Keep Rivers Flowing Free, Group Urges

A group of international experts from leading conservation organisations have advocated urgent action and approaches to water management to combat the alarming decline of freshwater species and correct mistakes of the past.

The Skukuza Statement: Keeping Our Rivers, Lakes & Freshwater Wetlands Alive – a Call for Action, states that the diversity of freshwater species is declining more rapidly than those in terrestrial or marine environments. The Skukuza Freshwater Group is made up of freshwater biologists and other experts from South African National Parks (SANParks), CSIR, the Nature Conservancy, WWF, and various independent academics from Australia, the US and South Africa. It is named after a symposium held in October 2006 in Skukuza, in the Kruger National Park, to discuss the potential for improved protection of freshwater ecosystems (See, Helping Rivers Fight for their Lives, *Water Wheel* January/February 2007).

Freshwater ecosystems present a special challenge in meeting globally-agreed targets for protection of biological diversity. For example, the World Conservation Union World Parks Congress in 1992 recommended that at least 10% of each biome (type of habitat) should be included in a legally-protected area.

This percentage is expressed as the land surface under protection, and does not account for the connectivity, flows or protection of essential catchments that each affects freshwater biodiversity. According to the Skukuza Freshwater Group, for this reason many freshwater ecosystems have been 'substantially failed' by the weaknesses in design and management of many networks of parks and protected areas because they are focused mainly on terrestrial conservation and ignore the parts of the freshwater systems that lie outside park borders.

"Healthy freshwater species and the water needs of people are inextricably linked, and the future of both is at stake. More than three billion people collectively lack adequate drinking water and/or sanitation services and freshwater life has declined 50% since the 1970s," noted Carmen Revenga, senior freshwater scientist at The Nature Conservancy. "It is imperative that we find ways globally to manage water for people and nature and address threats to ensure that these valuable resources are protected now and for future generations."

The variety of species within rivers, lakes and wetlands will depend on factors as diverse as the quality of sediment and nutrients, water temperature, the timing of annual floods and the variety of habitats used by organisms at different times of the year, such as the main river, floodplain wetlands, lakes and headwater streams. Changes to any of these features can have severe consequences for freshwater life, yet they are usually brought about by activities beyond the boundaries of protected areas.

The Group made a number of recommendations to improve freshwater protection, including new guidance to help protected area managers to better target freshwater areas in parks and protected areas as well as participate in management decisions of rivers outside park borders. Another proposal is an integrated approach to manage water that balances protection of key species and habitats, with conservation ecosystem functions that deliver services to people, particularly the poor whose livelihoods depend on freshwater ecosystems.

According to the Group, recognising their limitations, protected areas offer opportunities for safeguarding freshwater biodiversity at a local scale. Within their areas of management, they can prevent over-harvesting of freshwater species, direct habitat destruction, riparian vegetation removal, and negative impacts from a variety of land uses.

The Skukuza Freshwater Group is also working towards developing criteria to help governments protect the world's declining number of free-flowing rivers, i.e. those free from dams and significant levels of water extraction, as important assets in the protecting of global biodiversity. The WWF has estimated that of the world's 177 large rivers, only a third remain free from significant barriers to their flow, such as dams.

By registering their free-flowing rivers, it is maintained governments can bring together a global network that recognises their collective importance to maintaining the variety of life on earth. This should not detract from measures to improve the condition of river basins that have already undergone significant changes.

MANAGING WATER BEYOND THE FENCE

The Skukuza Group studied a number of examples of freshwater ecosystems, including those found within the Kruger National Park.

The reserve lies in the middle of five major river systems flowing from heavily polluted areas upstream across the international border with Mozambique to the east. The upstream headwaters of all its rivers lie well outside the park – in the case of the Olifants, for example, just 100 km of its 840 km length and 8% of its catchment area are contained within the Kruger National Park.

Faced with deteriorating quality and quantity of water flows, the park has attempted to improve freshwater biodiversity in recent years by actively engaging in discussions about water resource use in the upstream catchments. In addition, it has applied new management processes within the park to identify and act upon signs of trouble for its river life.

Among the concrete achievements of this engagement has been the release of additional water from dams to maintain flows during severe droughts, and the development of management plans to prevent highly damaging surges of sediment associated with the flushing out of upstream reservoirs. While the complete drying out of rivers has not been entirely eliminated, occurrences have been reduced.

"Ecological processes have very tangible impacts that can make or break a river system. Stemming freshwater decline entails managing demands and water allocation for uses from agriculture to industrial and urban use, protecting rivers and wetlands that support aquatic species, and reducing land-based pressures, such as pollution and deforestation," said Dr Harry Biggs of SANParks' Programme for Adaptive Biodiversity Outcomes.