



# Water Security and Drought Policy

## Policy Review



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## Authors

Josselin Rouillard, Ecologic Institute

With thanks to:

Verena Mattheiß, ACTeon (Review)

Project coordination and editing provided by Ecologic Institute.

## Acknowledgments & Disclaimer

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## Water Security and Drought Policy

Policy Review
<p><b>Name/Type of the Legal Act or Policy</b></p> <p>The “<u>2007 Communication on WS&amp;D</u>”: WS&amp;D policy, EU Action on Water Scarcity and Drought, Communication from the Commission to the European Parliament and the Council – Addressing the challenge of water scarcity and droughts in the European Union (COM/2007/0414 final)</p> <p>The “<u>2012 Communication on WS&amp;D</u>”: no short acronym or short name, Communication from the Commission to the European Parliament and the Council –report on the review of the European Water Scarcity and Droughts Policy (COM/2012/672 final).</p> <p>The “<u>Water Blueprint</u>”: Water Blueprint, the Blueprint to safeguard Europe’s water, Communication from the Commission to the European Parliament and the Council – A Blueprint to Safeguard Europe’s Water Resources (COM/2012/673 final)</p>
<p><b>Entry into force</b></p> <p>07/2007</p>
<p><b>Departments/Units in charge</b></p> <p>DG ENV, Dir. C Quality of Life, Water &amp; Air, Water 1</p>
<p><b>Common Implementation strategy (CIS processes)</b></p> <p>A specific group on WS&amp;D existed until 2013 in the CIS of the WFD. In the Work Programme 2013–2015 WS&amp;D topics are discussed in several CIS groups in order to avoid an artificial separation of water quality and quantity. Most important ones are:</p> <ul style="list-style-type: none"> <li>▶ WG Ecological Flow in the Cluster Water Status (e.g. work on guidance on Ecologic Flows published in 2014)</li> <li>▶ WG Programme of Measures in Cluster Water Management (e.g. water re-use, leakage reduction, Ecodesign Directive for water efficiency)</li> <li>▶ WG Agriculture in Cluster Water Management (e.g. illegal abstraction, hydromorphology)</li> </ul> <p>Indirectly:</p> <ul style="list-style-type: none"> <li>▶ WG on Ecological Status in the Cluster Water Status (e.g. work on hydromorphology and assessment of ecological potential)</li> <li>▶ WG Groundwater in the Cluster Water Status (e.g. groundwater use and availability, e-flows, metering, water efficiency, water pricing)</li> </ul>

WGs Economics and Group Data/Information Sharing under the Cluster Knowledge Integration and Dissemination (e.g. water accounts, indicators for water efficiency and resilience to extreme events)

### Administrative body handling implementation in MS

Since there is no legal requirement to implement WS&D it is unclear which authorities primarily deal with implementation. However, reporting of activities carried out is made by MS who are the primary administrative body responsible to the European Commission. Also, management planning for reducing the effects of droughts and mitigating water scarcity are usually integrated in the WFD RBMP. In France the relevant authorities are thus water agencies while in e.g. UK it is the environmental regulators (ex. EA, SEPA). As for RBMPs, DMPs are developed and implemented by Water Agencies in France, environmental regulators in the UK.

That said, different authorities may be responsible for different relevant measures. For example, mainstreaming consideration of droughts and water scarcity into Rural Development Programmes is the responsibility of regions in France as opposed to the national government (DEFRA) in the UK. Standards and regulations for water use efficiency in buildings or products may be led by national government or municipalities (e.g. Zaragoza, Spain).

### Main Objective

The 2007 Communication on WS&D does not present a clear single aim, although it could be assumed that it is to reduce the risk of water scarcity and (man-made) droughts in Europe. The Communication states that it “aims to present an initial set of policy options”.

The Impact Assessment of the 2007 Communication states clearer objectives for the 2007 Communication: 1) address the increasing impacts of water scarcity and droughts in the European Union; 2) ensure the long-term protection of available water resources; 3) ensure sustainable water availability across Europe and promote sustainable water uses.

### Principles included in the legal text

The 2007 Communication on WS&D refers to the following principles:

- ▶ A water efficient and water-saving economy and culture
- ▶ Focus on water demand management
- ▶ Ensure the user-pays principle, effective water pricing and cost recovery of water services
- ▶ Integration with other policies

The 2012 Communication on WS&D re-emphasises these principles and specifies:

- ▶ Need to internalise environment and resource costs

Use of economic assessments (CBA, CEA) to select measures and incentivise integration with other planning processes

### Other objectives/Key concepts/key elements of the legislation

The 2007 Communication on WS&D does not present specific objectives, but is structured around “options” that need to be implemented. The main “options” are: 1) putting the right price tag on water, 2) allocating water and water-related funding more efficiently, 3) improving drought risk management, 4) considering additional water supply infrastructures, 5) fostering water efficient technologies and practices, 6) fostering the emergence of a water saving culture in Europe, and 7) improve knowledge and data collection.

The Impact Assessment of the 2007 Communication on WS&D states specific objectives: enhance preparedness for increasing droughts, 2) mitigate all impacts of water scarcity and droughts on the environment, economy and society, 3) create the conditions for sustainable economic and social development across Europe in a context of climate change and increasing water scarcity and droughts. Operation objectives are also stated: 1) identify the most appropriate and cost-effective measures in order to efficiently address water scarcity and droughts and 2) consider possible priorities or a hierarchy to guide policy-making in the light of water availability at river basin level.

A report on how to develop Drought management Plans ([ec.europa.eu/environment/water/quantity/pdf/dmp\\_report.pdf](http://ec.europa.eu/environment/water/quantity/pdf/dmp_report.pdf)) states that they should aim to: 1) guarantee water availability to meet essential human needs (health and life), avoid or minimize negative drought impacts on the status of water bodies, especially on ecological flows and quantitative status of groundwater, and minimize negative effects on economic activities.

### Terminology

*Water scarcity:* long-term water imbalance where water demand exceeds water availability (can thus happen also in regions of water abundance but also large water use). It is a human-driven phenomenon.

*Droughts:* temporary decrease in average water availability, primarily due to rainfall efficiency. Their intensity can be compounded by a (man-made) water scarcity situation. Vice-versa, a water scarcity situation can be exacerbated by a drought.

*Drought Management Plan:* a dynamic framework for an ongoing set of actions to prepare for, and effectively respond to drought. It is to move from a crisis management to a risk management based approach. See report on how to develop Drought management Plans ([ec.europa.eu/environment/water/quantity/pdf/dmp\\_report.pdf](http://ec.europa.eu/environment/water/quantity/pdf/dmp_report.pdf))

*Ecological flows:* “hydrological regime consistent with the achievement of the environmental objectives of the WFD in natural surface water bodies as mentioned in Art. 4(1). Considering Art. 4(1) of the WFD, the environmental objectives refer to:

- non deterioration of the existing status
- achievement of good ecological status in natural surface water body,
- compliance with standards and objectives for protected areas, including the ones designated for the protection of habitats and species where the maintenance or improvement of the status of water is an important factor for their protection, including

relevant Natura 2000 sites designated under the Birds and Habitats Directives (BHD)2. See [CIS guidance on e-flows](#).

*Water balance:* “the numerical calculation accounting for the inputs to, outputs from, and changes in the volume of water in the various components (e.g. reservoir, river, aquifer) of the hydrological cycle, within a specified hydrological unit (e.g. a river catchment or river basin) and during a specified time unit (e.g. during a month or a year), occurring both naturally and as a result of the human induced water abstractions and returns.” See the [CIS guidance on water balances](#).

*Water accounts:* “integrates physical (hydrological) and economic information related to water consumption and use, to achieve equitable and transparent water governance for all water users and a sustainable water balance between water availability, demand and supply.” See the [CIS guidance on water balances](#).

### Derogations

The policy does not have regulatory power, thus no need for derogations.

### Types of management measures

The 2007 Communication on WS&D proposes the following measures:

- ▶ Putting the right price on water: Put in place water tariffs on consistent economic assessment of water use and their values; Introduce compulsory metering programmes in all water sectors; Full implementation of WFD
- ▶ Allocating water and water-related funding more efficiently: improving land use planning (e.g. promoting sustainable agriculture, inter-linkage with biofuel development, implementation of SEA Directive, identification of water stress basin, include adequate measures in WFD RBMPs), financing water efficiency (refinement of regional and rural development funding, set up fiscal incentives)
- ▶ Improving drought risk management: develop drought risk management plans (including adequate methodologies for drought thresholds and mapping), set up observatory and early warning system, optimising EU Solidarity Fund and European Mechanism for Civil Protection
- ▶ Consider additional water supply infrastructures: in last resort
- ▶ Fostering water efficient technologies and practices: regulatory standards, set up incentives for uptake
- ▶ Fostering emergence of water saving culture: labelling schemes, establishing actor networks, set up educational programmes, advisory services, campaigns
- ▶ Improve knowledge and data collection: WS&D information system for Europe (present annual European assessment, use of WISE, use of GMES to deliver space-based data), research and development opportunities (use of LIFE and Transboundary Neighbourhood and Partnership Instrument –ENPI)

The Impact Assessment of the 2007 Communication on WS&D identifies 3 scenarios (focus on increasing water supply, focus on water pricing, promoting an integrated approach). The water supply scenario (based on reservoirs, water transfers and desalination) results in benefits in the short term (development of economic activities) but negative impacts in the long term (ecological impacts, salt intrusions, loss of wetlands, insecurity regarding long-term resource availability, increase water price as scarcity increases, social conflicts). Water pricing policies leads to a decrease in water consumption and changes in land use towards higher value uses (welfare gains), but would impact vulnerable economic activity (e.g. agriculture) and lead to affordability issues. The integrated approach highlights the efficiency gains and the possibilities to manage negative impacts.

The 2012 Communication on WS&D re-emphasises the following measures: 1) defining and implementing ecological flow (and integrating in WFD process for achieving Good Ecological Status), 2) defining and implementing targets for water efficiency (including better water accounting and efficiency targets at sectoral level), 3) promoting economic incentives for efficient water use (including application of Art 9 of WFD but also mentioning use of water market/trading mechanisms and Payment for Ecosystem Services), 4) guiding land use to respond to water scarcity (including fighting against illegal abstraction), 5) enhancing drought management (early warning system, drought emergency, Green Infrastructure and water re-use to reduce vulnerability), 6) promoting resilience to climate change (link with adaptation).

The Water Blueprint 2012 builds on the 2012 Communication to emphasise the role of linking WS&D with land use management and ecological status (including hydro-morphological elements, green infrastructure and NWRM, illegal abstraction for irrigation, meeting ecological flows), promoting water efficiency (pricing policies, metering, application of WFD Art 9, use of water accounts, water efficiency targets and water stress indicators in RBMP, eco-design, integration with the Common Agricultural Policy, increasing irrigation efficiency, tackling leakages, water trading, water re-use for irrigation and industrial purposes, European Drought Observatory, integration of climate change and drought risk management plans into RBMP)

**Spatial coverage**

Official publications do not refer to a specific scale of implementation. Options act at different scales and are mainstreamed through different policies. However, the emphasis is now on integrating WS&D in WFD implementation (e.g. through e-flows for GES; measures through RBMP planning and pricing mechanisms), thus the scale is moving towards those of the WFD (water body, RBD). Much emphasis is also on RDP, so another scale of action is farm units and administrative units of the CAP.

([ec.europa.eu/environment/water/quantity/pdf/dmp\\_report.pdf](http://ec.europa.eu/environment/water/quantity/pdf/dmp_report.pdf)) indicates that the scale for applying these plans should be aligned to the WFD, and therefore the river basin or sub-basin level

**Reporting units – what are the specific transposition requirements**

There are no strict reporting obligations under the WS&D except those through other policies (WFD, RDP, etc). Before 2012, annual reports by the Commission ([http://ec.europa.eu/environment/water/quantity/eu\\_action.htm](http://ec.europa.eu/environment/water/quantity/eu_action.htm)) were made to the European Parliament based on a survey made at national level. In 2009 only 14 Member States answered this survey. Since 2012, there is not such apparent reporting, so it is likely that this exercise is now integrated in WFD processes.

### Key planning steps

No specific planning is set in the policy documents. Given the linkages with WFD, RBMP is likely to be the main avenue for planning.

The report on how to develop Drought management Plans ([ec.europa.eu/environment/water/-quantity/pdf/dmp\\_report.pdf](http://ec.europa.eu/environment/water/-quantity/pdf/dmp_report.pdf)) does not present planning steps. However, the report differentiates between pre-drought and during drought activities. Before the drought, Drought Management Plans should be developed. They should include the following content: 1) characteristics of basin under drought conditions, 2) river basin experience of historical droughts, 3) characterization of droughts within the basin, 4) drought warning system implementation, 5) program of measures, 6) organizational arrangements, 7) public supply specific plans, 8) prolonged drought strategy. Levels of drought intensity should be defined; implementation of prevention and emergency measures would be triggered depending on risk level and drought intensity. Strong public participation is necessary for preparing the plan but also during the drought for implementing the emergency measures. An earlier document, pre-dating the 2007 Communication, suggest the following steps: 1) review of historical droughts and impacts (also referred to as drought characterisation), 2) drought indicator network (also referred to as drought control), 3) drought states thresholds calibration, 4) drought mitigation measures, 5) plan audit, 6) drought management improvement. It is seen as a cycle.

### Timelines

The 2007 Communication did not specify any (regulatory) timeframe for the implementation of actions and measures, nor does the 2012 Communication or the Water Blueprint. The most relevant timescale is likely to be the one of the WFD RBMP process.

### Integration/coordination issues with other related pieces of legislation

The 2007 Communication on WS&D explicitly mentions: WFD (through RBMP), CAP (in particular funding under RDP), Structural and cohesion funds (funding of water supply infrastructures), LIFE+ (securing protection of sensitive water habitats), European Union Solidarity Fund and Community Mechanism for Civil Protection (supporting early warning, drought emergency and drought impacts), the transboundary programme under the European Neighbourhood and Partnership Programme (ENPI, to coordinate action between states), SEA Directive (to ensure water efficiency is considered in large investments and other policies). It also mentions the UN Convention to combat desertification UNCCD)

The Impact Assessment of the 2007 Communication on WS&D highlights other synergies: Agenda 21, the Ecodesign Directive 2005/32/EC, Directive 92/75/EEC on labelling and

product standards, Council Directive 89/106/EEC on construction products, energy policies with regards to the promotion of biofuel.

The 2012 Communication on WS&D has highlighted further linkages with the EC Communication on sustainable use of resources COM(2011)17 (reminding Member State on the need to include water efficiency when using cohesion policy funding), European Water Partnership (to promote new technologies), Climate Change Adaptation Strategy (to improve planning and better consider scenarios of future impacts and demand).

In addition, the Water Blueprint 2012 mentions the EU Resource Efficiency Roadmap (specifically the “water milestone”).

### **Coordination issues with the EU Biodiversity Strategy**

The Water Blueprint 2012 is the most specific document on the linkages between WS&D and biodiversity. It states that the use of Green Infrastructures, in particular Natural Water Retention Measures, can help reduce the negative effects of droughts and support the provision of ecosystem services in line with the Biodiversity Strategy.

### **Relevance to ecosystems/habitats?**

The 2007 Communication on WS&D only mentions biodiversity in general.

The Impact Assessment of the 2007 Communication on WS&D emphasise impacts on groundwater (aquifer depletion and seawater intrusion), surface waters (minimum water flows and increased concentrations of pollutants due to less dilution) and wetlands. Droughts can further exacerbate impacts such as seawater intrusion, eutrophication, wetland desiccation, and high rates of fish mortality. Indirectly the WS&D policy affects inland waters (river, lakes), transitional waters (deltas) and groundwater–dependent ecosystems (which can be terrestrial, semi–aquatic and aquatic).

The link to the WFD and the focus on water demand management in the WS&D policy documents would suggest a direct positive link on aquatic biodiversity and the delivery of ecosystem services. The primary aim is to reduce pressure from human activities on the environment. Also, Drought Management Plan primarily aims to reduce the impact of natural water deficit period on the water environment and society, by prioritising the meeting of essential human needs. It does not put emphasis on sustaining all economic activity but rather identify maximum welfare gain while meeting minimum environmental flows.

### **Drivers**

Planning for WS&D is through the preparation of Drought Risk Management Plans and via WFD RBMP. The policy papers use WFD terminology. The Impact Assessment on the 2007 Communication on WS&D refer to the main water uses abstracting or consuming water in Europe as being, in order of importance: agriculture, energy, household (public water supply) and industry. Tourism is also an important sector but its contribution as a driver is only assessed indirectly as direct consumption cannot be assessed. Following its definition, a drought can be driven by climatic factors.

A presentation by the EEA for the review of WS&D policy in 2012 (available [here](#)): presents the following drivers (some are state as pressures too): those linked to climate change (precipitation, evapotranspiration, temperature), population density, water use per sector, irrigation, households/tourism.

The [CIS guidance on water balances](#) presents the following indicators: water demand, conveyance efficiency and losses, economic information on users (yield, income generated, agricultural surface area), additional water supplies (reuse, deslination), water use

A [report on how to develop Drought management Plans](#) identifies the following indicators: stored surface reservoir volumes, aquifer water levels, river flows, reservoir outflows, precipitation, snow reserves.

### Pressures

Planning for WS&D is through the preparation of Drought Risk Management Plans and via WFD RBMP. The policy papers use WFD terminology for pressures. [The 2007 Communication](#) aims to address primarily water abstraction pressures.

A presentation by the EEA for the review of WS&D policy in 2012 (available [here](#)) presents the following pressures (some are seen as drivers too, see Q8.2): those linked to climate change (precipitation, evapotranspiration, temperature), and abstraction for public water supply, irrigation, process water and cooling water. The [CIS guidance on water balances](#) presents the following indicators: abstractions, reservoir inflow/outflow, returned water, water transfers.

### Assessment of Environmental State

Most policy documents on WS&D, especially the early ones such as the [2007 Communication](#), mention a lack of indicators to establish intensities of water scarcity and droughts situations. The [guidance on water balance](#) and [the one on ecological flows](#) provide the two most complete outline of how environmental states can be assessed in relation to WS&D.

A presentation by the [EEA for the review of WS&D policy in 2012](#) presents the following parameters for the environmental state dimension: deficit in water balance (including from natural causes), drought (net precipitation deficit), water exploitation index (WEI), levels of over-abstraction, reservoir storage, river discharge, decreasing groundwater levels, low river flows, loss of wetlands, saltwater intrusion. The [CIS guidance on water balances](#) presents a number of relevant indicators: streamflow, groundwater level, aquifer discharge/recharge, total water availability, change in water storage.

The [CIS guidance on ecological flows](#) suggest that it could serve as a useful indicator for establishing targets to be reached in terms of water quantity for maintaining Good Ecological Status.

### Assessment of Status

There is no specific assessment of environmental status in the early WS&D documents. Policy documents though refer to the link between physical parameters on water quantity (hydro-morphology, and more recently e-flows) and ecological status for surface waters. For

groundwater, a direct assessment on water quantity status. Following the WFD, ecological status for surface waters, quantitative status for groundwater.

### Data

All official documents highlight the lack of homogeneous data on WS&D across Europe. However, efforts have been done under the CIS to develop indicators for WS&D, in particular regarding droughts under the European Drought Observatory (under JRC) and its interoperability arrangements with key data centers at European, regional and local levels.

Some relevant indicators include: [Eurostat](#) –data from eurostat is the most used in the policy documents, in particular (all national level): Water availability, Water abstraction, Water use by supply category (e.g. surface, groundwater) and economical sector, Water use in the manufacturing industry by activity and supply category, Water use balance. Additional relevant eurostat indicators include (all national level): Renewable freshwater resources, Annual freshwater abstraction by source and sector, Water made available for use. At NUTS 2 and RBD levels: Freshwater resources, Water abstraction, Water use. [Agri-environment indicators](#): Irrigable area / Share of irrigable area in utilised agricultural area, Irrigated area / Share of irrigated area in utilised agricultural area, Share of irrigated crop area in total area with that crop, Share of holdings using surface, sprinkler or drip irrigation systems, Volume of water used for irrigation, Water source used for irrigation

[EEA water data center / WISE](#): Water use intensity of irrigated crops, Water exploitation index, WFD WISE Information at water body level on drivers, pressures (e.g. abstraction), impacts (e.g. abstraction exceeds available GW resource), status (e.g. groundwater quantity status). At RBD level, proposed measures (voluntary).

[FAO Aquastat has a range of indicators for water resources and management at national, continental and large river basins levels](#):

Satellite imagery through the [Global Monitoring for Environment Security \(GMES\)](#) to identify areas illegal abstraction

Indicators for droughts are a special case. In the WFD, special clauses apply to the non-achievement of GES in case of “prolonged droughts”. Work on WS&D indicators has focused on better characterising droughts. A report on how to develop Drought management Plans indicates that two types of indicators exist: those that are used to prepare for an event and those that make it possible to characterise the event when it happens.

The [European Drought Observatory](#) is the main gateway for drought indicators in Europe with factsheet available for each of the following indicators: Combined drought indicator; Daily soil moisture/daily soil moisture anomaly/forecast soil moisture anomaly; Standardised Precipitation Index at SYNOP stations from the MARS database (+ those interpolated to 0.25dd grid); Snowpack indicator; Spatial average of SPI at SYNOP stations (+ interpolated for Eurostat NUTS3 regions); Vegetation productivity (fAPAR)/Vegetation productivity anomaly; Vegetation water content/vegetation water content anomaly; Normalised Difference Water Index.

### Funding

EU funds: European Agricultural Fund for Rural Development (EAFRD); European Regional Development Fund (ERDF), Cohesion Fund and European Social Fund (especially for water supply infrastructures); LIFE; European Union Solidarity Fund, Community Mechanism for Civil Protection

WFD: implementation of RBMPs and of appropriate pricing (cost recovery, inclusion of resource and environment costs)

## About AQUACROSS

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Knowledge, Assessment, and Management for AQUATIC Biodiversity and Ecosystem Services aCROSS EU policies (AQUACROSS) aims to support EU efforts to protect aquatic biodiversity and ensure the provision of aquatic ecosystem services. Funded by Europe's Horizon 2020 research programme, AQUACROSS seeks to advance knowledge and application of ecosystem-based management (EBM) for aquatic ecosystems to support the timely achievement of the EU 2020 Biodiversity Strategy targets.

Aquatic ecosystems are rich in biodiversity and home to a diverse array of species and habitats, providing numerous economic and societal benefits to Europe. Many of these valuable ecosystems are at risk of being irreversibly damaged by human activities and pressures, including pollution, contamination, invasive species, overfishing and climate change. These pressures threaten the sustainability of these ecosystems, their provision of ecosystem services and ultimately human well-being.

AQUACROSS responds to pressing societal and economic needs, tackling policy challenges from an integrated perspective and adding value to the use of available knowledge. Through advancing science and knowledge; connecting science, policy and business; and supporting the achievement of EU and international biodiversity targets, AQUACROSS aims to improve ecosystem-based management of aquatic ecosystems across Europe.

The project consortium is made up of sixteen partners from across Europe and led by Ecologic Institute in Berlin, Germany.

## AQUACROSS PARTNERS

Ecologic Institute (ECOLOGIC)   Germany	University of Liverpool (ULIV)   United Kingdom
Leibniz Institute of Freshwater Ecology and Inland Fisheries (FVB-IGB)   Germany	University College Cork, National University of Ireland (UCC)   Ireland
Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC-UNESCO)   France	Royal Belgian Institute of Natural Sciences (RBINS)   Belgium
Wageningen Marine Research (WMR)   Netherlands	Stockholm University, Stockholm Resilience Centre (SU-SRC)   Sweden
University of Natural Resources & Life Sciences, Institute of Hydrobiology and Aquatic Ecosystem Management Austria	Danube Delta National Institute for Research & Development (INCDDD)   Romania
Fundación IMDEA Agua (IMDEA)   Spain	Eawag – Swiss Federal Institute of Aquatic Science and Technology (EAWAG)   Switzerland
Universidade de Aveiro (UAVER)   Portugal	International Union for Conservation of Nature (IUCN)   Belgium
ACTeon – Innovation, Policy, Environment (ACTeon)   France	BC3 Basque Centre for Climate Change (BC3)   Spain

Contact Coordinator	<a href="mailto:aquacross@ecologic.eu">aquacross@ecologic.eu</a>
Duration	Dr. Manuel Lago, Ecologic Institute 1 June 2015 to 30 November 2018
Website	
Twitter	<a href="http://aquacross.eu/">http://aquacross.eu/</a>
LinkedIn	<a href="https://www.linkedin.com/groups/AQUACROSS-8355424/about">@AquaBiodiv</a>
ResearchGate	<a href="https://www.linkedin.com/groups/AQUACROSS-8355424/about">www.linkedin.com/groups/AQUACROSS-8355424/about</a> <a href="https://goo.gl/lcdtZC">https://goo.gl/lcdtZC</a>