

**Southeast Aquatic Resource Partnership
Southern Instream Flow Network**

**Instream Flow Research Agenda
Draft Prospectus
09-01-2009**

Rivers and streams of the Southeastern US are home to a globally significant array of fish, mussels, crayfish, and other freshwater life. This biological richness is due to a wide variety of types of rivers that cross ancient to relatively new landscapes with different geologies and altitudes and range from temperate to subtropical regions. Flowing water is abundant here, but finite. Management of these valuable resources is an increasing challenge as the Southeast is also a region of rapid population growth. Demand is accelerating for the same water resources that support this natural wealth. As a consequence of the widespread impacts of increased water withdrawals and dam operations to aquatic species of concern, State Wildlife Action Plans (SWAP) throughout the region cite impaired flow as a major threat.

The natural seasonal and inter-annual variations in flows in rivers and streams are critical to maintenance of these rich aquatic ecosystems. As a result, instream flow protection cannot be achieved by simple minimum flow standards that would allow flow in streams to be “flat-lined” with little regard for the habitats and other ecological functions. Southern states, however, vary widely in the level of instream flow protection afforded by their respective policies and regulations. Interest in developing effective instream flow protection has increased as recent droughts have exacerbated conflicts between water use sectors as well as between states for shared limited resources. In 2008, a MSCGP grant was awarded to the Southeast Aquatic Resource Partnership to establish the Southern Instream Flow Network (SIFN). The objective of that effort is to develop and improve instream flow policies for Southern states. While good progress has been made in increasing resources and communication among SIFN members about instream flow policy and science, state fish and wildlife agencies and their partners continue to be hampered by insufficient data to substantiate recommendations for ecologically protective instream flow criteria.

Objectives: The Instream Flow Research Agenda will provide Southern fish and wildlife state agencies and their partners with a state-of-the-science assessment of riverine ecology-flow relationships on which to base their recommendations for instream flow protection criteria and policy. Work of the Program will answer the following questions:

1. What do we already know from existing studies to guide development of protective instream flow criteria?
2. What are the information gaps that need further research to better support recommendations for instream flow protection criteria and policy?
3. What standards for study and monitoring methods can be recommended to improve comparability of results?

Approach: The Program's work will be a collaboration of federal and state agency and academic researchers, SIFN members and other interested parties that is facilitated by the SIFN Technical Advisor. SIFN members will be asked to help identify and gain access to relevant data from water development projects, agency monitoring programs, academic studies and other sources. For example, ecology-flow relationships have been developed using existing data for the Colorado River and other western rivers. Similar studies are currently underway for the Connecticut, Susquehanna, and Potomac Rivers. Studies will be compiled and the results summarize in terms of changes in ecological condition due to altered hydrologic regimes. Attention will be paid to ensure that measures of ecological condition and hydrologic regime are informative for water management decisions and applicable for permit conditions. The dataset of all regionally available riverine ecology-flow information used in this analysis will be a product of this project.

The initial project will have four main tasks: 1) a review of existing data from regional rivers and, if relevant, elsewhere to document relationships between hydrologic alteration and ecological response by river type, 2) a hydrologic analysis of the level of protection afforded by established instream flow criteria and trade-offs with availability of water for southern rivers, 3) an assessment of the ecological significance of different approaches for instream flow protection, and 4) development of guidelines for study methods and research needs to fill information gaps and increase the reliability of ecology-flow relationships for instream flow protection.

The final analysis of the completeness of information to support instream flow protection recommendations for southern rivers will be useful for guiding future instream flow studies. These analyses will inform state fish and wildlife agencies about limitations to recommendations for instream flow protection, identify information gaps, preferred study methods, need for funding, and moving the science forward on protecting instream flows and valuable riverine resources.

Timeline: Starting Fall of 2009, a workshop in December 2009 will review results to date and determine next steps for 2010.

Project Budget: TBD

Outcomes and Products: 1) Dataset of regionally applicable riverine ecology-flow information; 2) Report compiling results, discussion application to instream flow criteria, and identification of information gaps; and 3) Funding proposal to initiate priority research.

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