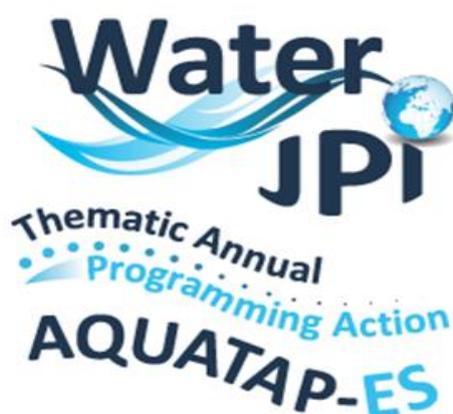




**WaterWorks 2015–2020 in Support of the Water JPI
ERA-Net Cofund Action**



**Proceedings from the 3rd Thematic Annual Programming (TAP)
AQUATAP-ES Workshop**

**“Developing Approaches for Assessing and Optimising the Value of
Ecosystem Services”**

(WP7, Task 7.3)

16 June 2020



OUTPUT SUMMARY	
Project Information	
Project Title:	Water Works 2016–2020 in Support of the Water JPI (WaterWorks2015) – Sustainable water use in agriculture, to increase water use efficiency and reduce soil and water pollution
Project Acronym:	WaterWorks2015
Call Identifier:	WATER-3-2015: Stepping up EU research and innovation cooperation in the water area
Contract Number:	689271
Starting Date:	01/01/2016
End Date:	31/12/2020
Website Address:	http://www.waterjpi.eu/
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Deliverable Title:	3rd TAP AQUATAP-ES Workshop 2020
Deliverable Number:	Internal deliverable
Work Package:	WP7
WP Leader:	Lisa Sheils (EPA) and Armelle Montrose (WW2015 Secretariat ANR)
Nature:	Proceedings
Dissemination:	Public
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Date of Delivery:	03/07/2020

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Acknowledgments

The Water Joint Programming Initiative (JPI) has received funding from the European Union's Horizon 2020 programme for research, technological development and demonstration under Grant Agreement No. 689271 (WaterWorks2015). We wish to acknowledge the invaluable contribution from the invited workshop speakers, moderators, chair, attendees, rapporteurs and Water JPI Secretariat and Coordinator, the WaterWorks2015 ERA-Net Cofund partners and the Water JPI Governing Board (GB), and funding from the European Commission.

In addition, we would also like to thank our colleagues at the Agencia Estatal de Investigación (AEI), Spain, who had kindly offered to host the workshop in their offices in Madrid (before the COVID-19 crisis).



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Abbreviations

AEI	Agencia Estatal de Investigación
ANR	French National Research Agency
BESNET	Biodiversity and Ecosystem Services Network
DSS	Decision support system
EC	European Commission
EEA	European Environment Agency
ES	Ecosystem services
ESA	Ecosystem Services Approach
ESP	Ecosystem Services Partnership
EU	European Union
EwE	Ecopath with Ecosim
JPI	Joint Programming Initiative
MARS	Managing Aquatic Ecosystems and Water Resources under Multiple Stress
NUIG	National University of Ireland Galway
RDI	Research, development and innovation
SRIA	Strategic Research and Innovation Agenda
TAP	Thematic Annual Programming
UCD	University College Dublin
WFD	Water Framework Directive

Executive Summary

The Water Joint Programming Initiative (JPI), “[Water Challenges for a Changing World](#)” (www.waterjpi.eu), was launched following a decision of the Competitiveness Council of the European Union (EU) on 6 December 2011.¹ In June 2020, the Water JPI membership included 23 member countries and three observer countries, which collectively represented 88% of European public research, development and innovation investment in water resources. The Water JPI is dedicated to tackling the ambitious grand challenge of achieving “[sustainable water systems for a sustainable economy in Europe and abroad](#)”.

This report contains the proceedings of the first half of the Water JPI 3rd Thematic Annual Programming (TAP) AQUATAP-ES Workshop on “**Developing Approaches for Assessing and Optimising the Value of Ecosystem Services**”. The establishment of a TAP action is one of the additional activities of the ERA-Net Cofund programme WaterWorks2015.

The aim of the Water JPI TAP is to build a **network of national projects** focused on a network or cluster of excellence of **selected research groups** that is targeted at stakeholders. The network will, within a specific research area, establish a critical mass of research and technological excellence, the integration and sharing of knowledge, infrastructures, data and modelling tools, training and capacity building, in addition to improved communication and networking with stakeholders and the scientific community. This cluster will allow coordination between the individual projects and lead to a greater impact at the European level, addressing research gaps and avoiding duplication.

The workshop was originally due to take place in Madrid but, because of the global COVID-19 pandemic, it was changed to a half-day virtual workshop. The workshop was held on 16 June 2020 and addressed aquatic ecosystems services data and modelling needs. The second part of the original workshop will now take place in October 2020 as a half-day virtual workshop, with discussions centring on decision support systems(DSSs) and tools.

Nineteen people from seven countries attended the half-day virtual workshop in June 2020, made up of the existing AQUATAP-ES network group, members of the steering committee and the wider community of the Water JPI. All of the presentations are available on the Water JPI website: [Water JPI AQUATAP ES](#). The main purpose of this workshop was to initiate work on the medium-term goals around data and modelling needs. Members of the group used their collective knowledge to identify potential data needs. These needs will depend on how ecosystem services are being considered and the questions that stakeholders ask/information that they seek. The data needs will also influence the modelling and in turn the DSSs. This third workshop demonstrated the increase in outputs achieved by the network participants as they work together and further develop the activities in the AQUATAP-ES implementation plan. At the centre of this group is a continuum of strong and positive collaboration in which the network participants will further co-develop outputs, impacts and linkages with stakeholders to ensure that the message on the importance of ecosystems services is central to policy and practice and can be practically applied on the ground to make a real impact.

¹ [Council conclusions](#) on the launching of the JPIs on “Healthy and Productive Seas and Oceans”, “Urban Europe – Global Urban Challenges, Joint European Solutions”, “Connecting Climate Knowledge for Europe”, “Water Challenges for a Changing World” and “The Microbial Challenge – An Emerging Threat to Human Health” – Adoption 17424/11 of 29 November 2011.

1. Introduction

1.1. Water Joint Programming Initiative

Over the past few decades, several policies and research, development and innovation (RDI) activities have been put in place to protect water resources. Despite these efforts, many regions in Europe still face water scarcity and/or water quality problems. Climate change, groundwater over-abstraction and diffuse pollution are, among others, the main factors influencing water availability and quality. If no action is taken, their impact will be even greater in the years to come. Guaranteeing a sustainable supply of good-quality water should be a priority for European society. Both policies and RDI activities should therefore contribute to this aim. Water supply for the development of various activities (agriculture, energy production, public services, etc.) also needs to be ensured to benefit the economic prosperity of the European Union (EU).

The Water Joint Programming Initiative (JPI), "[Water Challenges for a Changing World](https://www.waterjpi.eu)" (www.waterjpi.eu), has recently published its new Water JPI Vision 2030 and Strategic Research and Innovation Agenda (SRIA) 2025. *Water JPI Vision 2030: Together for a Water-secure World* outlines what the Water JPI aims to achieve during the next 10-year period (to 2030) and sets out the roadmap for all Water JPI activities, taking into account the main trends, key drivers and challenges in relation to our water resources (**Figure 1**).

The *Water JPI Strategic Research and Innovation Agenda 2025* is the 5-year reference base, highlighting the range and direction of all Water JPI activities for that period, which will be delivered through the Water JPI implementation plan. The SRIA 2025 has been developed to guide future water-related RDI actions. It sets out specific research themes, sub-themes and priorities. These research priorities can then be considered by various stakeholders, such as researchers, regulatory agencies, policymakers, industry and the public. Four core themes will drive this agenda: (1) ecosystems, (2) health and wellbeing, (3) water value and usage and (4) sustainable water management.

Identifying research gaps and topics, as well as the means of implementation (e.g. joint actions, via calls or networks), will be prioritised and an agreed implementation plan will be developed, detailing joint actions. The Water JPI will act as a facilitator of cooperation between countries on water research, supporting European and international water and environmental policy by coordinating and funding research on existing and emerging problems to come up with feasible solutions.

By June 2020, this initiative had brought together 23 partner countries, the European Commission (EC) and three observer countries. The international cooperation dimension of the first Water JPI implementation actions included Israel, Norway, the Republic of Moldova, South Africa and Turkey (full Water JPI members), as well as two additional Horizon 2020-associated countries (Egypt and Tunisia) and three international partners (Brazil, Canada and Taiwan).

1.2. ERA-Net Cofund Programme WaterWorks2015

Within the ERA-Net Cofund programme [WaterWorks2015](#), Work Package 7 focuses on Water JPI alignment activities. Alignment should enable the optimal use of national research funds.

WaterWorks2015 is an EC-funded ERA-Net Cofund action supporting the development of the first Water JPI Thematic Annual Programming (TAP) (Work Package 7, Task 7.3). The TAP is one of the tools of alignment. It is being developed by the Water JPI for further alignment, particularly of national RDI programmes and projects related to water challenges.

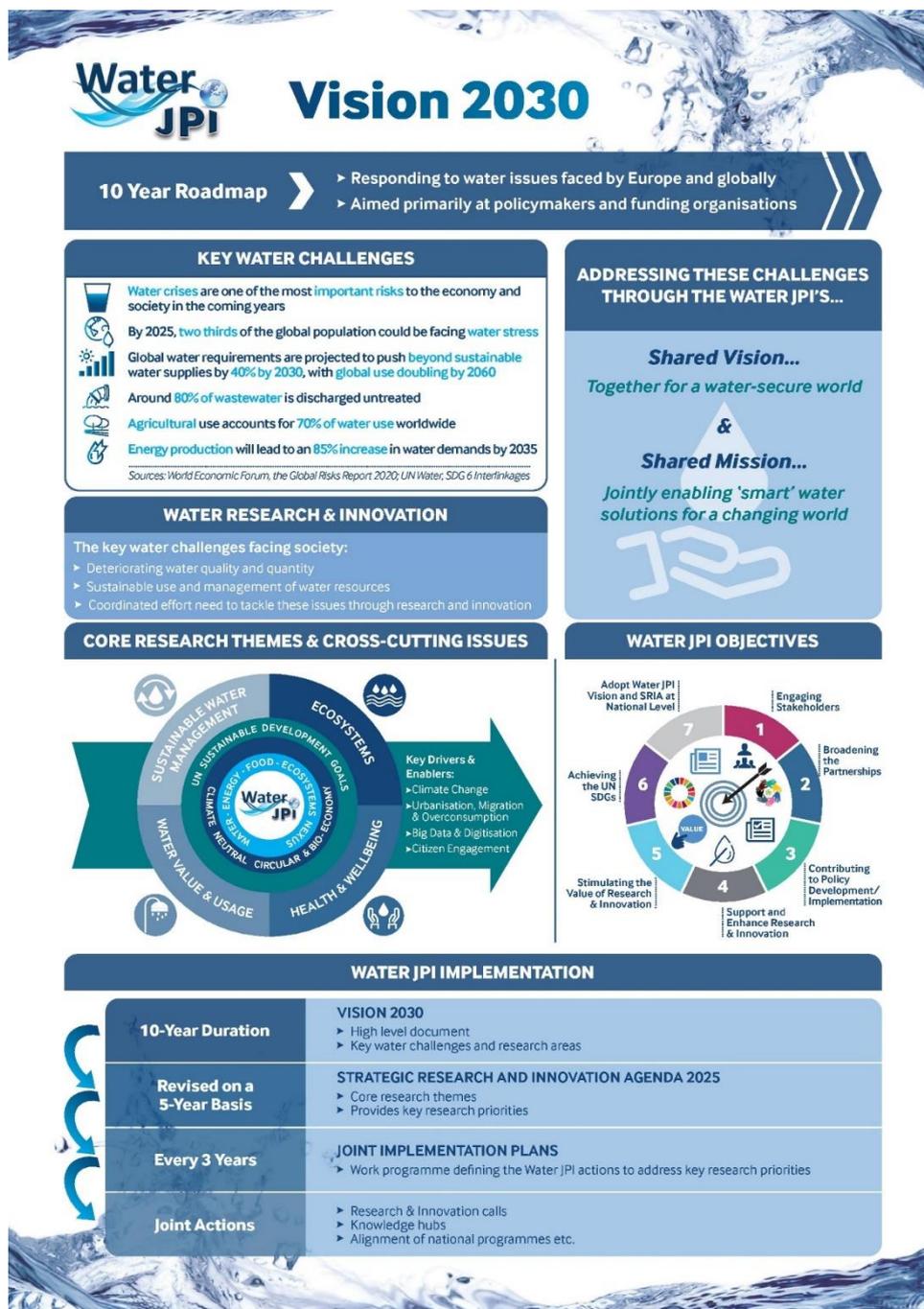


Figure 1: Water JPI Vision 2030 – infographic

To achieve the appropriate implementation of all relevant policies and protect the health of citizens, the Water JPI elaborates on further RDI actions that should be undertaken in the area of ecosystem services (ES). The topic of the first Water JPI TAP action is SRIA subtheme 1.1, “Developing Approaches for Assessing and Optimising the Value of Ecosystem Services”. Participation in the TAP action is not limited to WaterWorks2015 partners but is open to all funders of the Water JPI community and is voluntary. Along with Knowledge Hubs, it is part of the clustering/networking activities of the Water JPI and its related SRIA themes. This action will run for 24 months, i.e. from

June 2019 until June 2021. The national research funding agencies participating in this action are from Finland, Ireland, the Netherlands and Spain. The TAP, now referred to as AQUATAP-ES, is overseen by a steering committee consisting of the Water JPI coordination and the funding partners of the projects involved.

The first workshop of the Water JPI AQUATAP-ES TAP on ecosystem services took place on 12 June 2019 in Dublin, Ireland. Attendees at the workshop included the first TAP researchers, funding partners, members of TAP actions from other JPIs and the wider Water JPI community. This provided an opportunity for participants to meet each other and discuss the purpose of the Water JPI, to gain an understanding of the projects and teams involved in the AQUATAP-ES TAP, and to identify synergies and outputs that would inform the TAP Implementation Plan. The second workshop of the AQUATAP-ES TAP [2nd Water JPI AQUATAP-ES workshop](#) aimed to define relevant stakeholders and appropriate indicators to measure the impact of the AQUATAP-ES. The network also worked on drafting a policy brief(s).

1.3. Aims of this Report

This report contains the proceedings of the third TAP AQUATAP-ES Workshop held online on 16 June 2020. This replaced the planned full-day meeting that was due to be hosted in Madrid by our colleagues at the Agencia Estatal de Investigación (AEI), Spain. This report was prepared based on the presentations and notes provided by the facilitators and WaterWorks2015 Secretariat and includes feedback received from the attendees on the draft version of this document. All presentations, as well as the workshop documentation, are available from the Water JPI website [Water JPI AQUATAP ES](#).

2. Methodology

The workshop was organised by the Environmental Protection Agency (EPA) (Ireland), with the support of the AQUATAP-ES Scientific Coordinators Mary Kelly-Quinn (outgoing) and José María Bodoque del Pozo (incoming).

2.1. Workshop Aims and Objectives

The third workshop aimed to bring together the team members of each AQUATAP-ES TAP project and the steering committee members to reflect on their short-term achievements to date, finalise the policy brief and initiate work on the medium-term goals around data and modelling needs. DSS and tool needs were discussed briefly in the context of “setting the scene” for the follow-up half-day virtual workshop, due to be held in October 2020.

The objectives of this workshop were as follows:

- finalising the first policy brief for 2020;
- compilation of data and modelling needs;
- “setting the scene” with regard to DSS and tool needs.

The workshop began with a welcome from the Water JPI Vice Chair, followed by three sessions focusing on the three objectives and a closing session that included a brief summary and an outline of next steps and dates for the next workshop(s).

2.2. Workshop Attendees

A total of 19 people attended the workshop, including representatives from the six TAP projects from seven different countries. The AQUATAP-ES steering committee members from three countries also attended. [Annex 1](#) provides a list of all attendees.

2.3. Workshop Programme

The workshop programme is available in [Annex 2](#). The workshop included one plenary session as well as two discussion sessions. It was designed to stimulate open discussions and further development of outputs among the participants, in particular the members of the seed group from the project network.

2.3.1. Part I: Plenary Session – Water JPI AQUATAP-ES Mid-term Results

The plenary session was chaired by **Miguel Ángel Gilarranz Redondo (Water JPI Vice Chair and AEI)**, who provided an opening welcome. **Mary Kelly-Quinn (AQUATAP-ES Scientific Coordinator and University College Dublin)** outlined the aims of the workshop and reflected on the network's short-term goals and achievements – “our first year”. Mary also gave an update on the feedback on the policy brief with stakeholder input and next steps.

2.3.2. Part II: Mid-term Goals

Mary Kelly-Quinn facilitated Part II of the workshop, which focused on initiating work on the medium-term goals around data and modelling needs. DSS tool needs were discussed briefly in the context of “setting the scene” for the follow-up half-day virtual workshop, due to be held in October 2020.

Session 1: Compilation of data and modelling needs

- **Data:** What ecosystem services data do we need and what should be prioritised for collection? (José María Bodoque del Pozo, UCLaM,).
- **Modelling:** The role of modelling in ecosystem services, and what models are available and of use? (Michael Bruen, UCD).

Session 2: Guidance on developing decision support tools

- Importance of decision support tools: “setting the scene” (Christian Feld).

2.3.3. Part III: Next Steps

Lisa Sheils (AQUATAP-ES Steering Committee Chair and EPA) facilitated Part III of the workshop.

Miguel Ángel Gilarranz Redondo officially handed over the AQUATAP-ES Scientific Coordinator role from Mary Kelly-Quinn to José María Bodoque del Pozo.

Lisa Sheils closed the workshop with a discussion on the next steps and “who leads on what actions”. She confirmed that a date in October for the DSS workshop would be circulated in the coming weeks.

3. Proceedings

3.1. Welcome and Part I: Plenary Session – Water JPI AQUATAP-ES Mid-term Results



Miguel Ángel Gilarranz Redondo, Water JPI Vice Chair opened the plenary session, welcoming attendees to the workshop. He also acknowledged the ongoing work of members of the AQUATAP-ES network and

their continued collaboration. He noted the forthcoming call from BiodivERSA on the restoration of ecosystems, BiodivRestore, and the importance of network members being fully aware of such calls. He wished all a productive and successful workshop.

Mary Kelly-Quinn (AQUATAP-ES Scientific Coordinator) from **University College Dublin** reminded the attendees of the overall goal of the AQUATAP-ES network in seeking to foster integration of the

ecosystem services concept/framework into decision-making relating to the management of aquatic resources. This necessitates consideration of:

- who the key stakeholders are and their needs;
- information needs, e.g. policy briefs;
- data needs, models, tools and training.



Mary provided an update on what the AQUATAP-ES TAP group had achieved during the first 12 months (mid-term results) and the expected outputs of this

“truncated” third workshop. Mary summarised the agreed implementation plan, which is considered to be a “living document”. In addition to the originally agreed outputs, additional short-term achievements/outputs have been produced by the group. From June 2019 to June 2020, two AQUATAP-ES workshops were held, in June 2019 in Dublin and in November 2019 in Brussels, and there has been ongoing collaboration with internal “focus groups”, culminating in the following completed outputs, among others: publication of papers, acceptance to be the host for a session at the third Ecosystem Services Partnership (ESP) Europe conference in early 2021, and feedback on the *Handbook on the Use of Scenarios in Support of Decision-making* (BiodivScen, BiodivERSA–Belmont Forum action). It was noted that the network had taken on a number of additional activities when opportunities arose, which were not initially planned in its implementation plan.

- The mapping of TAP expertise.
- A submission to the BiodivERSA Sutherland Scan.
- Mapping of TAP impact
- Input to the Water JPI SRIA experts workshop.
- Development of a policy brief.

Planned Outputs Implementation Plan	Other Outputs
Mapping of TAP expertise – June 2019	Paper completed for Springer Encyclopedia of the UN Sustainable Development Goals. Clean Water and Sanitation: Title: <i>Role of the Ecosystem Services Approach & Natures Contributions to People (NCP) in supporting the achievement of SDG6 targets</i> – February 2020
Input to Biodiversa Sutherland Horizon Scan as a group – June 2019	Accepted as Host for Session @ 3rd ESP Europe Conference, (spring 2021) 'Progress and challenges in the operationalisation of the ecosystem services approach for aquatic resources management' – application March 2020
Mapping of TAP impact – October 2019	Feedback on the Handbook on the Use of Scenarios in Support of Decision-making (BiodivScen, BiodivERSA-Belmont Forum action) – May 2020
Input to the Water JPI Consultative SRIA Workshop – October 2019	Sought & compiled feedback on the draft policy brief - March-May 2020
Policy Brief – draft Feb. 2020	Contact made with various initiatives/projects

3.2. Policy Brief with Stakeholder Input and Next Steps

Mary Kelly-Quinn (AQUATAP-ES Scientific Coordinator) updated the group on the policy brief, following on from its original drafting at the second workshop and including feedback collated from targeted stakeholders. The policy brief is a short document outlining the opportunities that the ecosystem services approach offers for the improved protection and management of aquatic resources. Approximately 17 responses were received from key stakeholders, including the Directorate-General Joint Research Centre, the European Environment Agency (EEA), the French Biodiversity Agency, the Ministry of the Environment of Finland and a number of Irish departments, agencies and practitioners, e.g. the Local Authority Waters Programme (LAWPRO), National Parks and Wildlife Service and EPA. See the presentation for a full listing.

3.2.1. Discussion

Overall, the policy brief was received positively and there was general agreement that it explained the ecosystem services approach (ESA). Based on the feedback received from stakeholders a number of common points and recommendations on how to improve the policy brief were discussed. Comments highlighted the need to identify our target audience is, rather than trying to communicate to different audiences, leading to further discussion of whether or not the group needed to consider different briefs for different target groups.

Joost Backx commented that the policy brief should target policymakers (high level) and that the use of other types of media should be considered for other audiences.

Harri Hautala and Christian Feld agreed that the policy brief should target high-level policymakers. Dominique Darmendrail was in agreement on the target audience but reminded the group of the importance of including the agencies that fund these Ecosystem Services (ES) themes/topics, as well as EU bodies.

Michael Bruen commented on the need to try and engage policymakers who are not convinced by the ESA; this would have an important impact, on uptake and informed decision making.

All: The group agreed to make the policy brief more evidence-orientated to target a particular audience. Mary asked for volunteers within the group to assist in redrafting the policy brief based on the discussion and the feedback received, with the aim of having a final policy brief ready for circulation by the **end of August 2020**. Christian Feld, Michael Christie, Michael Bruen and Vicenç Acuña volunteered and Mary will follow up with them.

3.3. Part II: Mid-term Goals

Mary Kelly-Quinn (AQUATAP-ES Scientific Coordinator) facilitated Part II of the workshop, which focused on initiating work on the medium-term goals around data and modelling needs. The requirement for Decision-support Tools needs were discussed briefly in the context of “setting the scene” for the follow-up half-day virtual workshop, due to be held in October 2020.

Mary highlighted that the aim of the group is to use members’ collective knowledge to identify potential data needs. These needs will depend on how ecosystem services are being considered and the questions that stakeholders ask/information that they seek. The data needs will also influence the modelling.

3.3.1. Session 1: Compilation of data and modelling needs

Data: What ecosystem services data do we need and what should be prioritised for collection?

Session 1: Ecosystem Services - Data
José María Bodoque del Pozo

Questions raised

- Based on your experience what questions/information might those in policy and practice (e.g. resource managers, monitoring etc.) need answers to in relation to ecosystem services? Consider whether each is relevant to policy or practice, or both.
- Identify the data types required to address the above questions (may relate to location, quantity, quality, change in the ES).
- Should we seek input from stakeholders in relation to their data/information needs?
- If yes, how might this be best achieved? Online survey?
- How do we communicate/make available the output of this exercise? Short report? Presentation at ESP conference and follow-up publication?

www.waterjpi.eu

José María Bodoque del Pozo (University of Castilla-La Mancha, Spain) presented on the importance of identifying data needs; the lack of key data has been identified as an issue that limits the integration of ecosystem service values into decision-making. He also presented the feedback submitted by the group following his request for input to a short questionnaire, which was circulated in advance of the workshop (Annex 3). Jose asked if anything was missing? What data types should be focused on? Who is the key audience for this information and how will the group disseminate it and in what

format?

Discussion

Michael Christie suggested a potential additional question on how to integrate social, culture, bio economy measures and asked if the group thought that this would be appropriate.

Joost Backx commented on data availability and questioned how to deal with missing data. Mary acknowledged this good observation and pointed to the need to identify missing data. Following on from a comment by Lisa Sheils regarding the questions needed to emphasis the value of ecosystem services, for example in land use and changes in land use, Mary responded that the identification of key data for measuring stressors is critical.

Marieke de Lange inquired about the use of existing data, such as those already collected as part of the Water Framework Directive or Natura 2000, for assessing ES.

Mary confirmed that such data are mainly available for water quality and are not targeted to answer the questions on ecosystem services. We need to identify the attributes of the ecosystem services that respond to water quality deterioration and implementation of mitigation measures. Christian Feld noted that there is a need to link biophysical variables to services through processes and functions, so functions also need to be investigated. Michael Christie commented that the use of value transfer methods to transfer existing values from N2000 to new case studies is possible; however, there tends to be high transfer errors in doing so. The use of value transfer therefore tends

to depend on how accurate the values need to be and the available budget. Marieke agreed that the linking of structure with process and functions is a key aspect to be fully aware of.

Anne Marie Power pointed to the lack of marine ecosystem services data. With regard to marine management the collation of indicators is ongoing, but this has demonstrated a major gap in marine ecosystem services/data etc .She highlighted the role of OSPAR and ES in support decision-making' for example in offshore wind farm construction and installation. Kate Schoenrock-Rossiter added to this by commenting on National University of Ireland Galway's work in developing a food web model for kelp forests in Ireland using 4 years of monitoring data and pointing out that the basic biological data on fish, for instance, are lacking to create this.

Joost Backx stressed the importance between quantifying all of the ESS in a water system or quantifying only those affected by the management action, project or activity. Often ESS are used only to compare scenarios, and this should be kept in mind during these data and the modelling process.

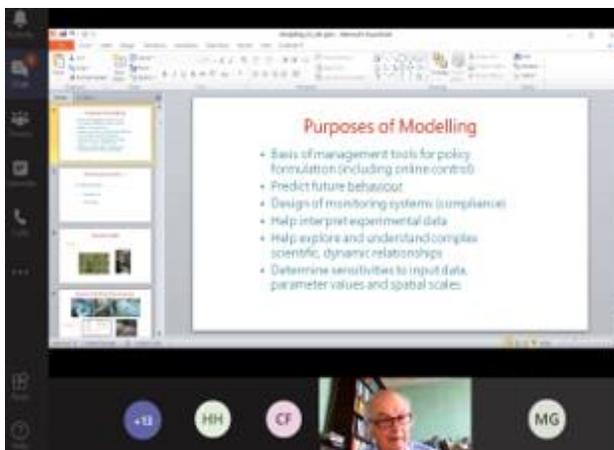
Target audience and how to communicate the output from this exercise

Dominique highlighted that the EEA is collecting such information, on ecosystem services. In the Water4All initiative, this is one of the objectives is to bridge the gap between policy and research monitoring, and it is currently looking for tools to achieve this objective. Vicenç Acuña (Catalan Institute for Water Research) pointed to the ESP. Christian Feld pointed out that scientists from the ESP are a key audience as they could provide data for synthesis.

All: The group agreed to distribute a revised set of questions in the form of a questionnaire or an online survey, to be widely distributed to the target audience within the ES community. All AQUATAP-ES members will be asked to circulate this to their national and international contacts. It will also be circulated to the EU and to key stakeholders and the ESP.

José will collate the feedback and produce a short report/paper on the findings, which may feed into the ESP session being hosted by AQUATAP-ES. He will contact members in the coming weeks for support to achieve this. Mary and Lisa confirmed that they will also assist.

Modelling: The role of modelling in ecosystem services, and what models are available and of use?



Michael Bruen (University College Dublin, Ireland) presented on the role and purposes of modelling, including providing detailed examples. Various approaches can be used for physical modelling and mathematical/numerical modelling. He illustrated the different steps involved in developing a model, before giving an example of model conceptualisation from “climate change” to “institutional change”. He emphasised the importance of using models to inform management in order to identify when actions will improve or worsen a particular situation.

Discussion

Michael highlighted the missing link between ecological models and ES responses, and this is something the network needs to consider in the work they are undertaking to achieve their mid-term goals.

Anna Kuparinen commented on the need to estimate parameters in a more dynamic manner, and the difficulties in getting the right data to develop a good model.

Marieke enquired about the availability of an overview of good ecological models, allowing the prediction of processes and ecological interactions.

All: There was a general discussion around the importance of data and how they feeds into developing models and DSSs and tools that are robust to inform practitioners. Uncertainties in and constraints on the availability of data are inter-related and are a risk, and contingencies needs to be built into models to counter this.

Dominique enquired about the resources that are needed to develop and use models from an end-user perspective and indicated that models should be user-friendly to help end-users in their day-to-day management. Michael replied that the objective is to build validated components in order to obtain tools that produce accurate results.

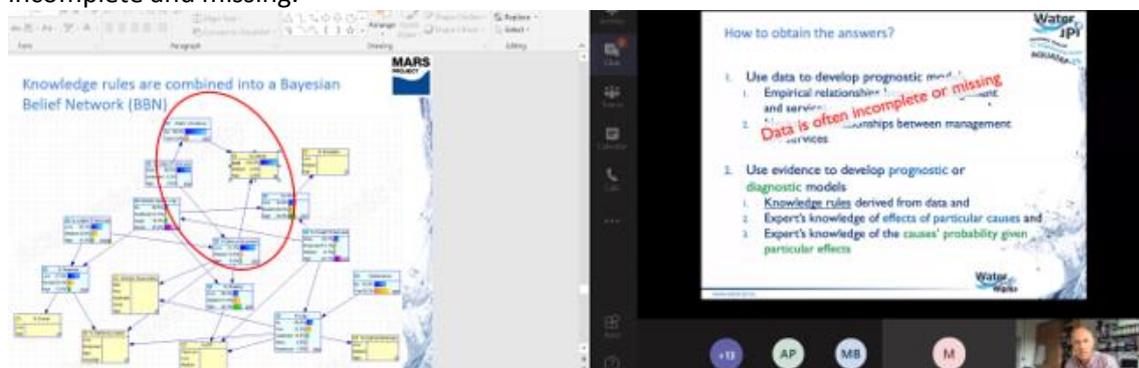
José indicated that it will be important to know what types of data needs to be identified and what other questions need to be answered.

Michael suggested producing a data + modelling catalogue of models used in ecosystem services assessment and a short guidance note for a selection of models that could be used for ecosystem services support for decision-making and practical application. Michael and José are to collaborate on this.

3.3.2. Session 2: Guidance on developing decision support tools

Importance of decision support tools: “setting the scene”

Christian Feld (University of Duisburg-Essen, Germany) presented examples of multiple pressures and their impact on ecosystems that water managers need to address to reverse degradation. The problem is the missing link between ecological assessment and management, with data often incomplete and missing.



Decision support tools aim to inform decisions using a combination of data and knowledge, qualification and quantification of effects and potential causes, and estimation of uncertainties, but will not make the actual “decision”. Christian gave a number of working examples of DSS in use for ES management. The University College Dublin ESDecide project, led by Mary Kelly-Quinn, aims to inform

management decisions to improve river ES. The MARS project (Managing Aquatic Ecosystems and Water Resources under Multiple Stress) used Bayesian belief networks allowing the link between ecosystem services management for prognosis and ecosystem services management for diagnosis to be made. Christian's introduction to DSS was welcomed by all in attendance and set the scene for the next workshop, which will focus solely on DSSs and tools for AQUATAP-ES. The feedback from the data and modelling exercises undertaken in the interim period will also feed directly into this.

4. Part III: Next Steps

Miguel Ángel Gilarranz Redondo, Water JPI Vice Chair, officially handed over the AQUATAP-ES Scientific Coordinator role from Mary Kelly-Quinn to José María Bodoque del Pozo. Miguel thanked Mary on behalf of the group for her tireless efforts in getting the network up and running and delivering major achievements in such a short time frame. He congratulated José on stepping into the role and wished him well and continued success for the next 12 months. Further acknowledgment of Mary's work was voiced by **Dominique Darmendrail**, Water JPI Coordinator, and best wishes were given to José. Both Miguel and Dominique thanked the group as a whole for its positive energy and the collaborative efforts of the AQUATAP-ES members, as well as the successful coordination, which had effectively supported their efforts.

Mary thanked the "Great TAP Team" for its support over the previous 12 months, which had facilitated effective coordination, with various members taking on extra tasks, and expressed delight at handing over to José. José thanked the group for the opportunity to take on the Scientific Coordinator role and commented that he was looking forward to the continued support and full engagement of the members going forward.

Lisa Sheils, AQUATAP-ES Steering Committee Chair, closed the workshop with a discussion on next steps and "who leads on what actions" – see "Summary of Actions". She thanked the group for its efforts to date and engagement in the workshop. She confirmed that a date for the DSS workshop in October would be circulated in the coming weeks.



Throughout the workshop a number of papers and useful websites and approaches were discussed:

- These papers are to be circulated following the workshop.
- Ecopath with Ecosim (EwE) for implementing the ecosystem-based approach to marine fisheries management (paper by Heymans *et al.*, 2016). Spatial implementation is being developed with the EwE approach using Ecospace. A useful website is <https://ecopath.org/>

- The ESP connects over 3000 ecosystem services scientists, policymakers and practitioners, who work together in more than 40 working groups and a growing number of national networks on all continents. See <https://www.es-partnership.org/>
- A model selection tool available from the MARS project. See <http://fis.freshwatertools.eu/index.php/mst.html>
- The recently published ESMange research report: *Incorporation of Ecosystem Services Values in the Integrated Management of Irish Freshwater Resources*. See <https://www.epa.ie/pubs/reports/research/water/research312.html>
- The website of the University College Dublin ESMange project. See <https://www.ucd.ie/esmanage/>

Summary of Actions:

1. Policy brief – aimed at high-level policymakers – to be revised based on feedback and finalised by the end of August 2020. Mary to lead.
2. Data needs survey/questionnaire to be circulated to the ES community in June/July 2020. Preparation of a short report collating the findings for potential inclusion in the ESP session. José to lead, with support from Lisa.
3. All will be requested to circulate the survey/questionnaire to their contacts and submit feedback to José.
4. Data + modelling needs – a catalogue of models used in ecosystem services assessment and a short guidance note for a selection of models that could be used for ecosystem services support in decision-making and practical application will be produced by Michael. Michael and José to collaborate on this.
5. José and Lisa to work with Christian on the DSS workshop, to be held in mid-October. Lisa to lead.
6. Circulate papers and presentations and draft proceedings and update the Water JPI website. Lisa to lead.

Annex 1. List of Attendees

TAP membership	First name	Surname	Organisation
Seed group	Vicenç	Acuña	Catalan Institute for Water Research, Spain
Seed group	Joost	Backx	Rijkswaterstaat, the Netherlands
Seed group	José María	Bodoque del Pozo	University of Castilla-La Mancha, Spain
Seed group	Michael	Bruen	University College Dublin, Ireland
Seed group	Michael	Christie	Aberystwyth University, UK
Water JPI Coordinator	Dominique	Darmendrail	French National Research Agency (ANR)/Water JPI, France
Seed group	Marieke	de Lange	Rijkswaterstaat, the Netherlands
Seed group	Andrés	Díez Herrero	University of Castilla-La Mancha, Spain
Seed group	Christian K.	Feld	University of Duisburg-Essen, Germany
Steering committee	Miguel Ángel	Gilarranz Redondo	AEI, Spain
Seed group	Aaron	Golden	National University of Ireland Galway
Steering committee	Harri	Hautala	Academy of Finland (AKA)
Seed group	Mary	Kelly-Quinn	University College Dublin/Coordinator, Ireland
Seed group	Anna	Kuparinen	University of Jyväskylä, Finland
Seed group	Armelle	Montrose	French National Research Agency (ANR)/Water JPI WaterWorks2015 Secretariat
Seed group	Jeremy	Piggott	Trinity College Dublin, Ireland
Seed group	Anne Marie	Power	National University of Ireland Galway
Seed group	Kathryn	Schoenrock-Rossiter'	National University of Ireland Galway
Steering committee	Lisa	Sheils	EPA, Ireland
Apologies			
Seed group	Craig	Bullock	University College Dublin, Ireland
Steering committee	Esther	Chacon	AEI, Spain
Steering committee	Prisca	Haemers	Ministry of Infrastructure and Water Management (IenW), the Netherlands
Seed group	Marcin	Penk	Trinity College Dublin, Ireland

Annex 2. Programme

Water JPI Thematic Annual Programming (TAP) Action AQUATAP-ES

Third Workshop 09.30–13.00 (CEST)

Date: 16 June 2020 remote meeting

Virtual Meeting: MS Teams virtual meeting

Attendees: TAP network researchers, TAP steering committee (optional: Water JPI members)

09.30: Ground rules: Lisa Sheils

All attendees on mute apart from Speakers and Chairs

Q&A to be done via TEAMS chat facility (visible to all – no private messaging)

Part I: Plenary Session – Water JPI AQUATAP-ES Mid-term Results

09.30–9.35: Welcome: Miguel Ángel Gilarranz Redondo, Water JPI Vice Chair

09.35–9.45: Aims of the workshop and reflections on our short-term goal achievements – our first year: Mary Kelly-Quinn (AQUATAP-ES Coordinator)

09.45-10.00:

- Policy brief with stakeholder input and next steps: Mary Kelly-Quinn

Part II: Mid-term Goals – Mary Kelly-Quinn

Session 1: Compilation of data and modelling needs

10.00–11.00:

- **Data:** What ecosystem services data do we need and what should be prioritised for collection?: José María Bodoque del Pozo

11.00–11.15: Coffee break (15 mins)

11.15–12.15:

- **Modelling:** The role of modelling in ecosystem services, and what models are available and of use?: Michael Bruen

Session 2: Guidance on developing decision support tools

12.15–12.45:

- Importance of decision support tools: “setting the scene”: Christian Feld

Part III: Next Steps

12.45–13.00: Lisa Sheils

- Handover of the Scientific Coordinator role to Jose from Mary: Miguel
- Recap to the audience by TAP Action members on session
- Date for the next meeting (another half-day virtual meeting) on DSS in September/October.

Annex 3. Advance Questionnaire Template Part 11: Data and Modelling Needs



Overall goal of AQUATAP-ES: informing policy and practice. AQUATAP-ES will seek to foster integration of the ecosystem service concept/framework into decision-making relating to the management of aquatic resources. This will necessitate consideration of who the key stakeholders are, their needs, and the tools necessary to facilitate communication (e.g. policy briefs) or operationalisation/application (e.g. numerical models and decision support tools and training) of the concept in policy and practice.

AQUATAP-ES Workshop 3, 16 June – Part 11

The main purpose of Part 11 of the workshop is to initiate work on the medium-term goals. The goals are listed below, as outlined in our Implementation Plan.

Medium term (February 2020–September 2020)

- ❖ *Compilation of data and modelling needs.* Lack of key data has been identified as an issue that limits the integration of ecosystem service values into decision-making. Using the collective knowledge of AQUATAP-ES and considering the modelling development and calibration needs for decision support we will compile a listing of key data that should be prioritised for collection. Output to be made available to key stakeholders concerned with environmental data collection/monitoring. **Deadline:** June 2020.
- ❖ *Guidance on developing decision support tools/principles for decision-making.* Those with expertise in this area will host a workshop with AQUATAP-ES members to share expertise. This output may be delivered as a workshop associated with an existing TAP face-to-face meeting. Alternatively, appropriate funding would need to be identified. Further details are to be confirmed. **Deadline:** November 2020.

Workshop – Part 11: Data and Modelling Needs

Session 1: Data needs (focus on aquatic resources)

In this session we will use our collective knowledge to identify potential data needs. These needs will depend on how ecosystem services are being considered and the questions that stakeholders ask/information that they seek. The data needs will also influence the modelling.

A number of questions are posed below and you are asked to provide answers to each in advance of the meeting on 16 June 2020. Please forward responses to JoseMaria.Bodoque@uclm.es ([cc mary.kelly-quinn@ucd.ie](mailto:ccmary.kelly-quinn@ucd.ie)) by Friday 12 June 2020.

The responses will be compiled and presented by José Maria Bodoque del Pozo on 16 June 2020 for further input and discussion.

1. Based on your experience, what questions/information might those in policy and practice (e.g. resource managers, monitoring) need answers to in relation to ecosystem services? Consider

whether each is relevant to policy or practice or both. Some examples are included in the following table. **Add other examples to this table.**

	Information needed	Policy	Practice
1	Where are particular ecosystem services (ES) provided by the aquatic resources in a given catchment or coastal area		✓
2	What is the value of a particular service, e.g. provision of clean water?	✓	
3	How does change in land use inputs impact on the flow of ES?	✓	
4	How are nature-based solutions integrated into natural resource management?	✓	
5			
6			
7			
8			

2. Identify the data types required to address the questions above (may relate to location, quantity, quality, change in the ES) and add to the table below.

Types of data	Questions from 1 above									
	1	2	3	4	5	6	7	8		
Habitat/ecosystem maps	✓		✓							
Land use										
Land use inputs										
Water quality indicators				✓						
Other ES condition indicators				✓						
Stakeholder categories										

We will use the information from questions 1 and 2 to produce a schematic that shows the common and unique data types required for each question/information needs.

3. Should we seek input from stakeholders in relation to their data/information needs?

4. If yes, how might this be best achieved? Online survey?

5. How do we communicate/make available the output of this exercise? Short report? Presentation at ESP conference and follow-on publication?
