



# ASSESSING BASIN HEALTH

## When and Why to Apply the Freshwater Health Index

The Freshwater Health Index (FHI) is a tool developed by Conservation International and partners to provide a comprehensive measure of health in freshwater basins. Unique from other indices, the FHI makes clear connections between freshwater ecosystems, the benefits they provide to people and, importantly, the water governance and management systems in place.

The FHI measures pressures or threats to a freshwater basin using indicators of ecosystem health—such as water quantity, water quality and invasive species as well as benefits to people such as flood control and fisheries. Additionally, it measures the governance system in place through indicators such as technical and financial capacity, stakeholder engagement and strategic planning.

Through a clear and relatively low-cost process, the FHI allows resource managers, engineers, policymakers and other stakeholders to transform raw data into indicators (on a 0-100 scale), providing a baseline diagnosis of a basin's health as well as a platform for analyzing changes over time.

### Why conduct a basin assessment?

The FHI reflects basin-specific information on stakeholder preferences, underlying pressures and drivers, and differing stages of economic development. A basin assessment provides:

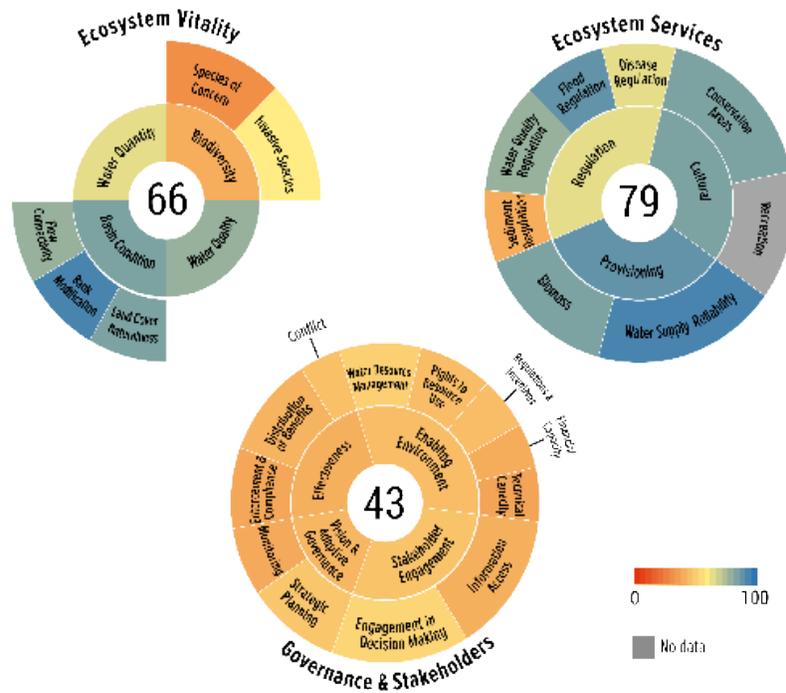
- Decision-support through a novel set of indicators that transparently assesses the health of freshwater systems, where “health” is defined as the ability to deliver drinking water, crop irrigation, flood protection and other water-related ecosystem services sustainably and equitably—linking upstream areas (supply) with downstream communities (demand).
- Information to guide the development of plans, policies and priority-setting at the basin scale by highlighting where pressures are greatest, where opportunities for conservation and restoration will have the most benefit, and where the governance system needs to improve.
- A snapshot of current basin conditions that can be used as a baseline for long-term monitoring—or to evaluate modeled scenarios for climate change, land-use change, or infrastructure development.

Rupununi River, Guyana © Conservation International/ John Martin



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## Example of basin-level FHI scores



- A picture of the trade-offs of a given action as well as opportunities for improvement.
- Valuable insight into stakeholders' perceptions of and preferences for freshwater health, so that conflicts can be better managed and outcomes are more equitable.

### Is the FHI right for you?

The FHI is not intended for use by a single entity, but rather, it is a tool for engaging multiple stakeholders focused on water resource management in a particular basin or region. Working together, users can evaluate scenarios, understand trade-offs, prioritize interventions and communicate about basin health with a broad audience.

The intended scale of application is a river or lake basin, or aquifer—where resource management decisions are most relevant and integrated information is likely to be most useful—but the FHI can also be applied at smaller or larger scales. Most indicators are mapped at a sub-basin scale as well, so that users can identify areas of relatively high or low performance and explore differences within a basin.

Assessments have been successfully carried out in Asia and Latin America, in partnership with local and national decision-makers, and new assessments are underway in other parts of the world.

### What are the data requirements?

The data required to calculate the indicators may come from a variety of sources, including on-site measurements, remotely-sensed information and modelled outputs. Each basin provides its own data sources based on local, regional and global factors such as capability of local authorities, institutional importance for certain variables such as water quality, or the scale of the basin being studied.

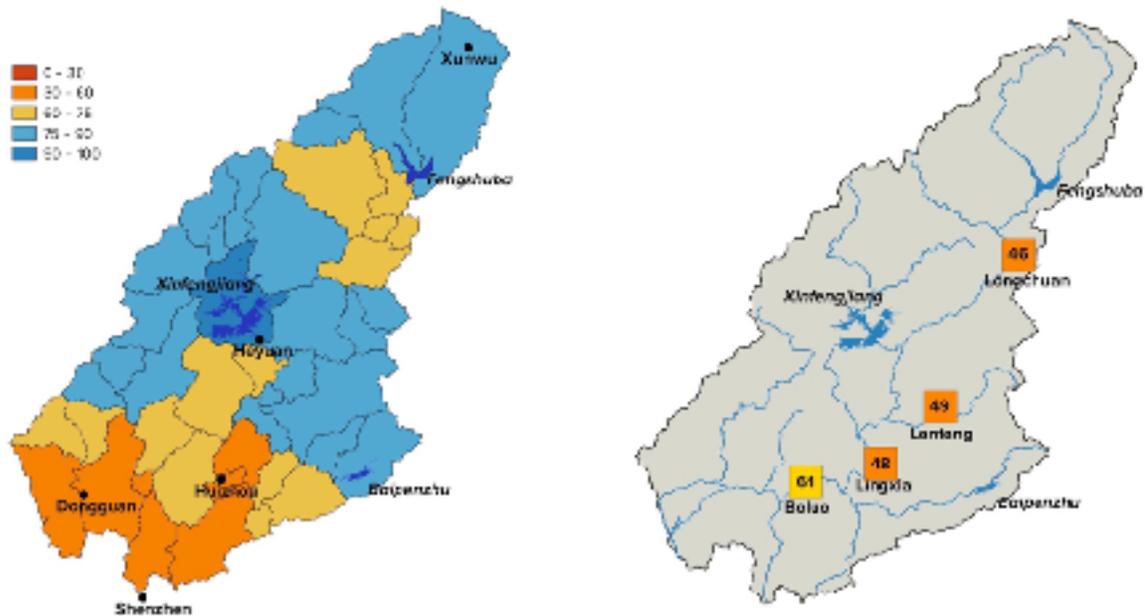
A user manual describes the assessment methodology, allowing local stakeholders to conduct assessments collaboratively, and technical support from the FHI team can be provided to help identify appropriate data sources, advise on calculations and offer guidance on convening workshops.

### What do you need to get started?

The FHI was initially developed so that anyone with moderate proficiency with spreadsheets (e.g., Excel) and geographic information systems (GIS) would be capable of leading a baseline assessment. A [desktop version of the tool](#), available for download on the FHI website, now automates much of the work.

Scenario modeling requires additional expertise, including the use of a hydrologic model. It is helpful to set up a team to

### Example of sub-basin scores for individual indicators



divide the work, though a single qualified person working at 50% of his/her time over 12 months should be able to complete the analytical work. Limited technical assistance is available from the FHI staff, but the goal is to develop sufficient capacity in each location so that the assessments can be repeated. In addition to personnel, it is also necessary to cover consultation forum costs, since stakeholder engagement is an integral part of the overall FHI process. These should be modest, but are essential to the uptake of the FHI.

### How long does it take and what is the process?

The average length of time estimated to complete an FHI basin assessment is 9-12 months, although the actual timeline varies from basin to basin depending on capacity, data availability and other factors. The longer timeframe is reflective of the iterative process, where stakeholders get together in a series of workshops to provide and review information. In general, an assessment follows this sample schedule:

**Months 1-3:** Assessment team reviews existing datasets, establishes contact with any technical collaborators (e.g., universities, regional government agencies, etc.), and conducts a preliminary review of stakeholders within the basin.

**Months 4-6:** Assessment team and technical collaborators perform initial calculations of indicators based on existing data. Assessment team holds a stakeholder consultation forum to introduce the FHI and administer governance surveys. Assessment team may organize 1-2 technical meetings with collaborators to review initial results.

**Months 7-9:** Assessment team drafts technical report and holds second stakeholder consultation forum to discuss draft report. If desired, develop scenarios for future changes to the basin. Assessment team and technical collaborators quantitatively model scenarios and calculate indicators to compare against the baseline assessment.

**Months 10-12:** Assessment team finalizes technical report and policy summary, and holds a final stakeholder forum to discuss results and prioritize next steps for policy actions or further analysis.

### Learn More

For more information about the FHI, details about how to conduct a basin assessment, or other questions, please visit [www.freshwaterhealthindex.org](http://www.freshwaterhealthindex.org) or contact us at [info@freshwaterhealthindex.org](mailto:info@freshwaterhealthindex.org).