



## **RIVER HEALTH PROGRAMME**

### **e-COMMUNICATION**

**SEPTEMBER 2006**

In this issue of the River Health Programme e-Communication you can read about:

- RHP and related events of the 2006/07 financial year
- RHP provincial initiatives and feedback
- Projects and developments at the national level
- Adopt-a-River initiative
- Woman in Water Awards
- Contact details: national team; provincial champions; provincial SASS auditors.

### **RHP AND RELATED EVENTS: 2006/2007**

What has happened and what to look out for in the 2006/07 financial year (April 2006 to March 2007):

| Event                                     | Date            | Contact person*:   |
|---|-----------------|--|
| RHP Annual Champions Symposium            | 6 & 7 July 2006 | Shamilla Jhupsee / <a href="http://www.csir.co.za/rhp/">http://www.csir.co.za/rhp/</a> |
| EcoStatus roadshows and training sessions | Various         | Neels Kleynhans / Delana Louw  |
| SASS Accreditation                        | Various         | Christa Thirion (national accreditor) / Provincial auditors                            |
| Annual RHP Steering Committee Meeting     | February 2007   | Shamilla Jhupsee   |

\* contact details p11

#### **RHP Annual Champions Symposium**

The RHP annual Champions Symposium was held on 6 & 7 July 2006 at SANBI, Pretoria Botanical Gardens.

The overall purpose of the Champions Symposium is to share progress, experiences and lessons learnt regarding implementation of the RHP in the provinces and to provide feedback on national RHP initiatives as well as river health related research and development. All nine provinces were represented at the Symposium as well as other key stakeholders.



## EcoStatus Training Sessions

Four EcoStatus training sessions were held in Pretoria, East London, Cape Town and Pietermaritzburg respectively during July and August 2006. The emphasis of the training was on the following models:

- Riparian Vegetation Response Assessment Index (VEGRAI)
- Geomorphology Driver Assessment Index (GAI).

During these training sessions, updates of the Fish and Macro-invertebrate Response Assessment Indices and background to the EcoStatus models were also provided. The target audience was experienced riparian vegetation experts and fluvial geomorphologists, OR experienced aquatic ecologists that would be interested in applying the VEGRAI and the GAI. Both these indices are developed at two levels, one for comprehensive studies and to be applied by appropriate specialists, and one for experienced (and later appropriately trained) aquatic ecologists. The target audience for the FRAI and MIRAI was experienced fish and invertebrate specialists.

These training sessions were mainly aimed at DWAF and conservation agencies involved as specialists in Reserve determination studies and biomonitoring. This training largely focused on how to use the different models / methods. Participants requiring background information regarding the EcoStatus process and the models also participated.

For the remainder of the year, the manual (version 2) and the models will be updated and finalised. The manuals will be printed as hard copies by the Water Research Commission.

For more information on EcoStatus, contact Neels Kleynhans (**contact details, p11**).

## SASS Accreditation

SASS accreditation is a way of ensuring Quality Control and Quality Assurance. The aim is to make sure that all SASS data is collected according to the published protocol. SASS data collected by an accredited SASS practitioner on the Rivers Database will be flagged as such. The Department of Water Affairs and Forestry requires that accredited SASS practitioners do any SASS work for the Department. The SASS accreditation consists of three parts: practical demonstration of sampling procedure, field identification of a SASS sample, and an oral test dealing with the scope and application of the SASS method. The candidate must pass all three sections in order to obtain accreditation. The SASS accreditation is valid for a period of three years after which the practitioner must be re-tested.

The provincial SASS Auditors are responsible for auditing the SASS practitioners in their respective provinces. The provincial SASS auditors must ensure that all the documentation pertaining to the different audits is filed properly in the event that a dispute arises. The National Auditor is responsible for auditing the provincial SASS Auditors, ensuring that the different provinces perform the audits in a consistent manner, issuing the SASS certificates, keeping a database of all accredited SASS practitioners and settling any disputes that may arise.

Christa Thirion (DWAF: RQS) is the national SASS Auditor and in six of the nine provinces provincial auditors have been appointed. To find out about accreditation days in your province, contact your provincial SASS auditor or Christa Thirion (**contact details p11**) for more information.



## PROVINCIAL FEEDBACK AND INITIATIVES

For any queries or for more information on provincial RHP initiatives, contact the relevant provincial champion (**contact details, p 13**).

The following feedback was received from the provincial champions:

### Limpopo

Mick Angliss, Limpopo's Provincial Champion reports that the Limpopo team is currently addressing three major tasks:

- **Compilation of a Mogol State of River Report.** The report is based on surveys conducted and reported on, in 2002 and 2006. The project is being coordinated by Peter McMillan of the CSIR and will hopefully be released in October 2006. The Mogol (also known as the Mokolo River) has diverse habitats and pressures along its course. Contributors to the report include the Limpopo Environmental Affairs team, the University of Venda and the Working for Wetlands project.
- **Drafting of a Phalala Catchment technical report based on a 2005 river survey.** The survey addressed 21 sites ranging from the wetland source area of the river in the Waterberg Mountains to the confluence with the Limpopo. It is hoped that the Phalala report will be presented in a State of River Report in 2007.
- **Biomonitoring survey of the Nwanedzi River.** The survey of this seasonal river is now fifty percent complete and it is anticipated that a technical report will be finalised by March 2007. On completion of the above Mogol/Mokolo and Phalala reports, Limpopo Province will have surveyed and reported on all of its perennial river catchments. Further surveys of seasonal rivers are planned for 2007 and 2008, by which time all rivers in the province will have been addressed.

### Mpumalanga

The Provincial Champion for Mpumalanga, Johan Engelbrecht gave the following feedback:

The Mpumalanga budget and manpower for River Health Programme work has been severely stressed for the past several years. Very little monitoring and assessments have as a result taken place and have largely been limited to some fish and invertebrate surveys in the Komati River as part of a larger project for KOBWA.

Also, the Environmental Education Department in Lydenburg had a very good aquatic education programme running in which local schools in Lydenburg took part. Learners were taught how to use and interpret mini-SASS, a simplified biomonitoring method aimed at schools. The program became part of the local school curriculum with indications that it could be expanded to the rest of the province. Sadly, due to a complete lack of support, this program had to be discontinued and there is at present no indication as to whether it will be reinstated.

### Eastern Cape

From the Eastern Cape, Provincial Champion, Pumza Gasa-Lubelwana gave the following feedback on activities currently taking place in the province:

- Monitoring of the Buffalo River;
- Site selection of rivers to be surveyed this financial year;

- Preparing the State-of-Rivers Report for the Mthatha catchment;
- Initiating biomonitoring in the Bushman's River; and
- Liaising with local and district local government to take part in river surveys.



## **Gauteng**

Piet Muller, Provincial Champion for Gauteng reports the following:

The dry conditions during May to November 2005 and the extremely wet conditions from December 2005 to April 2006, brought biomonitoring in the province to a temporary standstill except at the sites on rivers that are urban sourced.

However, biomonitoring at the original 1998 sites on the Elands River, Bronkhorstspuit and Wilge River in the Upper Olifants River catchment as well as at the sites on the Blesbokspuit, Suikerbosrand River and Klip River in the Upper Vaal Catchment has been in progress since February 2005 and the final round for the current biomonitoring cycle in preparation for the *“Ecological State of Gauteng Rivers”* SOR poster is currently underway until February 2007.

A trial run on collecting diatoms at 12 sites in canals around Johannesburg and Pretoria under the guidance of Jonathan Taylor from North-West University was done in May, 2006. The overall results revealed extremely poor water quality conditions at most of the sites with one site indicated as potentially “toxic”.

Since large areas of the upper catchments in Gauteng lie in urban and industrial zones, high runoff and critical modified drainage systems make conventional RHP biomonitoring nearly impossible, therefore alternatives such as the use of a diatom index (Specific Pollution sensitivity Index – SPI) is being considered. A copy of this report is available from Piet Muller.

The 5<sup>th</sup> SASS5 Accreditation session for Gauteng is scheduled for the 12<sup>th</sup> October 2006. This session will be the first re-assessing of those SASS practitioners who were accredited in February 2003. For more details in this regard, contact Piet Muller or Colleen Todd (contact details, p14 &15).

## **KwaZulu Natal**

From KwaZulu Natal, Provincial Champion Ramogale Sekwele reported back on the following:

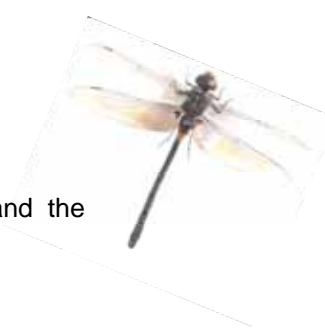
### **KZN Provincial RHP forum meeting**

The KZN RHP Champion, Ramogale Sekwele, in consultation with other individuals who have been involved in RHP activities in KZN has identified a number of organizations which may play a role in forming part of the Provincial RHP Forum. The intention is to help communicate RHP initiatives in KZN through regular updates and provincial forum meetings. Establishment of the forum will also enhance information contribution to the Rivers Database and identify gaps with regard to RHP work in KZN. An update and planning forum meeting is planned for the last quarter of 2006.

### **Usutu/Mhlathuze WMA State of Rivers project: Phase I**

DWAF has commissioned a three phased project to determine the ecological state of rivers in the Usutu/Mhlathuze WMA, which will be extending into parts of Mpumalanga. The first phase of this project is to collect information of work previously done on rivers in the WMA and to identify information gaps. This task is due to start soon and will be completed by the end of

February 2007. The next phases will include data collection to fill in the gaps and the compilation of a glossy state-of-rivers report of the WMA.



### **eThekweni Municipality State of Rivers Report**

eThekweni Municipality has been involved with assessing the state of rivers in the Durban Metropolitan area where different RHP methods, including diatoms, have been used. The assessment and development of the report was done by Ground Truth Biomonitoring Services and Environmental Consultants together with several other organizations acknowledged in the report. The report has been finalized and it is available on request from Simphiwe Mazibuko or Jessica Rich at:

Environmental Management Department, Development Planning and Management Unit

eThekweni Municipality

166 Old Fort Road

P O Box 680,

Durban, 4000

**Tel:** (031) 311 7144

### **SASS5 Audits**

The KZN Provincial Auditor, Mark Graham (Ground Truth Biomonitoring Services and Environmental Consultants) and Christa Thirion (DWAF) conducted the KZN SASS5 audits where 2 of the 7 candidates passed the proficiency test. Individuals who passed the test will be receiving certificates of competence. The next SASS5 KZN Provincial audit is planned for late 2006 or early 2007. For more details in this regard, contact Mark Graham (contact details, p 12).

### **Western Cape**

Provincial Champion, Toni Belcher, gave the following feedback on the Western Cape's goals for this financial year:

- Monitoring of the national River Health sites;
- To produce a technical and State-of-Rivers (SoR) Report for the Gouritz River;
- To implement Adopt-a-River in 2 to 3 areas in the Western Cape;
- Train three new technicians;
- Undertake SASS quality assurance exercise;
- Initiate the Breede SoR Report; and
- Develop links with CAPE initiatives.

### **North West**

Tharina Boshoff, Provincial Champion for North West Province gave the following summary of their activities for 2005/06:

The River Health Monitoring Programme for financial year 2006 covers the following Water Management Areas:

- Upper Vaal – Potchefstroom area
- Middle Crocodile - Rustenburg Area
- Western Crocodile – Swartruggens Area
- Eastern Crocodile – Brits Area



## **Projects**

### ***Aerial survey of Selected Rivers in NW:***

The Department with assistance from DWAF conducted an aerial survey during September and December 2005, to start a process to determine the Habitat Integrity of selected river systems in the North West Province.

Aerial surveys were completed for the following rivers:

- Marico River including major tributaries
- Molopo River
- Mooiriver including major tributaries
- Vaal River (Barrage to Knopfontein bridge)
- Schoonspruit
- Elands River
- Hex River
- Crocodile River (Hartbeespoort Dam to Limpopo Province)

### ***Report on Habit Integrity of Selected Rivers in the North West Province :***

DACE North West embarked on a tendering process for the compilation of a report on the habitat integrity of selected rivers using the aerial survey data collected in 2005. Blue Science Consulting has recently been appointed by the Department as Service Provider.

Among other things, the report will help to identify biomonitoring sampling sites; to evaluate the current status of selected rivers as opposed to the status determined during previous surveys; to edit videos and transfer them to DVD. The project should be completed by end of January 2007.

### ***Development of an Ambient Environmental Monitoring Programme for the North West Province***

One of the key outputs of this project is a biomonitoring programme that will help determine the health and the state of rivers and wetlands in the North West Province. The tender for this project was awarded to Tswelopele Environmental (Pty) Ltd in February 2006, and should be completed by end of February 2007.

### ***Training***

The RHP team has started to use diatoms as one of the indicators in monitoring the rivers in the province. Some of the team members have recently received training on Introduction to Diatoms at North West University (Potchefstroom Campus). The two day short course covered sampling, preparation and identification of diatoms. For the project: Report on Habit Integrity of Selected Rivers in the North West Province, three members of the river health team, assigned to the project by DACE will be trained on all technical aspects of the project.

For more information on these initiatives, contact Tharina Boshoff or the project team:

| <b>Name</b>      | <b>Position</b>                        | <b>Email</b>           | <b>Telephone</b> |
|------------------|--|------------------------|------------------|
| Sandile Mpambani | Divisional Manager (RHP Field manager) | smmpambani@nwpg.gov.za | (018) 389 5145   |
| Hermien Roux     | Senior Aquatic Scientist (SASS)        | HRoux@nwpg.gov.za      | (018) 389 5652   |
| Godwin Mmbadi    | Environmental Officer (Water Quality)  | gmmbadi@nwpg.gov.za    | (014) 597 3597   |



## NATIONAL PROJECTS

### Inception phase

The Inception phase is being managed and coordinated by Liesl Hill (**contact details p12**).

The design of the River Health Programme is currently being reviewed to ensure that the Programme is aligned with the requirements of the National Water Act and to establish the Programme at a national level.

The following three aspects are being addressed as part of this phase:

- 1. Data acquisition
- 2. Data management and storage
- 3. Information generation and dissemination.
- 

In the previous financial year, national River Health sites were identified for the whole country. A total of 638 sites were selected of which 384 are existing sites (currently monitored by provincial teams) and 254 are macro sites which still have to be verified. In addition to these sites, 122 reference sites were also identified. A procedure is currently being developed to prioritise the national sites for monitoring purposes. The verification of the macro sites will be initiated soon and will run in parallel to this process.

A project that also forms part of the Inception phase and which is co-funded by the Water Research Commission, is the development of a procedure to define reference conditions for fish within the River Health Programme context. This project will be finalized by March next year. It is envisaged to develop the same procedure for macroinvertebrates next year and probably for habitat integrity as well.

### National Coverage phase

The national Coverage Phase is managed and co-ordinated by Chris Dickens (**contact details p12**). The following three tasks form the basis of this project: These are:

- Quality Control and Assurance
- Data Storage and Management
- Revision of Biomonitoring Course

#### **Quality Control and Assurance**

The development of Quality Assurance procedures for the RHP indices is managed and coordinated by Mark Graham (**contact details p12**).

The quality assurance of the Fish Assemblage Integrity Index (FAII) is currently underway. The Institute of Natural Resources (INR) together with the Department of Water Affairs and Forestry (DWAF) ran a workshop in August which included a field exercise to determine the repeatability of the FAII between different practitioners. The outcomes of the workshop are summarized on the RHP webpage at: <http://www.csir.co.za/rhp/provinces/kwazulu.html>





## **Data Storage and Management**

### **(Rivers Database)**

The refinement and population of the Rivers Database is managed and coordinated by Helen Dallas (Freshwater Research Unit, UCT).

Helen requests all RHP practitioners who have RHP data, either in electronic format or hard-copy to contact her (**contact details p12**) so that she can arrange to have this data included in the national Rivers Database. Helen has also requested that all users of the Rivers Database, who have populated the database with their data, contact her so that she can arrange to receive the electronic data before the transfer to the new database version.

### **Biomonitoring Course**

The revision of the biomonitoring course is co-ordinated by Patsy Scherman (**contact details p12**). The main objective of this task is to revise and update the biomonitoring course in line with the latest requirements of DWAF, and to ensure that the course satisfies training and capacity building requirements of the managers and custodians of the RHP, provincial biomonitoring teams and DWAF regional personnel. The inputs from these persons must ensure that the course will provide training for regional management bodies such as CMAs, so that these teams are able to undertake biomonitoring activities once required.

## **Wetlands Habitat Integrity Index**

The development of a Wetlands Habitat Integrity Index for floodplain wetlands in South Africa has kicked off.

Mark Rountree (Wetlands Consulting) (**contact details p12**) is project manager for this multi-disciplinary team of wetland specialists that have been appointed to develop an index for rapidly assessing the habitat integrity of floodplain wetlands. This Wetland Habitat Integrity (WHI) index is to be used as part of DWAF's National RHP, and is being designed for regional DWAF staff who have experience with the current EcoStatus models, but who may not necessarily be wetland experts. The tool is a rapid assessment method, designed to be applied within 2 to 3 hours per site by non-specialists.

The WHI index is currently under development, and the draft version will be presented at a national workshop in December 2006. Following a subsequent round of testing across most provinces by regional experts, the final version of the tool will be produced in April 2007.

## **EcoClassification**

**EcoClassification** - the term used for Ecological Classification - refers to the determination and categorisation of the Present Ecological State (PES; health or integrity) of various biophysical attributes of rivers compared to the natural or close to natural reference condition. The purpose of EcoClassification is to gain insights into the causes and sources of the deviation of the present ecological state (PES) of biophysical attributes from the reference condition. This provides the information needed to derive desirable and attainable future ecological objectives for the river.

The steps followed in EcoClassification are as follows -

- Determine reference conditions for each component.
- Determine the Present Ecological State for each component as well as for the EcoStatus.
- Determine the trend for each component as well as for the EcoStatus.
- Determine reasons for PES and whether these are flow or non-flow related.



- Determine the Ecological Importance and Sensitivity (EIS) for the biota and habitat.
- Considering the PES and the EIS, suggest a realistic Recommended Ecological Category (REC) for each component as well as for the EcoStatus.
- Determine alternative Ecological Categories (ECs) for each component as well as for the EcoStatus.



The EcoClassification process is an integral part of the Reserve method or, for that matter, any Environmental Flow Requirement method. Flows and quality cannot be recommended without information regarding the resulting state, that is, the Ecological Category. The Ecological Categories that are determined as part of the EcoClassification process form an essential part of most of the Reserve steps.

Biological monitoring for the River Health Programme (RHP) also uses EcoClassification to assess data in terms of the severity of changes. However, the RHP focuses primarily on biological responses as an indicator of ecosystem health, with only a general assessment of the cause-and-effect relationship between the drivers and the biological responses.

### **EcoStatus**

The EcoStatus is defined as:

'The totality of the features and characteristics of the river and its riparian areas that bear upon its ability to support an appropriate natural flora and fauna and its capacity to provide a variety of goods and services'.

In essence the EcoStatus represents an ecologically integrated state representing the drivers (hydrology, geomorphology, physico-chemical) and responses (fish, aquatic invertebrates and riparian vegetation).

The development of methods to achieve the objectives of this study, focussed on a two-step process -

- Devising consistent indices for the assessment of the Ecological Category (EC) of individual biophysical components.
- Devising a consistent process whereby the EC of individual components can be integrated at various levels to derive the EcoStatus of the river.

The principle followed here is that the biological responses integrate the effect of the modification of the drivers and that this results in an ecological endpoint.

Indices are determined for all the Driver and Response components using a rule-based modelling approach. The modelling approach is based on rating the degree of change from natural on a scale of 0 (no change) to 5 (maximum relative change) for various metrics. Each metric is also weighted in terms of its importance for determining the Ecological Category under natural conditions for the specific river reach one is dealing with.

Three biological assessment indices have been developed during the last 3 years. They have now reached a stage where they applied in all RHP surveys.

### **MIRAI**

The Macroinvertebrate Response Assessment Index (MIRAI) was developed to determine the Ecological Category for Riverine Macroinvertebrate Assemblages. It was developed specifically to fit into the EcoStatus process. The MIRAI can utilize SASS level data as well as more detailed genus or species level information. It assesses the macroinvertebrates in terms of impact on flow (velocity), habitat (substratum), water quality (Physico-chemical), system connectivity and seasonality. Although the index is stable, some aspects, particularly related to seasonality, velocity and substratum preferences need additional work. A series of workshops are planned for the next financial year to determine the reference frequency of

occurrence of invertebrate families at the National RHP sites. For more information contact Christa Thirion ([thirionc@dwaf.gov.za](mailto:thirionc@dwaf.gov.za))



### **FRAI**

The Fish Response Assessment Index (FRAI) was developed as a more comprehensive level of the Fish Assemblage Integrity Index (FAII). The FRAI will be finalized during 2006-07 when reference species list and reference species frequency of occurrences will be determined during 2 workshops for all National RHP sites (representative of particular river reaches). The FRAI method will be finalized when the EcoStatus manual is updated during 2006-07. For more information, contact Neels Kleynhans ([kleynhansn@dwaf.gov.za](mailto:kleynhansn@dwaf.gov.za))

### **VEGRAI**

The aim of this project is to develop a Riparian Vegetation Response Assessment Index (VEGRAI) that forms part of, and fits into, the EcoStatus and Eco Classification process. Once the VEGRAI has been completed, all indices to determine Ecological Categories as well as the EcoStatus will be compatible. This project consists of two phases and is executed as a joint venture between the Department of Water Affairs and Forestry (DWAF) and the Water Research Commission (WRC).

The first phase of the project (funded by the WRC) consists of:

- Determining a conceptual VEGRAI
- Testing the conceptual VEGRAI

The second phase of project (funded by the DWAF) consists of:

- Finalising the VEGRAI based on the outcomes of the testing phase
- Incorporating the VEGRAI in the EcoStatus processes and manuals
- Providing comprehensive EcoStatus assessment training which will include training on the application of the VEGRAI

For more information, contact Delana Louw ([lwre@icon.co.za](mailto:lwre@icon.co.za)).

## **Ten Year Report**

The achievements and challenges of the RHP over the past ten years are captured in the report: "Achievements of the River Health Programme 1994 to 2004: A national perspective on the ecological health of selected South African Rivers". This report gives an overview of the RHP since its initiation in 1994 and acknowledges the role that various stakeholders played in the development and implementation of the Programme. This report is in the process of being printed and will be available on the RHP website soon ([www.csir.co.za/rhp/](http://www.csir.co.za/rhp/)). For more information, contact Shamilla Jhupsee ([Jhupsees@dwaf.gov.za](mailto:Jhupsees@dwaf.gov.za)).

## **Adopt-a-River Catchment initiative**

Given the pollution challenge in our rivers, it is evident that the Department of Water Affairs and Forestry (DWAF) should embark on action to ensure that our rivers are healthy and monitored. When the Minister (DWAF) presented her 2006/07 Budget Speech, she called upon Members of Parliament to "adopt a river". This initiative received tremendous support from the MPs. It is the intention of the Department of Water Affairs and Forestry to seek ways of assisting the MPs in addressing the pollution challenges that our rivers are facing by using the River Health Programme as a vehicle.

The Chairperson of the Portfolio Committee, the Minister and the Director General agreed that the River Health Programme should be expanded and profiled to all the nine regions, under the direct supervision of the Regional Directors water resource management. The

Deputy Director General: Regions working in close collaboration with the Deputy Director General: Policy and Regulation will champion this project. The members of the Portfolio committee will also play an active role in the project.



**A brief Synopsis of the Initiative:**

The Adopt-a-River initiative is about adopting a river or a stretch of river by stakeholders living close to a river or that utilise a particular river for industrial, mining, domestic or other purposes. Partners or “adopters” have to take responsibility for a particular river, or stretch of river in terms of reporting pollution incidents and fish kills, and coordinating cleanups and restoration initiatives. This programme aims to educate the broader community in environmental awareness, making schools and the rest of the community more water wise and thereby ensuring a real sense of protection for their water resources.

The project will be rolled out in three phases:

- Phase 1: Identification of the Adopter Rivers and Stakeholder List
- Phase 2: Adopt a River Catchment Initiative: A Strategy and Implementation Plan
- Phase 3: Development of the Tools and Techniques

In the Western Cape, the project is successfully underway and other provinces are encouraged to follow in their foot steps.

A special thank you goes out to all individuals that contributed to phase 1 of the project. We look forward to your continued support.

For more information on the Adopt-a-River initiative, contact Bonani Madikizela ([Madikib@dwaf.gov.za](mailto:Madikib@dwaf.gov.za)).

## GENERAL

### **Woman in Water Awards: 2006**

We are very proud to report back that Toni Belcher, River Health Champion for the Western Cape, won the 2006 Woman in Water, Sanitation and Forestry Award for the Category: Education: Water. Toni is from the Department of Water Affairs and Forestry: Western Cape. To read more on this event, go to: <http://www.dwaf.gov.za/Events/WWA/2006win.asp>)

Well done Toni!

### **RHP sites on Google Earth**

Most of you might already have Google Earth (<http://earth.google.com/>) on your personal computer – a free-of-charge, downloadable virtual globe programme. The attached file from Mike Silberbauer (DWAF:RQS) shows the national RHP sites on Google Earth! In order to view, you must download the Google Earth software first.

## CONTACT DETAILS

| Name                         | Capacity                             | Affiliation   | Address                          | Email Address            | Telephone      |
|------------------------------|--------------------------------------|---|----------------------------------|--------------------------|----------------|
| <b>NATIONAL PROJECT TEAM</b> |                                      |   |                                  |                          |                |
| Ms Shamilla Jhupsee          | RHP Project Manager                  | Department of Water Affairs and Forestry: Resource Quality Services (DWAF: RQS) | Private Bag X313, PRETORIA, 0001 | Jhupses@dwaf.gov.za      | (012) 808 9596 |
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| Dr Anneli Kühn               |                                      | Department of Water Affairs and Forestry: Resource Quality Services (DWAF: RQS) | Private Bag X313, PRETORIA, 0001 | kuhna@dwaf.gov.za        | (012) 808 9500 |

...national project team continued

|                    |   |   |                                    |                               |                |
|--------------------|---|---|------------------------------------|-------------------------------|----------------|
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| Ms Delana Louw     | Project Manager: Riparian Vegetation Index        | Water for Africa  |                                    | iwre@icon.co.za               | (012) 349 2991 |
| Mr Mark Rountree   | Project manager: Wetlands Habitat Integrity Index | Wetland Consulting Services   | P O Box 72295, Lynwood Ridge, 0040 | markr@wetlandconsulting.co.za | (012) 349 2699 |
| Dr Chris Dickens   | Project manager: National Coverage Phase          | Institute of Natural Resources (INR)  | P O Box 100396, Scottsville, 3209  | dickensc@ukzn.ac.za           | (033) 346 0796 |
| Dr Patsy Scherman  | Biomonitoring short course                        | Coastal and Environmental Services (CES)  | P O Box 934, Grahamstown, 6140     | p.scherman@cesnet.co.za       | (046) 622 2364 |
| Dr Helen Dallas    | Rivers Database                                   | Freshwater Research Unit, University of Cape Town                               | Private Bag, RONDEBOSCH, 7700      | hdallas@botzoo.uct.ac.za      | (021) 650 3631 |
| Dr Mark Graham     | Quality Assurance                                 | Ground Truth  | P O Box 2005, HILTON, 3245         | mark@ground-truth.co.za       | (082) 377 7089 |
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| PROVINCIAL CHAMPIONS |                                    |   |   |                          |                |
|----------------------|------------------------------------|---|---|--------------------------|----------------|
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| Ms Toni Belcher      | Provincial Champion: Western Cape  | Department of Water Affairs and Forestry: Western Cape (DWAF)               | DWAF: Western Cape, Private Bag X16, Sanlamhof, 7532  | belchea@dwaf.gov.za      | (021) 950 7140 |
| Ms Tharina Boshoff   | Provincial Champion: North West    | North West Department of Agriculture, Conservation and Environment (DACE)   | North West Department of Agriculture, Conservation and Environment, Private Bag X2039, Mmabatho, 2735     | tboshoff@nwpg.gov.za     | (018) 389 5048 |
| Ms Gerda Venter      | Provincial Champion: Free State    | Department of Water Affairs and Forestry: Free State (DWAF)                 | DWAF: Free State, P O Box 528, Bloemfontein, 9300   | venter.gerda@dwaf.gov.za | (051) 405 9201 |
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...provincial champions continued

|                             |  |   |   |                            |   |
|-----------------------------|--|---|---|----------------------------|---|
| Dr Johan Engelbrecht        | Provincial Champion:<br>Mpumalanga           | Mpumalanga Tourism and<br>Parks Agency (MTPA)                                 | Mpumalanga Parks<br>Board, Private Bag<br>X1088, Lydenburg,<br>1120   | jseng@intekom.co.za        | (013) 235 1673                                  |
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| Mr Piet Muller              | Provincial Champion:<br>Gauteng              | Gauteng Department of<br>Agriculture, Conservation<br>and Environment (GDACE) | Gauteng Department<br>of Agriculture,<br>Conservation and<br>Environment<br>(GDACE), P O Box<br>8769, Johannesburg,<br>2000 | piet.muller@gauteng.gov.za | (011) 355 1487                                  |
| VACANT                      | Provincial Champion:<br>Northern Cape        |   |   |                            |   |



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| VACANT (identified but not audited yet) | Free State    |   |   |                         |                             |
| VACANT (identified but not audited yet) | Eastern Cape  |   |   |                         |                             |
| VACANT                                  | Northern Cape |   |   |                         |                             |