LifeGood Water IP

Comprehensive framework for assessment of freshwater cultural ecosystem services in Latvia

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"Implementation of River Basin Management Plans of Latvia towards good surface water status"

Content

- Concept of cultural ecosystem services (CES)
- LIFE Goodwater IP indicator framework for assessment of CES
- Examples of CES mapping in two rivers

Freshwater cultural ecosystem services

- Freshwater ecosystems are vital for human well-being, providing a wide range of tangible and intangible benefits.
- Cultural ecosystem services (CES) have crucial part in it, including recreation, enjoyment of landscape, engagement with nature through learning, water related cultural heritage, symbolic & sacred meaning of places etc.


Photo by A. Ruskule


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Background

- CES offers a holistic framework for exploring human-nature relations, uncovering multiple dimensions of interactions and fundamental aspects of why people value water and waterscapes.
- CES are co-produced outcome of peoples' interactions with ecosystems. To qualify culture as ES the relationship between ecosystem structures and functions (biophysical domain) and satisfaction of human needs and wants (social domain) must be demonstrated (Fish et al., 2016).
- CES indicator classification framework was proposed by Hernández-Morcillo et al. (2013) and applied in the LIFE GoodWater IP project for assessment of freshwater cultural ecosystem services in Latvia.

Fish *R, Church A, Winter M (2016) Conceptualising cultural ecosystem services: a novel framework for research and critical engagement. Ecosystem Services 21: 208-217.*

Hernández-Morcillo *M, Plieninger T, Bieling C (2013) . An empirical review of cultural ecosystem service indicator. Ecological Indicators, 29, 434-444.*

Ecosystem service assessment in LIFE GoodWater IP

Objectives of the assessment:
- to evaluate the effectiveness of the implemented measures and their impact on ecological quality of water bodies
- to develop a comprehensive methodology for assessment of freshwater ecosystem services in Latvia

ES indicator framework:
- Provisioning: 3 services, 4 indicators
- Regulating: 6 services, 36 indicators
- **Cultural: 6 services, 45 indicators**

The indicator framework was tested on 6 small rivers & 3 lakes

Ecosystem service indicator framework adapted to CES

Condition indicators
- *biophysical and cultural preconditions underpinning CES*

Function indicators
- *processes by which ecosystems deliver cultural services*

Intermediate service indicators
- *ecosystem products/amenities that enable use of CES*

Benefit indicators
- *CES-related tangible goods, events or informative products*

Impact indicators
- *state of people's physical, economic, social, and spiritual well-being associated with cultural practices and landscape*

Source: Hernández-Morcillo et al. (2013)

Supporting or intermediate services:
Biophysical structure or processes; functions

Final services
(CICES)

Goods and benefits

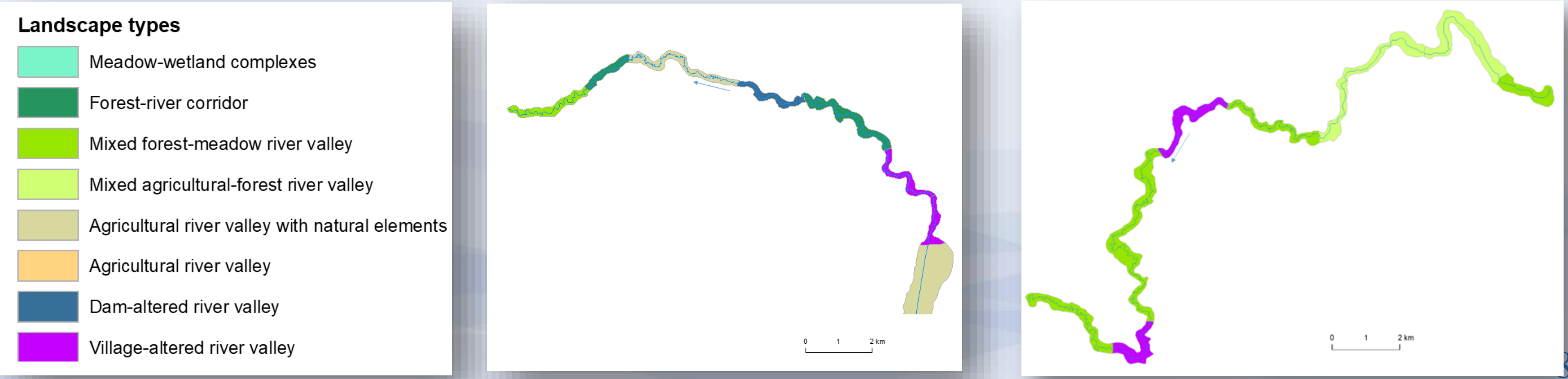
ES Cascade model by Haines-Young and Potschin (2017)

LIFE GoodWater CES indicator framework

Indicator category	Active recreational interactions *(3.1.1.1)*	Passive recreational interactions *(3.1.1.2)*	Scientific investigations and education *(3.1.2.1 & 3.1.2.2)*	Cultural heritage *(3.1.2.3)*	Symbolic and sacred meaning *(3.2.1.1 & 3.2.1.2)*
Condition indicators	presence of water bodies	presence of water bodies	protected habitat density and diversity	historic settlement structure, road network	places related to legends or symbolic meaning
Function indicators	suitability for boating, swimming and angling	visual accessibility and audibility of waters	share of protected areas	archaeological, architectural and industrial monuments	nature monuments
Intermediate service indicators	nature trails, bathing and boat landing sites	camp and picnic sites, viewing towers/platforms	informative nature trails, hydrological stations	cultural heritage sites, signs, museums, places of public events, art and vernacular objects	nature objects with symbolic and sacred meaning
Benefit indicators	revenues from tourism & recreation sports' events	revenues from tourism & recreation	scientific projects and publications, educational materials	cultural events, knowledge about historic events and practices	knowledge about sits with symbolic and sacred meaning
Impact indicators	therapeutic and socialization value, memories, life-changing values	therapeutic and socialization value, memories, life-changing values	engagement with nature, knowledge about site ecology, memories, life-changing values	identification with the history and culture of a place, memories, life-changing values	spiritual value, memories, life-changing values place identity

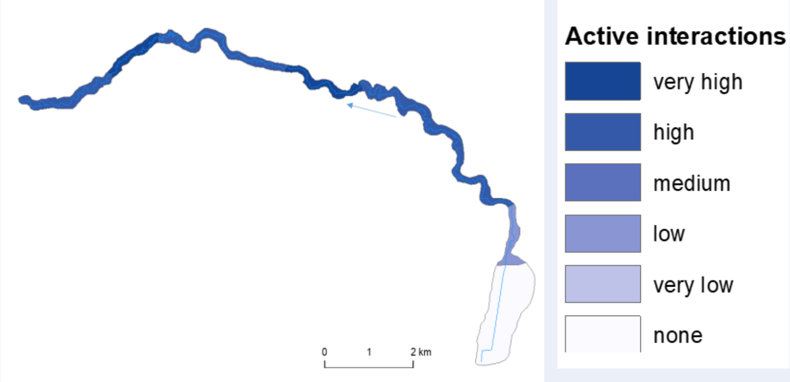
Landscape areas as service providing units

- CES assessment requires identifying distinct landscape units, representing the most suitable spatial and temporal context, to which functions, benefits and values can be assigned (Haines-Young and Potschin, 2007; Hernández-Morcillo et al., 2013)
- Identification of landscape areas by dominant landscape type (based on topographic features, land cover, waterbody modification level)

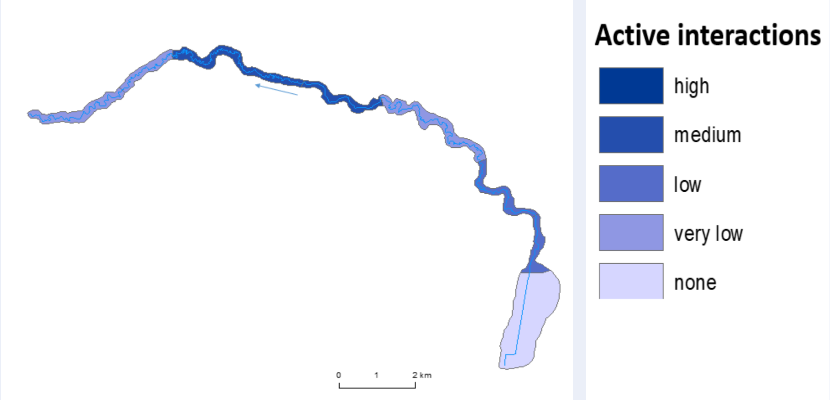


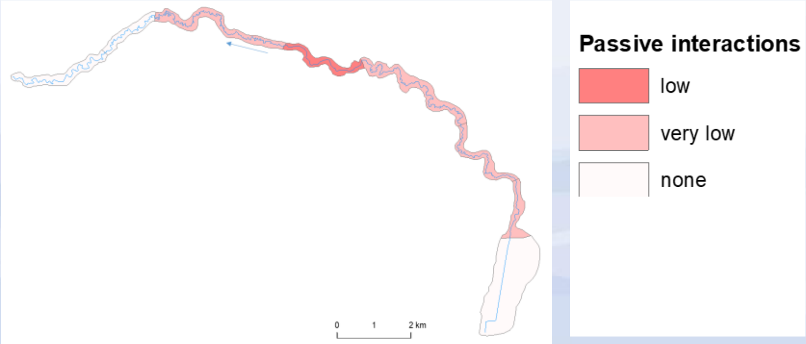
Examples of assessment results: River Eda

Function indicators (average)



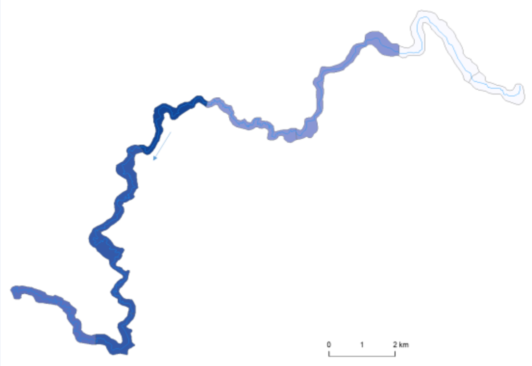
Intermediate service indicators (average)





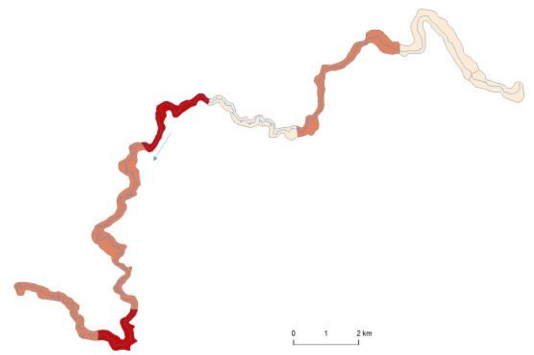
Examples of assessment results: River Zaņa

Function indicators (average)



Active interactions

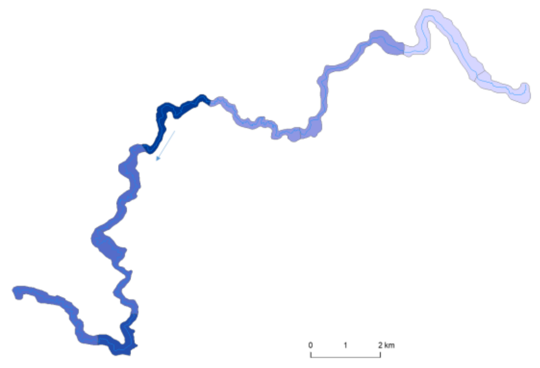
- very high
- high
- medium
- low
- very low
- none



Passive interactions

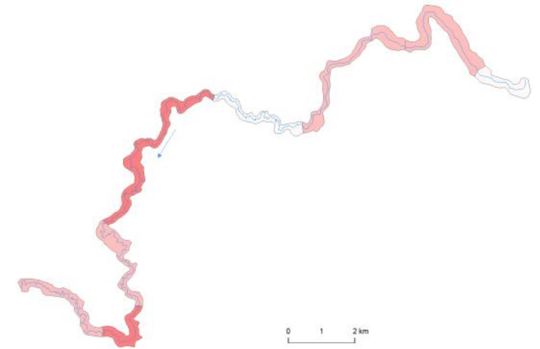
- high
- medium
- low

Intermediate service indicators (average)



Active interactions

- high
- medium
- low
- very low
- none



Passive interactions

- low
- very low
- none

CES provided by Slocene River

Active and passive interactions	*Cultural heritage*	*Landscape and place identity*
		

CES provided by Slocene and lake Kaņieris

Active and passive interactions

Scientific investigations & education

Cultural heritage

Conclusions

- The applied CES indicator framework allows to demonstrate the relationship between structures & functions of freshwater ecosystems and satisfaction of human needs.
- The potential CES supply in the studied waterscapes is significantly influenced by the characteristics of landscape types, highlighting the need to consider landscape-specific elements when assessing CES.
- Results also indicate that potential of CES supply usually is higher than actual use (or flow). Accessibility emerges as a critical factor influencing the actual use of CES.

Thank you!

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