

## ***Aquatic Ecosystem Sciences and Application – Science Lunch: Topic 5*** **Wednesday, 26<sup>th</sup> May 2021**

Renate Becsi, Daniel Hayes and Susanne Muhar from the Institute of Hydrobiology and Aquatic Ecosystem Management of Vienna's University of Natural Resources and Life Sciences (BOKU) will present their findings on '**Method development for evaluating cultural ecosystem services of rehabilitated rivers**'.

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Evaluating cultural ecosystem services (ES) is a challenging task, since the monetary value of those ES is often not easy to determine. Susanne Muhar and her colleagues are working on the ResCules project which proposes a systematic non-monetary evaluation method. The following two papers (Small et al., 2017 and Thiele et al., 2020) have been selected to give further insights into the scientific assessment and valuation of cultural ES.

### **Small et al. (2017):**

#### ***The challenge of valuing ecosystem services that have no material benefits.***

Currently, ES frameworks often cannot adequately account for non-material ES. One issue, when dealing with the concept of cultural ES, is the high level of semantic uncertainty, that may cause confusion concerning the object of discussion. The use of terms like "value" or "use" might foster overly materialistic, economically oriented approaches to ES management. Also, the meaning of "culture" is often not clear (e.g. moral, religious, aesthetic values vs. economic points of view like culture as commodity). The values assigned to cultural ES can vary, depending on the beneficiary's point of view. Developing a valuation methodology that includes "ecological, socio-cultural and economic values of a service, for a range of different beneficiaries" can be seen as one of the major tasks. The authors go as far as to argue that the term "cultural ecosystem services" might be rejected and replaced by "non-material ecosystem services". They further point out that distinct approaches for non-material ES have been proposed previously, to evaluate them separately from material values. In order to better include non-material ES, existing frameworks will have to be adapted, or new methodologies need to be established.

### **Thiele et al. (2020):**

#### ***Assessing and quantifying offered cultural ecosystem services of German river landscapes.***

Thiele et al. (2020) use an indicator framework called CAESaR (CulturAl Ecosystem Services of River landscapes) for spatial assessment of offered cultural ES in German river landscapes on a national and local scale. They emphasize the importance of distinguishing between "offered" and "utilized" ES in the context of land use management. The proposed framework consists of four cultural ES classes (each indicator has further sub-indicators): a) Non water-related activities, b) water related activities, c) heritage and d) landscape aesthetic quality. Examples of sub-indicators for water-related activities are "sand and sandbanks", which offer possibilities for lying on beaches, or "riparian vegetation", which influences the accessibility of water. The "density of

monuments and cultural-historical facilities” and “density of archaeological monuments” are, on the other hand, used as sub-indicators for the assessment of the cultural ES category “heritage”. This points to one of the shortages of the methodology: intangible heritage was not included. The results of the study showed that active floodplains had higher scores of “offered” cultural ES than historical floodplains. Artificial surfaces and non-irrigated arable land correlated with the lowest scores, while broad-leaved forest, water courses and pastures indicated highly rated areas. Spatial assessment of “offered” cultural ES can be of value in land use management decision making processes. The methodology may be used to assess negative impacts on cultural ES of certain structural measures (e.g. construction of dikes).

## References

Small, N., Munday, M., & Durance, I. (2017). The challenge of valuing ecosystem services that have no material benefits. *Global Environmental Change*, 44, 57-67.

<https://www.sciencedirect.com/science/article/pii/S0959378017303540>

Thiele, J., Albert, C., Hermes, J., & von Haaren, C. (2020). Assessing and quantifying offered cultural ecosystem services of German river landscapes. *Ecosystem Services*, 42, 101080.

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