

Catchment Health, Rivers and the GLTFCA

Steve Mitchell
Danny Govender
Danie Pienaar

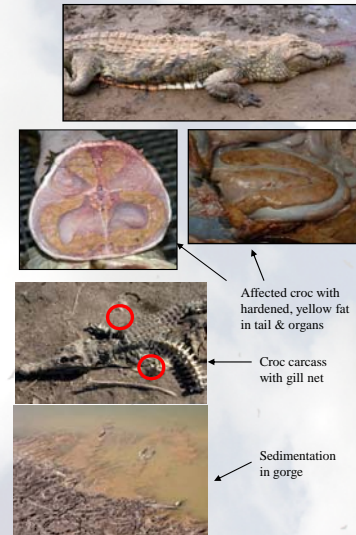
welcome to
AHEAD

Animal & Human Health for the Environment And Development

24 – 26 February 2010

Crocodile deaths in the Olifants River

- 2008 minimum **200 crocodiles** dead in the Olifants River. 2009 found **31** dead crocs.
- Disease called **pansteatitis**- an inflammation of the body fats.
- Usually see yellow, hardened fat, in tail & around organs.
- Sick crocs are unable to swim and die of **starvation and exposure**.
- This disease also identified in the Sabie R.
- Sedimentation in both gorges increasing as result of downstream dams.
- Barbel (bottom feeding fish) also sick with similar symptoms.
- Possible build-up of pollutants which moves up through food chain.
- Many pollutants & heavy metals found in water & sediments.
- Research is continuing. Plan to screen barbel & crocs in all rivers.



Conservation status of ecosystems

Nel et al, 2004	Mainstem rivers	Terrestrial ecosystems
Critically endangered	44%	5%
Endangered	27%	13%
Vulnerable	11%	16%
Total threatened	82%	34%

Source: NSBA; Nel et al, 2004

What accounts for this difference?

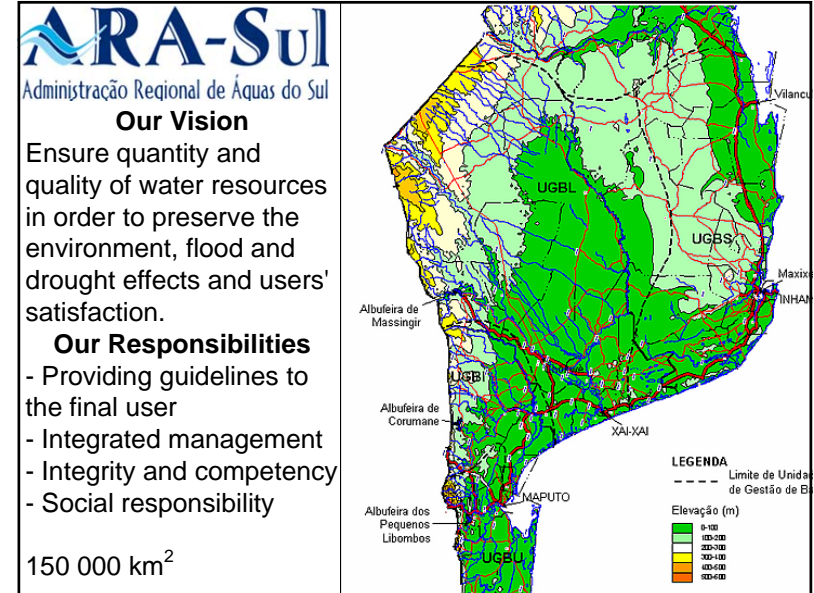
Rivers are linear systems

- Southern Africa is water scarce
 - Competing users
 - The concepts of 'yield' and 'base flow'.



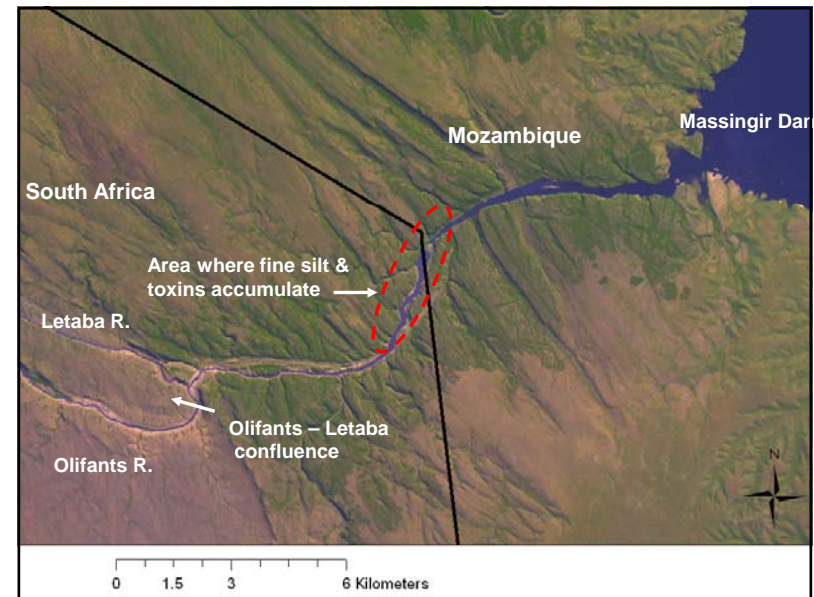
Governance (1)

- Governance
 - SADC Protocol on Shared Watercourse Systems
 - Limcom (Limpopo Watercourse Commission)

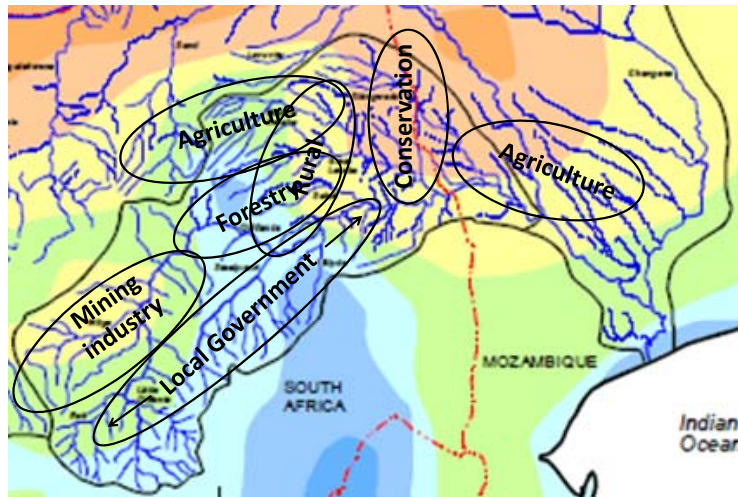


Governance (2)

- Both SA and Mozambique based in IWRM principles
- Integrate policies (Roux et al)
 - National departments
 - In SA – water, environment, agriculture, local government, mining
 - Internationally (Mozambique) – differing sectoral priorities?
 - Development
 - Environmental water requirements
- What needs to be taken into account?



Olifants / Rio dos Elefantes Basin

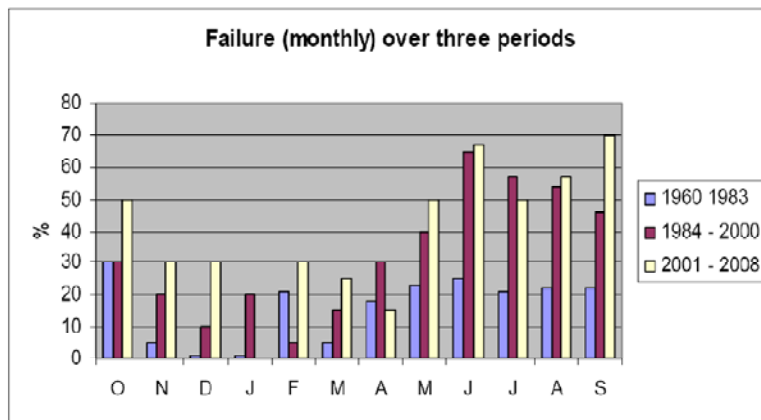


Freshwater problems the GLTFCA is experiencing

Continued deterioration of river systems

- Reduction in water quantity
 - Increased storage in Mozambique
- Increasing impact from dams
- Reduction in water quality
- Increased siltation of rivers
- Alien invasive spp – plants & fish
- Decreasing access to **safe** potable water for rural communities

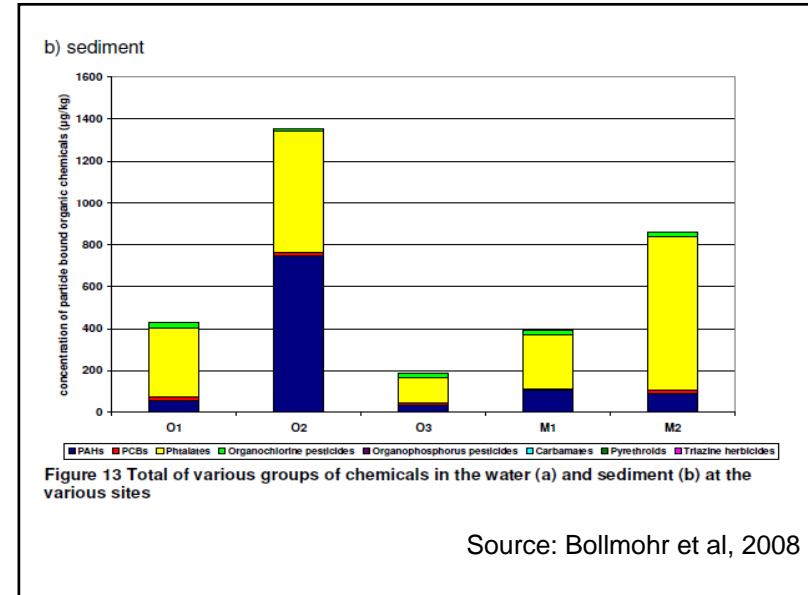
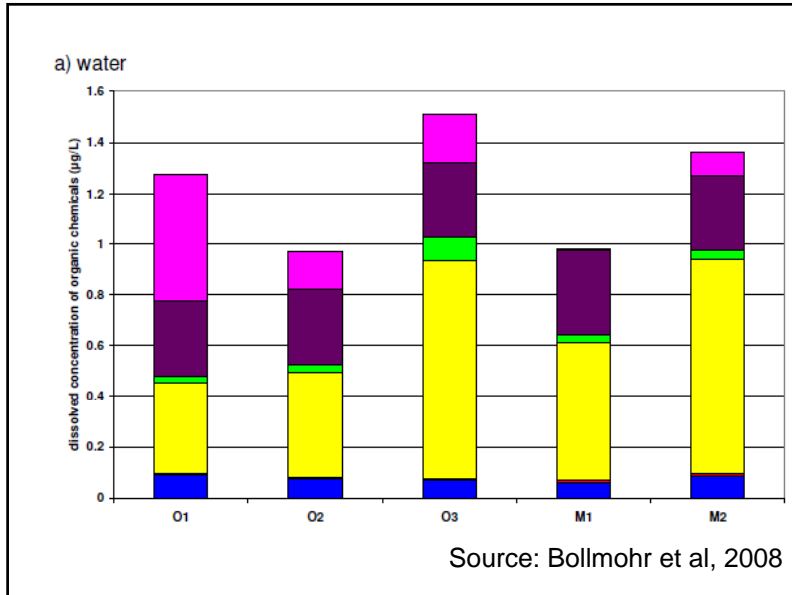
Crocodile River at EWR 6



Pollard and du Toit (2006). Shared Rivers Initiative: WRC Deliverable 6 (K5/1711)

Water quality in the Olifants River, South Africa

- DWA monitoring Programme
(from Heath and Coleman, in press)
- Pesticide study in the Groblersdal area
(Bollmohr et al, 2008)
- CSIR Programme



What is the way forward? (1)

- Human and animal health
 - Charismatic animal
- How much is further analysis going to help?
- What action can be taken?

What is the way forward? (2)

- What tools are in place?
 - Institutions
 - Legislation (DWA [CMA; WUA]; DNA; DEA; etc)
 - Monitoring programmes
 - River Health Programme
 - Strategic Adaptive Management

References

- ARA-sul (Administracao Regional de Aguas do Sul), <http://www.ara-sul.co.mz/subindex.asp?lang=en&page=coverage>
- Biggs, R., E. Bohensky, P. V. Desanker, C. Fabricius, T. Lynam, A. A. Misselhorn, C. Musvoto, M. Mutale, B. Reyers, R. J. Scholes, S. Shikongo and A. S. van Jaarsveld, 2004. *Nature supporting people: the Southern African Millennium Ecosystem Assessment*. Council for Scientific and Industrial Research, Pretoria, South Africa
- Bollmohr, S. Thwala, M. Jooste, S. Havemann, A. (2008) *Report: An Assessment of Agricultural Pesticides in the Upper Olifants River Catchment*. Report No. N/0000/REQ0801. Resource Quality Services, Department of Water Affairs and Forestry, Pretoria, South Africa.
- Dublin Statements and Principles, <http://www.gwpforum.org/servlet/PSP?iNodeID=1345>
- Heath RG and Coleman, In Press. *Water quality survey and literature review of ecology of the olifants river*. Water Research Commission.
- National water Act (Act 36 of 1998), http://www.dwaf.gov.za/Documents/Legislature/nw_act/NWA.pdf
- Nel, J., Maree, G., Roux, D., Moolman, J., Kleynhans, N., Silberbauer, M. & Driver, A. 2004. *South African National Spatial Biodiversity Assessment 2004: Technical Report. Volume 2: River Component*. CSIR Report Number ENV-S-1-2004-063. Council for Scientific and Industrial Research, Stellenbosch.
- Pollard et al (ongoing) Shared Rivers Initiative. WRC project no. K5/1711.
- Protocol on Shared Watercourse Systems, <http://www.sadc.int/index/browse/page/158#preamble>
- Roux DJ, Nel JL, MacKay HM and Ashton PJ (2006). *Cross-Sector Policy Objectives for Conserving South Africa's Inland Water Biodiversity*. WRC Report No. TT 276/06. Pretoria: Water Research Commission.