Notes from SIFN River Classification WebEx, June 30, 2010

Participants:

Mary Davis (TNC – Atlanta); John Faustini (USFWS – Atlanta); Chris Konrad (USGS/TNC – Seattle); Cat Burns and Chuck Peoples (TNC – NC); Eloise Kendy (TNC – Helena, MT); Marilyn O'Leary (SARP – LA); Emily Watson, Steven Hamby, and Stephanie Chance (USFWS – Cookeville, NC); Rebecca Tharme (TNC – Mexico); Rodney Knight (USGS – Nashville, TN); Ryan McManamay (VA Tech); Sally Palmer (TNC – TN); Sam Pearsall (EDF – NC); Jim Henriksen (Environmental Flow Specialists – Fort Collins, CO); Paul Seelbach (USGS – Ann Arbor, MI)

Meeting Agenda:

1. Welcome and introduction (*Mary Davis, TNC*)
2. Participant introductions
3. River classification background, approaches, and issues to consider in current effort (*John Faustini, USFWS*)
4. TN hydrologic classification project (*Rodney Knight, USGS*)
5. Questions and discussion re alternative approaches
6. Group discussion: Next steps
   - Group process
   - Volunteers for technical working group, next mtg. date

Meeting Summary: (click here to view the WebEx recording)

Mary Davis, TNC, opened the meeting by briefly outlining the background and motivation of the SIFN river classification effort and introducing the co-chairs of the incipient SIFN River Classification Committee, John Faustini (USFWS) and Chris Konrad (USGS/TNC). This was followed by participant introductions.

John Faustini, USFWS, gave a presentation outlining key elements of river and landscape classification approaches, reviewing several examples of alternative approaches to river classification from the literature, and recommending key attributes that the regional river classification to be developed should have in order to meet SIFN's needs. He also highlighted the SIFN river classification wiki page, which summarizes these issues and presents additional background information and literature references on river classification. (Click here to view or download the presentation slides, or click here to view the WebEx recording; the presentation starts at 18:00 minutes and runs about 30 minutes.)

Following Faustini's presentation, Rodney Knight (USGS, TN WSC) gave a brief overview of an interdisciplinary pilot study titled "The Value of Water" that USGS is initiating. The study will involve ecologists, hydrologists, economists, statisticians, and social scientists. The geographic extent of the study is the southeastern U.S. (AL, FL, GA, MS, NC, SC, TN, and the Caribbean). Developing a hydrologic river classification was identified as an early priority, and funding and personnel to accomplish this task have already been identified. Data compilation has already begun, with over 800 sites meeting the selection criterion of 10 or more consecutive years of continuous streamflow data for the period ending in 2008. Rodney noted the clear commonality of interest among the USGS and SIFN efforts and indicated his interest in working together to coordinate the two efforts. The possibility of coordinating

the two efforts so that both could make use of a single regional hydrologic analysis and classification was discussed, and it was agreed that this possibility should be explored.

Rodney Knight's briefing on the USGS's "Value of Water" project was followed by a group discussion of issues raised in Faustini's presentation re key elements to include in the regional SIFN river classification effort. A brief summary of major discussion points follows below.

Several southeastern states already are using river/stream classifications in an instream flows context:

SC – Has separate instream flow standards for just two classes of streams, Piedmont and Coastal Plain.

AL – 5 ecoregions based on fish assemblages.

NC (Jim Henriksen) – Hydrologic classification—not ELOHA, but similar. Perennial vs. intermittent is *a priori* class. Other flow regime classes determined using *k*-means statistics on data from stations with 18 or more years of flow data. PCA used to determine highest loading for each class. Total of 11 classes for NC.

What system(s) work(s) best, and what's a measure of success? – There is no one 'best' system. The best system depends upon the intended use(s) of the classification system; the best system is one that is tailored to the objectives.

Paul Seelbach: Important to keep separate two steps in the process:

1. Building the framework ("buckets")—e.g., a hierarchical spatial framework as in Higgins et al. (2005).
2. Building the classification system tailored to management needs—e.g., fisheries, water use, etc.

An important consideration is what data are available. Also important to consider differences in objectives and conditions from state to state, watershed to watershed. Start with those objectives and conditions that fit the elements identified in Faustini's presentation.

Success can be measured by strong statistical relationship of classification system (river class membership) and biological response to flow alteration or disturbance. But data are limited, so it can be difficult to test relationships between river classes and the biological responses. Thus, an iterative process is needed:

1. Develop a preliminary classification system based on hypothesized controls on aquatic assemblages and their likely response to flow alteration using best available information.
2. Review literature/data available to test flow alteration-biological response relationships by stream class. Evaluate classification performance and identify data gaps.
3. Use results of (2) to refine the classification if needed and to guide further research on disturbance-biological response relationships.
4. As new data become available, repeat steps 2 and 3.

Future work:

The group decided to form a technical committee to follow through on developing a regional river classification. The following persons volunteered to serve on the committee or were suggested by WebEx participants and have subsequently agreed to serve:

John Faustini (USFWS, Atlanta – Chair) Ph: 404-679-7301 E: john_faustini@fws.gov

Chris Konrad (USGS and TNC, Seattle – Co-chair) Ph: 206-436-6261 E: ckonrad@tnc.org

Rodney Knight (USGS, TN WSC, Nashville)

James McKenna (USGS-BRD Great Lakes Science Center, Cortland NY)

Jim Henriksen (Environmental Flow Specialists, Inc.)

Mark Cantrell (USFWS, Asheville NC)

Others who are interested in serving on the committee are encouraged to contact John Faustini or Chris Konrad.

Communication and information resources:

The River Classification Technical Committee will conduct business via email and periodic conference calls or WebExs. Email updates and periodic WebExs will be used to keep the larger SIFN community informed of progress and to solicit input. (If you do not currently receive SIFN email updates, contact Marilyn O'Leary [marilyno@southeastaquatics.net] to be added to the mailing list.) Meeting notes, links to WebEx recordings, and other documents related to the river classification project will be posted on the SIFN website (http://southeastaquatics.net/programs/sifn). For more background on river classification in general and the SIFN river classification project in particular, as well as other SIFN activities, interested parties are encouraged to visit (and contribute to) the SIFN wiki.