


WEBINAIRE | **WEBINAR** **1er juillet 2024** | *July 1st , 2024*

Appréciation monétaire et sociale des écosystèmes fluviaux : regards croisés sur leur valorisation

"Diverse perspectives on economic and social valuation of rivers ecosystems

Understanding the multiple values of rivers through the IPBES Life Frames A case study from Ireland

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Les lundis d'I.S.Rivers 2024 | *2024 I.S.Rivers Mondays*

Outline

- Background
  - What are values?
  - Deliberation as a means to bridge multiple values
  - The IPBES Life Frames as a way to include multiple values

- Application
  - Assessing values and management priorities across three Irish rivers

Values and Deliberation

What are values?

- Transcendental / broad values: guiding principles and life goals that transcend specific contexts
- Contextual / specific values: the importance or worth ascribed to something in a particular context
- Value indicators: worth or importance expressed in quantitative or qualitative terms (e.g., money, rankings, statement of recommendation)

Kenter, et al., 2015. What are shared and social values of ecosystems? Ecological Economics 111, 86–99. https://doi.org/10.1016/j.ecolecon.2015.01.006

Environmental economic valuation

- Understand *use* and *non-use* values of environmental benefits/costs
  Value is considered in an *instrumental* sense – i.e., nature is valuable as a benefit to human ends.
- Value is considered as *individual*, based on self-regarding preferences (expressed through willingness to pay)
- Value to society is understood as the aggregate of individual preferences / WTP
- Decision option that maximises benefits vs costs is optimal

Limitations of environmental economics

- Limitations: focus on individual, instrumental values
- What about intrinsic and relational values, and shared values beyond individual preferences?
- What about other views of comparing and weighting values that are not based on efficiency and individual preferences?

"Through the physical linkages existing in nature, a social interconnectedness is forced upon us. In this context one may ask whether individual preferences are the best basis for social choice."

Vatn (2009, p. 2210)

Vatn, 2009. An institutional analysis of methods for environmental appraisal. Ecological Economics 68, 2207–2215. https://doi.org/10.1016/j.ecolecon.2009.04.00

Role of deliberation in valuation

- Valuation asks about contextual values and their indicators
- Transcendental values often implicit, not fully ‘translated’ into contextual values.
- (Contextual) values need to be ‘constructed’
- Familiarity, complexity, uncertainty, risk
- Weak vs strong value plurality (Kenter, 2017)

Kenter, , 2017. Deliberative Monetary Valuation, in: Spash, C.L. (Ed.), Handbook of Ecological Economics: Nature and Society. Routledge, Abingdon.

Deliberation and social learning

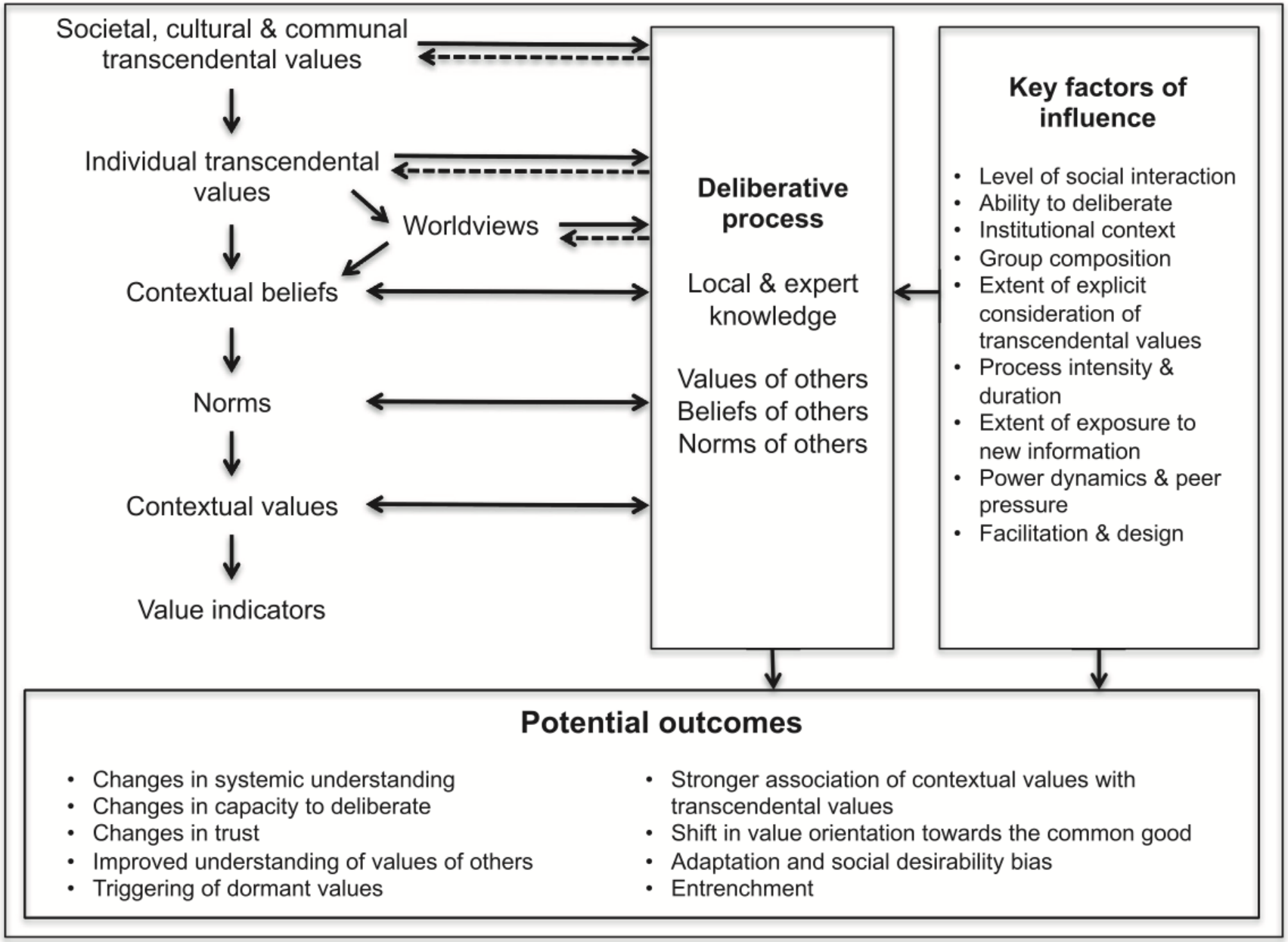
Deliberation is a way to form values around policy options

- Searching for information, gaining knowledge (by learning), forming and expressing reasoned opinions (not exerting power/coercion) through dialogue, identifying & critically evaluating options

Social learning partly explains how deliberation works

- A change in the relationship between a person and the world (i.e. change in understanding)
- This change in understanding occurs through social interaction
- The learning occurs across more than one person, at the scale of social units or communities of practice

Deliberative Value Formation (DVF) model



Kenter, Reed, Fazey, 2016. The Deliberative Value Formation model. Ecosystem Services 21, 194–207. https://doi.org/10.1016/j.ecoser.2016.09.015

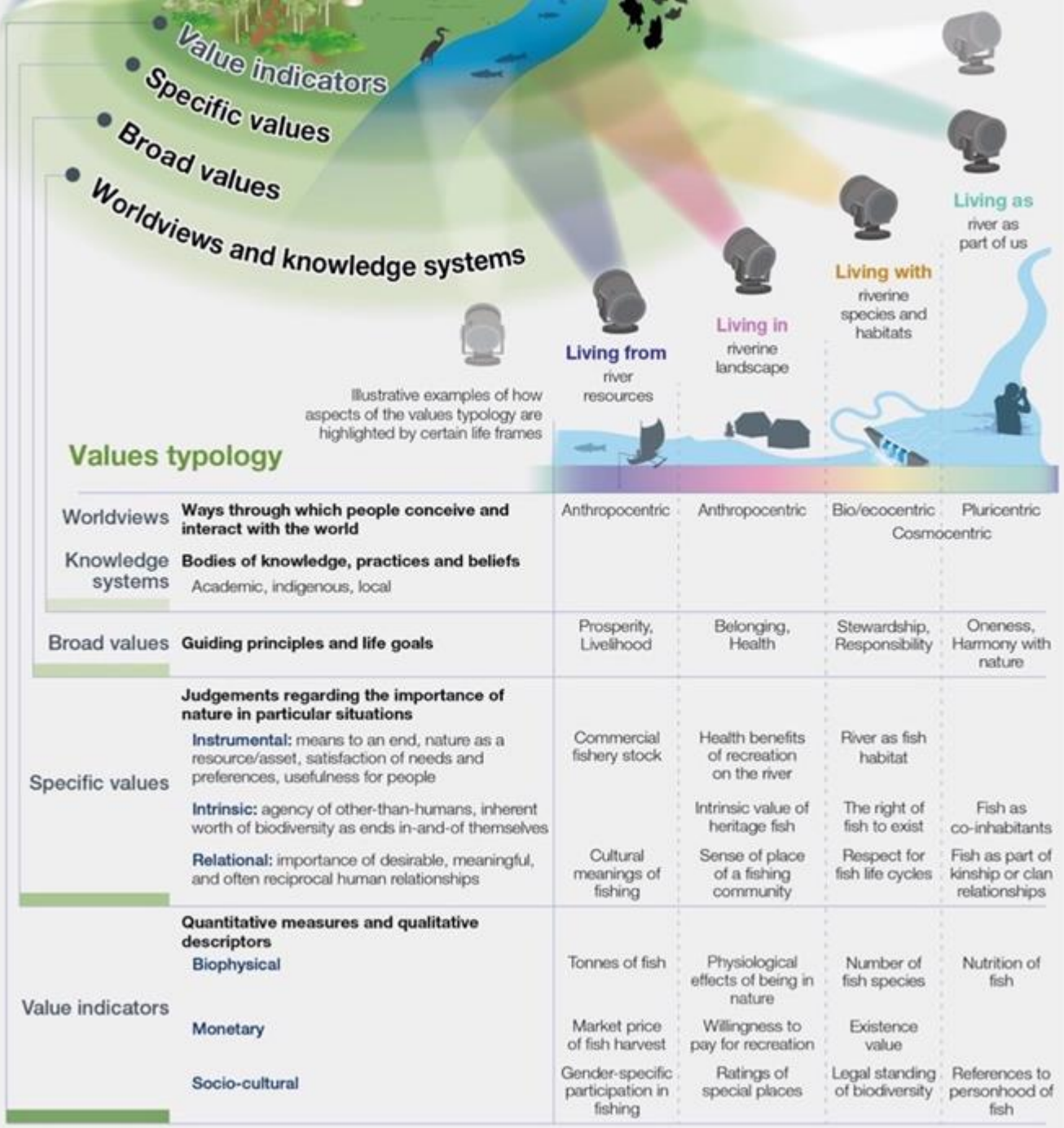
Nature's values and the Life Frames

IPBES typology of nature's values

The way people frame their relationships with nature is linked to their:

- Worldviews and knowledge systems,
- Broad values,
- Specific values,
- Value indicators

Different 'life frames' (living from, in, with and as nature) can help uncover and spotlight different types of values

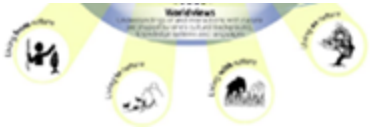


IPBES 2022, Values Assessment
Pascual et al 2023, Nature, https://doi.org/10.1038/s41586-023-06406-9

Values typology

		Living From	Living In	Living With	Living As
World-views	**Ways through which people conceive and interact with the world**	Anthropocentric	Anthropocentric	Bio/ecocentric Cosmocentric	Pluricentric
Knowledge systems	**Bodies of knowledge, practices and beliefs** Academic, indigenous, local				
Broad values	**Guiding principles and life goals**	Prosperity, livelihood	Belonging, health	Stewardship, responsibility	Oneness, harmony with nature
Specific values	**Judgements regarding the importance of nature in particular situations**				
	Instrumental: means to an end, nature as a resource and asset, satisfaction of needs and preferences, usefulness for people	Commercial fishery stock	Health benefits of recreation on the river	River as fish habitat	
	Intrinsic: agency of other-than-humans, inherent worth of biodiversity as ends in and of themselves		Intrinsic value of heritage fish	The right of fish to exist	Fish as co-inhabitants
	Relational: importance of desirable, meaningful, and often reciprocal human relationships	Cultural meanings of fishing	Sense of place of a fishing community	Respect for fish life cycles	Fish as part of kinship or clan relationships

What are the four Life Frames?



Living from nature (rivers)

- Nature matters as a **resource**, supporting livelihood and prosperity (e.g. food, energy)
- e.g. Policy: internalizing externalities, sustainable use

Living with nature (rivers)

- The environment as a **space for nature**, where nature matters as an important other, for its cycles, life support processes, wild spaces, and for the diverse species humans co-exist with
- e.g. Policy: Protected areas, environmental education

Living in nature (river landscapes)

- Nature as **place** – that e.g. supports meaning, cultural & individual identities, attachment
- e.g. Policy: protecting cultural landscapes, improving access

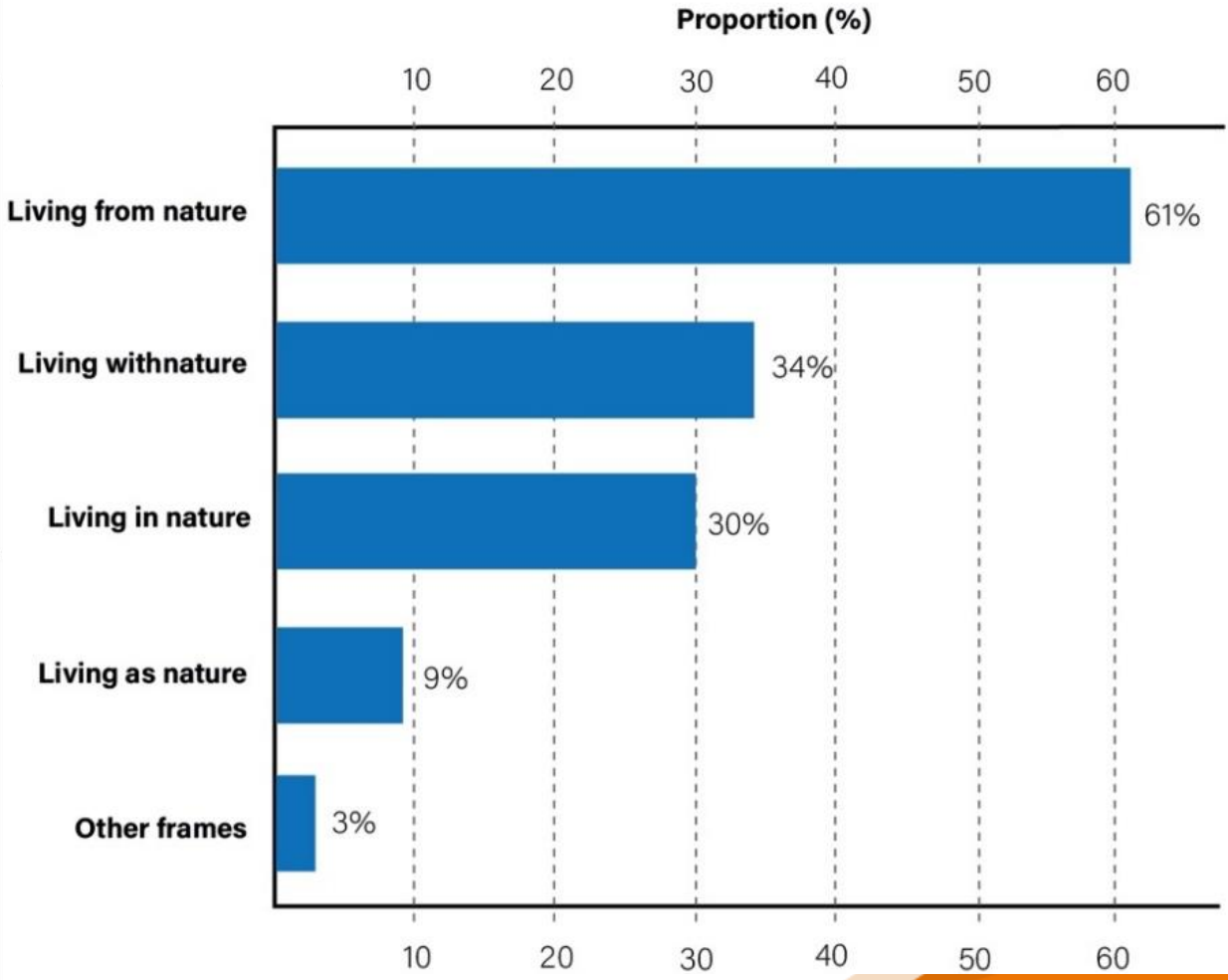
Living as nature (rivers)

- Nature as **self**, nature matters because it constitutes us, with an emphasis on oneness, harmony and embodiment.
- e.g. Policy: sensory practices to nurture connection with nature, legal recognition of rivers' personhood

O'Neill et al. 2008. Environmental values. Routledge.
O'Connor, Kenter, 2019. Sustain Sci 14, https://doi.org/10.1007/s11625-019-00715-7
Kenter, O'Connor, 2022. Sustain Sci 17, https://doi.org/10.1007/s11625-022-01159-2
Anderson et al. 2022. IPBES, https://doi.org/10.5281/zenodo.7154713

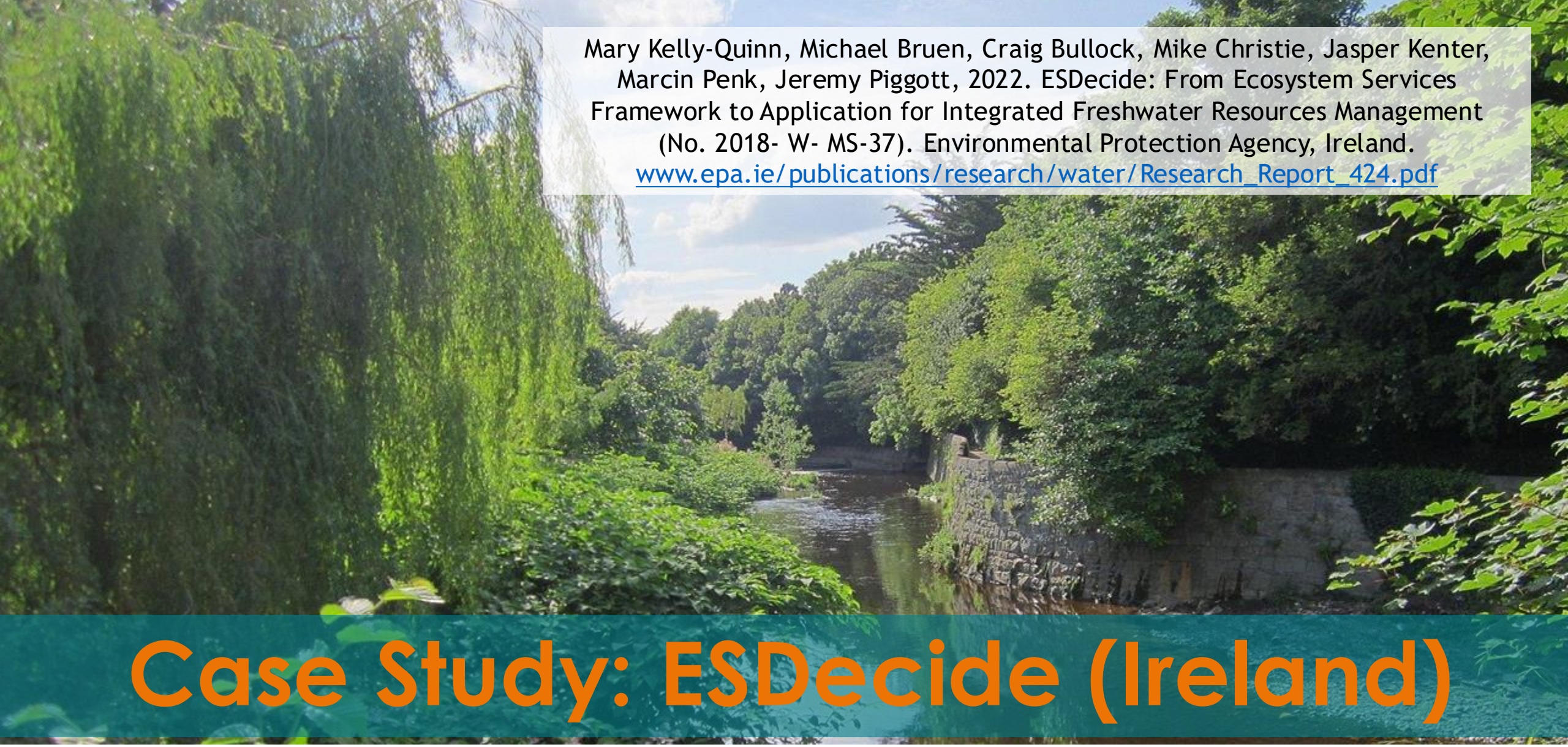
Life frames of nature's values	Living as nature	Living in nature	Living with nature	Living from nature
Examples of broad values relevant to policy framings	Oneness and harmony with nature, reciprocity, self-realisation, epistemic justice	Belonging, beauty, freedom, enjoyment, health, procedural justice for place-based management	Stewardship, responsibility, respect, recognition justice with regard to other species	Prosperity, livelihood security, efficiency, distributive justice for sustainable use
Emphasised specific values for nature & nature's contributions to people	*Relational & intrinsic* values for communities of humans & non-humans	*Relational* values of non-material & context-specific nature's contributions to people	*Intrinsic* values, *relational* values associated with stewardship, *instrumental* values of regulating nature's contributions to people	*Instrumental* use & option values of material & regulating nature's contributions to people, *relational* values of non-material nature's contributions to people in agriculture & fisheries
Example indicators to assess progress	▪ Participation in practices of care *(sociocultural)* ▪ Conservation status of natural entities considered to harbour agency *(biophysical)* ▪ Connectedness to nature scales *(sociocultural)* ▪ Ethnographic references *(sociocultural)* ▪ Recognition of legal personhood for nature *(sociocultural)*	▪ Landscape character assessments *(sociocultural)* ▪ References in historical document analysis *(sociocultural)* ▪ Tourism revenue *(economic)*	▪ Alpha, beta & gamma biodiversity *(biophysical)* ▪ Legal rights of natural entities *(sociocultural)* ▪ Planetary pressures adjusted human development index *(integrated)* ▪ Extent of community conservation plans *(integrated)*	▪ Stock indicators *(biophysical)* ▪ Environmental economic accounts *(economic)* ▪ Inclusive wealth *(economic)* ▪ Circular economy indicators *(economic)* ▪ Gini correlations with natural resources *(economic)* ▪ Recognition & distribution of indigenous and local land rights *(sociocultural)*
Example of policy measures	▪ Establish active targets & measures to address 'nature deficit' for urban populations and children (e.g, forest schools). ▪ Design policies to protect languages & biodiversity in an integrated manner ▪ Support customary governance practices that ensure integrity of IPLCs & ILK.	▪ Link natural & cultural heritage through place-based management. ▪ Design blue & green infrastructure to recognise needs of diverse groups through effective participatory processes. ▪ Integrate green prescribing in health systems.	▪ Establish new protected areas in accordance with IUCN categories in partnership with diverse knowledge holders. ▪ Build legal frameworks to establish & respect rights of nature ▪ Consistently assess impact on biodiversity & nature's contributions to people in tandem with economic impacts.	▪ Implement standards for national & corporate environmental accounting. ▪ Implement alternatives to GDP more inclusive of natural capital ▪ Review resource access & rights distributions to take account of distributive justice concerns.

Anderson et al. 2022, IPBES



Why the Life Framework?

- Need for an inclusive interdisciplinary framework for organising values
- Systematic review by IPBES found the four frames are highly comprehensive and reflect recognisable clusters of value sets
- Organisational framework: connect worldviews, broad and specific values
- Integration of non-anthropocentric values and worldviews
- Recognition of place (*living in nature*) and holism (*living as nature*) on equal footing with more policy-established *living from* and *with nature* frames.
- Move beyond but stay inclusive of ecosystem services and nature's contributions to people (NCP)
- Less abstract than ethical value categories – relatively easy to grasp for decision makers
- Potential as an effective tool for more inclusive decisions



Mary Kelly-Quinn, Michael Bruen, Craig Bullock, Mike Christie, Jasper Kenter, Marcin Penk, Jeremy Piggott, 2022. ESDecide: From Ecosystem Services Framework to Application for Integrated Freshwater Resources Management (No. 2018- W- MS-37). Environmental Protection Agency, Ireland. www.epa.ie/publications/research/water/Research_Report_424.pdf

Case Study: ESDecide (Ireland)

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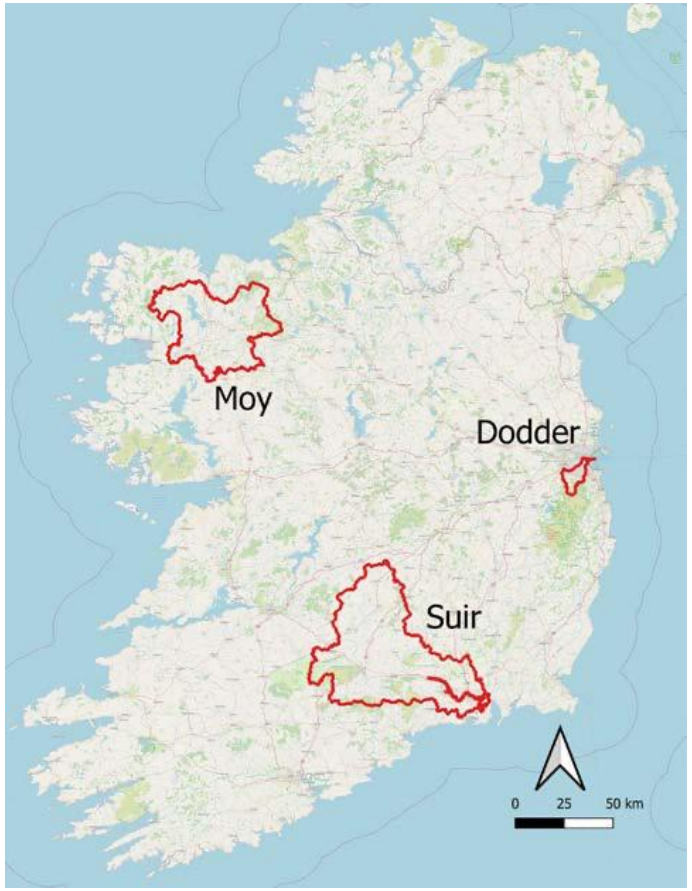
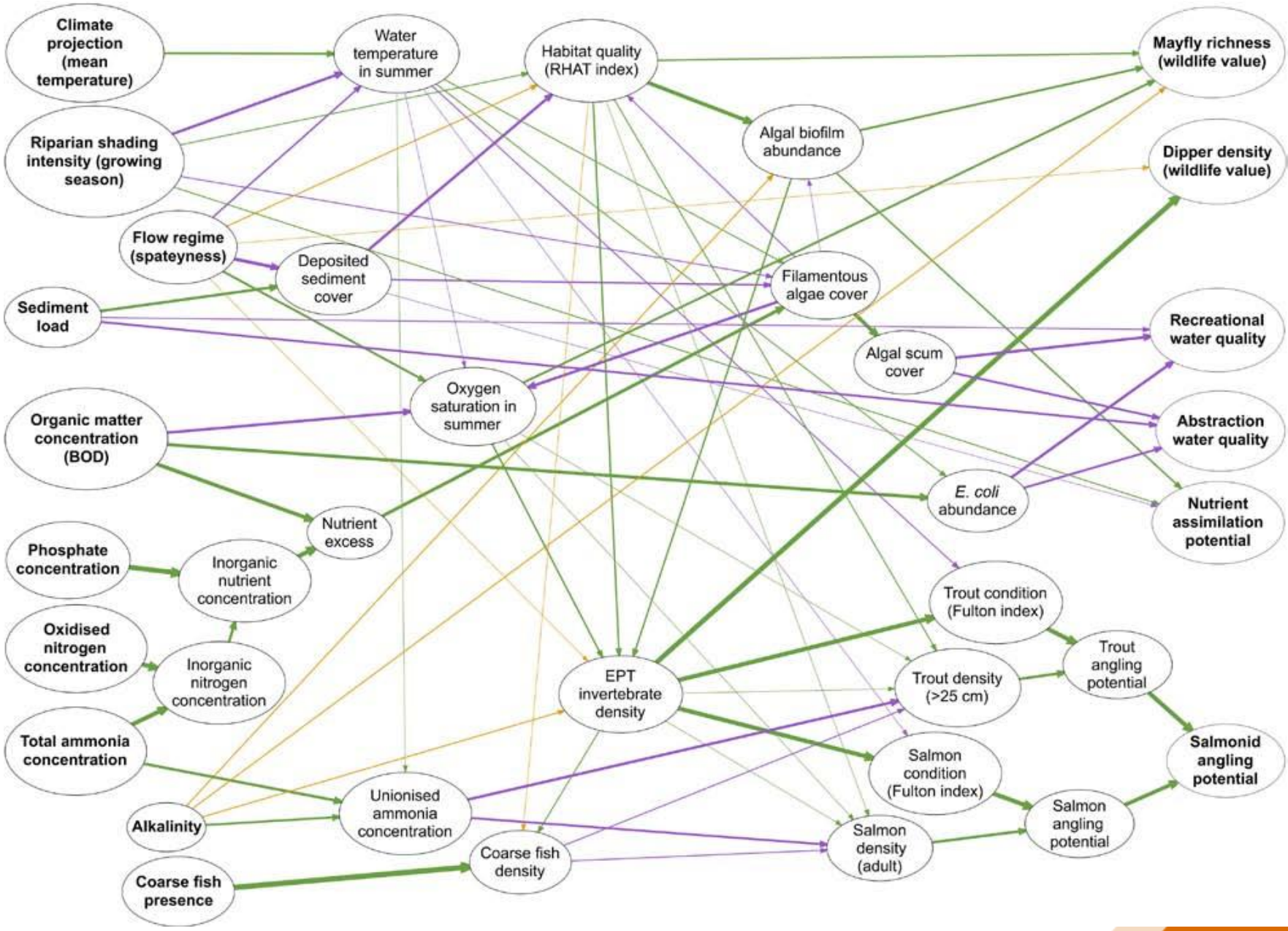
ESDecide focal catchments



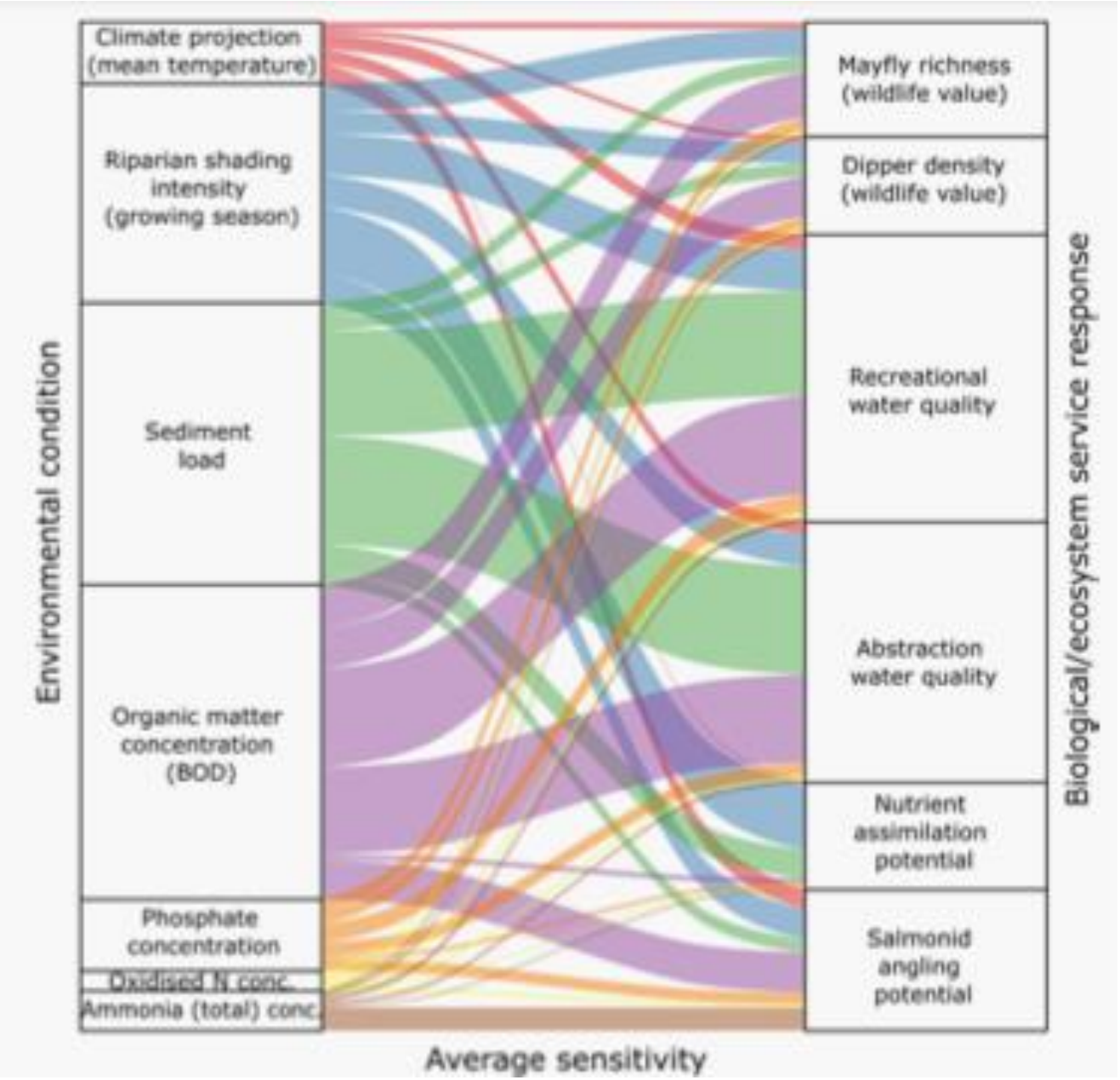
Research questions

- How does river management affect different ecosystem services/ nature's contributions of people?
- What values do local people express for Irish rivers?
- How do different NCP and values of rivers interrelate?
- Can shared values/priorities be formed around river management?
- Does application of the Life Framework help elicit a broader range of values?

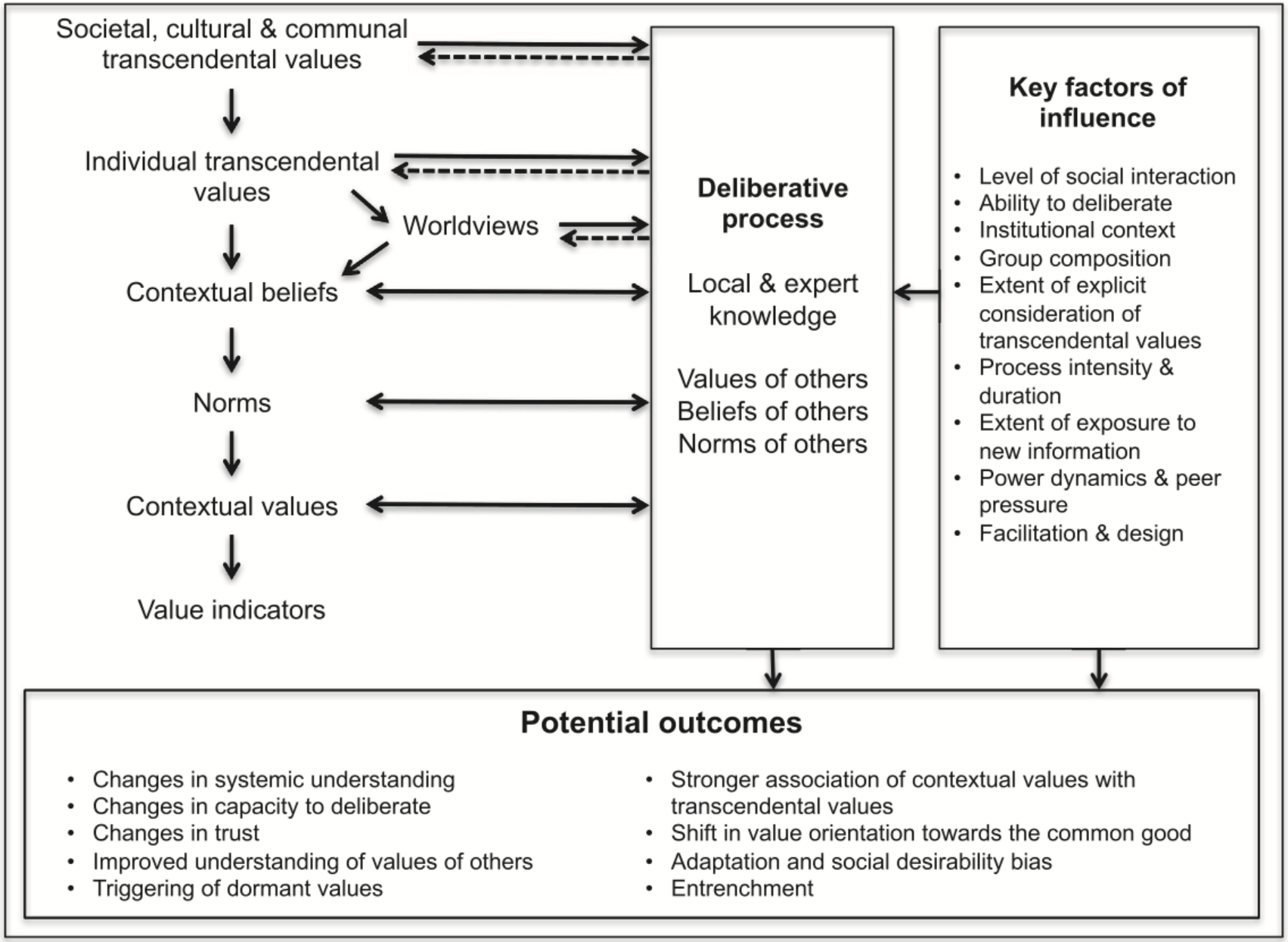
Bayesian Belief Network



Penk, et al. 2022. Using weighted expert judgement and nonlinear data analysis to improve Bayesian belief network models for riverine ecosystem services. Science of The Total Environment 851, 158065. https://doi.org/10.1016/j.scitotenv.2022.158065


Climate projection (mean temperature)
Riparian shading intensity (growing season)
Sediment load
Organic matter concentration (BOD)
Phosphate concentration
Oxidised N conc
Ammonia (total) conc
Environmental condition
Average sensitivity
Mayfly richness (wildlife value)
Dipper density (wildlife value)
Recreational water quality
Abstraction water quality
Nutrient assimilation potential
Salmonid angling potential
Biological/ecosystem service response

Deliberative Value Formation (DVF) model



Kenter, Reed, Fazey, 2016. The Deliberative Value Formation model. Ecosystem Services 21, 194–207. https://doi.org/10.1016/j.ecoser.2016.09.015

Valuing the multiple benefits of rivers - online workshops

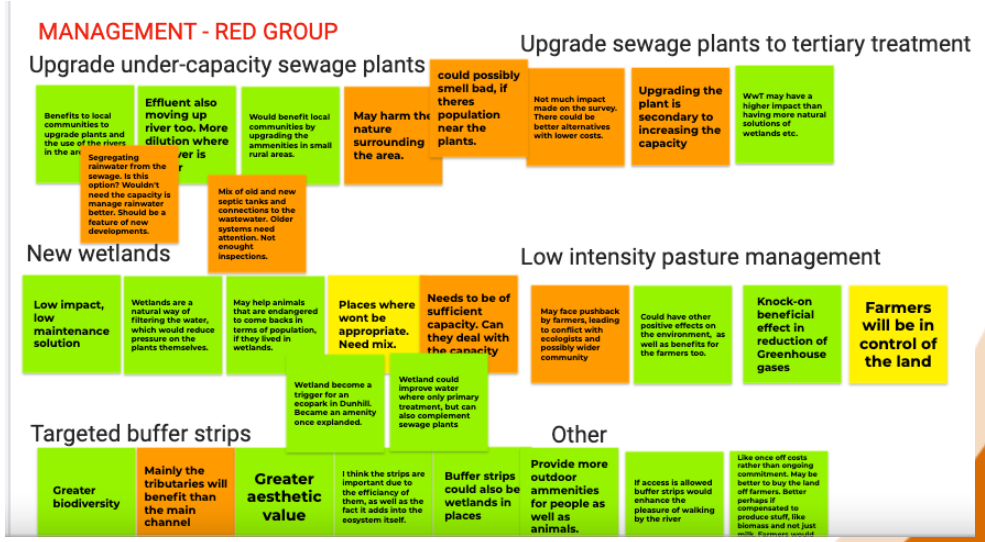
Aim: To explore the multiple ways in which people value rivers and river management options and how these values can be captured and fed into policy decisions.

- 3 x Local Catchment Workshops (Feb 2021)
- Total 43 participants

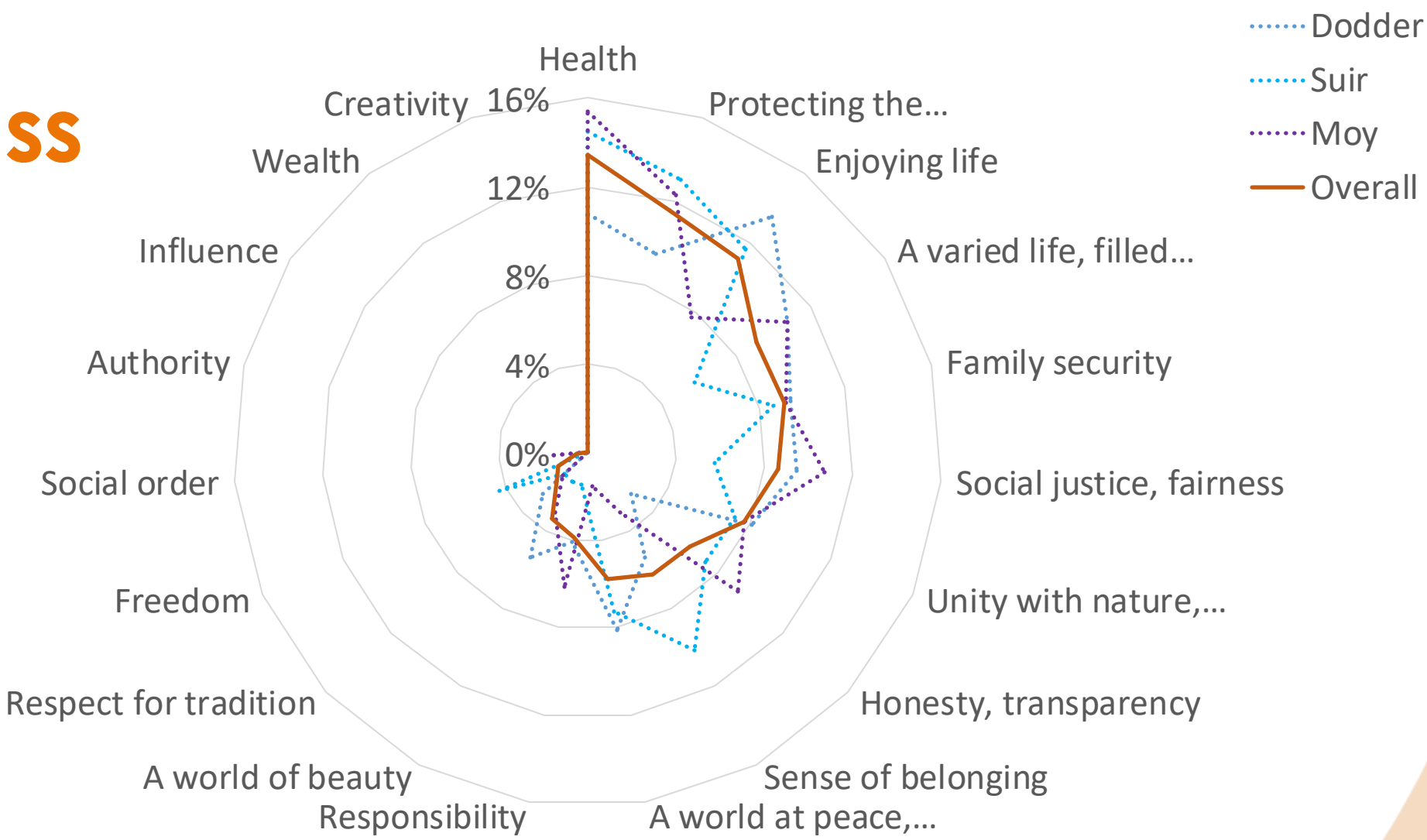
- Recruitment strategy aimed to create population representative groups of users and non-users of local rivers

Methods used to collect data

- Facilitated Zoom breakout rooms and Zoom polls to test opinion
- Discussions were recorded and transcribed
- Google Jamboard used to allow participants to record ideas
- Thematic analysis used to analyse transcripts based on draft IPBES Values Typology



Values compass



How do people relate to rivers?

- ***Living from*** the river: rivers as a resource
  - Amenities, clean drinking water, subsistence fishing (e.g. eels), value to farming, ports, revenue from fish licenses, festivals
  - *"It is of crucial importance to protect water quality and environment for prosperity of the rural communities."*
- ***Living in*** the river catchment: rivers shaping the place where people live, work and recreate
  - Many activities: walking, fishing, canoeing, swimming, fitness, farming, hunting, a living outdoor classroom, picnics, photography, drawing, writing, poetry.
  - Physical and mental health … *"Great comfort during this difficult time", A pleasant escape from urban life"*

How people relate to rivers: life frames

- ***Living with*** the river: rivers as a space for nature
  - *"It brings life to the area":* herons, kingfishers, wild ducks, cormorants, swans, swallows, seals, salmon, pike, trout, seatrout, perch, eel, minnow, crayfish, lamprey, foxes, stoats, deer, badgers, otters, dippers, bats, rabbits, grasses, plants, flowers, mushrooms, trees
  - Concerns that values negatively impacted by pollution: *"Pollution … [affects] the nature and wildlife… horrible to see the rubbish and detritus of people washed up on the shoreline"*
- ***Living as*** the river: rivers as a part of us, and being part of the river
  - Sense of pride; *"I have crossed the river almost every day of my life, it is a part of my identity & who I am, what I am proud of",*
  - *"I feel part of the river from my childhood of catching bugs, walking and fishing*

Value conflicts

- Agri-environmental issues: Incentives for farmers considered by some to be too limited
- Access to land, encouraging access and use of rivers versus conflicts of private land ownership. Conflicts between private fishing and public access for walking etc.
- Watersports disturb fishing
- Rubbish from recreation and dog walking affects other values
- Economic benefits from large companies (e.g. Coca Cola) vs environmental impacts
- Flood management can be source of conflict (up vs downstream, natural or not, interference with other things like rowing)
- Numerous agencies involved may be emphasising different values/priorities

Table 4.4. Prevalence of comments made during the workshops relating to the different value types in each catchment and across catchments

Value framing	Value type	Dodder	Suir	Moy	Average (%) and total across the three rivers[a]
Life Frames	From	43.7%	43.2%	31.7%	40.5%
	In	21.6%	31.9%	37.5%	29.7%
	With	28.1%	21.1%	29.2%	25.6%
	As	6.6%	3.8%	1.7%	4.2%
	N	167	185	120	472
NCP	Material	12.0%	14.1%	16.5%	14.3%
	Non-material	59.3%	37.6%	35.5%	43.1%
	Regulating	28.7%	48.3%	47.9%	42.6%
	N	108	149	121	378
Value justification	Instrumental	22.4%	42.9%	38.1%	34.7%
	Intrinsic	27.1%	19.5%	19.0%	22.1%
	Relational	50.5%	37.6%	42.9%	43.2%
	N	107	133	63	303

Table 4.6. Mapping of workshop discussions on NCP and values to the Life Frames

Value framing	Value type	Living from (%)	Living in (%)	Living with (%)[a]	Living as (%)	Total
NCP	Material	67.1	17.1	14.5	1.3	76
	Non-material	49.0	32.2	14.3	4.5	245
	Regulating	22.5	29.7	42.1	5.7	209
Value justification	Instrumental	64.0	24.0	10.7	1.3	150
	Intrinsic	12.0	12.0	67.4	8.7	92
	Relational	41.1	35.6	16.8	6.4	202
Transcendental	Transcendental	39.5	31.3	23.7	5.6	342

Linking BBN to management

Table 4.1. Predicted impact of river management options on the condition of the River Dodder

Option	Increase in dipper numbers	Mayfly richness	Reduction in algal scum	Reduction in *E. coli*	Recreational water quality	Trout angling
✞□▯▯▯▯▪ ▭◆▪■▪◆ □▯◆□▪▪□▭▭▭▪ ▭◆▪ from rainwater	+	++	++	+	+	+
Install screens ✈■▪▪▪◆ ▭▯▯□✖▪□●◆	+	++	++		+	+
Create new urban◆wetlands (including ▪▪▪▪■▪ ◑◆□✈◆□ ⊡✖▪□✖◆▪ ◉▪□	+	++	++	+	+	+
Create rain gardens, attenuation ponds and green roofs to reduce occurrence of □✖▪□●◆	+	++	++		+	+
Manage land to prevent pollution from agriculture and forestry entering rivers	+	++	+	++	++	+

Blank cells indicate low influnce but not necesearily no influnce.

+, small but noticeable improvement on current state; ++, moderate improvement on current state; +++, substantial improvement on current state.

Management options deliberated

Dodder

- Separate sewage from rainwater (€93m)
- **Integrated constructed wetlands at overflows (10 wetlands €6m)**
- Screen overflows (13 locations €4m)
- Permeable surfaces, soakaways, green roofs (€15m)
- Reduce intensity of pasture management (€3.5m)

Moy

- Increase WwTP capacity (Charlestown €385k)
- Upgrade septic tanks (€763k)
- **Create 6m buffer strips (€122k)**
- **Reduce intensity of pasture management (€1.2m)**

Suir

- Increase WwTP capacity (4 plants €7.3m)
- Upgrade WwTPs to tertiary (4 other plants €4.8m)
- Integrated constructed wetlands at WwTPs (€3.3m)
- **Create 6m buffer strips (€5m)**
- Reduce intensity of pasture management (€23m)

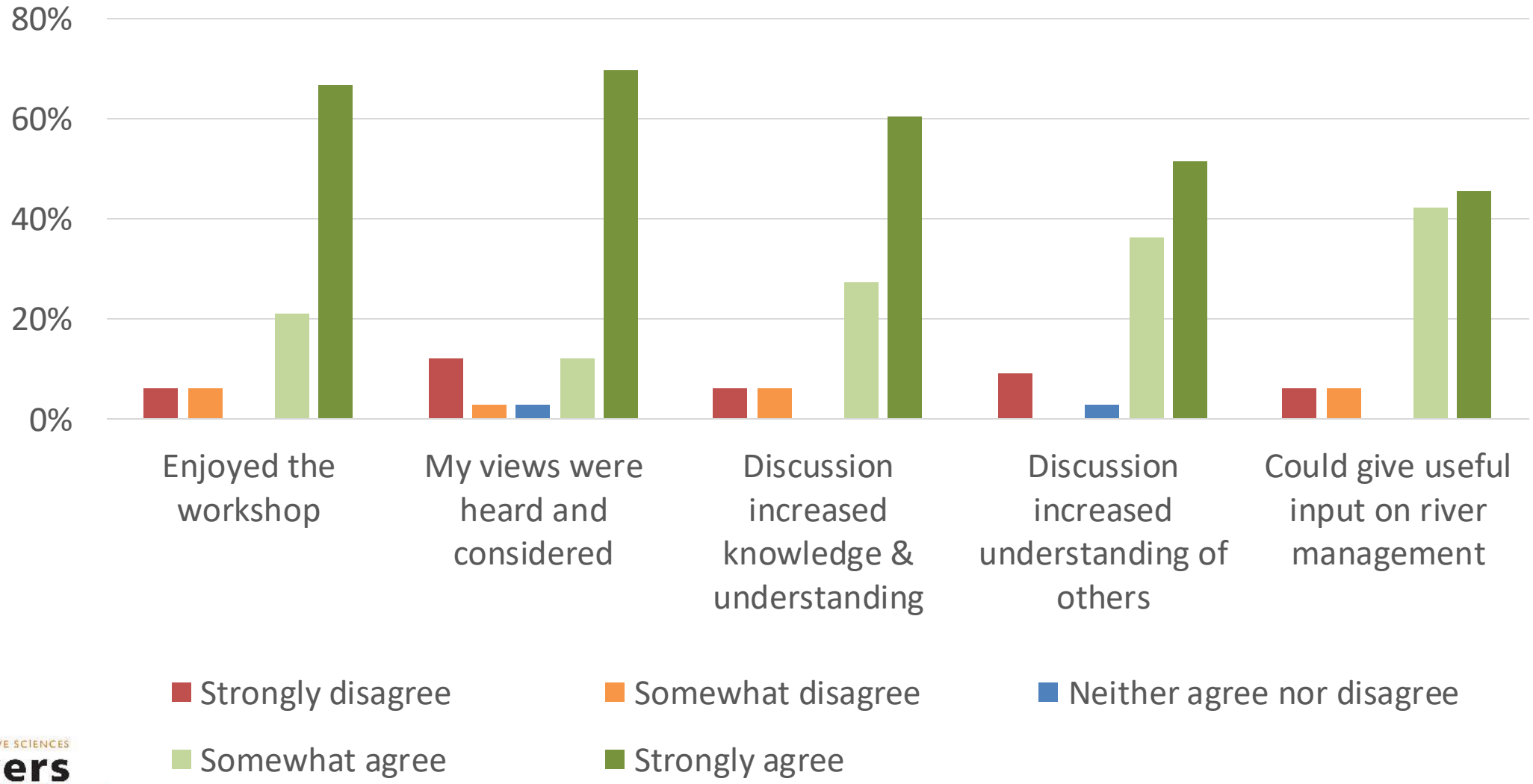
Observations around deliberation

- Deliberation shifted preferences
- Deliberation helped bridge intuitive broad value-based judgement vs informed specific values (sewage vs agri measures, cost of measures)
- Options that are linked to multiple life frames and values preferred, e.g., buffer strips > aesthetics (living in), support ecological corridors (living with), cost-effective way to improve water quality (living from)
- Different stakeholder positions bridged to find consensus (e.g. Moy around intensity of land management)
- Strong values attached to multi-stakeholder process, bridging farming, science, public

Table 4.5. Management option themes discussed in the workshops

Key themes	Sub-themes	Percentage of times topic discussed (%)
Management options	Advanced approaches	2
	Cost–benefit analysis	6
	Efficiency and effectiveness	13
	Environmentally friendly	7
	Priority	12
	Sustainability and maintenance	10
	Trade-off	6
Role of authorities	Agency approaches	2
	Governance scale	6
	Monitoring	2
	Planning	8
Linkages between stakeholders	Communication	2
	Cooperation	5
Public engagement	Education	5
	Incentives	6
	Public perceptions	5
	Public support	5

Participant feedback on process



A shared values approach

- Participants were able to:
  - Take the position of decision makers in deliberating different policy options, identifying clear shared priorities and pragmatically agreeing on a balanced combination of options, considering diverse values and benefits and costs.
  - Express issues, options and priorities that had not been put forward a priori by the experts

- The deliberative process led to:
  - Participants feeling included and heard
  - Significant learning both from the experts presenting and from other participants around values and management options
  - Changes in the way participants prioritised different management options

Conclusions

- Values around environmental issues often not fully formed
- Deliberation can help to effectively form values, but is influenced by key factors that influence potential outcomes (DVF model)
- IPBES Life Framework can help support integration of more diverse range of values in an intuitive and understandable way, including but also going beyond ecosystem services
- Citizens can effectively take the role of decision makers in deliberative democratic approaches, bridge value conflicts, and form shared values, whilst also incorporating pragmatic considerations, including resource/cost constraints.
- Strong values ascribed by communities to procedural justice.
  Deliberative, shared values approaches potentially more legitimate when there are many stakeholders and management is complex or contested.

Acknowledgements

IPBES Authors

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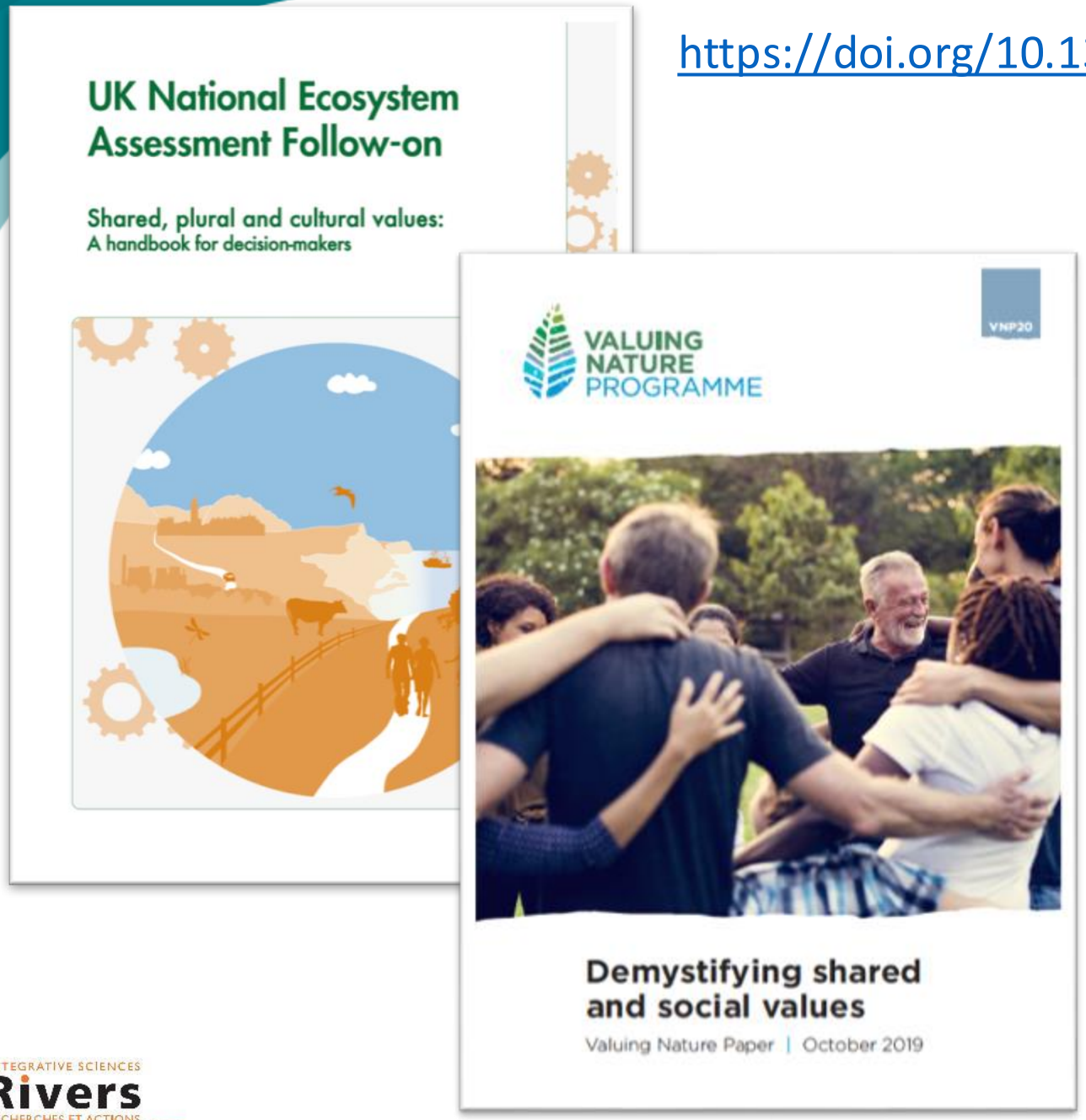

https://doi.org/10.13140/RG.2.1.4683.5281

Guidelines

https://valuing-nature.net/demystifying-shared-and-social-values

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