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# WETLANDS

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NEWSLETTER



## World Wetlands Day

*February 2nd marks the 44th year since the signing of the Ramsar Convention on Wetlands and World Wetlands Day.*

Wetlands Abroad:  
Australia, India, and the  
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# An Observatory to Monitor Mediterranean Wetlands

*The Mediterranean Wetlands Observatory (MWO) was created under the aegis of the MedWet initiative of the Ramsar Convention, aimed at informing decisionmakers on appropriate measures for wetland preservation. Four years after the effective launch of the MWO, lessons have been drawn from both its strengths and weaknesses, and discussions have taken place on how to better reach MWO objectives.*

BY CHRISTIAN PERENNOU, CORALIE BELTRAME, THOMAS GALEWSKI, LAURENT CHAZEE, AND ANIS GUELMAMI

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**A**lthough they are among the ecosystems that globally contribute the most to human well-being, wetlands are also, paradoxically, the ones most threatened by human activities (Millennium Ecosystem Assessment 2005). Despite decades of conservation actions by non-governmental organizations (NGOs) and governments, especially within the framework of the 1971 Convention on Wetlands of International Importance, wetlands have continued to disappear more rapidly than other ecosystems. This disappearance is largely the result of a widespread, utilitarian, and short-term vision of natural resources.

In addition, the knowledge and data we have of wetlands' multiple functions and values are either lacking or fragmented. Even when knowledge exists, it is not easily accessible by those who would need it, and poor transfer leads to limited use of relevant information on wetlands. So far, only limited pan-Mediterranean wetland assessments or long-term monitoring of a few items (e.g., waterbird species) have been carried out.

In 1991, the MedWet initiative was launched in the Mediterranean Basin, as the first-ever regional initiative for the implementation of the Ramsar Convention. Its initial symposium, in 1991, highlighted the wetland losses that had already occurred throughout the region (Finlayson et al. 1992). The Mediterranean Wetlands Observatory (MWO) was formally created in 2008 in the

framework of the MedWet initiative in order to bridge the knowledge gap, i.e., to assess the status and trends of wetland ecosystems in the region, and to develop awareness on their multiple values. Its ultimate goal is to improve wetland conservation and management by providing information to a broad audience, especially decisionmakers and the public at large.

Developing such a long-lasting, monitoring process that contributes effectively to its stated aim is a chal-

lenge where several pitfalls have to be avoided, to name but a few: developing a purely scientific tool, known and used only by scientists; developing a "militant" or lobbyist tool, that provides striking, but unchecked information; remaining within the main area of expertise of its coordinating institution (e.g., wetland biodiversity),

whilst omitting other important components of wetlands (e.g., water issues, governance, local people and institutional aspects, etc.). We cover here the approach we used for developing the MWO overall, but not for monitoring each indicator, which usually has its own, specific protocol described elsewhere (MWO 2012a).

## METHODS

In order to avoid the pitfalls mentioned above, the MWO Coordinating Unit (MWO/CU), comprising a small technical team based in Tour du Valat (Camargue, France)

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first developed in 2008-2009 an initial network of 34 partners, making sure that beyond scientific institutions it also comprised representatives from international conventions/agreements (Ramsar, Convention on Biological Diversity, MedWet), national authorities from Mediterranean countries in charge of wetlands/water policies, NGOs, funding agencies active in conservation, etc. Three initial workshops (2009, and two in 2010) involving these partners helped define in a participatory way the key features of the MWO: shared goals, objectives, and targets; a conceptual model and a comprehensive logical framework; a selection of key themes the MWO should cover, with an associated small set of indicators; and finally a communication strategy.

In order to best serve the intended users of its results, the MWO/CU also carried out, between March 2009 and June 2011, an assessment of the national situation and needs of 16 Mediterranean countries regarding wetland monitoring (MWO 2011). In each country, the key institutions involved in wetland and water management and monitoring were visited, using a standard set of questionnaires (different for state institutions, NGOs, etc.). Finally, the whole process of building up the MWO was conceived as an adaptive process, with regular analysis of its strengths and weaknesses helping reorient its work if and where needed.

## RESULTS

### *The MWO Fundamentals: Goals, Main Targets, and Logical Framework*

The participants to the workshops agreed first on three interrelated objectives for the MWO: (1) provide timely and quality information on Mediterranean wetlands status and trends; (2) track threats to Mediterranean wetlands and identify actions to promote their

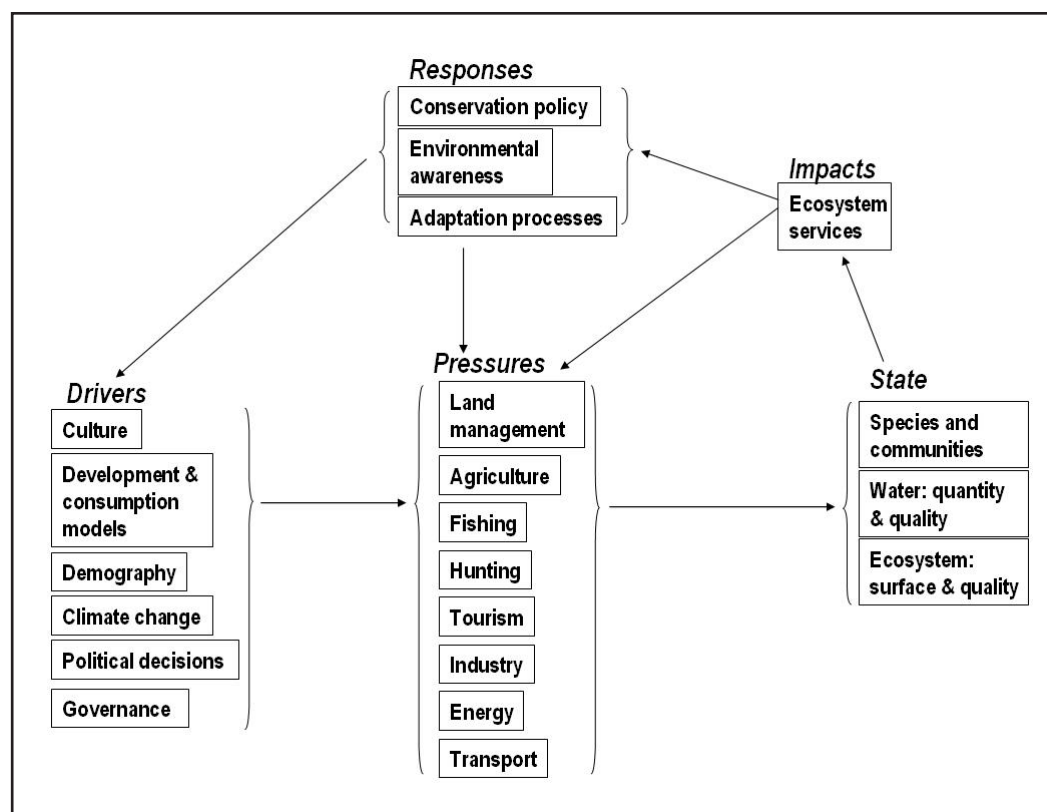


Figure 1: The MWO Conceptual Model.

conservation, wise use, and restoration; and (3) assess the level of consideration of wetlands in the context of sustainable development in the Mediterranean.

From the beginning, the identification of adequate targets was considered a priority. The MWO workshops' participants defined them as (a) decisionmakers affecting wetlands, and (b) the public at large, through the media. Based upon this, the MWO/CU designed a communication strategy including a multi-product package aiming at the different final or intermediate targets: website, electronic newsletter, communications in conferences, press releases, technical reports, leaflets, film, etc. The strategy also recommended using three languages for most of these tools, i.e., English, French, and Arabic.

The MWO conceptual model was designed by adapting the classic Drivers-Pressures-State-Impacts-Responses (DPSIR) model (EEA 1999) to the specific case of Mediterranean wetlands, and to the known factors affecting them most (Figure 1). Other key elements developed at this stage were a governance structure for the MWO (MWO 2010), and a draft Memorandum of Understanding between MWO partners, which was eventually signed by approximately 10 partners.

### MWO Themes and Indicators

In 2009-2010, the workshop participants agreed that the MWO should cover the main following working themes: 1. Biodiversity and ecosystem integrity; 2. Drivers and pressures; 3. Ecosystem services; and 4. Responses of societies. Six themes were initially proposed, some of them being merged later. Under these four themes, the initial 25 indicators were selected in a participatory way in 2010, based upon a preliminary, comprehensive review of over 450 potential indicators (Beltrame 2009); they are listed in Table 1. They collectively cover all the MWO themes and all the DPSIR categories. Drivers are under-represented, being less directly linked to the usual fields of wetland specialists, and consisting mainly of deeply rooted socioeconomic factors.

### First MWO Outputs and Technical Results

In 2012, the first “Mediterranean Wetlands Outlook” was produced. It encompassed 17 of the 25 MWO indicators (Table 1). The lack of either a reliable methodology, data, time, or human resources prevented the calculation of the others. In order to both establish the technical credibility of the results and reach its nonscientific key targets (decisionmakers), two separate reports were produced: a technical one, containing detailed facts, figures, analyses, references, etc. (MWO 2012a), and a more analytical and strategic report synthesizing the key messages of the first one, in a format deemed more attractive to decisionmakers (with, e.g., indicators factsheets) (MWO 2012b).

Key results were also provided online as an illustrated, short synthesis for each indicator on the MWO website, and as a short video (12 minutes). A series of thematic reports was initiated (Galewski 2012; Beltrame et al. 2014), as well as concise leaflets/brochures (four pages) summarizing these three technical publications—for a wider distribution. The main findings of this first Mediterranean Wetlands Outlook can be summarized as follows, along the main boxes of the MWO conceptual model:

**State:** Wetlands are still ongoing a downward trend. With 15-22 million hectares (ha) of wetlands, the Mediterranean region hosts between 1% and 2% of the world’s wetlands, but it has already lost at least 50% of the wetlands that existed in 1900 (Perennou et al. 2012). These losses continue today. The total wetland area now includes approximately 23% of artificial wetlands.

A strong and growing pressure on water resources—both surface and groundwater—underlies these trends. The amount of water that remains available for the environment, and wetlands in particular, is decreasing overall throughout

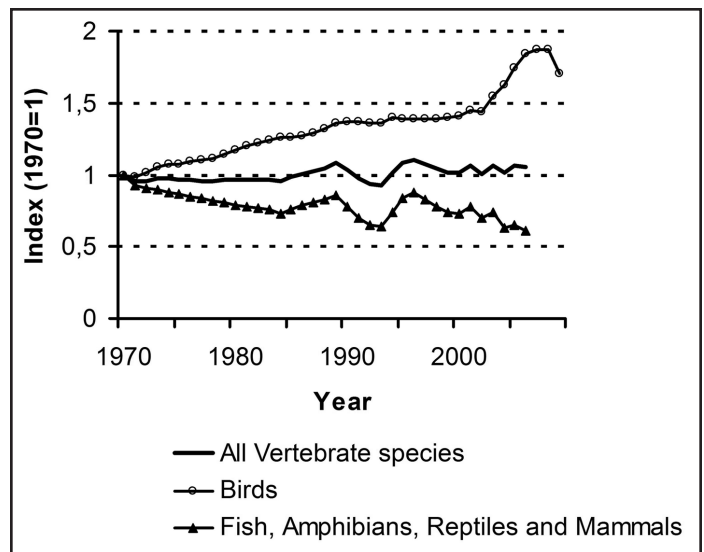


Figure 2: The Living Planet Index (LPI) for Mediterranean wetlands: different trends for different taxonomic groups.

the Mediterranean region, once water consumed by human activities is deducted. The situation is becoming particularly severe in the southern and eastern Mediterranean.

River discharges are declining throughout the region, except for the Rhone and Po Rivers. River flows are generally deeply affected by water abstraction and dams built along their course. The total freshwater flow that reaches the Mediterranean Sea each year has declined by 45% during the 20th century. While water quality in Europe in terms of nutrients and heavy metals has generally improved since the 1980s, water quality has not been sufficiently monitored in other parts of the Mediterranean Basin, where degradation is likely, due to more intensified agriculture.

The Living Planet Index highlights that wetland biodiversity shows contrasting trends (Figure 2). Some waterbird populations are faring well, particularly in the western part of the Mediterranean Basin, whilst other vertebrate groups such as mammals, reptiles, amphibians, and fish have seen their numbers drop by nearly 40% since 1970 (Galewski 2012).

Land use changes through the conversion of wetlands into urbanized and agricultural lands, as well as increasingly artificial water management, have heavily impacted wetlands. This impact can be measured through the changes in bird communities. Many species particular to seasonal Mediterranean marshlands and watercourses have decreased in abundance, whereas a few generalists have dramatically increased, adapting quickly to the abundant resources provided by the eutrophication of wetlands, the intensification of agriculture/fisheries, and the multiplication of artificial water bodies.

<i>State</i>	<ul style="list-style-type: none"> <li>• <b>Community Temperature Index</b></li> <li>• <b>Community Specialization Index</b></li> <li>• Inundation extent in the wetlands</li> <li>• <b>Mediterranean wetland surface area</b></li> <li>• <b>Trends in abundance of species (including the Living Planet Index)</b></li> <li>• <b>River flow</b></li> <li>• <b>Water quality</b></li> </ul>
<i>Drivers</i>	<ul style="list-style-type: none"> <li>• Human population trends in or near Mediterranean wetlands</li> </ul>
<i>Pressures</i>	<ul style="list-style-type: none"> <li>• <b>Exploitation index of renewable water resources</b></li> <li>• <b>Land conversion to agriculture and urbanization in/around the main wetlands</b></li> <li>• Overexploitation of underground water in oases/salinization</li> <li>• <b>Water demand per sector</b></li> </ul>
<i>Impacts</i>	<ul style="list-style-type: none"> <li>• <b>Role of wetlands in water supply</b></li> <li>• <b>Role of wetlands in flow regulation (flood and drought)</b></li> <li>• <b>Role of wetlands in water purification</b></li> <li>• <b>Wetlands and tourism</b></li> </ul>
<i>Responses</i>	<ul style="list-style-type: none"> <li>• <b>Development of a national strategy for wetlands</b></li> <li>• Effectiveness of the management in the Ramsar sites</li> <li>• <b>Implementation of the wetland-related Millennium Development Goals targets</b></li> <li>• Integration of environment in local development planning</li> <li>• Integration of wetlands in national strategy of sustainable development</li> <li>• Integration of wetlands in water national management plans</li> <li>• Level of implementation of Integrated Coastal Zone Management</li> <li>• Level of implementation of Integrated Water Resource Management</li> <li>• <b>Protected wetlands</b></li> </ul>

Table 1: Initial set of 25 indicators developed. The 17 indicators that were computed for the first Mediterranean Wetlands Outlook in 2012 are in bold.

Climate change effects are already noticeable on wetland bird communities, advantaging hot-dwelling species to the detriment of cold-dwellers. There is a general northward shift in the waterbird assemblage, which also means that an increasing number of birds winter in the Mediterranean instead of migrating to sub-Saharan Africa.

*Drivers and Pressures:* While agriculture is the sector currently impacting most wetlands and water, urbanization,

public infrastructures, and tourism also have large impacts on wetlands, especially in coastal areas. Pressures from these economic sectors are likely to increase in the coming decades. Irrigated agriculture is the main water consumer in the Mediterranean (two-thirds of total consumption). Overexploitation of groundwater is often underestimated, but is of urgent concern in steppe and desert areas, where it contributes to wetlands drying up.

The main root causes underlying these changes include short-sighted economic development models, poor governance, demographic growth, lack of importance given to wetlands in political agenda, and the limited enforcement of laws. A key demographic trend in the region is the increasing tendency for humans to concentrate along the coastline—the so-called littoralization process. As this is also where most large wetlands are found, pressures on coastal wetlands are increasing too.

*Impacts:* Despite the vital role played by Mediterranean wetlands in terms of human well-being, the ecosystem services they provide have been inadequately studied. The provisioning (production, livestock farming, and fishing) and tourism services have been studied the most. Conversely, the regulating services (water purification, flood attenuation) are less well-known despite their importance in mitigating or preventing economic and human losses.

*Responses:* As a response to wetland loss, various measures have been taken to preserve the remaining wetlands. The number of designated Ramsar sites has increased steadily in the last decade (344 sites in October 2011, compared to 168 in December 2000). Ramsar sites now represent 6 million hectares. Nationally protected wetlands are also increasing.

In terms of wetland strategies, about 30% of Mediterranean countries now have both a wetland policy/strategy and a national wetland committee, which makes them potentially capable of influencing cross-sector decisionmaking about wetlands. In practice however, these instruments are not yet fully effective in most countries.

## RECOMMENDATIONS

Key recommendations for preserving wetlands resulted from this overview. At policy and strategic levels, the identified priorities are to harmonize national and international conservation objectives; to establish closer linkages with supra-national conventions and agreements; to develop intersectoral national wetland policies and implement them; to involve more deeply the wetland-related decisionmakers and scientists in sustainable development initiatives; to boost the participation of the civil soci-

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ety; to mainstream the environment into socioeconomic development in non-protected areas; to encourage a more holistic approach in wetland monitoring systems, targeting decisionmakers; to sustain awareness and education actions; and to encourage the development sector and key local stakeholders in recognizing the ecosystem services provided by wetlands.

Operational priorities are to speed up the protection of wetlands and ensure their effective management, to improve sustainable water management taking ecosystems into account, and to enlarge and activate the pan-Mediterranean wetland community.

### DISCUSSION

During its first years of operation, the MWO structure, governance, conceptual model, logical framework, and indicator set have been conceived carefully. They now serve as reference for several other local, national, and regional initiatives, e.g. official requests for support that came to the MWO team in 2012-14, from wetland or biodiversity observatories in Morocco, France, and Algeria. The MWO also produced the first-ever outlook on Mediterranean wetland, with results declined in multiple formats: technical reports, webpages, a short film, leaflets, etc.

Conversely, the key identified weakness was on reaching out to the real decisionmakers through the selected MWO intermediate targets, i.e., national Ramsar/MedWet Focal Points. In most Mediterranean countries, they are mid-level officers from wetlands/water-related administrations, usually from ministries in charge of the environment, agriculture, forestry, or irrigation. They were initially considered as a key, intermediate step in order to reach the MWO end-targets, i.e., key decisionmakers. However, a survey demonstrated that approximately 70% of Ramsar national focal points are not involved in cross-sector planning or in real decisions (MWO 2011). Furthermore, they were rarely able to provide precise information (names, positions, etc.) on the MWO core targets, i.e., real decisionmakers, or the best way to reach them. To overcome these limitations, the MWO strategy currently targets two directions:

- A recently relaunched MedWet initiative that should be better able to help reach end-targets;
- Mobilizing new intermediate targets such as selected, strong national NGOs already involved in water and wetlands. An alternative is to build the capacity of national NGOs that cannot yet play this role, in countries where the civil society is still weak.

### CONCLUSION

In its first years, the MWO has been able to produce the first-ever Mediterranean Wetlands Outlook, and disseminate it broadly in the region through a number of communication tools. This has been achieved through first defining, in a participatory way, common objectives, a comprehensive conceptual model, and a set of indicators; then centralizing and synthesizing highly fragmented and incomplete information in order to produce this first comprehensive overview. However, despite this important technical production, the MWO still lacks, after four years of operation, an efficient relaying mechanism, “downstream” of its production. The MedWet initiative revival currently offers the best hopes for an improved science-policy transfer in future years. ■

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*For more information on the MWO, please visit: <http://www.medwet.org/publications> and <http://www.medwetlands-obs.org/en>.*

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