

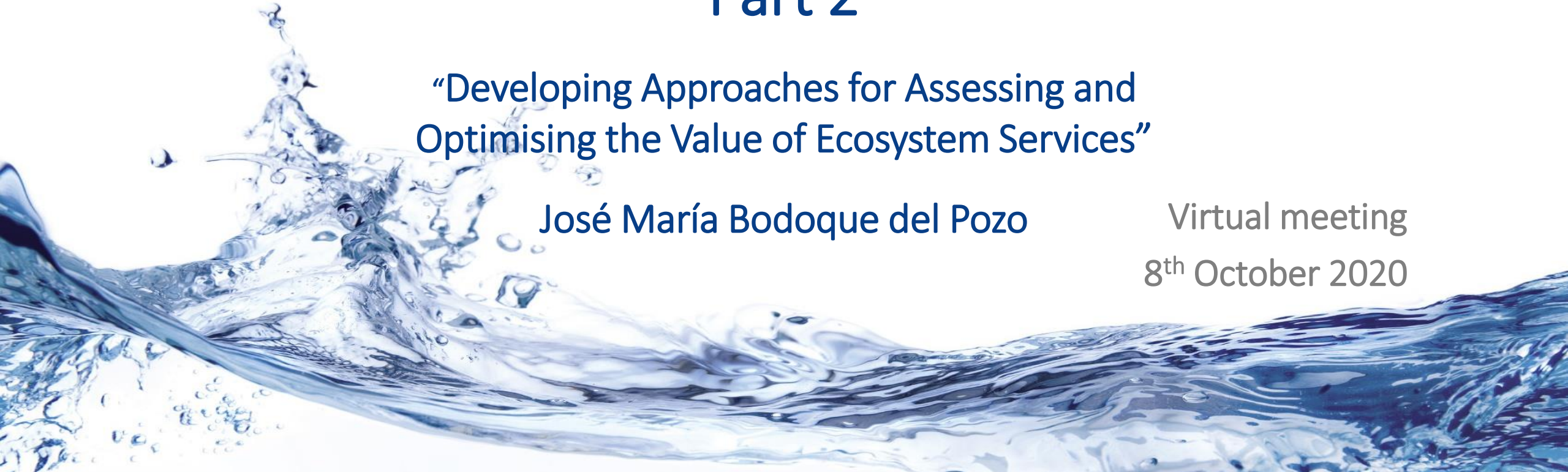
AQUATAP-ES TAP Workshop 3

Part 2

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

José María Bodoque del Pozo

Virtual meeting
8th October 2020



Part 1 Plenary Session: Water JPI AQUATAP-ES Midterm deliverables

Draft paper on data needs

José María Bodoque del Pozo

Proposal of skeleton paper on data and modeling needs related to water-related ecosystem services

Provisional titles: *i) Eliciting expert judgment related to data and modelling needs focused on water-related ecosystem services; or ii) Data and modelling needs to support integration of the ecosystem services approach into water resources management*

Authors: To be decided during the workshop on October 8th

To be submitted:

- ✓ The special issue envisaged at the 3rd ESP Europe Conference, 7-10 June 2021, Tartu, Estonia.
- ✓ or choose from a specific Q1 journal (e.g., **Ecosystem Services; Science of the Total Environment; Journal of Environmental Management; Environmental Science & Policy**).



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Abstract

Background:

- Over the last 20 years there have been a number of **worldwide initiatives** (e.g. sustainable development goals) and **legislative changes** (e.g. water framework directive, European flood directive or habitat directive), which call for the **restoration of aquatic ecosystems**.
- The ecosystem services approach can help to address this new paradigm, however its implementation by decision-makers presents difficulties due, among other factors, to **the lack of guidelines and listings of availability of key data**.

Methods/results:

- We present a review of **current modelling tools** and the results of a **survey of experts** focused on identification listing the potential key data that should be prioritized for collection in order to value and characterize ecosystem services.

Implications:

- The results obtained can help to improve the integration of the ecosystem services concept into existing **European Union policies and freshwater resources management**, as well as to address sustainable development objectives.

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Introduction

Background:

- **The degradation of aquatic ecosystems**, both river and marine, **has led to the adoption of a series of regulatory frameworks** (e.g., Marine Strategy Framework Directive, Water Framework Directive, 2030 Agenda –SDG6,...) , both at European and global levels, which call for the **restoration of land-water interfaces**, on the understanding that such restoration is beneficial to people and wildlife (e.g. improvement of water quality, flood risk mitigation). Despite this body of legislation water resources are continuing to degrade with associated alarming losses in biodiversity.
- The **ecosystem services approach** is increasingly being proposed as an integrative concept, which can help address the **governance challenges associated with the regulatory frameworks** mentioned above (communicate the importance of aquatic resources) and facilitate the development of more integrative and cooperative planning.

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Introduction

What gap we are hoping to fill:

- However, **the ecosystem services approach is not being applied** well in planning processes, especially at local and regional scales. **Barriers** to the effective implementation of the ecosystem services concept include:
 - ✓ Lack of awareness and interest among practitioners
 - ✓ The scarcity of critical data to characterize and value ecosystem services
 - ✓ Difficulty in integrating the concept of ecosystem services into existing management and planning instruments
 - ✓ Lack of successful practical examples of application and the resulting added value
 - ✓ There are few guidelines, in particular related to key data and the tools needed to facilitate the implementation of the ecosystem services approach. **This is the issue on which the paper will be focused.**

Aim:

- In light of the above, the **objective** of this paper is to **list the potential key data** that should be prioritized for collection in order to characterize ecosystem services through implementing **different modeling approaches**.

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Methodology

Questionnaire design:

- A **self-administered questionnaire** was designed which was structured in **two sections**. The first consisted of three questions about: (i) the organisation to which the respondent is attached; (ii) responsibility within the organisation; and (iii) whether the respondent collects and analyses data in relation to aquatic ecosystem services. The second section consisted of two questions. Specifically, it asked which issues policy makers and practitioners should respond to. The second question asked what data are required to answer such questions.

Data analysis:

- How was the information in the questionnaires analysed?. How did we identify the data to be prioritised for collection?

Review of modelling tools for evaluating ecosystem services:

- It consisted of a search in the **Scopus, Web of Science and Google Scholar databases** focused on the identification of ecosystem services. This search was complemented by an additional search that identified existing modelling tools for the characterisation of ecosystem services. Such tools were described based on the consideration of the following items: **i) modeling approach** (e.g., physically-based model, conceptual model); **ii) typical spatial scales**; **iii) typical temporal scales** (i.e., computational time step); **iv) actively maintained by** (i.e., identify the organization in charge of maintaining the model; **v) user-base/support group**; **vi) key reference(s)/report(s)** and **vii) observation** (i.e., indicate if the modelling tool is free or commercial).

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Results

Profile of survey respondents:

- Already introduced in the previous presentation

Questions need answers in relation to ecosystem services:

- Already introduced in the previous presentation

Data available to answer the questions raised:

- Already introduced in the previous presentation

Modelling tools for evaluating ecosystem services:

- Catalogue including the list of water-related ecosystem services and the models available for their characterisation/valuation

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Discussion

Proposal of ideas to be developed:

- Discuss if the results obtained after analysing the content of the questionnaires allow the **listing of key data** to be prioritised for collection, aiming to characterise ecosystem services. Also, establish whether such data serve as input for implementing the **modelling tools identified**.
- **Interpretation** of the results obtained, including also discussion about their **consistency**.
- Explain the **contributions** of the study in the field of ecosystem services related to aquatic systems. Also, discuss what the **limitations** of the study are.
- Explain to what extent the results obtained can lead to a more effective and **successful implementation of the European Union's legislative framework** in relation to freshwater ecosystems.

Conclusions

Proposal of ideas to be developed:

- Briefly review the most important findings of the work, noting the extent to which these represent **progress in the field of ecosystem services** compared to the current state of knowledge.
- Include a **final judgment** about the importance and significance of the findings in terms of their implications and impact.
- Briefly describe the **implications** of the work in terms of its value in helping to better **implement policies** concerning environmental sustainability.

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Next steps

- Members of the AQUATAP network to communicate if they are interested in participating in the drafting of the article (**Deadline: 30 October 2020**)
- Allocation of tasks to be carried out among the signatories of the paper (**deadline: 16 November 2020**)
- Have the first draft of the paper written (**deadline: 26 February 2021**)