



Instream Flow Assessment Tools and Considerations

Presentation to SB3 Science Advisory Committee

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Instream flow assessment techniques¹

- **Standard Setting** – Sets limits or rules to define a threshold flow regime (e.g. Tennant, Lyons, wetted perimeter, bankfull discharge, 7Q2, Consensus Environmental Criteria)
- **Incremental** – Analyzes single or multiple variables to enable assessment of different flow management alternatives (e.g. IFIM, Texas Instream Flow Method)
- **Monitoring/Diagnostic** - Assesses conditions and how they change over time (e.g. IHA, HAT, IBI)

¹Instream Flows for Riverine Resource Stewardship

Standard setting methods strengths and limitations ¹

Strengths

- Low level of effort required, “desktop method”, predictable, inexpensive, quick

Limitations

- Less scientifically accepted, based on historic water supply, not well-suited for bargaining

¹Instream Flows for Riverine Resource Stewardship

Incremental methods strengths and limitations ¹

Strengths

- More scientifically accepted, based on fish habitat, designed for bargaining

Limitations

- Project-specific, many decision variables, expensive, lengthy, in-depth knowledge required

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Monitoring/diagnostic methods strengths and limitations¹

Strengths

- Appropriate for use in adaptable management, can be used to improve performance of simpler methods

Limitations

- May require significant amount of historical flow data, many subjective decision points, in-depth knowledge required

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TNC Ecological Limits of Hydrologic Alteration (ELOHA)

Uses existing hydrologic and ecological databases to generate flow alteration-ecological response relationships.

Scientific Process:

Step 1: Build hydrologic foundation

Step 2: Classify river segments

Step 3: Compute hydrologic alteration

Step 4: Develop flow alteration-ecological response relationships

Social Process:

Step 1: Determine acceptable ecological conditions

Step 2: Develop environmental flow targets

Step 3: Implement environmental flow management

Go to Nature.org/ELOHA for more information.

USGS Hydroecological Integrity Assessment Process (HIP)

- What - suite of software tools for conducting a hydrologic classification of streams, addressing instream flow needs, and assessing past and proposed hydrologic alterations on streamflow and/or other ecosystem components.
- The HIP recognizes that streamflow is strongly related to many critical physiochemical components of rivers, such as dissolved oxygen, channel geomorphology, and water temperature, and can be considered a “master variable” that limits the disturbance, abundance, and diversity of many aquatic plant and animal species.

http://www.fort.usgs.gov/Resources/Research_Briefs/HIP.asp

Hydroecological Integrity Assessment Process (HIP) Stream Classification

