

Expanding protected areas beyond their terrestrial comfort zone:

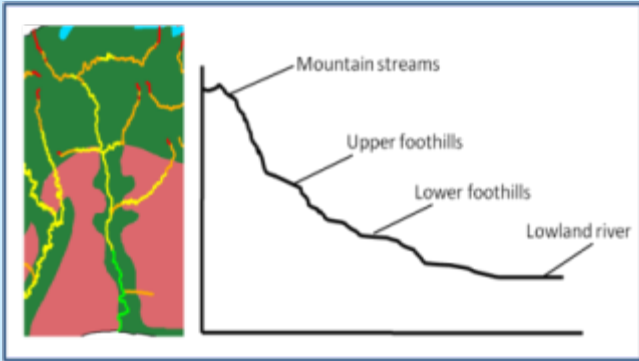
Identifying & conserving important freshwater areas using systematic conservation planning and stakeholder driven design

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14 Nov 2014

Advances in systematic approaches

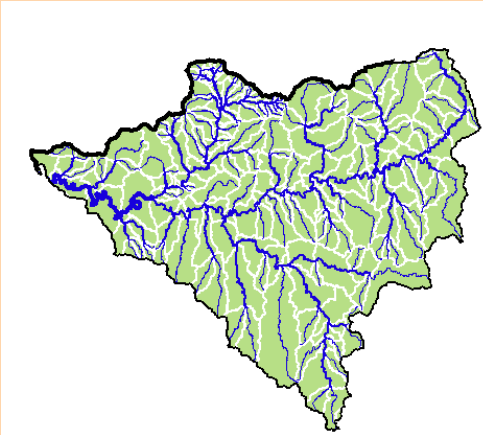
Freshwater biodiversity surrogates

- Higgins et al. 2005 Cons. Biol.
- Snelder et al. 2007 Cons. Biol.
- Turak et al. 2007 Hydrobiologia
- Ausseil et al. 2010 Freshwater Biol.



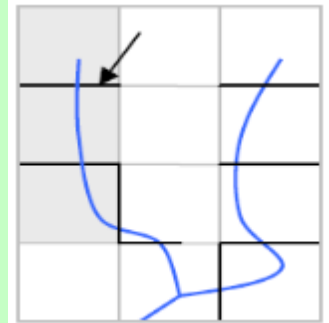
Sub-catchment delineation with river-tree networks

HydroSHEDs – Lehner et al. 2008
ArchHydro



Decision support tools for connectivity

- Linke et al. 2007 Freshwater Biol.
- Moilanen et al. 2008 Freshwater Biol.
- Linke et al. 2012 Journal Applied Ecol.
- Hermoso et al. Diversity & Distrib.



Present day ecological integrity and persistence

- Hermoso et al. 2011 Aquatic Conserv.
- Turak et al. 2011 Freshwater Biol.
- Nel et al. 2011 Freshwater Biol.



Hierarchical protection strategy



- Abell et al. 2007 Biological conserv.

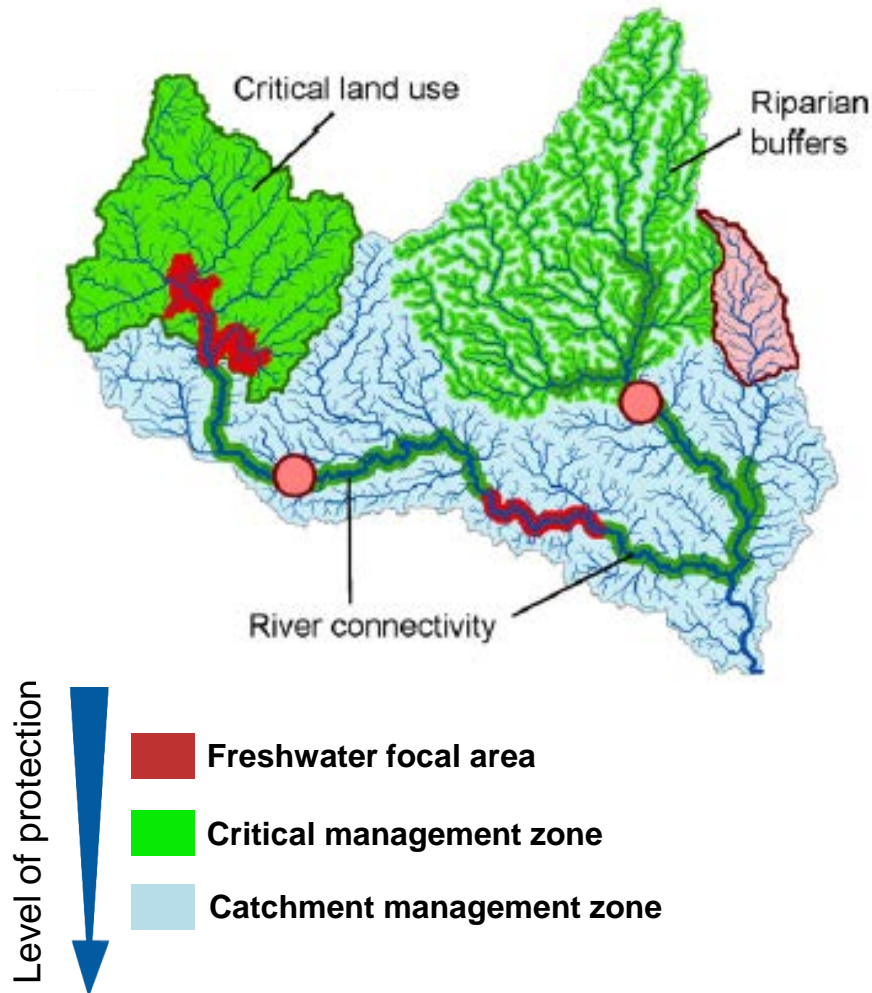
Cooperation strategies



- Roux et al. 2008. Conserv Biol.
- Roux et al. 2011 Ecol & Society

Hierarchical protection strategy

Abell et al. 2007



Why important?

- 'Locking away' whole catchments not necessary
- Allows for multiple uses within a catchment
- Operationalises conservation areas for freshwaters

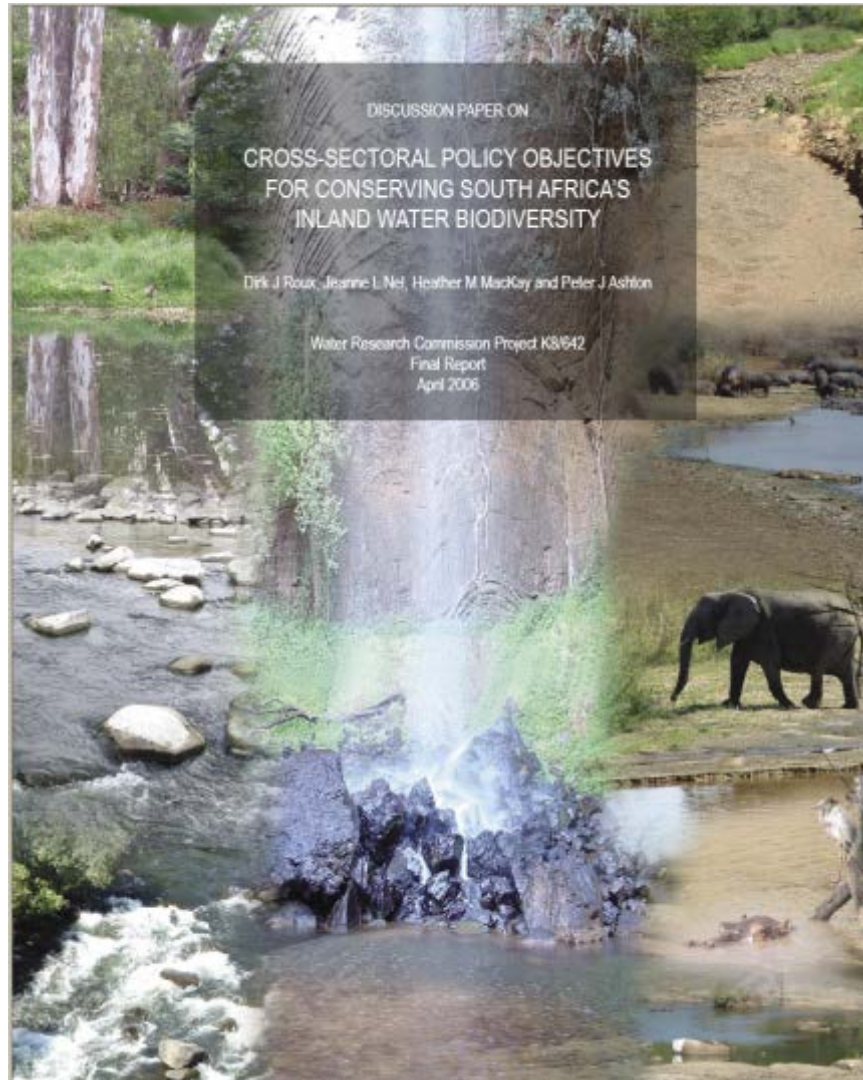


Cooperation strategies

Why important?

- Freshwater biodiversity is hopelessly under-represented in protected areas
- The persistence of freshwater biodiversity in connected systems usually requires the cooperation of multiple actors
- Identifying NB areas can be a very powerful tool for promoting cooperation

A decade of work in SA: Promoting cooperation through shared freshwater conservation areas



- 2005: Cross-sector policy process between national govt departments
- Conservation vision linked to 5 policy objectives:
 - Set quantitative conservation objectives
 - Plan for representation
 - Plan for persistence
 - Establish a portfolio of freshwater conservation areas
 - Enable effective implementation
- Policy objectives based on systematic conservation planning principles



AIMS:

1. To identify **F**reshwater **E**cosystem **P**riority **A**reas
2. To develop an institutional basis to enable effective implementation

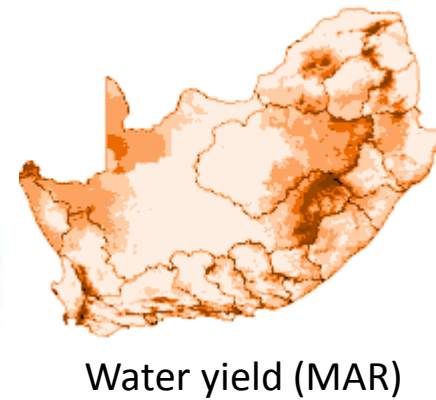
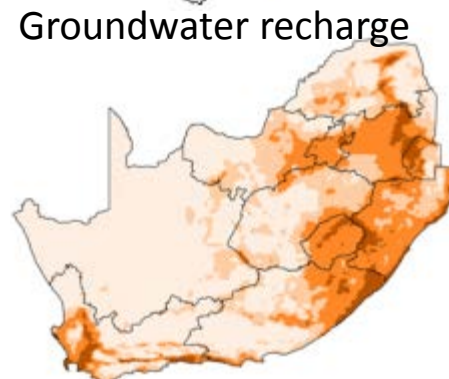
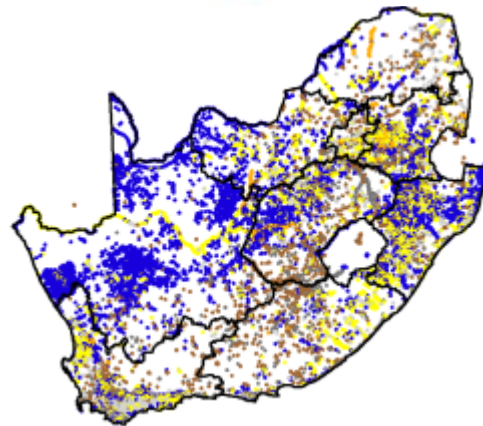
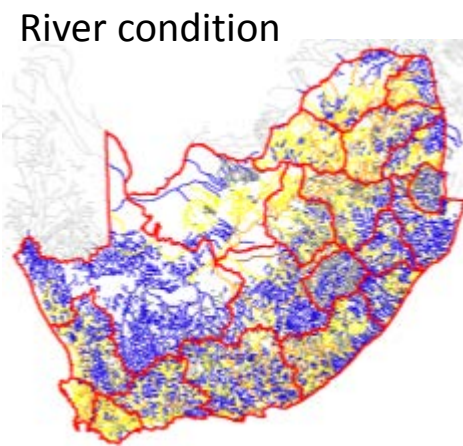
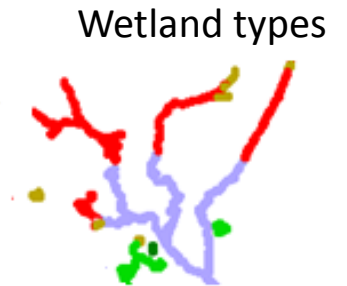
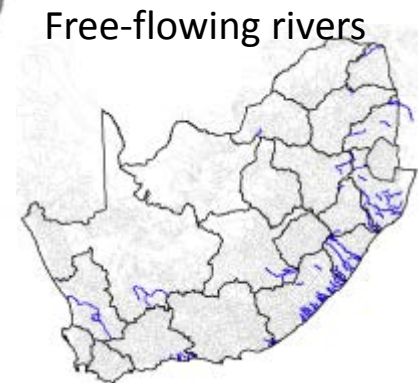
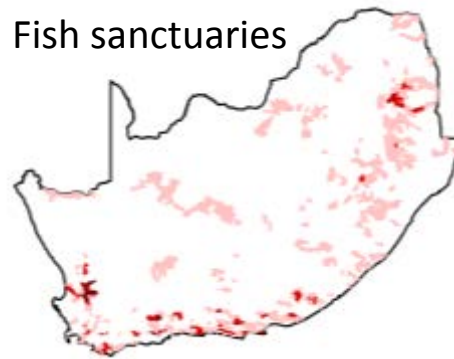
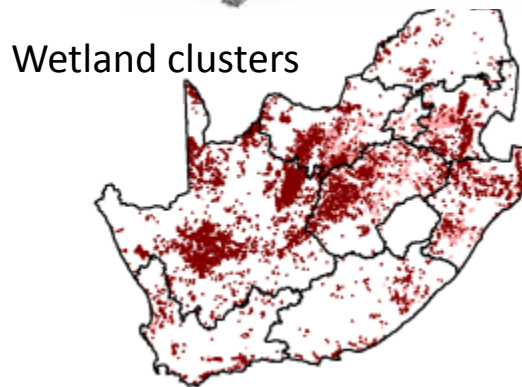
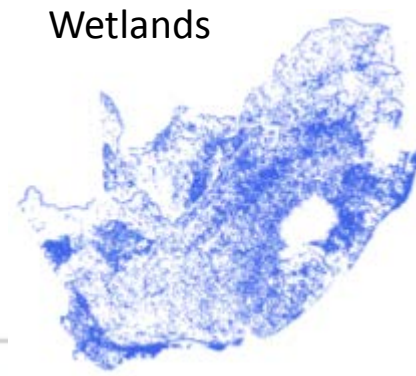
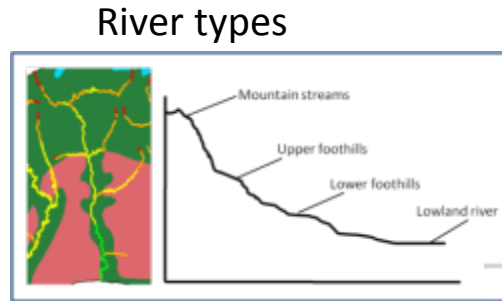
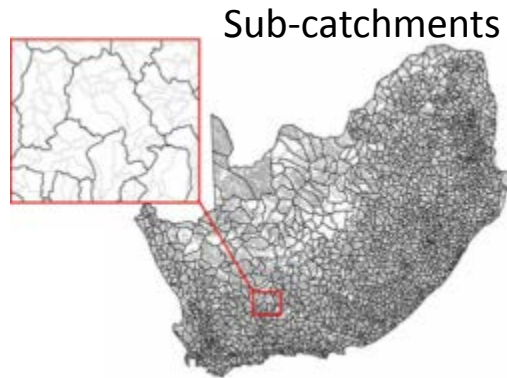


Co-developed stakeholder goals → quantitative objectives

- Plan for representation
 - River, wetland and estuary ecosystem types
 - Threatened fish
 - Free-flowing rivers
- Plan for persistence
 - Fish migration corridors
 - Wetland clusters
 - Select connected systems
- Align with existing initiatives
 - Protected areas
 - Priority estuaries

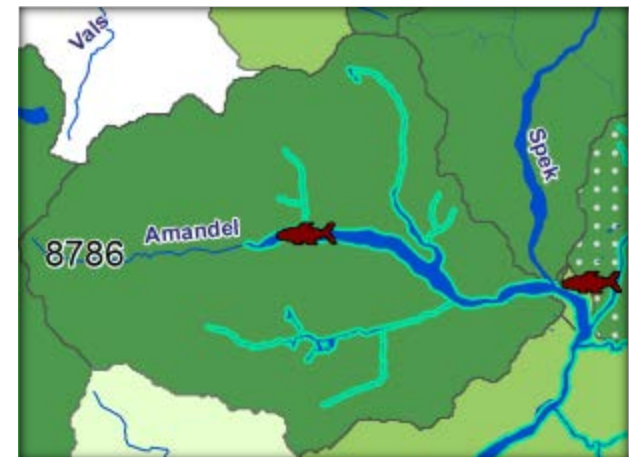
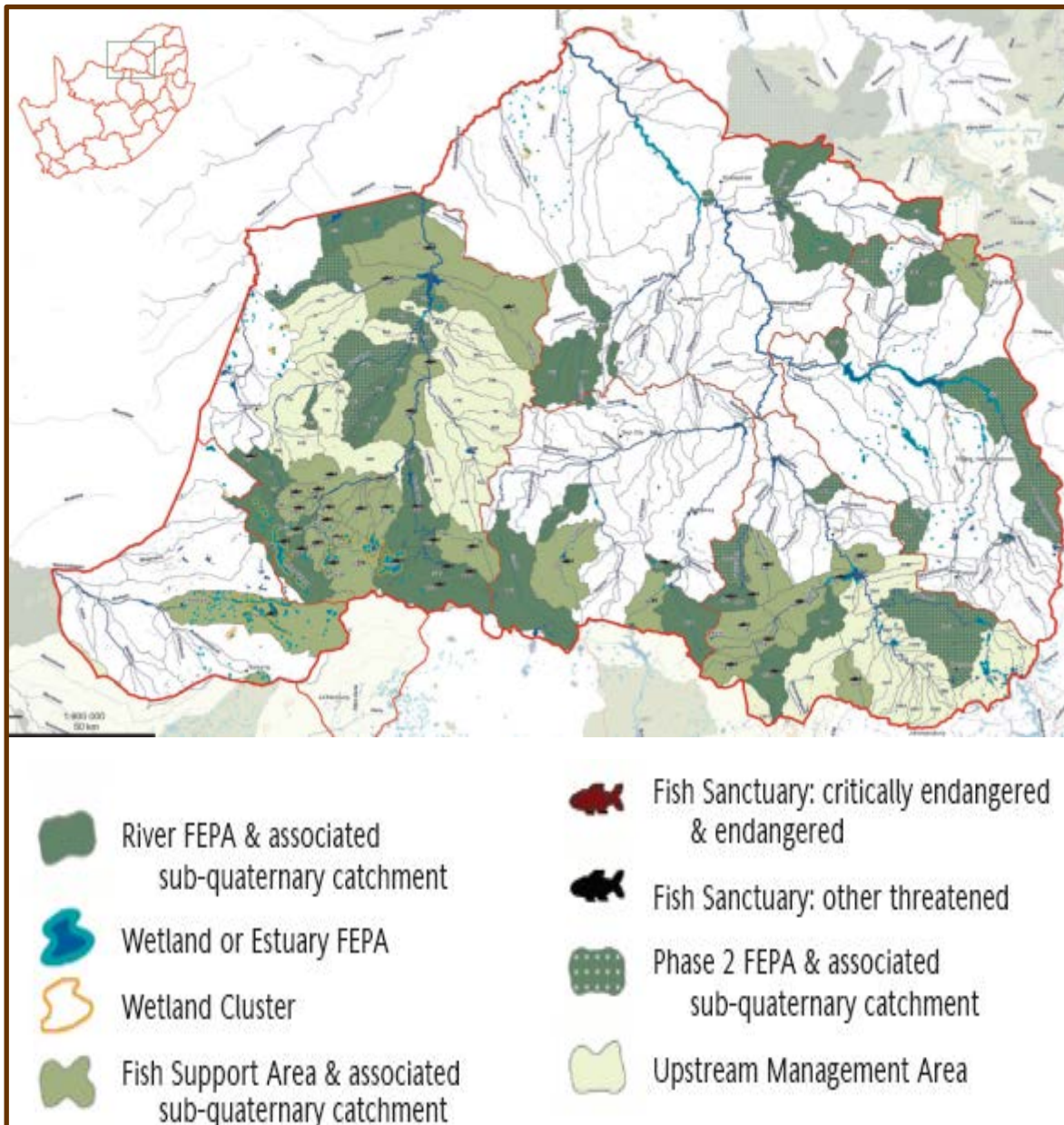


Input data



A FEPA map for every catchment

- Which rivers, wetlands and estuaries should remain healthy
- A nationally consistent information source



Political endorsement & media coverage

E.g. of media releases

Pressure on land poses threat to river ecosystems

Less rain in African river basins to put foodstocks at risk



Waterbronne erg onder druk

Nuwe atlas wys oestand in die land

Die stand van sommige SA-riviere



Syfers



Maps show rivers and wetlands that should be cherished

New freshwater atlas shows ecosystem priority areas



THE STATE OF OUR RIVERS

CAPE TIMES 15 Nov 2011, p.6

Atlas helps chart course of SA's water management

JOHANNESBURG: Over half of South Africa's river and wetlands ecosystems are threatened, Deputy Water and Environmental Affairs Minister Rejoice Mabudafhasi said yesterday.

"Deterioration in the health of ecosystems negatively impacts on their ability to continue providing these beneficial ecosystem services," she said in a speech for the launch of the Atlas of Freshwater Ecosystem Priority Areas, in Pretoria.

"There is no doubt that South Africa's freshwater ecosystems are under increasing pressure," said Mabudafhasi.

The atlas would provide the first comprehensive assessment of areas in the country that were most important for sustaining the health and continued functioning of freshwater ecosystems.

She said ecosystems, like municipal services, played an essential role in supporting development and economic



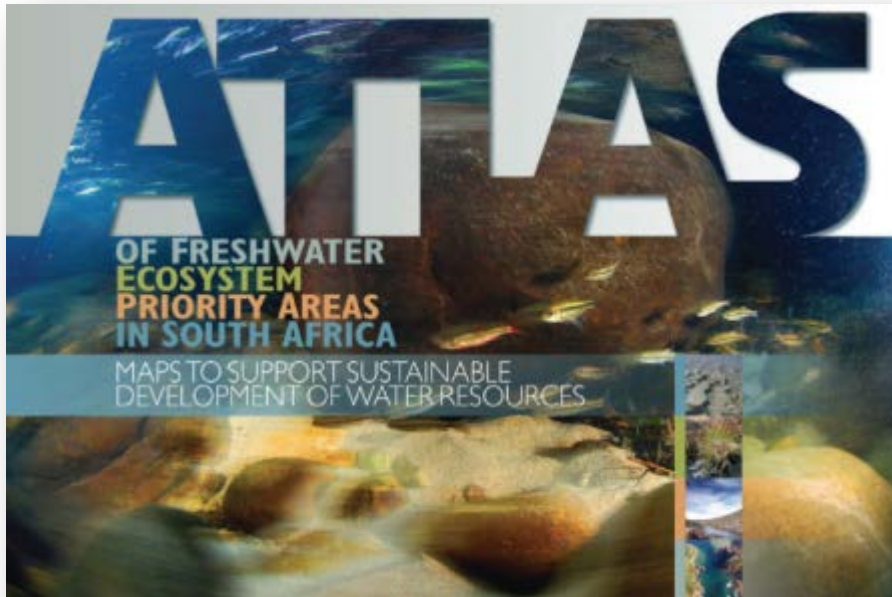
Keep our rivers flowing freely

Water is our most precious resource but due to efforts to exploit it through dams and infrastructure, South Africa has few free-flowing rivers left.

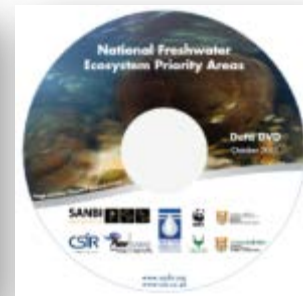
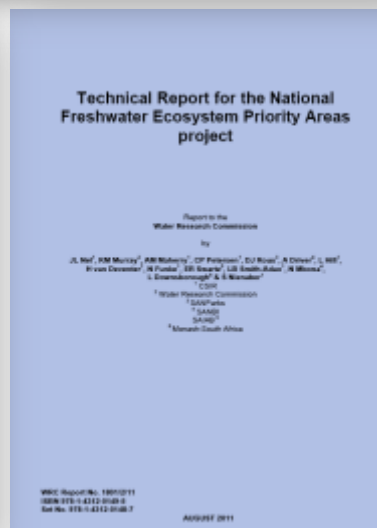
The National Freshwater Ecosystem Priority Areas project has identified 79 free-flowing rivers that should be preserved to conserve biodiversity with economic and social development. Water KwaZulu-Natal reports.



Widespread dissemination, training and ongoing support for users



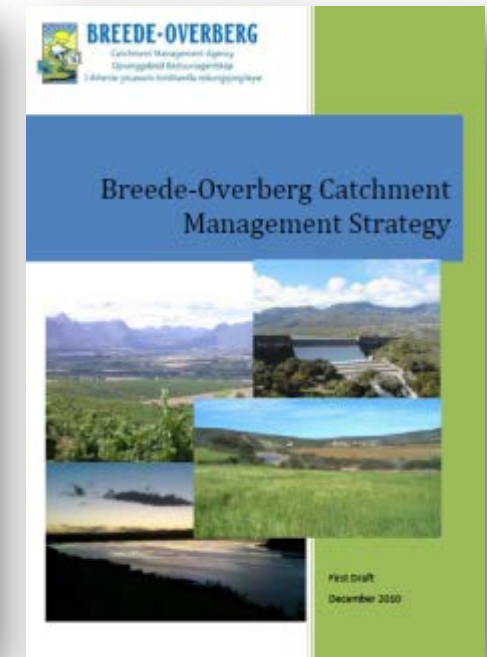
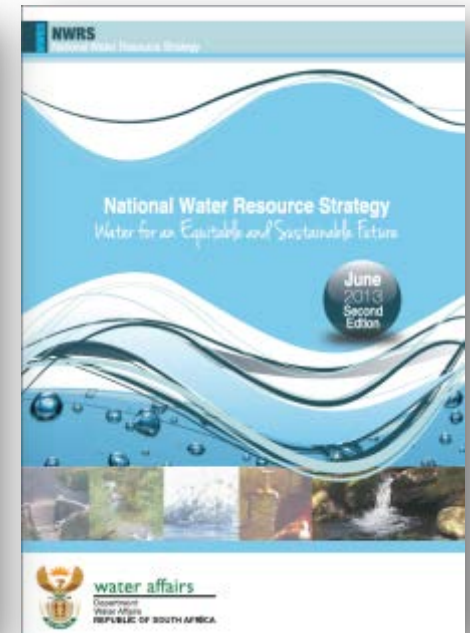
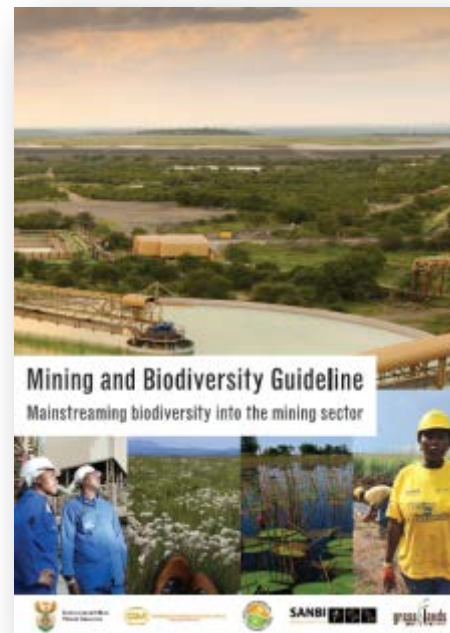
- FEPA maps and underpinning data
- Implementation Manual
- Ecosystem management guidelines



<http://bgis.sanbi.org>

Data DVD

Diversity of uses: national & local





Conclusions

- Systematic conservation planning principles and tools can apply to aquatic settings
- They provide a scientifically credible way of identifying conservation areas
- Resulting maps can be very powerful ways of forging cooperation if paired with a social process
- Credibility, relevance and legitimacy
 - The three principles for moving knowledge to action

Thank you!

SANBI

Biodiversity for Life



CSIR

our future through science



SAIAB

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for Aquatic Biodiversity



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