a preparation work carried out together with the Provinces, Basin Authorities and ARPA's technical and scientific support, as well as experts and specialists in several sectors (University), and the Coordination by the Service for the Protection and Improvement of Water Resources of the Department of Environment and Sustainable Development.

Regione Marche refers to a series of annual ARPAM documents published since 2000, on specific environmental monitoring of coastal marine waters. 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, but they aren't explicitly related to a preliminary analysis of the situation of the river basin for the RBMP, although 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.

Liguria Region states there are no specific documents analyzing the previous situation; however they address to some documents where it is possible to get some information about the previous status that can be found in the websites of Po and Appennino Settentrionale River Basin Authorities.

Regione Toscana just refers to the Basin Plan and provides several Internet links where certain studies can be found. Some of them were realized before the RBMPs publishing according to the WFD premises and certainly they can be used as preliminary studies such as "The Arno river and its waters: contribution of cognitive processing basin plan" (1993), "Plan of the Arno River Basin: Water quality. Summary of the plan", "Outline of basin plan" (1993), "The evolution of the dynamics of the shoreline facing the river Arno and the Serchio and the problems of coastal erosion." (1994), " Arno River Basin Plan: Water quality. Plan Summary" (1998), etc. Similar studies can be found for Serchio and Tevere rivers.

Regione Lazio also refers to the Regional Water Protection Plan concerns both the interventions essential to achieve or maintain the environmental quality objectives than the measures essential to assure the qualitative and quantitative protection of the water system.

PACA region refers to some documents of the “Agence de l’Eau Rhône-Méditerranée-Corsica (AERMC)” and provides a link to documents/data of the AERMC. However, these documents are basically periodical data on rainfall, droughts, river basin state, etc. A document in the line of a “Strategic Environmental Assessment” or “preliminary study of the River Basin State” was not carried out for the Rhone according to the Report from the Commission to the European Parliament and the Council on the implementation of the WFD RBMPs for France {COM(2012) 670 Final}, however an environmental report is compulsory for all the “Schéma Directeur d'Aménagement et de Gestion des Eaux” (SDAGEs) and it is included in the document of the plan (according to the mentioned report). Some documents that could establish a preliminary situation are those published in the Site of Water Data of the Rhone-Mediterranean Basin River which are based in maps, data and reports. One of them is prior the release of the WFD, published in 1996, called “Adoption of the SDAGE by the Basin Committee and approval by the basin Prefect Coordinator”.

Corsica Region provides several references to reports and documents, mainly based in data but not compiled in a document as a preliminary study prior to the development/adaptation of the RBMP according to the WFD premises. One reference is the same document as for PACA region: the “Adoption of the SDAGE by the Basin Committee and approval by the basin Prefect Coordinator” (1996), which includes the Rhone-Mediterranean and Corsica basins. The document is divided in three volumes:

- Volume 1: Basic guidelines, terms of operational measures and implementation
- Volume 2: Factsheets
- Volume 3: Mapping objectives and priorities

For the purpose of this document, it is interesting to point out that in Corsica water scarcity has been taken into account for the development of the whole RBMP. In particular, the importance of ensuring a quantitative balance and to anticipate the consequences of climate change has been acknowledged in the main objectives of the RBMP[10].

[10] Commission to the European Parliament and the Council on the implementation of the WFD RBMPs for France {COM(2012) 670 Final}

Conclusions

In general all the river basins count on several studies, reports and documents containing elements that establish the previous situation of these basins before the development of the new RBMPs according to the WFD. Some of them are clearly specific documents such as "Strategic Environmental Assessments" or "Water Plans". Other documents are reports based on data from which conclusions the preliminary status could be deduced. Despite Jucar Basin in Spain has a very specific document published in 2009, their RBMPs are still to be approved[11]. Greece is still pending on approving their plans, since the consultations started between November 2011 and November 2012 (in the case of Crete, consultations started in November 2012, so there is a great delay in the deadlines). Respect to Italy, despite having approved all their RBMPs, general recommendations made by the EU Commission are about the provisional nature of their plans, which have to turn into permanent systems; and about the lack of transparency in certain aspects such as pollutants, priority substances, application of exemptions and designation of Highly Modified Water Bodies. Other aspects to point out are the high percentage of water bodies that have an unknown status and the absence of objectives in some River Basin Districts, etc. With regards France, in general, recommendations are similar but fewer than Italy: assessment methods for biological quality elements and chemical status need to be further developed and improved, exemptions have to be more clearly justified, more transparency has to be implemented in the identification of pollutants and in the Programmes of Measures, etc.

It is important to remark that the different Member States have their own planning traditions, which means they all have their own long-established manners of adjusting developments in society, with corresponding division of roles and allocation of tasks between public and private sectors. In order to implement the Directive in a socially acceptable manner, every Member State should be able to inform, capacitate and promote the active involvement of stakeholders and the public which may mean that the current planning can be improved and revised.

4.1.3 WISE SYSTEM

Introduction

The Water Information System for Europe (WISE) is a partnership of the European Commission, the Directorate-General for the Environment (European Commission), Eurostat, the Joint Research Centre and the European Environment Agency. Since 2007 this web-based service platform provides the public with information about ongoing research projects, policies, data, and reports connected to water in the EU. The target group of this online information system is researches and professionals dealing with water related issues within the framework of the EU. The platform helps to store and administer data and output handed in by member states and agencies connected to the reporting requirements of the European Commission. The link to accede is: http://water.europa.eu/

[11] According to the last information of the Spanish Ministry of Environment, RBMPs of the basins of Guadalquivir, Guadiana and Eastern and Western Cantabric received a positive report from the Government in December 2012. These approvals are added to other 5 already approved during 2012: Distrito Fluvial de Cataluña, Galicia-Costa, Tinto-Odiel, Guadalute-Barbate and Cuencas Mediterráneas Andaluzas. Despite this positive report, these plans are still to be approved, published and notified to the EU Commission.

The main roles and responsibilities of the partners are:

• DG Environment, leads the policy and strategic aspect of WISE. It liaises with Member States, especially on official reporting requirements of EU water legislation.

• The European Environment Agency hosts the Water Data Centre and the thematic WISE WebPages.

• The Joint Research Centre conducts environmental monitoring and water resources modelling including nowcasting and forecasting services.

• Eurostat is collecting and disseminating water statistics, also as a part of WISE data and themes, and provides significant input in the development of the GIS part of WISE and in particular ensuring the link to INSPIRE.

Answers to questionnaire

Questions asked to partners where:

7. Do you know what WISE system is?

8. Does your region use the WISE System? Who?

9. Do you consider this system useful?

The purpose of these questions is to know the degree of knowledge and use of this tool by the respective regions.

Answers given are:

	Do you know about WISE?	Do you use it / who?	Is it useful?
Crete	Yes	No, it is used by the external expert responsible of drafting the RBMP	No answer
Larnaca	Yes	In Cyprus they use more the EMWIS (Euro-Mediterranean Information System on the know-how in the Water Sector) and the responsible organization is the Water Development Department. http://www.emwis-cy.org/ The Water Development Department is using the WISE system when it comes to usage of data for reporting.	Yes is very useful since it gives a detailed information on water-related policies and EU legislation as well as data and statistics on water.
Valencia	Yes	Yes: Regional Water Department in	Yes but it still lacks a

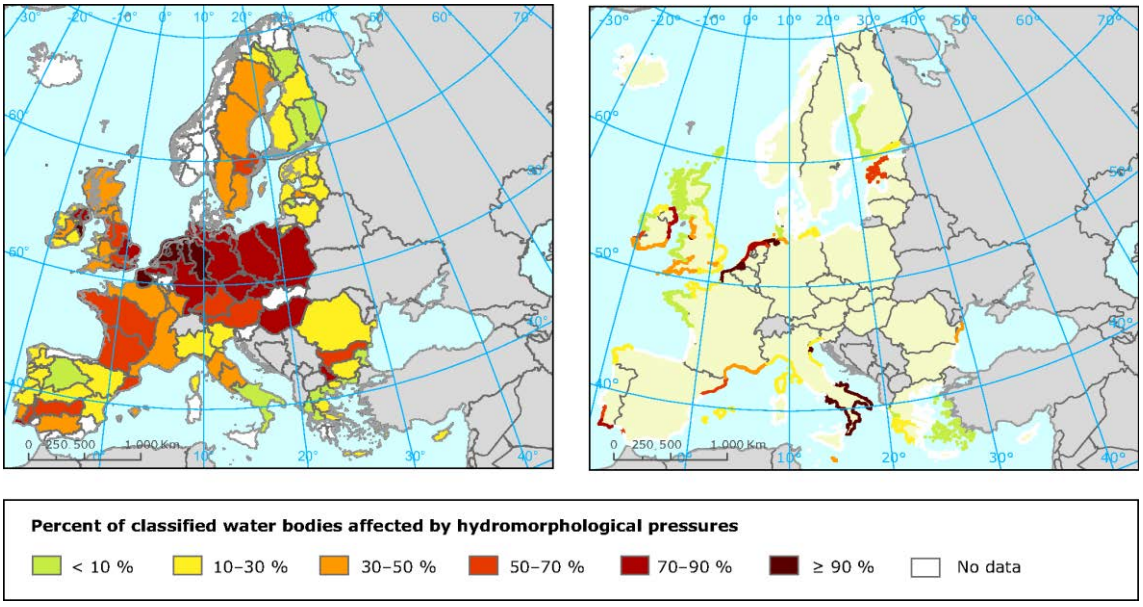
		coordination with the River Basin Authorities	more manageable information and data
Emilia-Romagna	Yes	Yes, ARPA: Environment Protection Regional Agency	Yes if properly filled in
Marche	Yes	Yes, by the Environmental Resource Protection Service of Marche Region and by the Regional Agency for Environmental Protection	Yes, but a further development and standardisation process is required on specific issues, such as pressures and impacts
Liguria	Yes	Yes, every region uses the Regional Focal Point to send data to the National Focal Point. The national information system is the SINTAI, managed by ISPRA	Yes but many information required are too detailed for an European level, see for example the wise-soe requirements, this leads to time delays in the collection and transmission of data.
Tuscany	Yes	Yes, required under D. Lgs. 152/06 (environmental rules)	Yes
Lazio	Yes	The system is not user friendly (only for experts) also due to the nature excessively fragmentary of requested data, sometimes difficult to be found.	Yes
PACA	Yes	Yes, French State through its Water Agencies	Yes because it helps to centralize, refine and gives visibility to data in order to achieve the WFD objectives for 2020. But it would be very useful to be able to visualize easier the results done and shown at EU level at the scale of regions in order to improve coastal and maritime

			policies in function of these results
Corsica	No	No	No

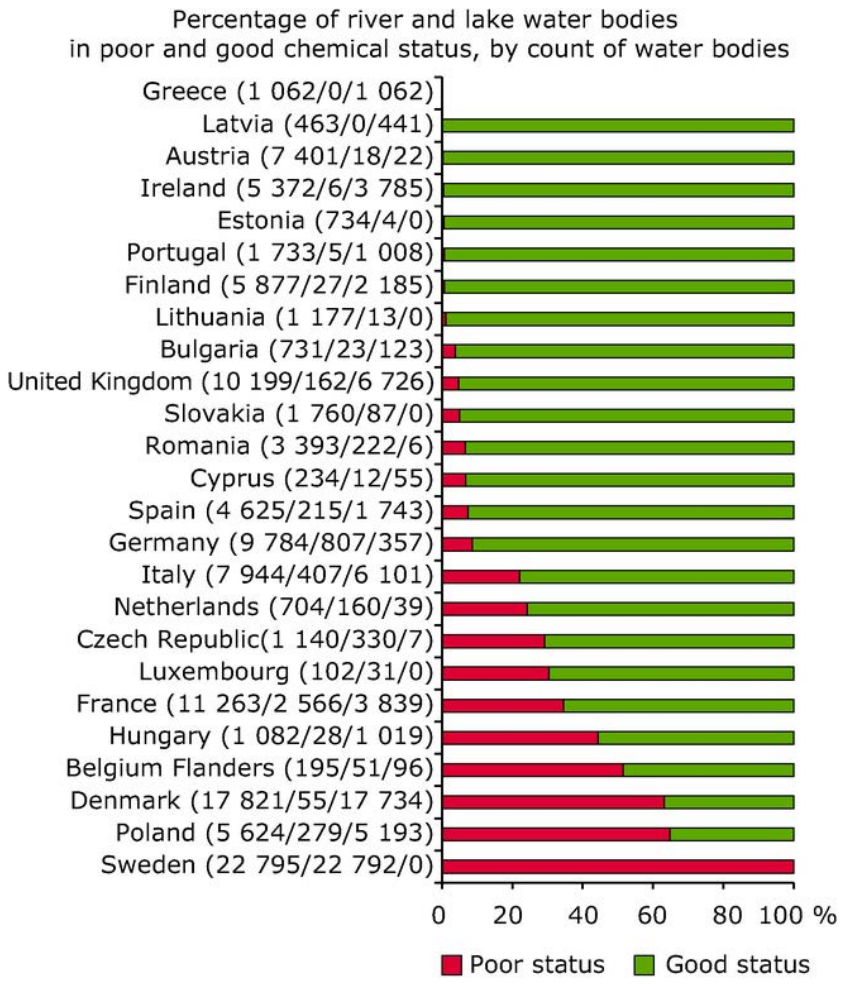
All the interviewees but one know the WISE system and consider it useful despite almost all of them suggest further improvements/developments should be applied to the system in order to be really useful. Some data is, missing or fragmented and not totally homogeneous. Even there are data showed in an unclear way. Some examples of these facts are given in the next pictures/tables:

Analysis of some data from WISE:

The next picture corresponds to the proportion of classified water bodies in different RBDs affected by pollution pressures, for (left) rivers and lakes and for (right) coastal and transitional waters. This information belongs to the WISE WFD Database and it was updated in November 2012. For the coastal and transitional waters, in the case of the Mediterranean It still shows large areas (in white) without data in Spain, Italy, Greece and Cyprus.



The next example shows the relatively unclear way to publish data. It is a graph illustrating the chemical status of river and lake water bodies as percentage of water bodies in poor and good chemical status, by count of water bodies. The number of water bodies per Member State / number of water bodies in poor status / number of water bodies in unknown status are shown in brackets:



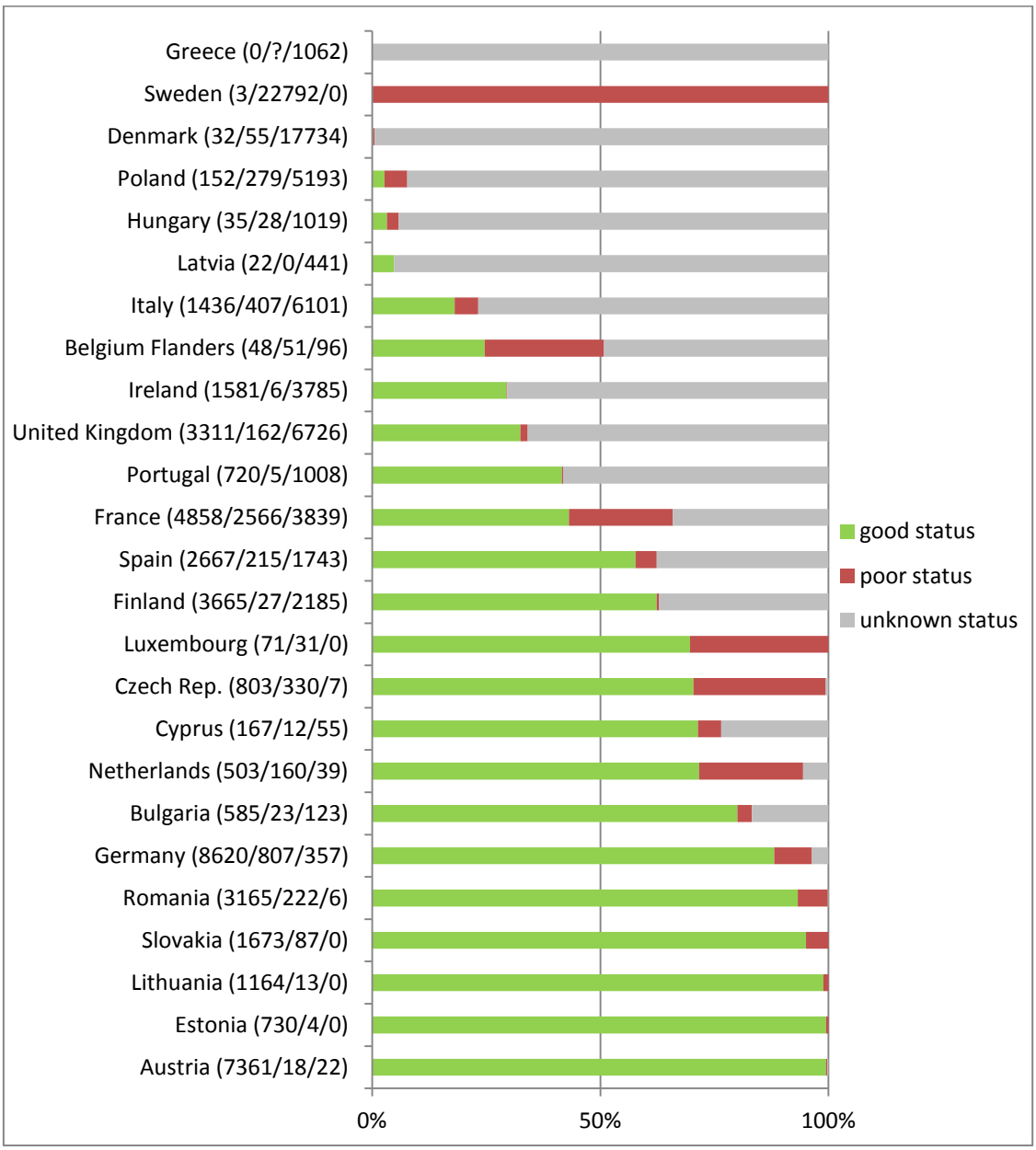
Taking a look to the graph, it seems Estonia or Portugal both have a good chemical status in almost the 100% of their inland water bodies. Likewise, Sweden has the doubtful honour to stand the worst percentage of poor status of its waters in Europe, almost the 100%! However, if we notice the numbers in parenthesis we deduce for instance that:

- Portugal has 1733 water bodies, 5 of them in poor status and 1008 in unknown status. This means almost 60% of the Portuguese water bodies are in unknown status, and the 41,54% are in good status (720 out of 1733); however, from the graph one may interpret that almost the 100% of the Portuguese inland waters are in good status.

- Respect to Sweden, it is remarkable that from their 22795 water bodies, 22792 are considered in poor status, having 0 in unknown status, which means only 3 water bodies are in good status. If this information is right, it raises a question: what is considered for Sweden as “poor status”? On the other hand, what is considered for Estonia as “good status”? According to the data, Estonia has 734 inland water bodies, only 4 of them in poor status; i.e. which are the criteria followed by the countries in order to determine the chemical status of their waters?

These incoherencies may be due to a bad way to show the available data. This way to show data may be deceiving since it doesn’t show, though partially, an approximate state with the reality. The purpose of this graph is to show the relative percentage of water bodies in good and poor status in each country taking into account the presence of water bodies with

"unknown" status. For this purpose it isn't relevant the number of water bodies of each country since the intention is to compare. Therefore, a clearer way to show these data, using the same numbers, would be:



The graph above illustrates the chemical status of river and lake water bodies as percentage of water bodies in good (green), poor (red) and unknown (grey) chemical status, by count of water bodies. The number of water bodies per Member State / number of water bodies in good status / number of water bodies in bad status are shown in parentheses. According to this graph, Portugal for instance shows a 41,5% of water bodies in good status respect to the total of Portuguese water bodies. The first graph showed almost a 100% of water bodies in good status, which doesn't correspond to the numbers. It is still remarkable the data of Sweden (only 3 water bodies in good status out of 22795) and others like Austria (7361 water bodies in good status out of 7401, being 22 of them "unknown status"), which may address to wrong data or different criteria for the determination of the chemical status. This graph also shows the lack of data available for many countries (unknown status), especially for Greece,

Denmark, Poland, Hungary, Latvia, Italy, Ireland, United Kingdom and Portugal, which water bodies with “unknown status” represent more than the 50% of the total. Finally, data showed correspond to 2005-2009, so a revision and updating would be recommendable.

Following with the answers analysis:
In Spain each region collaborates with the River Basin Authorities in giving data and information through the SIA (Sistema Integrado de Información del Agua) to the National Focal Point that is the Ministry of Agriculture, Food and Environment.

In Italy, every region uses the Regional Focal Point to communicate and send water data to the National Focal Point through the SINTAI System (Sistema Informativo Nazionale per la Tutela delle Acque Italiane). The National Focal Point is ISPRA.

France gives more information regarding the paper of the WISE user: The French State through its Water Agencies is in charge of data reporting to the European Union through the WISE system. In France a Water Agency is responsible for discussing the French position to hold in European meetings and explaining the scientific principles and issues for the year. It also embodies the role of "focal point" by tracing scientific information at the Ministerial and ONEMA (Office National de l'Eau et des Milieux Aquatiques) levels. ONEMA is the technical and scientific French reference organism on knowledge and monitoring of water status and ecological functioning of aquatic ecosystems. It was created by the French law on water and aquatic environments of 30 December 2006 (LEMA) and by the subsequent decree of 25 March 2007. A Water Agency also assumes a mediator function within the French Environmental Ministry (Ministère de l'Ecologie, du Développement durable et de l'Energie).

For Greece, respecting to the external expert who manages the information for the WISE system, there is a National Focal Point for gathering all the data and information related to water in Greece composed by a board of three technicians being a coordinator, a data manager and a IT manager, under the supervision of the General Secretary of the Central Water Agency that are supposedly the persons in charge of feeding the WISE system from Greece.

Cyprus uses more the EMWIS (Euro-Mediterranean Information System on the know-how in the Water Sector) and the responsible organization is the Water Development Department.
The website is http://www.emwis-cy.org/

Conclusions

WISE is a really powerful tool addressed to European, national, regional and local administrations, scientists and research institutions, professionals in private and public organizations and the general public. Its utility for the moment is partial since there is an important lack of data and even some data is wrongly treated or shown so in certain cases it is possible to misunderstand some graphs or figures; however this tool is dynamic and it is in constant improvement. On the other hand, it seems there is a lack of diffusion of this tool since despite it is known; it isn’t really widely used at least by the regional authorities consulted in this survey. Also some actions should be addressed to keep updated the information since things change quite quick as regards water bodies.

4.1.4 TRANSITIONAL WATERS

Introduction

According to the WFD, transitional waters are bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows. Their characterization is given by fixed typologies and alternative characterizations. For the Mediterranean the ecoregion is Mediterranean Sea and the types of transitional waters are based on mean annual salinity and on mean tidal range are based on mean annual salinity and on mean tidal range. An alternative characterization is based on physical and chemical factors that determine the characteristics of the transitional water and hence the biological population structure and composition. There are two kinds of factors: obligatory (latitude, longitude, tidal range, salinity) and optional (depth, current velocity, wave exposure, residence time, etc)

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'.

Guidance Document Nº 5 for the Common Implementation Strategy for the Water Framework Directive establishes that the Directive gives no indication of the minimum size of transitional waters to be identified as separate water bodies. Although catchment size may be used as a guideline for the size of identified transitional waters, it should be considered with other factors such as the size, length, volume, river, discharge and the nature of the mixing zone. Most importantly it must meet the water body definition (Article 2.10) of being a 'discrete and significant' element of surface water. Significant could mean in terms of size or risk of failing to meet good ecological status. The horizontal Guidance on water bodies (WFD CIS Guidance Document Nº 2) gives no guidance on the minimum size for transitional or coastal water bodies. It does however state that Member States have the flexibility to decide whether the purposes of the Directive, which apply to all surface waters, can be achieved without the identification of every minor but discrete element of surface water as a water body.

Guidance produced by the United Kingdom Technical Advisory Group (UKTAG) suggests that a transitional water should be identified as a water body if:

1) its surface area is greater than 0.5 km2;

2) it is greater than 1 km in length; or

3) one or more of the following criteria apply:

- It is designated under conservation objectives (Special Protection Areas (SPA), Special Areas of Conservation (SAC), or Areas of Special Scientific Interest (ASSI)) and is therefore of ecological significance within the river basin district; or

- It is of such significance in the river basin that it risks impacting on an adjacent water body, or designation as a water body is believed to be the most effective way of highlighting and managing the risks; or
- It is selected to give an indication of the general status of small water bodies in the river basin district; or
- The element of surface water is designated as a nutrient-sensitive area under the Urban Waste Water Treatment Directive (UWWTD) or Nitrates Directive, as a bathing water under the Bathing Waters Directive, or as a shellfish water under the Shellfish Waters Directive.

If there are a large number of discrete surface waters smaller than these thresholds, it is possible to:

- include the small element of water as part of a larger contiguous water body of the same surface water category and of the same type, or
- group small elements of water together for assessment and reporting purposes if they:

  1) belong to the same type and category

  2) are influenced by the same pressure category and level

  3) have an influence on another well-delineated water body.

UKTAG guidance suggests that 'estuaries with surface areas less than 1 ha should not normally be identified as separate water bodies unless this is deemed to be essential for management purposes'.

Answers to questionnaire

Questions asked to partners where:

10. ***In these terms, have your coastal transitional waters been completely identified and defined?***
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?***

Answers given were:

	Are transitional waters identified and defined?	Problems encountered	Criteria to identify the size
Crete	No	No problem (no transitional waters)	Crete has only "small (<8 hectares)" transitional wetlands
Larnaca	No	No water bodies have been designated as such.	-
Valencia	Yes	Respect to the characterization of transitional waters, the main problem is that for the moment there are no criteria for their characterization.	≥ 50 Ha or less in cases of ecological or social interest
Emilia-Romagna	Yes	The main problem is a lack, at national level, of Reference Conditions for biological elements; there is also an excessive creation of types and, consequently, Water Bodies which leads to a huge habitat variability (geomorphology, tide, salinity)	≥ 50 Ha or less in cases of protection under special laws
Marche	No	No water bodies have been designated as such.	At national level according to DM 131/08
Liguria	Yes	The transitional waters identified correspond to a type (river delta) for which the set of biological indicators has not yet been identified	At national level according to DM 131/08
Tuscany			
Lazio	Yes		At national level according to DM 131/08

PACA	Yes	No problems	≥ 50 Ha
Corsica	Yes	Pollutants from Human activity: Eutrophication by Nitrogen and Phosphorus from water treatment plants and agriculture; Pesticides, metals, hydrocarbon, … Connectivity with the sea and rivers with periodic artificial opening.	Lagoons with well define limits

Crete, Cyprus and Marche have no transitional waters, so they haven't answered the rest of questions; although Cyprus points out that there are specific water bodies (salt lakes) which are very special and unique ecosystems where water availability depends directly on rainfall, resulting in large salinity fluctuations (from 15 ‰ - 280 ‰) and to complete dryness of the lakes during long dry periods. Moreover, the salt content of these WBs is a result of the saline nature of the substratum, not of the inflow of seawater, since there is no connection to the sea. Tuscany diverts the questions to "other regional sector" giving no answers to them. The rest of participant regions have identified and defined their transitional waters. The question of "problems encountered" is quite open to different interpretations, so some partners (Valencia, Emilia Romagna, Liguria) have referred to the lack of criteria for their characterization (reference conditions for biological elements and indicators). Emilia Romagna also identifies as a problem the excessive creation of types and, consequently, water bodies which leads to a huge habitat variability (geomorphology, tide, salinity), which supposes a hindrance for the identification of the water body. Region PACA doesn't identify any problem since the question has been interpreted respect to the identification of the transitional water bodies instead of their characterization. Corsica identifies problems respect to the status of the transitional water bodies: presence of pollutants and eutrophication from human activity (sewage treatment, agriculture…): nitrogen and phosphorus, pesticides, metals, HCs, etc.

Criteria used for establishing a size for the transitional waters is more or less the same: Water bodies with a surface equal or higher to 50 Ha (0,5 Km^2). In certain cases smaller sizes are accepted provided the water body is protected under a special law (Emilia Romagna) or in cases of ecological or social interest (Valencia). In Greece there is also a special definition of "small (<8 hectares) island wetlands", law 3937/2011. The first list of these "small island wetlands" has been issued with presidential decree in 2011. In the Region of Crete 69 small island wetlands were added in the Natura 2000 network, 44 of these wetlands are river of stream outlets and 2 are salinas (marine salt fields). However this type of "transitional" waters hasn't been integrated in the definition of transitional waters according to the WFD.

Respect to the question about if the interviewee thinks the problem of chemical quality status and ecological potential is already solved for their transitional waters, answers are in general in the same line:

The problem isn't completely solved due to:

- Lack of available data in comparison of the marine waters
- No criteria established
- Biological indicators not defined

Corsica and PACA state they have no problems respect to the establishment of the chemical quality status or ecological potential.

Maps of the regional transitional water bodies given by the partners are in Annex I.

Conclusions

In general, criteria used for the sizing of the transitional water bodies are the same for all the partners (each country uses the same criteria within the same territory). Typically it is water bodies of 0,5 Ha or larger. There are some exceptions depending on the features of the water body. Some regions haven't identified transitional waters since they don't have, at least, in the terms defined in the WFD (Crete, Marche). Problems in the characterization of these waters are all of them related to the lack of criteria for defining certain indicators for these waters. It is quite difficult to establish which is the "natural" status of a transitional water body since salinity varies; the characteristics of a transitional water body are unique and hardly comparable to other ones.

4.1.5 SAMPLING

Introduction

The WFD sets which are the standards for monitoring of quality elements. These standards (relevant CEN, ISO and EN-ISO standards) include sampling. The Annex V of the WFD establishes the procedure for the setting of chemical quality standards by Member States and the design of monitoring of ecological status and chemical status for surface waters, with three types of monitoring: surveillance, operational and investigative. This design includes the selection of monitoring sites, sampling points, quality elements, frequency, etc. To this respect, for the surveillance monitoring period, the frequencies for monitoring parameters indicative of physic-chemical quality elements given in the table of section 1.3.4 (Annex V of the WFD) should be applied unless greater intervals would be justified on the basis of technical knowledge and expert judgement.

Quality Element: Physic-Chemical

	Transitional	Coastal
Thermal conditions	3 months	3 months
Oxygenation	3 months	3 months
Salinity	3 months	
Nutrient status	3 months	3 months
Other pollutants	3 months	3 months
Priority substances	1 month	1 month

Answers to questionnaire

Questions asked were:

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).***

16. ***What would be your necessities in order to make your work easier and to fulfil the WFD requirements?***

	Main problems	Necessities
Crete	-	-
Larnaca	The problems faced towards the establishment of chemical quality and ecological status of the coastal waters of the Republic of Cyprus are mainly both financial and administrative (lack of staff).	Specific budget for WFD should be raised. This, would allow (through various ways: employment of more expert staff, use of newer technologies, etc) to increase the sampling frequency and include more sampling stations per water body in the coastal waters monitoring network, as well as faster sample analyses. All of the aforementioned would improve the reliability and the validation of the assessment results.

Valencia	Distance of sampling from the coastline Problems for the proper determination of heavy metals and certain organic substances: not suitable equipment or threshold limits very strict	Availability of economical resources in order to improve the equipment and the number of staff involved Approval of the Water Basin Plan affecting to Valencia Region (Jucar River Basin)
Emilia-Rom	The coastal zone is affected by eutrophic problem and the monitoring have to take place with a higher frequency than the one imposed by the WFD, as a consequence, high sampling frequency generates funds requirements.	Clearer classification criteria should be fixed Additional funds should be allocated
Marche	Technical instruments with high sensitivity are very expensive The choice and number of sampling points are not always exhaustive Public Administrations have very small financial resources	Better allocation of funds It would be good if the WFD itself included a specific Financial Planning section “Governance” problem, since competences are transferred from the EU to the national to the Regional level, but the same is not done for funding
Liguria	Sampling frequency too high Threshold levels are near or under the detection range of the equipment	Adjust sampling frequencies Availability of better equipment/methods for avoiding detection problems
Tuscany	Determination of the chemical status due to the enrichment of certain natural substances such	Solve technical and financial hindrances

	as Arsenic, Cadmium, Mercury	
Lazio		
PACA	Threshold levels for chemical quality elements	Adapt the threshold to the measurement which is really done
Corsica	Normal technical problems Budget issues	Higher budgets

There's been a variety of answers regarding problems related to sampling such as:

- Sampling distance from the coastline
- Threshold limits very strict
- High sampling frequencies
- Choice and number of sampling points not exhaustive
- Small financial and administrative resources

Conclusions

The most recurrent problems are those related to threshold levels and detection ranges and financial issues. Other problems are operative, directly related to sampling process. Region Marche summarizes quite well the problems identified by the interviewees:

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.

Solutions proposed are always related to increase funds availability or to a better allocation of funds, since more budget would result in purchasing better equipment, more adapted to the strict threshold levels requested by the WFD for certain substances (priority substances for instance). Besides more funds would imply a better management of sampling frequencies and procedures. However no interviewee contributes with a constructive solution but Marche Region:

"A better allocation of funds could help to solve many issues and to duly fulfil 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 transferred from the EU to the national to the Regional level, but the same is not done for funding."

4.1.6 PRIORITY SUBSTANCES

Introduction

In application of Article 16 of the Water Framework Directive (WFD) 2000/60/EC, the Commission has identified the list of priority substances whose presence in the waters are a risk to the aquatic environment and to human health and to establish standards of environmental quality. According to that article, the Commission should review the list of priority substances in the field of water policy every four years. The first list of priority substances in the field of water policy, contains 33 substances and was adopted by Decision No 2455/2001/EC of 20 November 2001 becoming Annex X of the WFD.

In 2008 was published Directive 2008/105/EC on environmental quality standards, which in Article 8 provides that in the context of the revision of Annex X of Directive 2000/60/EC, as provided in Article 16, paragraph 4, the Commission will examine in particular the substances listed in Annex III of this Directive 2008/105/EC with a view to possible identification as priority substances or priority hazardous substances. It also sets the obligation to identify new priority substances.

It is regulated the Commission was to report the outcome of this review to the European Parliament and the Council no later than January 13, 2011. Therefore, this first revision of the list of priority substances by the Commission has a considerable delay. To this respect, the Commission drafted a proposal for a Directive in 2011 concerning the review of the list of priority substances (PS) in the field of water policy, i.e. the chemicals identified among those presenting a significant risk to or via the aquatic environment at EU level which are listed in Annex X to the WFD. The Annex I of this Directive would replace the Annex X of the WFD.

The WFD sets that Commission should identify hazardous substances to the aquatic ecosystem. With respect to these substances measures should be taken for the progressive reduction of discharges, emissions and losses, as well as for the cessation or gradual abolition of discharges, emissions and losses of especially hazardous substances found among the priority ones.

The Commission has worked on the revision of the list supported by a working group that participated in the member states and associations interested in the framework of the Common Implementation Strategy of the WFD. The work performed led to identify as subject to being priority 19 new substances and it is expected the amendment of the NCA of 13 substances included in the priority list.

The proposal is generally considered positive and necessary, as it comes to complete the legal framework for the protection of surface water bodies from pollution. The expected impact on the environment will be very favourable.

Answers to questionnaire

Questions asked to partners where:

17. ***Have you identified the common PS to be monitored in your coastal waters?***
18. ***Could you list the main PS that are being monitored?***
19. ***Are priority substances being measured in port waters?***
20. ***What are the main technical problems encountered when determining these specific substances? Specify for each substance the problem for the determination.***
21. ***What do you think about the threshold levels required in the WFD?***
22. ***Do you think by using the present monitoring/analysis techniques is it possible to fully achieve the requirements of the WFD?***

	Identification of PS	Problems in determination
Crete	Underway	-
Larnaca	Yes	-Mercury threshold level under the detection range of the equipment
Valencia	Yes, through several studies/surveys	-Mercury threshold level under the detection range of the equipment -For the determination of lead, there's no for the moment an appropriate methodology adjusted for salt waters -Problems of contamination in laboratory (blank water has more zinc than the detection level requested in the WFD)
Emilia-Rom	Yes	-Endosulfan, hexachlorocycloexane, pentaclhorobenzene, and others s.a. reported in table 1 and already present in our assay protocol for some of these, in the past have been highlighted difficulties in achieving the performance required by

		the regulations.
Marche	Yes, by ARPAM and notified to the Region	-WFD threshold levels under the detection range of the equipments used. -Standardized and intercalibrated methods for marine water bodies.
Liguria	Yes, due to lack of knowledge for the first operational monitoring program (2009-2011), Liguria established to monitor all the priority substances.	-Mercury threshold level under the detection range of the equipment -TBT threshold level under the detection range of the equipment.
Tuscany	Yes	-
Lazio		
PACA	Yes	-Some analysis detection thresholds in seawaters are clearly higher than the WFD thresholds and the fact that transit of contaminants in the water column is particularly variable and in Mediterranean often at an extremely low level (below the analysis detection).
Corsica	Yes	Idem as PACA

Almost all interviewees coincide in the very strict threshold levels required by the WFD for the priority substances which often are incompatible with the detection level of the available equipment (Mercury, TBT, etc). Other problems are the blank samples used for instance for zinc, which zinc level is over the level present in sea water. Other problems were reported respect to the analysis procedures for sea water.

The Mediterranean French regions state they take into account some analysis detection thresholds in seawaters are clearly higher than the WFD thresholds and the fact that the transit of contaminants in the water column is particularly variable and in Mediterranean often at an extremely low level (under analysis detection). It is particularly the case of Corsica in which water quality is still in most of the cases very good. To solve the problem, agencies in charge (Agence de l'Eau RMC, IFREMER) decide to work with biota integrators (mussels) and

passive integrators (DGT) that allow integrating the water column transit of contaminants. The results are treated after to fit with EQS ("Environmental Quality Standards"). Today, methods of evaluation of the sea water by integrators of the different types are clearly important and an efficient way that anyway needs to be improved (particularly for some substances) through new developments.

French regions counts on a "chemical pollution monitoring network". Until 2007 inclusive, the national environmental observatory network measured metals (Ag, Cd, Cr, Cu, Hg, Ni, Pb, V, Zn), polyaromatic hydrocarbons (PAHs), PCBs, lindane and DDT residues.

Since the implementation of the WFD, environmental monitoring of chemical pollution is decentralized in the Water Agencies which cover the water column. The chemical surveillance coordinated and conducted by Ifremer just concerns the 3 metals regulated under health surveillance (Cd, Hg and Pb). In 2006, in order to assess the quality of coastal and transitional waters of Rhone and Mediterranean and Corsica districts, AERM&C entrusted IFREMER the project management of the first monitoring campaign of all water masses withheld under the monitoring campaign of the WFD. The year 2009 was dedicated to the second monitoring campaign of surveillance, enhanced from the first campaign of operational control. The results of this campaign were processed and synthesized in the years 2010 and 2011. Data are available in the reports 10-19 and 10-20 "Water Framework Directive - Monitoring controls / operational (DCE Campaign 2009). The year 2011 was devoted to the programming of the next campaign of surveillance monitoring (2012).

Although information reported by Crete states the priority substances monitoring campaigns are still underway and thus there are no available data, there are some studies with respect to these measurements such as the one published in 2003 in the Journal of Environmental Monitoring 2003 Aug; 5(4):593-7. This campaign was performed by the Water and Air Quality Laboratory, Department of Environmental Studies, University of the Aegean. This study states that the priority substances of List I, 76/464/EEC Directive, some of which belong to the Water Framework Directive 2000/60/EC, were monitored in the surface waters of Greece through the developed network of 53 sampling stations. The results showed the presence of several priority substances in Greek surface waters, in most cases at concentrations well below the regulatory limits. However, non-compliance was observed for a limited number of compounds. A conclusion of such study was both the monitoring network and the analytical determinations have to be expanded to more water bodies and more priority substances, in order to safeguard the quality of Greek surface waters.

Respect to the list of priority substances that are being monitored, there is no a specific identification of them. French regions monitor "all the priority substances", Italian regions monitor "all substances included in the European lists, with special regard to priority dangerous substances". Specifically, Liguria monitored all the priority substances during the campaign 2009-2001.

In general, PS are not being monitored in port waters (Italy considers ports as pressures) and in France some of them are monitored under certain studies not directly related to the WFD (France). At least the Port of Valencia (Spain) performs one sampling campaign per year for priority substances.

Cyprus monitors the following synthetic compounds in biota samples from coastal sites: a-HCH; b-HCH; c-HCH (lindane); HCB; p,p'-DDE; p,p'-DDD; p,p'-DDT; aldrin; Heptachor epoxide; Diedrin; Endrin; cis-chlordane; trans-chlordane and trans-nonachlor; Anthracene; Benzo(a)anthracene; Benzo(a)pyrene; Benzo(b)fluoranthene; Chrysene; Fluoranthene; Fluorene; Naphthalene; hexachlorobutadiene and 10 PCB congeners: IUPAC-101, 105,118, 138, 153, 156, 180, 28, 31 and 52. The heavy metals that are monitored in the seawater (some of them also in biota) are: Cu, Zn, Pb, Ni, Cr, Cd, Fe and Hg.

A Dissemination Workshop / JRC Innovation Transfer Event held by ISPRA on 29-30 October 2012 titled "Chemical Monitoring under the Water Framework Directive (WFD) - Current Challenges" concluded that some PS are very difficult to analyse (Tributyltin, Chloroalkanes) and values for EQS are very low. In fact the new proposal for EQS for certain PS are in the range of picograms (10^{-12} g) or even femtograms (10^{-15} g). Specifically for coastal waters:

- Cypermethrin: 8 pg/l
- Dichlorvos: 060 pg/l Dicofol: 32 pg/l
- 17-alpha-ethinylestradiol: 7 pg/l
- 17-beta-estradiol: 80 pg/l
- Heptachlor/Heptachlorepoxide: 10 fg/l
- PFOS: 0.13 ng/l

This means that apart from the problems of certain laboratories for analyzing certain PS due to the detection range of their equipment and other circumstances, future PS will be in a range of detection that surely will precise of new high technologies and investments that hardly could be affordable for the regional budgets.

4.2 PILOT ACTION 2: Coastal monitoring sampling points

This action was aimed at better understanding 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 km 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.

4.2.1 Crete

The sampling points in Greece were selected after preliminary studies conducted by HCMR (Hellenic Centre for Marine Research), which participated to previews European projects on the intercalibration and which is responsible for conducting the first official measuring campaign (2012-2015). The analysis of priority substances and special pollutants will be conducted by the General Chemical State Laboratory (GCSL). The position of the sampling points for all Greek territory and the substances to be sampled are defined in the ministerial decision KYA 140384 (ΦΕΚ 2017/B/9-9-2011).

Sampling point			Water Body		Sampling Parameters' Categories and Sampling responsible				
Name	Code	Coordinates (wgs84)	Name	Code	Biological	Hydromorphological	General Physicochemical	Priority substances	Special Pollutants
IG2	GR0013000100006H500	25.104799 35.3717	Heraclion Gulf	GR0013000100006H	HCMR	HCMR	HCMR	HCMR/ GCSL	HCMR/ GCSL
Chania	GR0013000100001N500	24.0167 35.533298	Chania Shores	GR0013000100001N	HCMR	HCMR	HCMR		
Agios Nikolaos	GR0013000100008N500	25.720399 35.203899	Agios Nikolaos Gulf	GR0013000100008N	HCMR	HCMR	HCMR	HCMR/ GCSL	HCMR/ GCSL
Souda	GR0013000100002N500	24.191699 35.463901	Souda bay	GR0013000100002N	HCMR	HCMR	HCMR	HCMR/ GCSL	HCMR/ GCSL
Messara	GR0013000100012N500	24.7338 35.063899	Messara Gulf	GR0013000100012N	HCMR	HCMR	HCMR		
Ierapetra	GR0013000100011N500	25.752799 35.0083	Libian Sea shores	GR0013000100011N	HCMR	HCMR	HCMR		

Table 1: Information on the 6 sampling points in Cretan sea waters as specified in the ministerial decision KYA 140384 (ΦΕΚ 2017/B/9-9-2011)

According to the ministerial decision KYA 140384 (ΦΕΚ 2017/B/9-9-2011), in Crete 6 sampling points of coastal waters have been defined. In 3 of these sampling points Priority substances

will be monitored as well, the Priority substances are mentioned in the ministerial decision KYA 51354/2641/E103 (ΦΕΚ 1909/B/8-12-2010). This later is the direct adoption into the Greek law of the Directive 2008/105/EC. An interactive map of the sampling points in Greek territory is available on www.geodata.gov.gr

Figure 1: The positions of the sampling points in Crete as they figure in the national database

http://geodata.gov.gr/maps/?zoom=8&lat=4581327.10883&lon=2635564.95487&layers=st_par_metavatika&layeropacity=100&baselayer=google&baselayeropacity=100

Figure 2: The sampling point in Chania shores, 1.5 km from the city and the port of Chania

Figure 3 and Figure 4: The sampling point in Souda bay, 1.5 km from the coast

Figure 5: The sampling point in Heracleion Gulf, 3.5 km from the city and the port of Heracleion

Figure 6 and Figure 7: The sampling point in Agios Nikolaos Gulf, 120 m from the coast

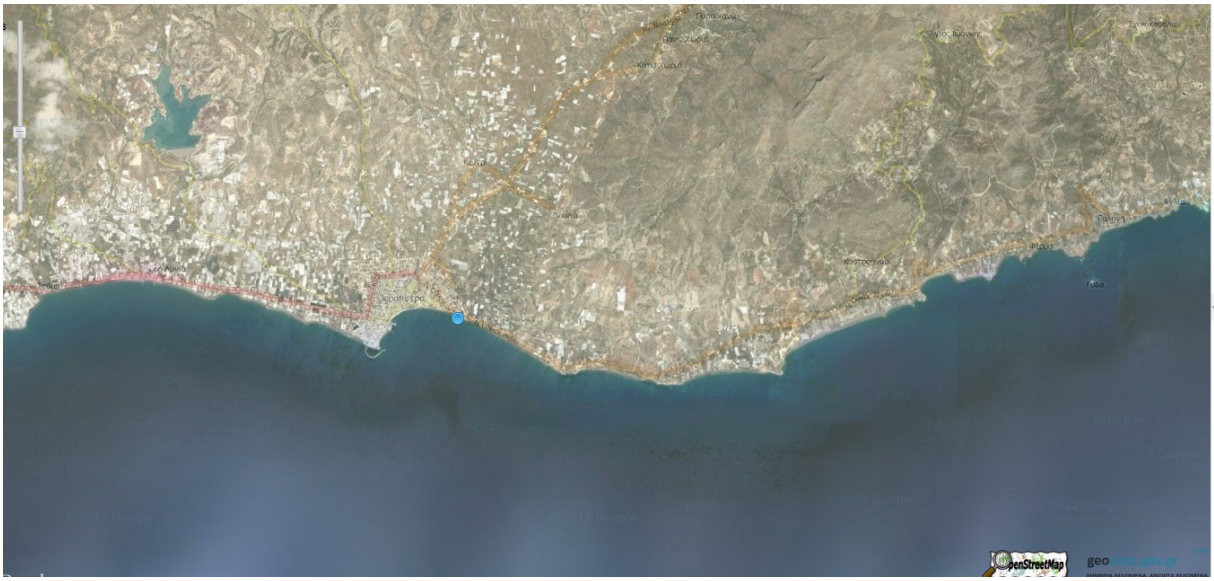


Figure 8 and Figure 9: The sampling point in Libian Sea Shores, 40 m from Ierapetra

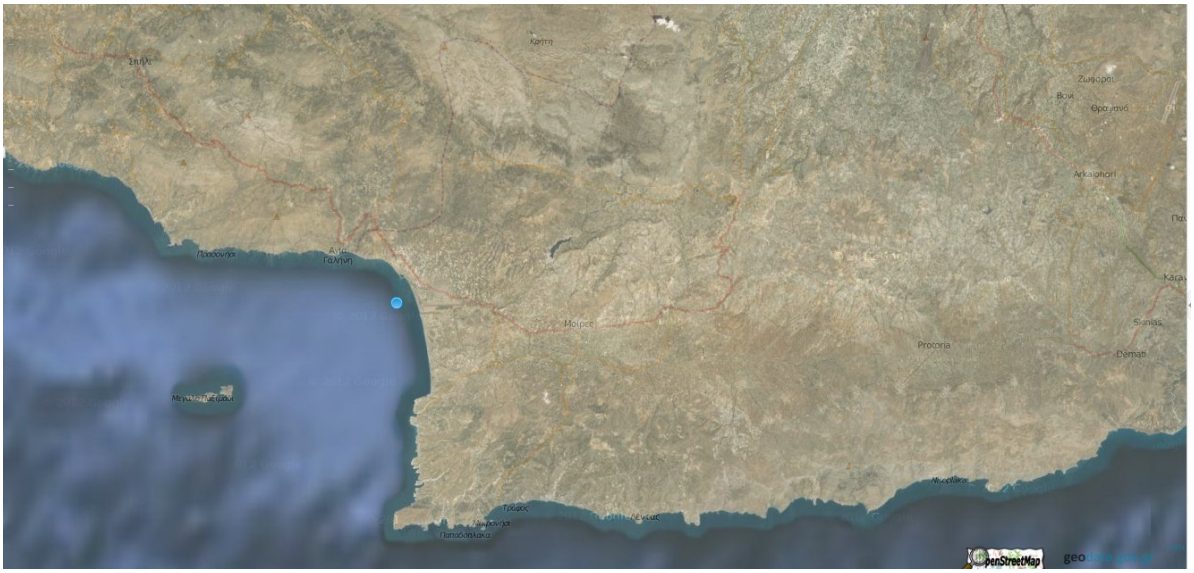
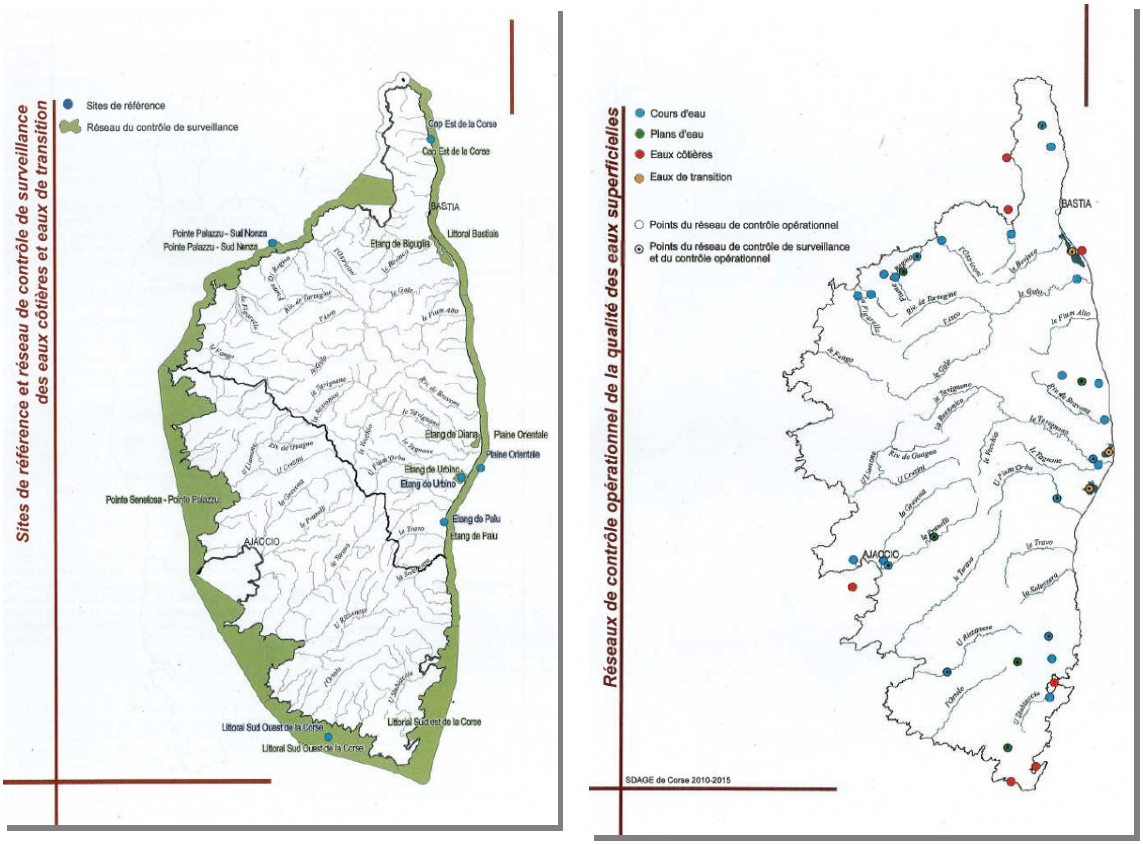


Figure 10 and Figure 11: The sampling point on Messara Gulf, 1.3 km from the coast and Tympaki airfield

As it can be seen from the figures, the six sampling points have been selected on the north and the south coast of the island near the urban centres and ports that attract most activities: marine transport, commerce, tourism, industry etc. **The distance from the coast varies from 40 m to 3’5 Km.**

4.2.2 Corsica



A scientific committee associated with national and regional agencies and administrations establish the sampling points lists and frequency. Please refer to the documents presented in the section upper concerning documents for more information.

Anyway two types of survey points exist (see maps upper):

- Operational survey (“contrôle opérationnel”) with sampling closed to the source of the perturbations identified;
- General control (“contrôle de surveillance”) of the water bodies in which sampling points are in the middle of the water masses quite far away of the perturbations taking into account that perturbations are very low in Corsica compared to other regions.

Around the survey points, precise position of the sampling depend of the type of parameters: Eg.: 15m deep for posidonia beds, 40 m for benthic communities of the sediment.

4.2.3 Cyprus

This information is available through the WDD website (see Article 8 Report submitted to EC – coastal waters section)
http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/ABA009EA9F54334FC225717600324B57?opendocument
Also attach you will find the document EU summary monitoring Cyprus – Article 8 [maps pages 2-27, 2-37]

4.2.4 Emilia-Romagna

The criteria followed in order to establish the sampling points took into account the pressures coming from the coastal rivers (nutrients input and pollutants) and also the comparison with white sampling points.

							Elements for Ecological State				
		Locality	WB	Distance coast (km)	Lat WGS84 (gg.ppdddd)	Lon. WGS84 (gg.ppdddd)	Quality Biological Elements (EQB)		Elements chim.-fis.	Elements hydromorphological and chim.-fis.	Tab. 3/B D.56/09
							Phyitoplankton	Macrobenthos			
Frequency of sampling							Forthnightly	Quarterly / Semiannual	Forthnightly	continuously, Semiannual and Annual	Semiannual
Code station of sampling	2	Lido di Volano	WB 1	0.5	44.457656	12.155128					
	302	Lido di Volano	WB 1	3	44.456876	12.174088					
	4	Porto Garibaldi	WB 1	0.5	44.396873	12.154228					
	SFBC 4	Porto Garibaldi	WB 1	1	44.397070	12.155680		Quarterly			
	304	Porto Garibaldi	WB 1	3	44.396934	12.172888		Semiannual			
	Tecno	Porto Garibaldi	WB 1	4.3	44.420335	12.177028					
	6	Casalborsetti	WB 1	0.5	44.332012	12.174568					
	306	Casalborsetti	WB 1	3	44.334052	12.193348					
	308	Marina di Ravenna	WB 2	3	44.288990	12.192627					
	9	Lido Adriano	WB 2	0.5	44.240749	12.195387					
	SFBC 9	Lido Adriano	WB 2	1	44.242420	12.194870		Quarterly			
	309	Lido Adriano	WB 2	3	44.243089	12.213866		Semiannual			
	Ange CI	Foce Bevano	WB 2	1.95	44.234869	12.206426					
	14	Cesenatico	WB 2	0.5	44.127226	12.241524					
	SFBC 14	Cesenatico	WB 2	1	44.128090	12.244960		Quarterly			
	314	Cesenatico	WB 2	3	44.132626	12.258444		Semiannual			
	Copra	Cesenatico	WB 2	4.9	44.130347	12.2799503					
	17	Rimini	WB 2	0.5	44.046585	12.350548					
	317	Rimini	WB 2	3	44.058165	12.359907					
	19	Cattolica	WB 2	0.5	44.582924	12.444691					
	SFBC 19	Cattolica	WB 2	2	43.580440	12.445400		Quarterly			
	319	Cattolica	WB 2	3	43.593664	12.455912		Semiannual			
	Ass_C attol	Cattolica	WB 2	2.7	43.594684	12.445172					

					Elements for Chemical Quality Status			
		Tab. 1/A D.56/09	Distance coast (km)	Lat WGS84 (gg.ppdddd)	Lon. WGS84 (gg.ppdddd)	Tab. 2/A D.56/09	Tab. 3/A D.56/09	Test ecotoxicologycal
Frequency of sampling						Semiannual	Annual	Annual
Code station of sampling	2	WB 1	0.5	44.457656	12.155128			
	302	WB 1	3	44.456876	12.174088			
	4	WB 1	0.5	44.396873	12.154228			
	SFBC4	WB 1	1	44.397070	12.155680			
	304	WB 1	3	44.396934	12.172888			
	Tecno	WB 1	4.3	44.420335	12.177028			
	6	WB 1	0.5	44.332012	12.174568			
	306	WB 1	3	44.334052	12.193348			
	308	WB 2	3	44.288990	12.192627			
	9	WB 2	0.5	44.240749	12.195387			
	SFBC9	WB 2	1	44.242420	12.194870			
	309	WB 2	3	44.243089	12.213866			
	AngeCl	WB 2	1.95	44.234869	12.206426			
	14	WB 2	0.5	44.127226	12.241524			
	SFBC14	WB 2	1	44.128090	12.244960			
	314	WB 2	3	44.132626	12.258444			
	Copra	WB 2	4.9	44.130347	12.2799503			
	17	WB 2	0.5	44.046585	12.350548			
	317	WB 2	3	44.058165	12.359907			
	19	WB 2	0.5	44.582924	12.444691			
	SFBC19	WB 2	2	43.580440	12.445400			
	319	WB 2	3	43.593664	12.455912			
	Ass_Cattol	WB 2	2.7	43.594684	12.445172			

4.2.5 Lazio

The regional monitoring network for the marine-coastal and transitional water is available since February 2013, date of its approval.

The criteria for the designation of the sampling points are reported by the Decree n. 131/08 and the Decree n. 260/10 of the Ministry for Environment, acting the D.Lgs. n. 152/2006 which transposes at national level the Water Framework Directive.

The sampling points are far 500/1000 meters from the coastline, related to the bathymetry distribution. Parameters and measures are described into the Decree n. 260/10 of the Ministry for Environment Tab. 3.7. (Survey and operational monitoring. Frequencies of sampling during one year for transitional and marine-coastal water).

4.2.6 Liguria

In Liguria we have at least two coastal water samples for each water body one near the coast and the other one between 1 -3 Km from the coast, for substance please see previous answers (pilot Action 1). You can view and download all the GIS layer and information at www.ambienteinliguria.it looking at “Servizi on line -> Cartografia -> acque -> Piano di Tutela delle Acque - DCR n.32/09. For the sampling point nearer the coast we focus mainly on river mouths.

4.2.7 Marche

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.

4.2.8 Provence-Alpes – Côte d'Azur

Regarding methodological aspects of the WFD declination, there are still some issues being resolved. This however does not hinder in any way the implementation of the WFD but maybe relevant to a particular characterization.

In France, WFD monitoring networks have been defined by the Working Group "WFD coastal Mediterranean" taking into account the recommendations made at the national level. This group led by the AERMC, which has met regularly since 2003 and brings together state representatives from the 3 DREAL Corsica, PACA, and Languedoc-Roussillon, and the 3 respective DDTM (Direction du Développement des Territoires et de la Mer) plus Ifremer.

At the initiative of the Water Agency Rhône-Mediterranean-Corsica and Ifremer, the results obtained by the monitoring networks of the WFD are presented in an interactive atlas. Unfortunately, the interactive atlas is under construction.

http://envlit.ifremer.fr/surveillance/directive_cadre_sur_l_eau_dce/la_dce_par_bassin/bassins_rhone_mediterranee_et_corse/fr/atlas_interactif

http://envlit.ifremer.fr/surveillance/directive_cadre_sur_l_eau_dce/la_dce_par_bassin/bassins_rhone_mediterranee_et_corse/fr/etat_des_lieux

http://envlit.ifremer.fr/surveillance/directive_cadre_sur_l_eau_dce/la_dce_par_bassin/bassins_rhone_mediterranee_et_corse/fr/frequences_d_echantillonnage

This assessment, which assesses progress in quality based on the latest results validated does not replace in any way the official inventory (put in place by the WFD text), which will be revised in 2013. Surveillance monitoring began in 2006 (Cf. supra). It is not intended to be exercised on all bodies of water, but enough to allow a general assessment of the ecological and chemical status of water throughout the watershed. In Rhône, Mediterranean and Corsica, the choice of water masses is followed on the basis of several criteria (type of body of water, nature of anthropogenic pressures, experts' recommendations...). Thus, water bodies subject to WFD surveillance monitoring are many: 23 coastal water bodies of 47; and 15 water bodies in transition 31.

The selection of monitoring points was made taking into account existing monitoring networks and implemented by Ifremer, RINBIO (Réseau Intégrateurs Biologiques) and the "lagoon monitoring network" operated by Ifremer in partnership with the Languedoc-Roussillon Region and the AERMC.

4.2.9 Toscana

Con il DGRT 416/2009, in attuazione del DM 131/08, sono stati individuati lungo la fascia marino costiera continentale e insulare delle Toscana 14 corpi idrici.

Sulla base delle soglie di rischio ottenute i 14 corpi idrici individuati (

Figura 1) sono stati definiti a rischio R (monitoraggio operativo), non a rischio NR (monitoraggio di sorveglianza stratificato in tre anni) e a probabile rischio di non raggiungere gli obiettivi di qualità PR(monitoraggio di sorveglianza da espletare in un anno).

Costa della Versilia	R
Costa del Serchio	PR
Costa Pisana	R
Costa Livornese	PR
Costa del Cecina	PR
Costa di Piombino	NR
Costa Follonica	R
Costa Punt'Ala	PR
Costa dell'Ombrone	PR
Costa dell'Uccellina	PR
Costa dell'Albegna	PR

Costa dell'Argentario	NR
Costa di Burano	PR
Costa dell'Arcipelago	NR

Figura 1: Monitoraggio marino costiero: 14 corpi idrici della Regione Toscana

Successivamente, la Regione Toscana, con la pubblicazione della Delibera n.100 del 8 febbraio 2010 "Monitoraggio delle acque superficiali e sotterranee della Toscana in attuazione delle disposizioni di cui al D.Lgs. 152/06 e del D.Lgs. 30/09", ha approvato la nuova rete di monitoraggio dei corpi idrici toscani ai sensi della Direttiva Europea, recepita in Italia con il D.Lgs. 152/06.

A ciascun corpo idrico viene assegnato uno stato ecologico e uno stato chimico: il primo è dato dal monitoraggio degli elementi di qualità biologica, dagli elementi di qualità fisico-chimica a sostegno e dagli elementi chimici a sostegno; il secondo dal monitoraggio delle sostanze dell'elenco di priorità.

I parametri biologici indagati sono stati fitoplancton, macroinvertebrati bentonici, macroalghe e angiosperme (Posidonia oceanica).

La biomassa fitoplanctonica viene stimata in funzione della quantità di "clorofilla a" misurata in superficie. In questo occorre fare riferimento sia ai rapporti di qualità ecologica (RQE) ma anche ai valori assoluti, espressi in mg/m3 di concentrazione di "clorofilla a".

Per l'EQB Macroinvertebrati bentonici si applica l'Indice M-AMBI

Il metodo da applicare per la classificazione del EQB Macroalghe è il CARLIT.

Per l'EQB Posidonia oceanica si applica l'Indice PREI

Nell'ambito delle acque marino costiere gli elementi di qualità fisico-chimica concorrono alla definizione dello stato ecologico stesso, mentre gli elementi idromorfologici devono essere utilizzati per migliorare l'interpretazione dei risultati.

La temperatura e la salinità contribuiscono alla definizione della densità dell'acqua di mare e, quindi, alla stabilità mentre ossigeno in saturazione, clorofilla a e nutrienti servono a segnalare eventuali scostamenti significativi di trofia in aree naturalmente a basso livello trofico.

Per la classificazione dello stato ecologico attraverso gli elementi chimici a sostegno si fa riferimento alle sostanze indicate nella tabella 1B per la colonna d'acqua e 3B per il sedimento del DM 56/2009 e alla tabella 4.5/a del DM 260/2010.

La ricerca di tali sostanze non è stata condotta in tutti i casi, ma è stata effettuata soltanto presso le stazioni rappresentative di corpi idrici che l'analisi delle pressioni e degli impatti avevano indicato come a rischio (o probabilmente a rischio) da attività industriale o agricola (per i fitofarmaci). Anche le sostanze ricercate non sono state tutte quelle indicate nelle tabelle suddette, ma soltanto quelle appartenenti ai "raggruppamenti per specie chimica" giudicati più rappresentativi della tipologia di rischio presente nell'areale di riferimento.

Il decreto 260/2010 riporta l'elenco delle sostanze di priorità suddivise in sostanze pericolose (P), sostanze pericolose prioritarie(PP) e altre sostanze (E): gli standard riportati nelle tabelle 1/A (per la matrice acqua) 2/A (per la matrice sedimenti), rappresentano le concentrazioni che identificano il buono stato chimico.

In base al DECRETO 260/10, il corpo idrico per essere classificato come BUONO deve soddisfare gli standard di qualità ambientale.

Si elencano di seguito le stazioni e le coordinate

Tipo di monit.	**Corpo idrico**	**Codice**	**Descrizione**	**Distanza dalla costa (m)**	**Profondità (m)**	**Coordinate WGS84 Acqua e plancton**					
						Latitudine			Longitudine		
O	Costa Versilia	MAR_MC05	Marina di Carrara	500	5,0	44°	01.789'	N	10°	03.007'	E
PR	Costa del Serchio	MAR_NT05	Nettuno	500	4,0	43°	51.814'	N	10°	14.048'	E
O	Costa Pisana	MAR_FM05	Fiume Morto	500	5,0	43°	44.064'	N	10°	16.215'	E
PR	Costa Livornese	MAR_LV02	Livorno	500	5,0	43°	32.183'	N	10°	17.390'	E
PR	Costa Livornese	MAR_AT01	Antignano	100	7,0	43°	29.050'	N	10°	19.583'	E
PR	Costa del Cecina	MAR_RL05	Rosignano Lillatro	500	5,2	43°	22.809'	N	10°	25.678'	E
PR	Costa del Cecina	MAR_CS05	Mar.	500	5,0	43°	11.	N	10°	31.	E

			Castagneto				267′			783′	
O	Costa Follonica	MAR_CR05	Carbonifera	500	5,0	42°	56. 633′	N	10°	40. 833′	E
PR	Costa Punt'Ala	MAR_FB02	Foce Bruna	592	6,5	42°	45. 498′	N	10°	52. 255′	E
PR	Costa Ombrone	MAR_FO05	Foce Ombrone	500	4,0	42°	39. 150′	N	11°	00. 300′	E
PR	Costa dell'Uccelina	MAR_CF05	Cala di Forno	253	5,5	42°	37. 229′	N	11°	04. 840′	E
PR	Costa Albegna	MAR_AL02	Foce Albegna	463	5,5	42°	30. 095′	N	11°	11. 095′	E
PR	Costa Burano	MAR_AS05	Ansedonia	500	5,0	42°	24. 915′	N	11°	16. 401′	E

Stazioni e coordinate acqua e plancton

Tipo di monit.	**Corpo idrico**	**Codice**	**Descrizione**	**Profondità (m)**	**Coordinate WGS84 macroinvertebrati**					
					Latitudine			Longitudine		
O	Costa Versilia	MZB_MC05	Marina di Carrara	6,0	44°	01. 721′	N	10°	02. 920′	E
PR	Costa del Serchio	MZB_NT05	Nettuno	4,6	43°	52. 121′	N	10°	13. 995′	E
O	Costa Pisana	MZB_FM05	Fiume Morto	5,5	43°	44. 064′	N	10°	16. 215′	E
PR	Costa Livornese	MZB_LV02	Livorno	4,8	43°	34. 360′	N	10°	17. 550′	E
PR	Costa del Cecina	MZB_CS05	Marina di Castagneto	5,0	43°	11. 176′	N	10°	31. 630′	E
O	Costa Follonica	MZB_CR05	Carbonifera	5,0	42°	56. 736′	N	10°	40. 930′	E
PR	Costa Punt'Ala	MZB_FB02	Foce Bruna	5,0	42°	45. 521′	N	10°	52. 352′	E
PR	Costa Ombrone	MZB_FO05	Foce Ombrone	5,0	42°	39. 101′	N	11°	00. 196′	E
PR	Costa dell'Uccelina	MZB_CF05	Cala di Forno	6,5	42°	45. 498′	N	11°	52. 255′	E
PR	Costa Albegna	MZB_AL05	Foce Albegna	5,5	42°	37. 228′	N	11°	04. 840′	E

PR	Costa Burano	MZB_AS05	Ansedonia	5,0	42°	24. 915’	N	11°	16. 400’	E

Stazioni e coordinate macrovertebrati bentonici

Tipo di monitoraggio	Corpo idrico	Descrizione	Coordinate WGS84 macroalghe					
			Latitudine			Longitudine		
PR	Costa Livornese	Romito	43°	28. 033’	N	10°	20. 300’	E
NR	Costa dell’Argentario	Argentario	43°	25. 050’	N	11°	05. 333’	E
NR	Arcipelago toscano	Montecristo	42°	18. 933’	N	10°	18. 633’	E

Stazioni e coordinate macroalghe

Tipo di monitoraggio	Corpo idrico	Codice	Descrizione	Profondità (m)	Coordinate WGS84 sedimenti					
					Latitudine			Longitudine		
O	Costa Versilia	SEM_MC30	Marina di Carrara	15,0	44°	00. 500’	N	10°	02. 000’	E
PR	Costa del Serchio	SEM_NT30	Nettuno	15,0	43°	51. 322’	N	10°	12. 296’	E
O	Costa Pisana	SEM_FM30	Fiume Morto	13,0	43°	44. 065’	N	10°	14. 416’	E
PR	Costa Livornese	SEM_LV37	Livorno	38,0	43°	30. 064’	N	10°	16. 360’	E
PR	Costa Livornese	SEM_AT20	Antignano	50,0	43°	26. 822’	N	10°	20. 178’	E
PR	Costa del Cecina	SEM_RL14	Rosignano Lillatro	24,0	43°	23. 400’	N	10°	24. 250’	E
O	Costa Follonica	SEM_CR75	Carbonifera	43,0	42°	49. 791’	N	10°	38. 796’	E
PR	Costa Punt'Ala	SEM_FB30	Foce Bruna	36,6	42°	44. 325’	N	10°	51. 193’	E
PR	Costa Ombrone	SEM_FO30	Foce Ombrone	40,0	42°	39. 184’	N	10°	58. 654’	E

PR	Costa dell'Uccellina	SEM_CF30	Cala di Forno	35,0	42°	34.150'	N	11°	05.200'	E
PR	Costa Albegna	SEM_AL30	Foce Albegna	40,0	42°	29.124'	N	11°	08.215'	E
PR	Costa Burano	SEM_AS50	Ansedonia	50,0	42°	21.859'	N	11°	15.843'	E

Stazioni e coordinate sedimenti

Vengono eseguite 6 campagne di monitoraggio all'anno ai fini della classificazione delle acque tramite la biomassa fitoplanctonica; I macroinvertebrati bentonici vengono controllati annualmente, così come le macroalghe e il coralligeno; dal 1997 il monitoraggio prevede anche lo studio della prateria di Posidonia oceanica una volta l'anno durante il periodo estivo (agosto-settembre).

4.2.10 Valencia

The superficial coastal and transitional control networks of the region are:

COASTAL WATERS

PRIORITY SUBSTANCES NETWORK (Metals and organic toxic substances):

- BIVALVES:
  - Mejillones: 19 sampling stations
  - Tellinas: 20 sampling stations
  - Annual Control
- WATER
  - 54 samples (2008 -2009)
  - Quarterly control

PHYTOPLANKTON CONTROL NETWORK

- 122-140 control points
- Monthly
- Chlorophyll -A
- Composition

ROCKY SEABED BENTHONIC COMMUNITIES CONTROL NETWORK

- 22 stations
- 1 biannual simple

SANDY SEABED MACROINVERTEBRATES CONTROL NETWORK

- 63 stations
- Biannual
- Functional groups: molluscs and polychaetes
- Organic matter and sediment grain size

BATHING WATER CONTROL NETWORK

- 222 stations distributed in 197 bathing areas
- 16 samples per bathing season / microbiological control

RED DE CONTROL DE POSIDONIA OCEANICA

- 15 Stations / 1 annual sample
    - Density
    - Rhizome growth type
    - Coverage
    - Bundles burial Grade
    - Morphology of the bundles
    - Biomass of epiphytic
    - Concentration of carbohydrates in the rhizome

COASTAL ORIGIN SPILLS CONTROL NETWORK

- Sewage effluent from the coast control network:
    - 27 treatment plants / 3 samples per year
- Spill pipeline control network in the environment:
    - 22 submarine outfalls
    - 8 spillways
- Channels control network (rivers, canals, etc..) leading to the sea

PHYSICAL-CHEMICAL PARAMETERS CONTROL NETWORK IN BEACHES

- 122-144 Control points / month
- Nutrients, salinity, pH

ESTUARINE SISTEMS WITH SALT WEDGE

- Lake of Cullera: 3 stations / 4 annual checks at different depths.
- Rio Júcar: 4 seasons / 4 annual checks at different depths.
- Salines - 4 samples / year
    - Calpe
    - Santa Pola
    - La Mata - Torrevieja

4.2.11 Conclusions

Despite there is no specific data from all the partners regarding distances from which sampling is carried out, it seems clear that criteria for each country/region are open and are quite different among each other. For instance, Crete establishes sampling points near the urban centers and ports that attract most activities: marine transport, commerce, tourism, industry etc. The distance from the coast varies from 40 m up to 3'5 Km. For Emilia Romagna, distances are from 500 m up to almost 5 km from the coast. For Toscana, the mean distances are around 500 m. If we suppose rivers in Toscana or Emilia-Romagna have higher polluting load than Crete, probably samples taken 500 m or further from the coast will present more diluted pollutants than if they were taken at 40 m from the coast. Apparently pollution levels will improve as we move away from the coast. If each country establishes the quality of its water masses using its own criteria, certain cases would occur between two countries in which similar water bodies are treated as of good or bad quality depending on the results of the sampling campaign as a function of the distance to the coast and other criteria.

4.3 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 eutrophication 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.

Serpis river with no flow rate during dry season.

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?

Crete:

Human intervention on Water resources of Crete is necessary only in cases of human induced pollution. In these cases efforts are made for the pollution to be treated near the source without diverting the natural river/stream flow.

Corsica:

The Biguglia lagoon is a rich natural reserve and a biodiversity spot impacted by urban development, agriculture, irrigation and communication with the sea that needs to be maintained by human actions. Irrigation channels that also bring quite a lot of freshwater into the lagoon must also be maintained by human actions.

L’etang de Biguglia. Source: Wikimedia Commons

The lagoon suffers episodes of eutrophication and sediments are often polluted. Artificial opening on the sea is the only way to maintain the water quality of the lagoon. Fortunately, the lagoon does not impact the surrounding sea because of a very important dilution effect.

PACA-Provence-Alpes-Côte-d’Azur:

The Etang de Berre at the north of Marseilles is an emblematic example of the necessity of human intervention on water resources. The eutrophication process due to water rejects inside the Etang cause various pressures on this fragile ecosystem. As with any lagoon environment, the ecosystem of the Etang is largely conditioned by the nature and quantity of inputs from its catchment: fresh water, salt, nutrients, contaminants. The freshwater input from both rainwater coming to the Etang via its watershed as well as the contributions of the EDF industrial power canal via the Durance conducted to a huge deterioration, tendency now inverted thanks to the great efforts made by the GIPREB, the organism in charge of defence and rehabilitation of the Etang de Berre (Groupement d'intérêt public pour la réhabilitation de l’Etang de Berre). The Etang de Berre was recently the object of an ecosystem contract (contrat d’étang) derived from the WFD provisions (SAGE from the SDAGE). The Region is very attentive to the ecosystem quality and subsequent monitoring of Berre.

Etang de Berre. Source: Wikipedia

The European Commission, as well as elected officials or residents of the periphery of the Etang de Berre, could ask for a reopening of the litigation on the pollution of the water body invoking environmental provisions of European origin. The WFD particularly offers interesting possibilities for the Etang de Berre.

Marche:

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.

Lazio:

The coastal lakes of the Circeo National Park (transitional water) have a high naturalistic and landscape value. They record a status of eutrophication due to the nutrient input by irrigation channels of the “pontina” plan.

Parco del Circeo. Source: parks.it

Emilia-Romagna:

Sacca di Goro is a good example of an area that needs human intervention to protect both economical and environmental values:

It is a transition area which needs human intervention in order to maintain a good water circulation and an effective mixing between river's and sea's water. This is an area which has a high environmental value due to the presence of protected species. At the same time a good environment guarantees a huge production of clams.

Sacca di Goro. Source: agraria.org

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?**

Corsica:

A very low level of impact in the sea compared with other regions because Corsica has a low level of agriculture and industry development.

Crete:

Crete has no irrigation channels flowing into the sea. All irrigation systems are local and do not have a constant flow towards the sea via torrents. In Crete there is no large scale surface agriculture (grain, corn etc). Extensive plantations are only those of olive trees that are rarely irrigated.

PACA-Provence-Alpes-Côte-d'Azur:

The next link refers to a document that describes river/water bodies' cards and inventory actions in order to prevent these waters to pollute the sea:

http://www.rhone-mediterranee.eaufrance.fr/docs/dce/sdage/telechargements/RMed/exemptions/argumentaire-mefm-coursdo.pdf

Marche:

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.

Lazio:

We have different acts for water protection as the Regulation of nitrates, the Decree 7th April 2006 of the Ministry of Forest and Rural Policies "Criteria and general technical norms for the regional protocol on the agronomic utilization of breeding farm wastewaters".

We work together with the agricultural Directorate in order to find sustainable solutions (buffer strips, wetlands..).

Emilia-Romagna:

In agriculture is promoted integrated pest management. We work together with the agricultural Directorate in order to find sustainable solutions (buffer strips, wetlands..)

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).

3.a Do you face similar situations in your area?

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

Corsica:
3.a At a very low level compared with other regions because Corsica has a low level of agriculture and industry development.

3.b Recreational maritime traffic is very intense in the Corsican summer and increase quickly. Most of recreational boats are not fitted for waste-water and oil treatment and anchoring destroys posidonia beds.

For commercial traffic, high navigation risks such as in the Bonifacio straight may induce high risk of major pollutions.

Crete:
3.a Crete is positioned in the middle of important international shipping routes. It also attracts important marine commerce and marine transport. These activities are sources of marine pollution. However the Decentralized Administration of Crete does not dispose information on the pollutants detected near the shipping routes and the ports.

Many posidonia fields in Greece have already been mapped, mostly near the coastline and more will be mapped in the framework of the Marine Strategy Directive (2008/56/EC). Cretan coastal waters host important posidonia fields, some of them very near to the coast (less than 50 m).

The effects of port activities, and other land based activities on the posidonia fields as well on the turbidity, on the sea water quality, on the sediment quality, on the coastal ecosystems etc. are taken in consideration for every project and programme in the mandatory Environmental Impact Study.

The Decentralized Administration of Crete and the Ministry of Environment Energy and Climate Change are responsible for the approval of these Environmental Impact Studies.

3.b The WFD demands an improvement of the water quality and environmental status. The pasted two decades sea pollution has been reduced thanks to Waste Water Treatment Plans, restrictions on many polluting coastal activities and also stricter regulations on ship induced pollution. Subsequently steps have already been taken for the improvement of the environmental status of the marine ecosystems.

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

3.b 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.

Lazio:
3.a In port areas the presence of TriButilstagno (antivegetative) has been observed, but never in marine-coastal water. TBT is not investigated.

3.b The pole formed by "Civitavecchia, Fiumicino and Gaeta," is one the main poles in Europe in terms of maritime traffic in the Mediterranean, with 17 tons of cargo and 4.7 million passengers travelling on cruise ships and ferry boats every year.
The sustainable management of maritime traffic does not restrict traffico marittimo the implementation of the directive.

Liguria:
3.a In Ligurian sea we found the same problems in coastal water due to the presence of TBT and PAHs, therefore there is in some sample points a presence of Mercury in concentration above the threshold value (probably the presence of Hg in water is due to natural background documented in literature for the Mediterranean area).

3.b Probably there are connections, but the assessment of the effects on the marine environment is still ongoing. Probably they will be deepened with the implementation of the Marine Strategy Directive.

Emilia-Romagna:
3.a We find PAH, PCBs, Brominated diphenylether, DDT, DDE,DDD.

3.b In coastal waters of Emilia-Romagna Region, provided that all safety measure are adopted, maritime traffic does not constitute a limiting factor for the real implementation of the WFD.

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) Nº 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 fulfil the requirements of the WFD?

Corsica:
In some cases it is impossible to fulfil the WFD requirement at reasonable costs.

Marche:
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.

Liguria:
I don't know. I think it is correct to deepen this the origin of these different values at European level. In doing this we should separate the environmental and health aspects. In fact in an harmonization process we should deepen the technical reasons and the risk evaluation techniques that established in many case different Threshold level between environmental and health legislation (in Italy for example look at the difference between WFD – Dlgs 152/06 e DM260/2010 and potable water threshold – Dlgs 31/2001).

Emilia-Romagna:
Several priority substances are ubiquitous and tend to bioaccumulate in food chain. That's why threshold limits in the water column has to be stricter than the one in foodstuffs. At the same time, to reach the strict threshold limits to classify the water body in a good chemical status, means to implement strong measures and then generate huge costs. It is possible that the costs to reach the requirements of WFD are not sustainable for all water bodies.

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?

Corsica:
Analyses are done by national agreed laboratories. Anyway, analysis detection thresholds in seawaters with the better standards for some substances are clearly over the WFD thresholds, so very difficult to apply. That is why we work with integrators.

Crete:
In Greece all analysis on coastal waters for the implementation of the WFD will be conducted by the Hellenic Centre of Marine Research and the General Chemical State Laboratory. The first sampling and analysis period (2012-2015) has just begun and special equipment and procedures have been introduced for this purpose.

Marche:
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.

Liguria:
In the last years, due to problems with threshold level under the detection range, the regional environmental protection agency purchased new instruments and adopted new analysis procedures to improve their capabilities

Emilia-Romagna:

The analytical performances required by the WFD can be reached by our laboratory instrumentation, the analysis cost increases a lot to reach such performances.

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?**

This question hasn't had appropriate answers and hence hasn't been considered.

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

Corsica:
The proportionality is really case dependent. Analysis of proportionality must be done for each case.

Crete:
The important sources of pollution: urban sewage and runoff, agricultural runoff, industrial pollution, port pollution, accidental oil spills, coastal pollution by tourism (litter, sun tan lotions etc.) produce high rates of pollution. This pollution can be easily detected by simple and inexpensive analysis of other pollution indicators. If these sources of pollution are controlled (results that can be monitored by inexpensive coastal sampling and analysis) the priority substances will be reduces as well. It is not productive to use resources for the sampling and expensive analysis of many priority pollutants when these resources can be used for pollution control.

Only when the inexpensive analysis is no longer useful: no pollution can be detected or the origin of pollution cannot be determined, the further analysis of priority substances is useful.

Lazio:
The current legal framework ensures environmental improvement, but actions must be coordinated and more checks are required. The costs and efforts required for the monitoring activity provided for by the directive are very high.
The cost of the recovery interventions are out of scale compared to the benefits reached/to be reached.

Liguria:
In Italy, we adopted the River Basin District Management Plans (for our region please refer to Po District and to Appennino Settentrionale District available respectively at www.adbpo.it and at www.appenninosettentrionale.it) at the end of 2009. I think we can make a balance between the cost of implementation of the WFD and the real environmental benefit achieved in 2015 at the end of the first six years of implementation of WFD.

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

Emilia-Romagna:
Ecosystem approach encourages a more complete assessment which should take into account the costs of implementation and the real environmental benefit achieved.

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.


View of La Albufera of Valencia. Source: Las Provincias.

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

Corsica:
The Corsican lagoons can be considered, at a lower scale, in the situation of Albufera.

Emilia-Romagna:
Transition systems like Sacca di Goro or Valli di Comacchio are good examples of areas shaped by economical interests (eel fishing, clam breeding). They also maintain high environmental values because of the presence of protected species.

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

Corsica:
The situation of Corsica is environmentally quite good (low population, low development, 1000km of cost-line) and the good ecologic state is, in most of the cases, a real possible target.

Crete:
The water quality of the coastal waters of Crete can be improved and it is important for the local economy to safeguard the coastal waters. Therefore monitoring and sampling protocols for water quality are important for our region. It is also important to set short term and long term targets in order to improve the quality of coastal waters and take the appropriate actions.

However, the sampling and analysis procedures requested from the WFD are too expensive for Crete. We propose that, after a first period of monitoring, analysis and sampling, only few substances are selected for long term sampling. These substances should be selected according to the character of the local pollution so as to reflect the pollution origin and also the improvement of the pollution control. The analysis of substances that can be hardly traced and that do not reflect the pollution control efforts is counterproductive.

Lazio:
There is not a single body in charge of water management. The competence is shared among different entities, authorities and administration bodies. Competences are too scattered and fragmented.

Liguria:
The WFD must be C case a greater flexibility in WFD and in national transposition to face local problem will help the regional technicians.

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

PACA:
Regarding the WFD implementation, there are no particular difficulties encountered. Besides, this problematic of implementation is sometimes misunderstood. The Member States implement European Directives. The question for us would be more on the operational implementation of the WFD through the SDAGE (Schéma Directeur d'Aménagement des Eaux) and the programmes of measures, but again, at this stage, it would be better to challenge those who are directly dealing with the operational axis of the implementation, namely the masters of works, local authorities, industrialists, managers or even the State for the regulatory part.

Emilia-Romagna:
WFD is applicable in our Region, but our coastal area presents many peculiarities, which make intercalibration phase particularly difficult.

10 I think the Water Framework Directive is more a:

Corsica:
WFD is important because it obliges environmental managers and politicians to consider the ecological status of water masses. It is probably really very difficult in many cases to fulfil the WFD requirements at reasonable costs. Anyway, the Corsican situation is particular because of its high level of preservation and its general good ecologic state. Fulfil the WFD requirements is probably possible except some rare cases here.

Crete:
The WFD is a real challenge. It demands the improvement of water bodies' environmental status. The general target set by the WFD and the procedure proposed is very useful:

- first appreciation of the environmental status,

- first measures
- establishment of a long term monitoring procedure
- periodical reporting on the environmental status
- proposal of new measures etc.

However, the quality targets and the monitoring procedure should be adapted on the local pollution problem, the needs and the available resources. Measuring the same numerous substances badly all over Europe will not produce the desirable results! Measuring few selected substances, correctly in every region can produce a more accurate representation of the water quality and the effectiveness of the taken measures with a more reasonable cost.

Liguria:
Obviously is a solution if all steps are done: Plan (River Basin District Management Plans with environmental starting situation and measures), Do (activate all the measures), Check (Monitor the effects of the measures to see if you are reaching the WFD objectives), Act (if some or all measures are failing the WFD objectives modify them).

Marche:
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.

PACA:
It is a solution since in France, Regions do not detain the competence to apply the WFD and have not a global vision of the cost/benefit ratio of its implementation. In the coastal zone, it is difficult to have a restitution of data with an integrate vision of the quality of waters in relation with the eventual source of pollution or problem. It would be useful to orientate the territorial management in a way that could favour the regional level for the implementation.

Emilia-Romagna:
It is a solution: Classification criteria have to be established and the financial resources have to be found in order to carry out planning process, monitoring programs and to implement the necessary measures.

5 REFERENCES

- 2008/915/EC: Commission Decision of 30 October 2008 establishing, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, the values of the Member State monitoring system classifications as a result of the intercalibration exercise.
- 2005/646/EC: Commission Decision of 17 August 2005 on the establishment of a register of sites to form the intercalibration network in accordance with Directive 2000/60/EC of the European Parliament and of the Council.
- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. Official Journal of the European Communities. 22.12.2000. Page L 327/1.
- Common Implementation Strategy for the Water Framework Directive (2000/60/EC) Guidance document nº 5 - Planning process - Produced by Working Group 2.9 – Planning Processes -Office for Official Publications of the European Communities, 2003
- Common Implementation Strategy for the Water Framework Directive (2000/60/EC) Guidance document nº 11 - Transitional and Coastal Waters – Typology, Reference Conditions and Classification Systems - Produced by Working Group 2.4 – COAST - Office for Official Publications of the European Communities, 2003

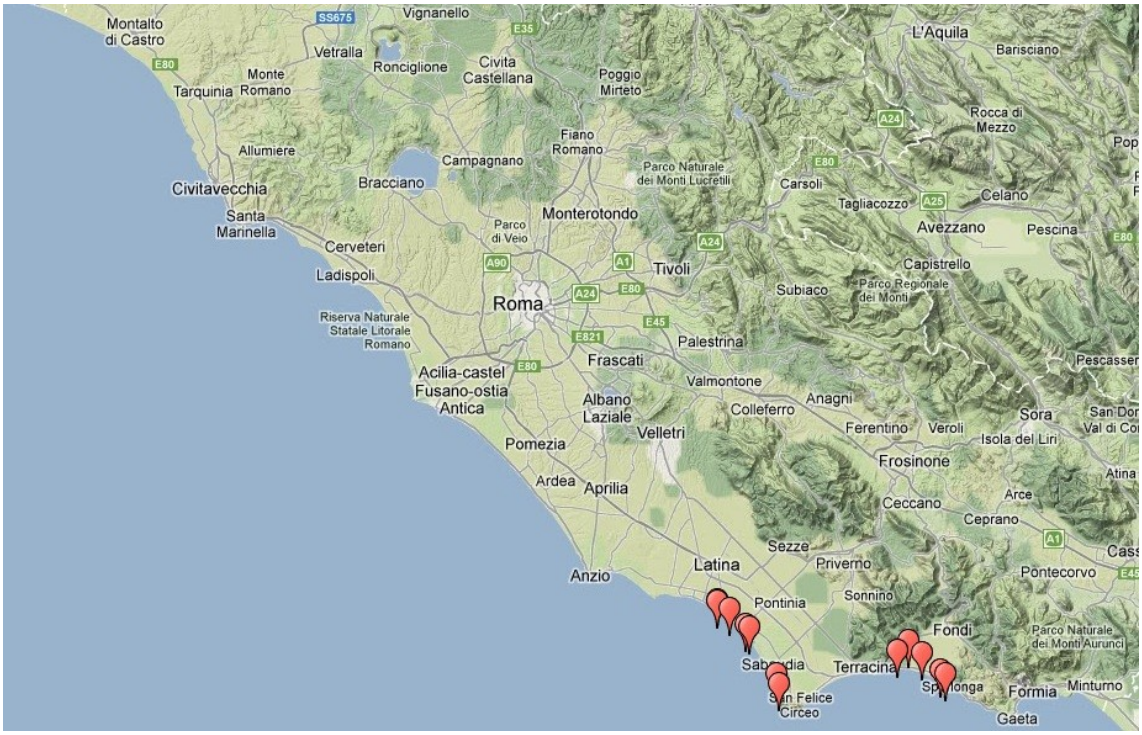
  Country-specific assessments for EU Member States and Norway (SWD(2012)379 Volumes 3-30) - Environment Directorate-General of the European Commission. 2012.
- COM(2011) 876 final. Proposal for a directive of the European Parliament and of the Council amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy. European Commission.
- Lucia De Stefano; Water Observatory of the Botín Foundation; Department of Geodynamics, Complutense University of Madrid, Madrid, Spain and Nuria Hernández-Mora Founding Member, New Water Culture Foundation, Madrid, Spain. Water planning and management after the EU Water Framework Directive. 2012.
- Giuseppe Bortone and Tiziano Draghetti. Strategic contents of policies in the Water Protection Plan of Emilia-Romagna Region. ARPA Emilia-Romagna. May 2006.
- Water Framework Directive Summary Report of the characterisation and impact analyses required by Article 5 - Northern Ireland, March 2005. ISBN 1 905127 06 05.
- Bulletin de la Surveillance de la Qualité du Milieu Marin Littoral 2011. Résultats acquis jusqu'en 2011. Ifremer/RST/ODE/LER-PAC/12-08/Laboratoire Environnement Ressources Provence Azur Corse, 80 p.
- Henny A.J. van Lanen - Hydrology and Quantitative Water Management Group, Centre for Water and Climate, Wageningen University, Wageningen, the Netherlands, Lena M. Tallaksen - Department of Geosciences, University of Oslo, Oslo, Norway, Gwyn Rees - Centre for Ecology and Hydrology, Wallingford, United Kingdom. Droughts and climate change. 2007.

- Seguimiento del Plan Hidrológico de Cuenca del Júcar. Documento de Síntesis-Ministerio de Medio Ambiente, Agosto 2007.
- El conflicto del trasvase Júcar-Vinalopó -Graciela Ferrer, Antonio Estevan, Francesc La Roca. Bilbao, Bakeaz/Fundación Nueva Cultura del Agua, 2006 - Colección: Nueva Cultura del Agua. ISBN: 978-84-88949-79-0.
- López Ortiz, María Inmaculada; Melgarejo Moreno, Joaquín. "El trasvase Júcar-Vinalopó: una respuesta a la sobreexplotación de acuíferos". Investigaciones Geográficas. N. 51 (en.-abr. 2010). ISSN 0213-4691, pp. 203-233
- Ruiz Sierra, Ana; Carranza Egaña, Itxaso - Manual de diseño de los programas de control del estado de las aguas costeras y de transición – Ministerio de Medio Ambiente, 2007.
- Iñigo J. Losada-Catedrático de Ingeniería Hidráulica de la Universidad de Cantabria. Instituto de Hidráulica Ambiental "IH Cantabria". Impactos del cambio climático en la costa española. Ciclo: el clima que viene. Fundación Juan March. 2007.
- Ana Ruiz Sierra; Itxaso Carranza Egaña, coordinador: Javier Cachón de Mesa. Manual de diseño de los programas de control del estado de las aguas costeras y de transición. Ministerio de Medio Ambiente. 2007.
- Cyprus River Basin Management Plan-Ministry of Agriculture, Natural Resources and Environment. Water Development Department. April 2011.

Annex I

Maps of Transitional Water Bodies

Regione Lazio



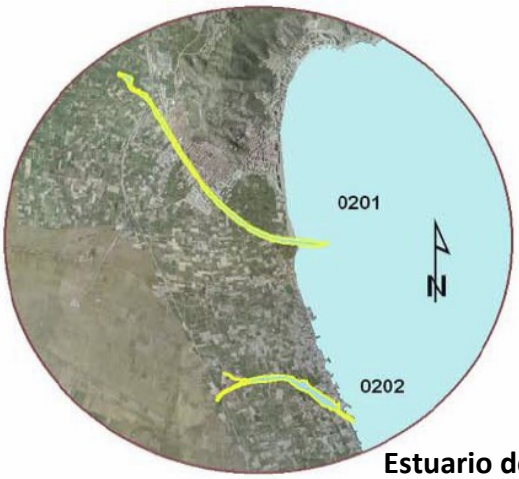
Source: www.arpalazio.net

Corsica


Cap Ouest
Canari
BASTIA
Golfe de Saint-Florent
Pointe Palazzu - Sud Nonza
Etang de Biguglia
Etang de Diana
Etang 'Urbino
Etang de Palu
Pointe Senetosa - Pointe Palazzu
AJACCIO
Golfe d'Ajaccio
Golfe de Porto-Vecchio
Littoral

Comunidad Valenciana

Estuario del Jucar y Estany de Cullera

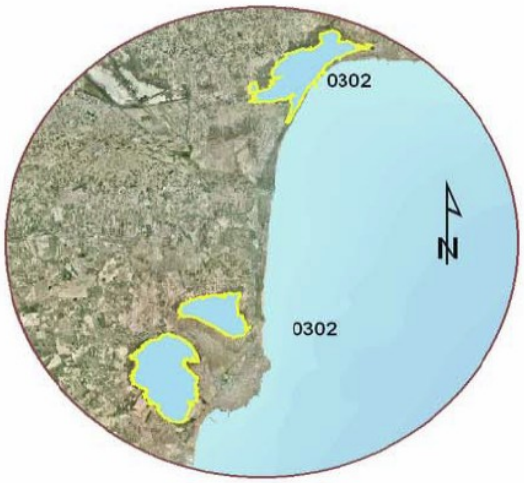


Estuario del Júcar y Estany de Cullera

Salina de Calpe

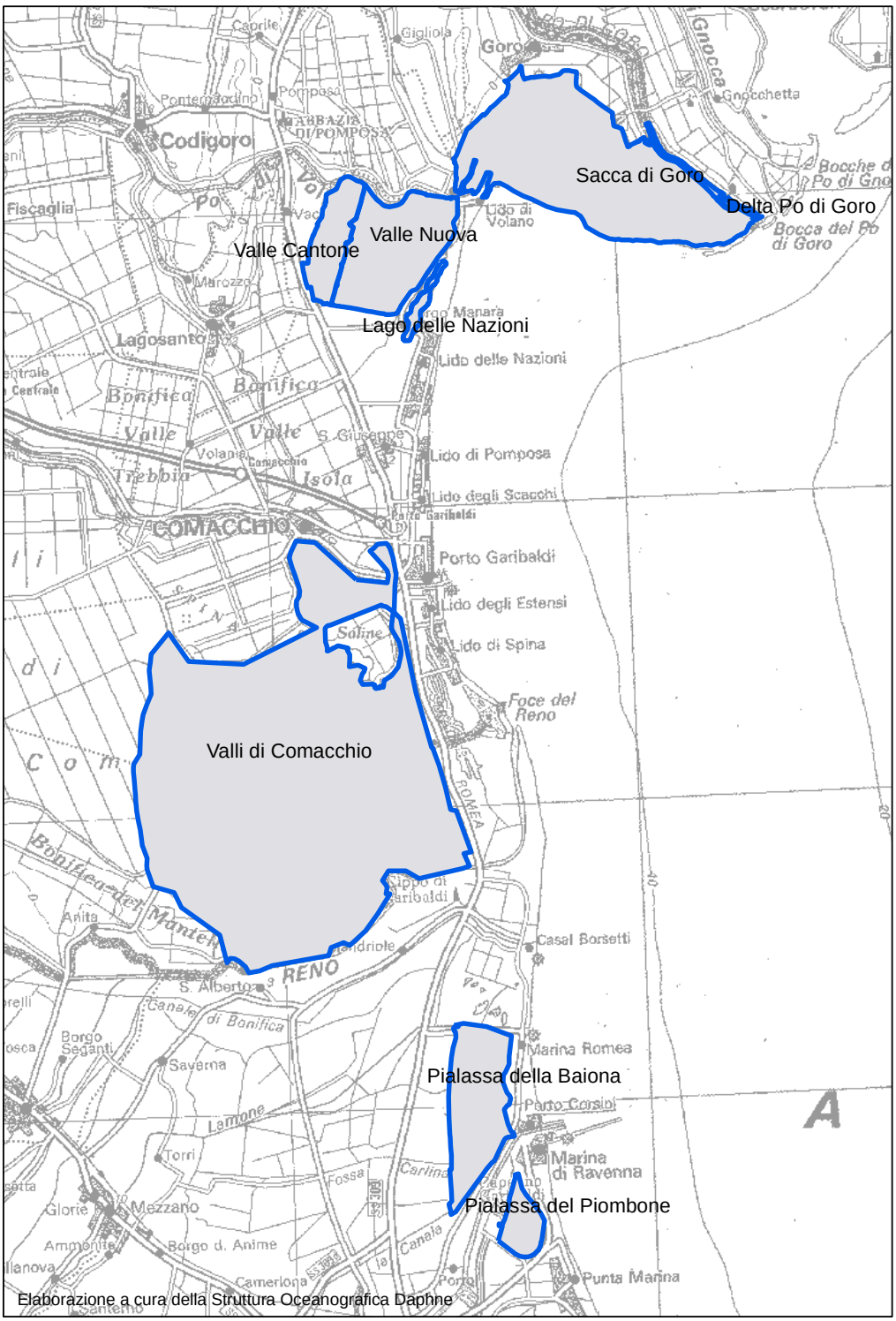
Salina de Calpe

Salina Santa Pola, La Mata-Torrevieja



Salinas de Santa Pola y La Mata-Torrevieja

Regione Emilia-Romagna



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