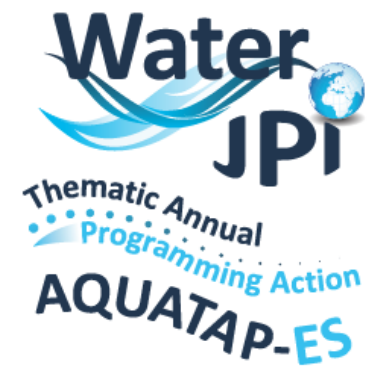


Water Works 2015 AQUATAP-ES



Water
JPI
Thematic Annual
Programming Action
AQUATAP-ES

4th network workshop

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

March 29th 2021

@ 10.30 (CET)

@ 09.30 (GMT)



Part I

Update on Water JPI AQUATAP-ES Final deliverables

Miguel Ángel Gilarranz Redondo
José María Bodoque del Pozo
Michael Bruen



Agenda for AQUATAP-ES 4th Network workshop

Part I Update on Water JPI AQUATAP-ES Final deliverables

10.30 – 10.35: Welcome: Miguel Ángel Gilarranz Redondo (Water JPI Vice Chair)

10.35– 11.55: Aim of the workshop José María Bodoque del Pozo (AQUATAP-ES Coordinator)

Update on our progress:

- Sign off on Publication Paper on Ecosystem Services data needs and models catalogue
 - José María Bodoque del Pozo
- Finalise brief guidance document on decision-support tools
 - Michael Bruen

5 min break

Part II Workshop (s) Session:

12.00 – 12.25 Lisa Sheils (AQUATAP-ES facilitator)

- Update on ESP Hosting session - José María Bodoque del Pozo
- Discussion on plan for the Final Stakeholder Workshop (*including feedback from Steering Committee; Water JPI Secretariat*) Lisa Sheils

Part III Next Steps

12.25– 12:30: Lisa Sheils (AQUATAP-ES facilitator)

- Recap to the audience by TAP Action members on session.
- Next steps.



Aims of the workshop

José María Bodoque Del Pozo

- ❖ Update on progress made related to the article on data needs and the model catalogue concerning the characterisation of ecosystem services.
- ❖ Update the state of progress of the guidance document on decision support tools.
- ❖ Update on ESP hosting session.
- ❖ Next steps for the AQUATAP-ES network.



Sign off on publication paper on ecosystem services data needs and models catalogue



Overview



Questionnaire design

Profile of respondents

Questions raised by respondents

Data types required to address the questions raised

Next step: submitting the manuscript to a QI journal

Models Catalogue

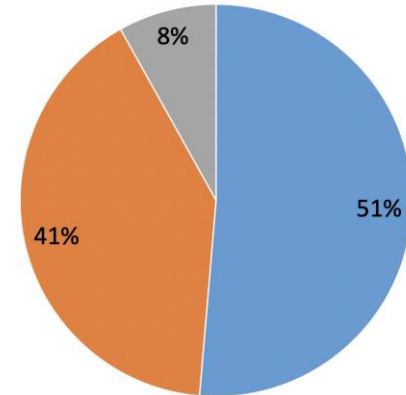
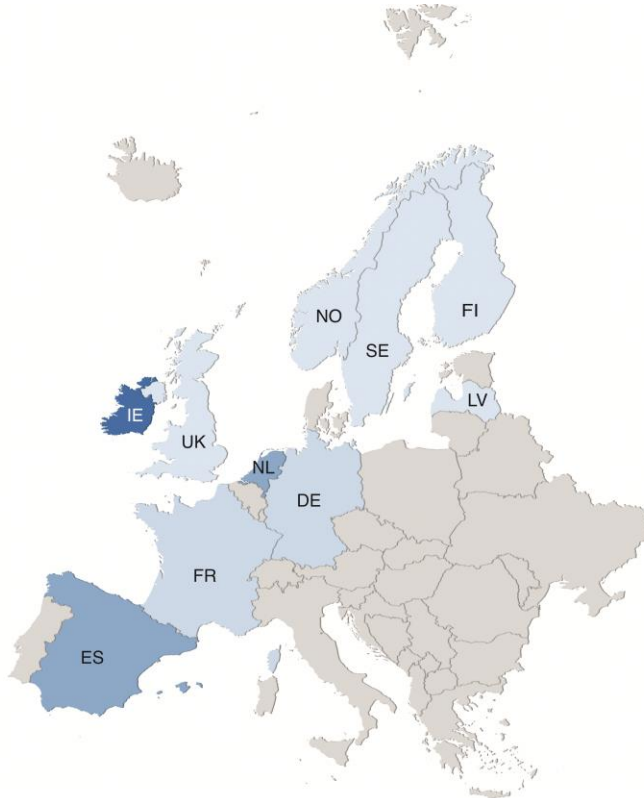


Questionnaire

1. What **organization** (e.g. Institution, company, association, etc) do you work for?
2. What **position** do you hold in the organization you work for?
3. Do you currently collect/analyze Aquatic Ecosystems Services data? Please give some detail
4. Based on your experience **what questions/information** might those in policy and practice (i.e. resources managers, monitoring etc.) **need answers to in relation to ecosystem services?** Consider whether each is relevant to **policy or practice, or both**
5. Identify the **data types** required to address the above questions

Water JPI

Profile of respondents

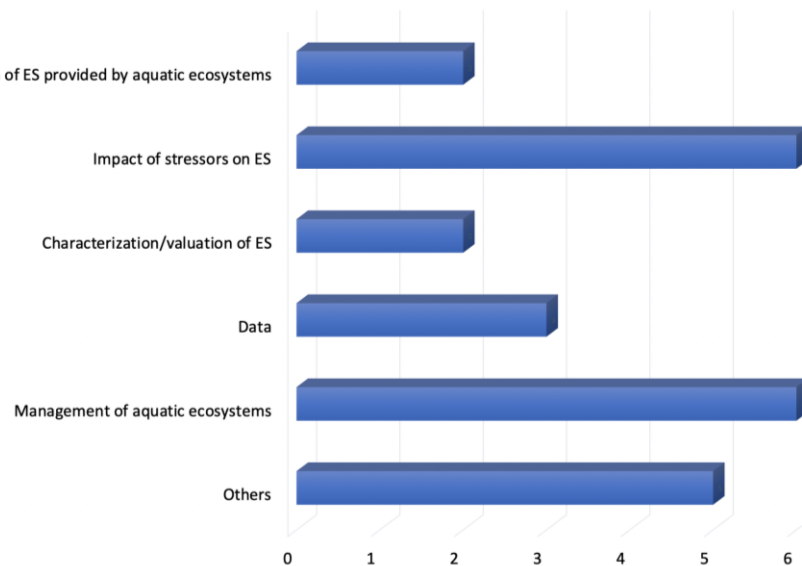


■ Academia ■ Decision Makers ■ Civil Society

The experts consulted work on the following categories of ecosystem services: i) provisioning –abiotic (i.e., **surface water for drinking and non-drinking purposes**); ii) provisioning – biotic (i.e., **wild animals –aquatic, animals reared by insitu aquaculture**); iii) regulation –abiotic (i.e., **control of erosion rates; flood control**); iv) regulation –abiotic/biotic (i.e. **water quality**) and cultural (i.e., **sport fishing, torism**)

Questions raised by respondents

Questions raised -practice domain



Identification and location of ES provided by aquatic ecosystems

- ES provided by rivers and transitional waters
- ES provided by open ocean and deep sea

Impact of stressors on ES

- Current impact of stressors
- Expected effect of stressors on ES provision
- Identification of best indicators of change
- Response-recovery pattern to important disturbances
- Tools to be used to monitor changes in ecosystems
- How important is connectivity in maintaining key ecosystem services

Characterization/evaluation of ES

- Available starting data and methodological approaches available.
- Which ecosystems are valuable from land uses.

Data

- Available data and their spatial representativeness
- Value and limitations of the available information
- How can we use remote sensing (e.g. satellites and drones) to provide better data and information for decision making support in relation to freshwater and marine ecosystems?

Management of aquatic ecosystems

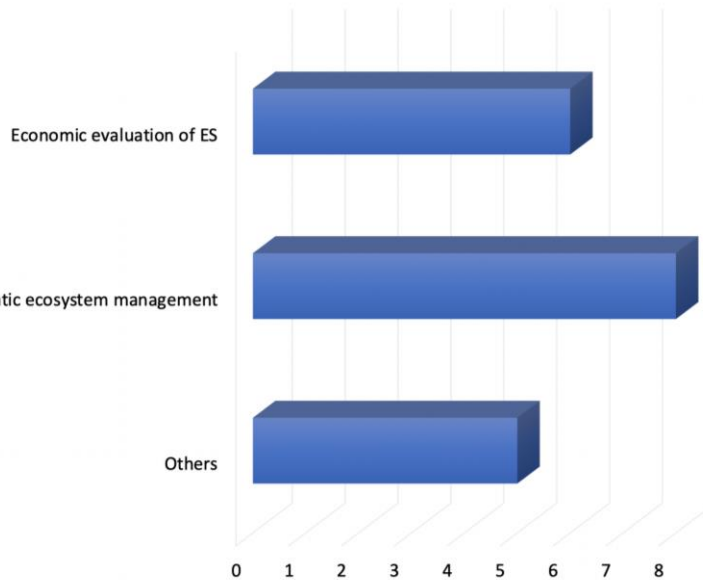
- What measurements can be implemented to restore damaged ecosystems
- How to integrate the ES approach into cost-benefit analysis
- To what extent the ecosystem services approach is mature to be integrated into the management of coastal marine ecosystems
- How nature conservation improves ES
- How can connectivity for biodiversity, ecosystem conservation and ecosystem services become and be managed as public good

Others

- Capacity of ES (e.g., biomass production)
- How to address gaps in the understanding of food/security/biomass production in oceans in the context of climate change
- How do elements of ecosystem services affect human welfare and perception
- What is the role of biodiversity in maintaining specific ecosystem functions
- What is the role of marine biota and benthopelagic coupling in ocean-atmosphere carbon cycle and primary production

Questions raised by respondents

Questions raised -Police domain



Economic evaluation of ES

- How to value ES
- What is the value of a particular service
- What is their maintenance cost
- To what extent the conservation of ES affect the level of socioeconomic development
- Value of ES in case of degradation or Improvement
- How to scale up valuations from small-scale studies to national relevance

Decision making concerning to aquatic ecosystem management

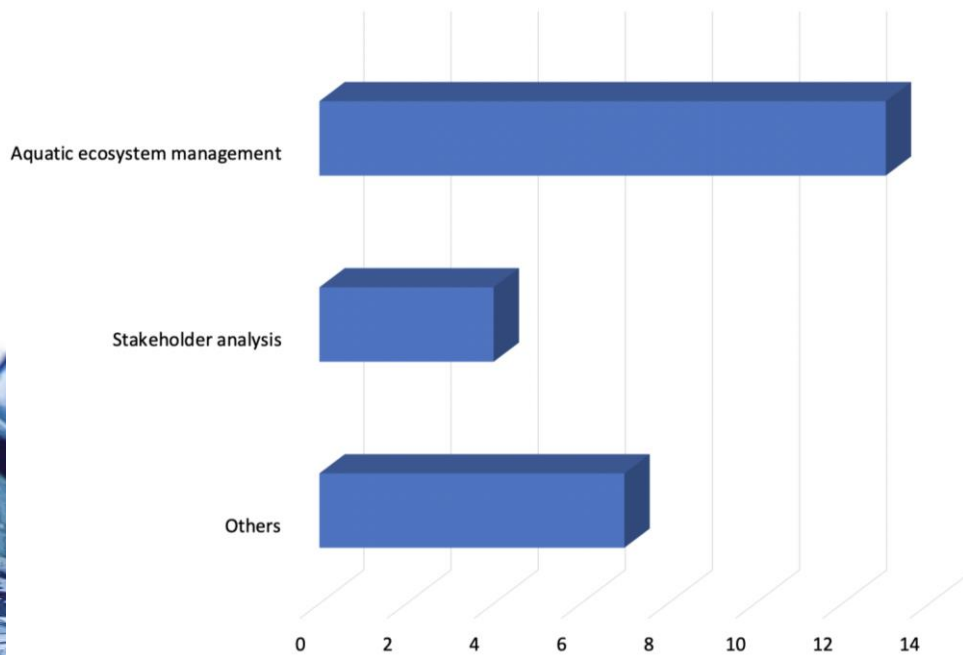
- How nature-based solutions can be integrated into natural resources management
- What are the relative benefits of nature-based solutions compared to grey infrastructure
- How different ES can be compared in the framework of water resources management
- To what extent the ecosystem services concept is being implemented in the management of aquatic ecosystems
- How to reconcile the benefits and costs of conflicting management strategies (e.g., preservation of natural floodplain habitats versus intensive agriculture)
- How changes in land-use inputs impact the flow of ES
- Tools to be used to monitor changes in ecosystems
- How should marine ecosystem services be considered in relation to the expansion of marine protected areas

Others

- Loss of biodiversity resulting from the degradation of ES.
- Which are the keystones species linked to the most relevant ecosystems.
- Design and implementation of communication strategies to improve the perception of the general public and decision makers on the value of ES.
- What is the life on an ecosystem service in ocean
- How can we better develop our understanding of the relationship between ecosystem services and human health effects

Questions raised by respondents

Questions raised -Police and practice domain



Aquatic ecosystem management

- How wetland habitat restoration affects ES
- How effective and reliable nature-based solutions are
- Are there nature based solutions available to support ES and their resilience
- How to map ecosystem services to marine protected areas (MPAs) concerning MPAs governance and sustainability/effectiveness
- The extent to which the management measures based on the ES approach are sustainable from a purely economic perspective.
- To what extent biodiversity is linked to the current assessment of ecosystem services in a Ecosystems-Based Management (EBM) approach considering climate change scenarios
- To what extent the ES approach can help to achieve the objectives set out in the European Green Deal or the Agenda 2030 for sustainable development
- What are the benefits of protected habitats in terms of water resources, carbon sequestration and other goods and services, relative to non-protected land.
- How can we measure natural capital (renewable and non-renewable resources) and integrate such a measure into gross domestic product.
- How can we balance the delivery of ecosystem services against the demand for development
- What is the best form of coastal defence/coastal management in order to be cost-effective and maintain a range of ecosystem services.
- In relation to ecosystem services, what are the trade-offs to be struck/balance to be achieved between agriculture, and/or aquaculture and aquatic ecosystems.
- In relation to ecosystem services, what are the trade-offs to be struck/balance to be achieved between agriculture, and/or aquaculture and aquatic ecosystems

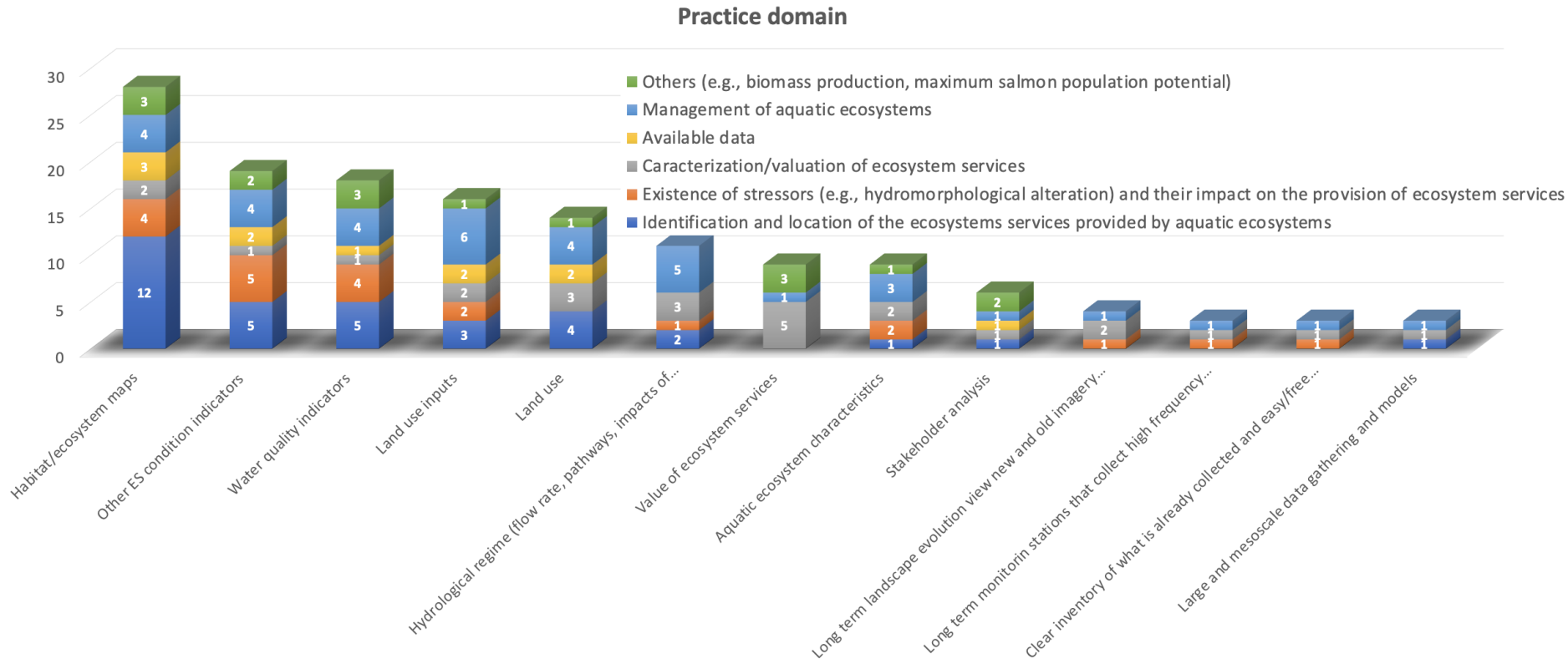
Stakeholder analysis

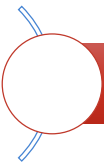
- Seeking stakeholder engagement in the design and implementation of management strategies that rely on ES
- Characterizing stakeholders perception about the value and benefits of ES
- How can the concept of ecosystem services be used as a tool to improve involvement and participation of stakeholders in developing plans, creating solutions.
- Who are the key stakeholders and how do they make their critical decisions in relation to ecosystem services in marine and freshwater ecosystems

Others

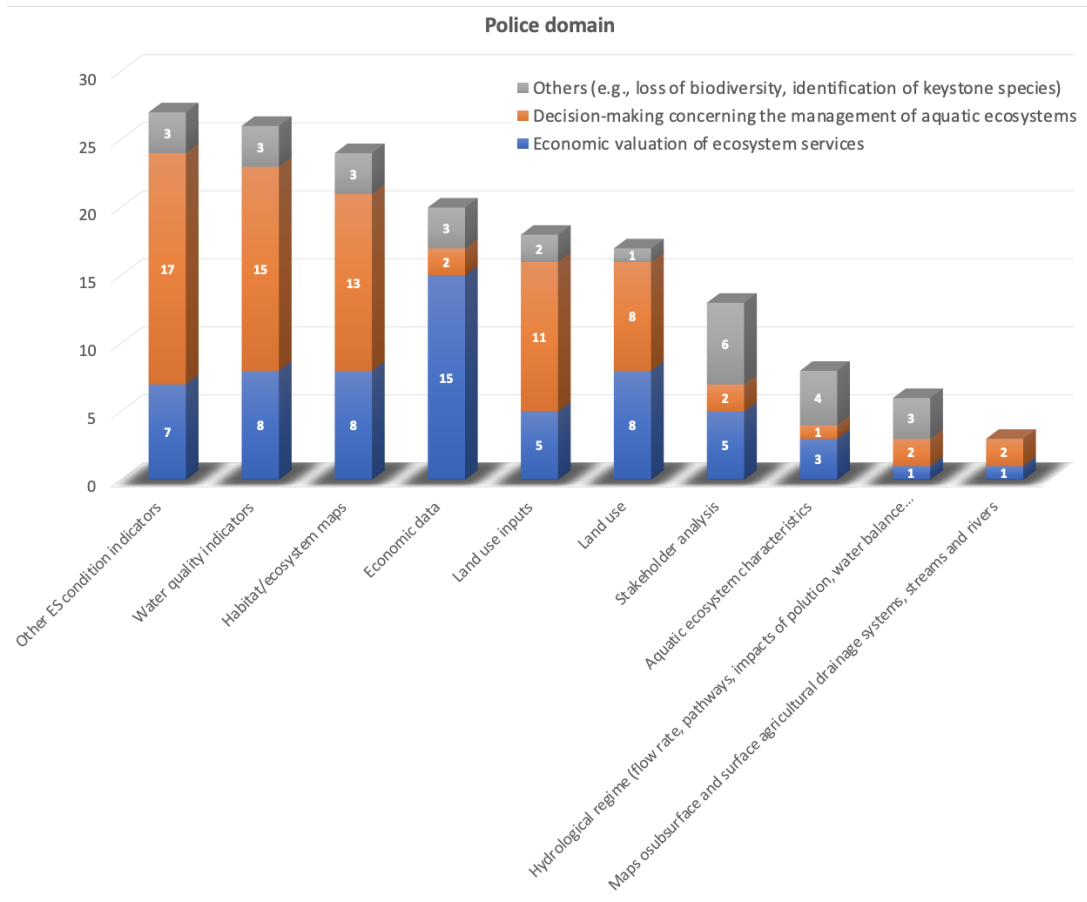
- How to bundle information from different data holders
- How ES are characterized/verified and who is in charge of undertaking this task
- What is the social value of ES.
- Valuation of the most subjective and intangible ES classes associated with open ocean and deep sea
- How is biodiversity related to the delivery of ecosystem services
- How do ES respond to global change and anthropogenic perturbations?
- How to mitigate the effects of global change and anthropogenic perturbations on ES?

Data types required to address the questions raised

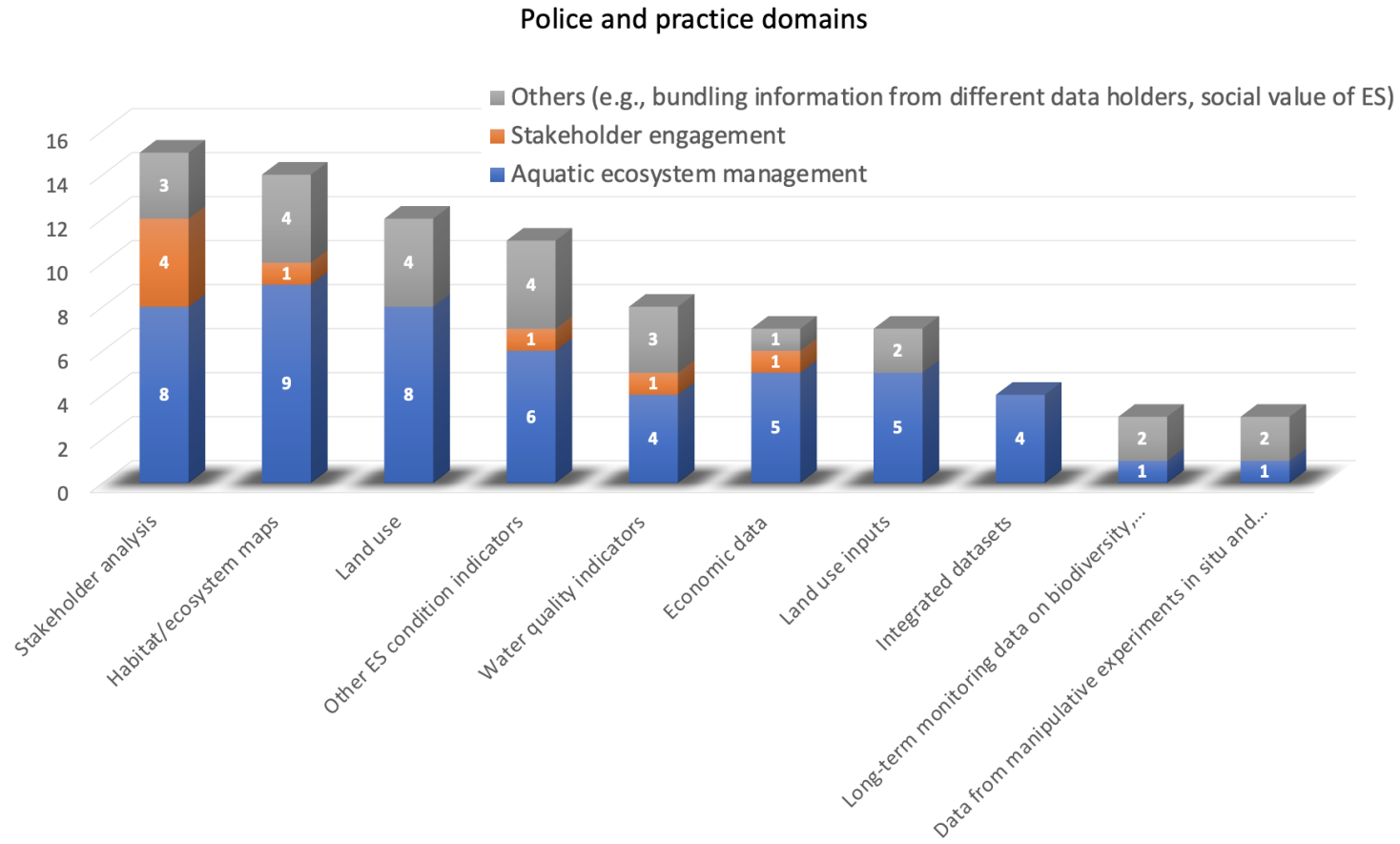




Data types required to address the questions raised

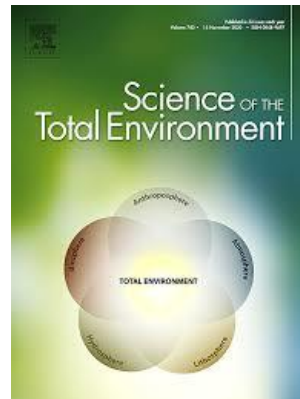


Data types required to address the questions raised



Next step: submitting the manuscript to a Q1 journal

To be submitted by the end of April or early May 2021 :



Models catalogue

Ecosystem Services	Category	Example	Model(s)	Modeling approach	Typical Spatial scales	Typical Temporal scales	Actively Maintained by	User-base / support group	Key reference(s)/Report(s)/Links	Observations	
Surface water	Provisioning (abiotic)	Surface water for drinking and non-drinking purposes	SWAT	Physically-based model	Small watershed to river basin-scale	Daily and monthly	United States Department of Agriculture (USDA)	SWAT User Group ArcSWAT Group SWAT-CUP Group QSWAT Group SWAT-MODFLOW Group	Abbaspour et al. (2007) Arnold et al. (2012)	Free	
			MIKE SHE	Physically-based model	Single soil profile to river basin-scale	Sub-hourly and hourly	Danish Hydraulic Institute (DHI)	Mike User Forum	Graham and Butts (2005)	Commercial	
			HBV Hydrology Model	Semidistributed conceptual catchment model	Small watershed to river basin-scale	Daily and monthly	Swedish Meteorological and Hydrological Institute	None	Bergström (1992)	Free	
			TOPMODEL	Topographic index based model	Landscape to watershed scale	Hourly, daily and monthly	Keith Beven (Lancaster University)	None	Beven (1997)	Free	
Ground (and subsurface) water	Provisioning (abiotic)	Groundwater for drinking and non-drinking purposes	MODFLOW	Physically-based model	Local-scale to regional-scale groundwater models	user choicer	United States Geological Survey (USGS)	MODFLOW Users Group	Langevin et al. (2020), see also Harbaugh (2005)	Free	
			FEFLOW	Physically-based model	Local-scale to regional-scale groundwater models	Hourly	Danish Hydraulic Institute (DHI)	FEFLOW Users Group	Diersch (2014)	Commercial	
Freshwater surface water used as an energy source	Provisioning (abiotic)	Hydroelectric power	HEC-Ras	Physically-based hydraulic river model	Reach scale (100 m – 100 km)	Minutes - hours	USACE	USACE	USACE (2016)	Free	
			MIKE 11	Physically-based hydraulic river model	Reach scale (100 m – 100 km)	Minutes - hours	Danish Hydraulic Institute (DHI)	Mike User Forum	DHI (2017)	Commercial	
			HEC-ResSim	Conceptual model	Small watershed to river basin-scale	Daily	USACE	USACE	USACE (2013)	Free	
			MIKE HYDRO BASIN	Conceptual model	Small watershed to river basin-scale	Daily	Danish Hydraulic Institute (DHI)	Mike User Forum	DHI (2014)	Commercial	
			MaxHydro	Conceptual model	Reservoir	Subhourly to monthly	Hydropower Optimization Software				Commercial
			Optipower	Conceptual model	Reservoir	Daily	Power Vision Engineering				Commercial



Models catalogue

- ❖ A total of **36 modelling tools** and approaches have been identified.
- ❖ Provisioning ES are characterized primarily with **conceptual and physically based models**, although other approaches based on stochastic/mathematical or life cycle analysis are also used.
- ❖ To characterize regulating ES, beyond the above, **biogeochemically based modelling** is also employed.
- ❖ Cultural ES are characterised from **spatial pattern analysis and questionnaire surveys** designed to elicit perceptions.



Part II Workshop (s) Session

José María Bodoque del Pozo

Lisa Sheils





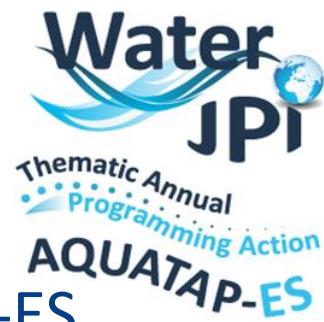
Update on ESP hosting session



S5 - Progress and challenges in the operationalisation of the ecosystem services approach for aquatic resources management (**9 abstracts submitted**)

Plan for the Final Stakeholder Workshop

June 22nd 2021: Lisa Sheils



- ▶ Showcase Event of the 1st Water JPI TAP -AQUATAP-ES

“Aquatic ecosystem services on the science-policy-practice connection: challenges and opportunities”

- ▶ Water JPI TAP working groups operate as a think-tanks on water issues.
- ▶ Key Achievements of the AQUATAP-ES network.



Agenda Final Stakeholder Workshop

June 22nd 2021

Invitation to Showcase Event of the 1st AQUATAP-ES
"Aquatic ecosystem services on the science-policy-practice
connection: challenges and opportunities "

10.30 -12.00 (CET)

Date: 22nd June 2021

Virtual Meeting: [Webex link tbc](#)

The Water JPI AQUATAP-ES entitled 'Developing Approaches for Assessing and Optimising the Value of Ecosystem Services' is a small network of researchers from across Europe with the overall goal to inform Policy & Practice by seeking to foster integration of the ecosystem service concept/framework into decision-making relating to the management of aquatic resources.

Opening pre-recordings: AQUATAP-ES network projects

10.30 – 10.35: Welcome: Miguel Ángel Gilarranz Redondo (Water JPI Vice Chair)

10.35– 10.45: What is the Water JPI Thematic Annual Programming (TAP) Action?
Juliette Arabi (Water JPI)

10.45– 11.00: 2019-2021 Key Achievements of the AQUATAP-ES network. Challenges and Opportunities. [Prof. José María Bodoque del Pozo \(Spain\)](#) (AQUATAP-ES Scientific Coordinator)

11.00 -12.00: Panel Discussion: Where do we go from here? Putting theory into Practice
Lisa Sheils (AQUATAP-ES facilitator)

Panel members: DGRTD, IPBES, EEA, DGENV, COST, PT Council Presidency, [Prof Mary Kelly Quinn \(AQUATAP-ES Scientific Coordinator\)](#).

- *What are the key challenges/barrier to integrating the Ecosystem Services Approach into everyday management of our waters and how can they be addressed?*
- *How do we sustain the network AQUATAP-ES?*
- *What is the Future for the Thematic annual Programming, TAP?*

Open to the floor for Q&A

Close out

12.00: Main conclusions and potential next steps Véronique Briquet-Laugier (Water JPI Coordinator)



Final Stakeholder Workshop June 22nd 2021

Roundtable Discussion: *“Putting theory into Practice”*

- ▶ Invitees for roundtable: DGRTD, DGENV, IPBES, EEA, COST Action, PT Council Presidency & AQUATAP-ES member
- 1. What are the key challenges/barriers to integrating the Ecosystem Services Approach into everyday management of our waters and how can they be addressed?
- 2. How do we sustain the network AQUATAP-ES?
- 3. What is the Future for the Thematic annual Programming, TAP?
- 4. Open Floor Q& A

Next Steps for AQUATAP-ES network members

- ▶ Please send a list of stakeholders to be invited to this event to Lisa l.sheils@epa.ie by April 14th
 - ▶ Researchers
 - ▶ Water Managers/ ES practitioners
 - ▶ Policy Makers/ Decision makers
 - ▶ National Funders
 - ▶ Ecosystem Services networks
 - ▶ Others

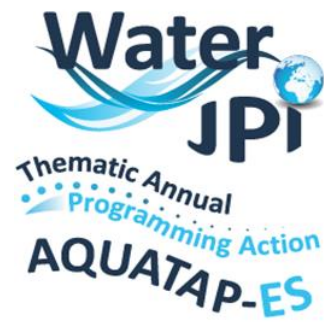


Final Stakeholder Workshop June 22nd 2021

Next Steps for AQUATAP-ES network members

- ▶ 2 minute recordings
 - ▶ Your project/work/research in Aquatic Ecosystem Services
 - ▶ What do you think the challenges are to integrating the Ecosystem Services Approach into everyday management of our waters and how can they be addressed
 - ▶ Tell us about your experience of being an AQUATAP-ES network member
 - ▶ Please give **two suggestions on how to improve the network.**
- ▶ Larissa from Water JPI communication team will contact all projects leads soon with practical needs (format/layout etc)
- ▶ Please submit **by May 30th 2021**

Final Stakeholder Workshop June 22nd 2021



Thank you

Any Questions?





Part III

Next Steps

Lisa Sheils



Recap & Next steps.

1. Stakeholder listing for final event April 14th
2. Publication on ES data and modelling finalised / submitted end of April/ beginning of May
3. DSS briefing note end of April/ beginning of May
4. 2 minute recording by May 30th 2021
5. ESP conference June 7 -10th 2021
6. Final Stakeholder event June 22nd 2021

Thank you