



As South America's population increases (by an estimated 100 million people by 2030), so will its dependence on finite water resources. Now more than ever, the protection and management of these systems must be adapted to keep pace with changes on the ground brought about by factors such as large-scale agriculture, ranching, infrastructure development, and climate change. Ultimately, the long-term health of these systems and the millions of people who rely upon them for their lives and livelihoods will depend on the ability of national governments to achieve a balance between conservation and economic development.

Meeting conservation and management goals

Despite the pairing of extraordinary diversity with exceptional human

need, conservation planning tools for freshwater systems and species have not been applied at large scales in South America. Application of these tools in South America would guide progress toward establishing networks of freshwater protected areas, as called for by the third IUCN World Conservation Congress, the fifth World Parks Congress, and the seventh Meeting of the Conference of the Parties to the Convention on Biological Diversity. As governments seek to honor these commitments, make investments in water-related infrastructure (e.g., hydropower, river transportation), and manage watersheds for their contribution to human well-being, tools that facilitate resource protection and water management will be needed.

A framework for improving conservation and management decisions

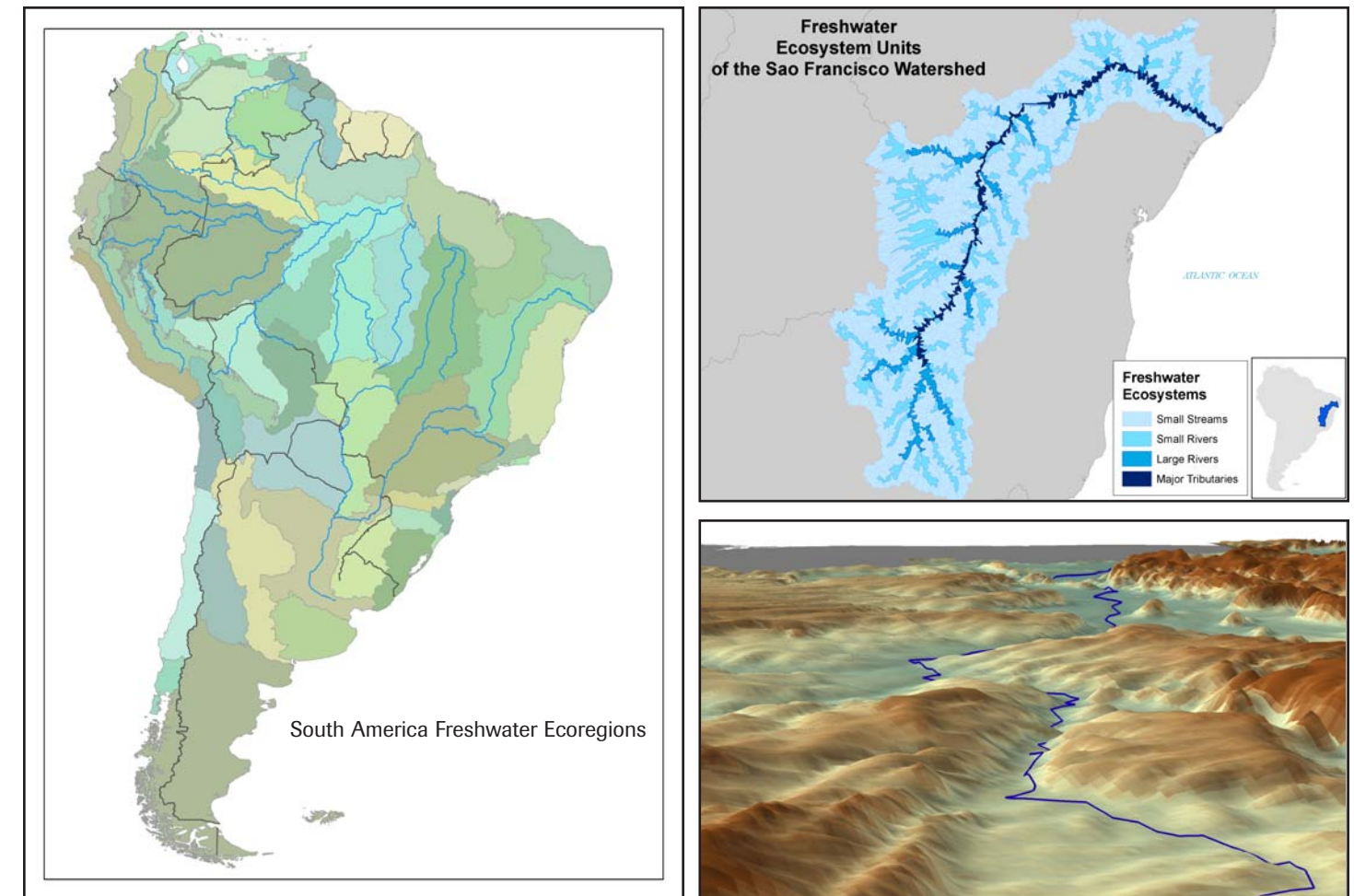
The Nature Conservancy (TNC), in partnership with the World Wildlife Fund (WWF), is collaborating with experts from South America, Europe and North America to advance a freshwater conservation framework as a tool to guide the conservation and sustainable management of

freshwater ecosystems across South America. Results of this effort are providing the ecological context needed to identify conservation priorities at the continental, national, and subnational levels, as well as approaches for integrating multi-scale priorities into development plans.

The framework uses the South American continent as its context and is based on the perspective that watersheds provide natural boundaries for both the ecology of river and lake ecosystems. Natural boundaries - not geopolitical boundaries - are used by water managers to assess and allocate this precious natural resource. As all large basins in South America are multinational, the focus on ecological boundaries is particularly helpful in multinational collaboration and planning processes.

Innovations in Planning

Two components of the framework focus on freshwater ecoregions and freshwater ecological systems - which provide regional and local scale perspectives, respectively, to the setting of conservation goals and priorities, and the development of resource management scenarios.



From left to right, top to bottom: Maps depicting the South American Freshwater Ecoregions with country boundaries and major rivers, Sao Francisco Watershed located in eastern Brazil and 3-D version of the Sao Francisco Watershed with a view of the Sao Francisco river.

We have defined 50 freshwater ecoregions across South America based upon the diversity of native fish and river basin boundaries. These ecoregions provide a coarse view of how freshwaters differ biologically across the continent, as well as a template to evaluate the challenges we face in maintaining healthy freshwater systems today and in the future. This information guided the development of the Government of Brazil's first national plan for managing freshwater resources, which is based upon the Conservancy's ecoregional approach.

At the local scale, freshwater ecological systems nest within ecoregions and provide a "common currency" to map and monitor the health of rivers and streams, guide investments in their conservation, and measure progress toward management goals. Using novel computer techniques and data coupled with local knowledge, we are delineating and classifying freshwater ecological systems across the continent and developing a common vision for how conservation and development can be balanced within different basins.



A COMMON VISION AND LASTING RESULTS

The results of this effort are useful to conservation practitioners, water resource managers, ministries and secretariats of environment agencies, universities, institutes, and multi-lateral institutions. The Nature Conservancy is committed to finding sustainable solutions to water management and conservation challenges in South America using science, engineering, and public policy,

and by bringing together public agencies, academic institutions and private organizations. By developing new approaches and implementing best practices from around the world, we can protect and restore freshwater ecosystems, and meet the water needs of people and nature.

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SETTING PRIORITIES FOR FRESHWATER CONSERVATION IN SOUTH AMERICA

A continental effort to effectively conserve freshwater ecosystems

Freshwater ecosystems are essential to human life. In South America, they support more than 370 million people with water, food, electricity, transportation and building materials. They provide a wealth of natural services that support human civilization, including cleansing the waters that flow through them, delivering nutrients to floodplains, wetlands, and estuaries, and moderating floods and droughts. They enrich our lives with beauty, providing places for recreation and spiritual connection.

South American ecosystems encompass an astounding diversity of life that includes an estimated 6,000 freshwater fish species, more than are found in any other continent, as well as a remarkable variety of habitats, from the glacially-fed mountain streams in the Andes to the seasonally-flooded wetlands of the Chaco, and from high-altitude lakes like Titicaca to the world's largest freshwater wetland, the Pantanal, and its largest river system, the Amazon.

For More Information

The Nature Conservancy
South American Freshwater Program
Dr. Paulo Petry
4245 N. Fairfax Drive, Arlington, VA 22203
ppetry@tnc.org

A technical report describing the framework, with other supporting details, can be found at <http://conserveonline.org/workspaces/sacr.fwv>

