# The future of global river health monitoring

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Big River Watch, The Rivers Trust



s.l.] 2000 ц, <u></u> 1500 Elevation | 1000 - 500 Ν 5 km 0 eDNA sampling site
 Hydrological station



US National Park Service

Ho and Goethals 2022

### Why a global river health framework?

- Advocate for representation of river health and river health indicators in global sustainability initiatives (e.g., SDGs)
- Rivers don't fit inside jurisdictions
- Nearly all aspects of human society are impacted by health of rivers
- Provide a road map to focus development of current and emerging technologies to advance river health

### **Objectives**

### To chart a path toward policy-relevant, global river health monitoring

- Review national and regional approaches for river health monitoring
- · Identify a scalable framework of indicators

## Major frameworks used to evaluate river health





Biology

Fish abundance Fish richness Invertebrate diversity Aquatic invasive species Primary productivity



Physical habitat

Connectivity Channel feature diversity Riparian vegetation Instream vegetation





Water temperature Nutrient concentration Suspended sediment Ecotoxicants





Surface water extent Flow alteration

### **Development of the framework**

- Indicators reflect biophysical conditions, to represent ecosystem state
- Considered all potential indicators, regardless of readiness (e.g., 1)
- Evaluated feasibility of implementation by **2030** and by **2050**
- Emphasized integration of three main data sources *in-situ*, RS, and modelling to produce spatially-explicit estimates for all rivers
- For now, excludes human valuations of rivers
- To blend both bottom-up and top-down approaches in a global framework, we call for the establishment of a standardised, common geospatial framework based on pre-defined spatial units

#### The non-presentable framework



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### **Enabling factors**

- 1. Adopting river health monitoring as a priority within local, regional, and global initiatives.
- 2. Committing to a common framework and coordinating efforts for methods development and data synthesis.
- 3. Identifying and promoting an international organisation responsible for the coordination of national or regional commitments and accountability.



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