



The End of the Stone Age

## ASSESSMENT AND MONITORING: THE KEY TO SUCCESSFUL RESTORATION

A baseline assessment can best be described as the basis by which to judge the success of any action taken to conserve, protect, enhance or restore water resources. And monitoring is performed on an ongoing basis to continue to evaluate the health of the resource after any action is taken in order to track results in a meaningful way.

RiverWorks performs baseline assessments to meet a variety of objectives, and to guide all restoration planning, design and installation. New technologies have made the assessment process relatively quick and low-cost – certainly the best investment toward a successful enhancement or restoration project.

Assessments can do the following:

- Reveal ecological potential;
- Answer project feasibility questions;
- Uncover hidden problems before you build (or before you buy);
- Provide baseline data for permitting or for comparison over time;
- Add value to due diligence;
- Prevent costly surprises.

As our sister company outlined in the free report “Buyer Beware: Why *The River Restoration Company* Is Warning Consumers about the Industry” the five most common problems in today’s aquatic resource consulting industry are:

- Lack of industry standards or professional certification for practitioners
- Assessments that are no more than opinion disguised as science
- No consideration of multiple project alternatives
- Poor understanding of liability issues
- High degree of uncertainty about how to measure project success or failure

The last four of these can be solved by insisting upon a repeatable, scientifically-valid, resource assessment, including a written report. Never hire a company that shows up, looks at the site, kicks the dirt, and starts offering solutions. Make sure the company intends to perform a thorough assessment before providing “answers,” and ask what the assessment report will include. Assessment parameters vary depending upon the type of resource (stream, lake, wetland), but a scientifically-based, repeatable assessment is mandatory.

### What Your Assessment Report Should Include

**Site identification information** - Specific location, ownership information and site characteristics used to identify your project site.

**Site history** – Historical landuse information about the site, along with landuse activities in the watershed. This might include the percentage of land area in the watershed that is forested, grassland, agricultural, industrial, etc. along with any noted significant impacts such as mining.

**Site maps** – Generally produced from GPS technology, maps are used to identify the location of the project site and important structures or key items of interest.



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**Comparison with a reference site** – The baseline condition needs to be compared to a reference condition. The reference condition represents the best attainable condition of that resource in the absence of disturbance. For the reference condition to be appropriate, the reference condition must be from an area of similar natural environmental conditions, in other words, within the same ecoregion, and of the same drainage area and/or stream order (whether a main channel or a tributary stream) to reflect what the baseline condition would be in the absence of disturbance.

**Survey results** – Depending upon the type of resource you want to look for stream channel surveys and cross sections, floodplain survey, stream velocity data, hydrologic classification and analysis. For lakes and wetlands you'll want depth information along with water volume measurements.

**Current condition** – Information about the condition of the resources may include, but is not limited to channel condition, hydrologic alteration (channel straightening or dredging), water appearance, nutrient enrichment, instream fish cover (logs, vegetation, rocks, etc.), canopy cover (overhanging vegetation for shade), obstacles to fish movement/migration pools (dams, culverts, etc.), insect/invertebrate habitat, riparian vegetation (streamside grasses, shrubs and trees), bank stability (excessive erosion or sloughing), salinity, manure/human sewage presence, riffle embeddedness (excess silt on the stream bottom) and macroinvertebrates observed (small aquatic insects, snails, etc.).

**Disturbances** – Possible disturbance activities affecting the health of you stream, lake or wetland should be identified in your report. The following should be considered: vegetative clearing, dams, levees, soil exposure or compaction, irrigation and drainage, channelization (straightening of the channel), contaminants, hard surfacing, overgrazing, roads and railroads, streambank armoring (rock or concrete), trails, exotic species, utility crossings, reduction of floodplains, streambank disturbances, dredging for mineral extraction, land grading, bridges, and woody debris removal.

**Photos** – Photos of the site are needed for visual reference and for comparison over time.

**Customized observations and recommendations** – Last, but most importantly, your report should contain specific, customized observations pertaining to the assessment site along with clear, detailed recommendations for addressing any problems or concerns.

By deploying the latest tools and technologies RiverWorks has completed hundreds of low-cost assessments and monitoring projects for private property owners, government agencies, and non-profit organizations. We would be happy to discuss your resource assessment needs, and provide you with a free, sample assessment report.