

RIVER HEALTH PROGRAMME

SUMMARY REPORT

Annual Champions Symposium

7 July 2006

LIST OF ATTENDEES:

Study Team

Mr Bonani Madikizela (DWAF, RQS)
Dr Neels Kleynhans (DWAF, RQS)
Ms Shamilla Jhupsee (DWAF, RQS)

Mr Mike Silberbauer (DWAF, RQS)

Ms Colleen Todd (DWAF, RQS)
Ms Christa Thirion (DWAF, RQS)
Dr Anneli Kühn (DWAF, RQS)
Ms Liesl Hill (CSIR, NRE)

Provincial Champions and representatives

Mr Mick Angliss (LEDET)
Mr Paul Fouche (University of Venda)
Dr Andrew Deacon (SANParks)

Mr Ramogale (INR)
Sekwele

Mr Willem Grobler (DWAF: Free State)
Mr Piet Muller (GDACE)
Ms T Belcher (DWAF: Western Cape)
Ms Thulani Guzana (DWAF: Eastern Cape)
Ms Hermien Roux (DACET, NW)
Ms Tharina Boshoff (DACET, NW)

Presenters

Dr Helen Dallas (Freshwater Research Unit, UCT)
Dr Mark Graham (Ground Truth)
Dr Jonathan Taylor (School of Environmental Sciences, NWU)
Dr Mark Rountree (Wetlands Consulting Services)
Ms Christine Colvin CSIR
Ms Delana Louw Water for Africa
Ms Barbara Weston DWAF: RDM

Stakeholders

Mr Hugh Dixon-Paver (DWAF, KZN)
Mr Stan Rodgers (LEDET)
Ms Kululwa Mkosana (DWAF, EC)
Mr Daniel Masemola (DWAF, RDM)
Ms Sherral Enele (DWAF, NW)
Ms Adeline Manake (DWAF, NW)

Present

Ms Judy Carpenter (Minute-taker)

1. NATIONAL COVERAGE PHASE

Dr Mark Graham

SANBI Education Centre, Pretoria/Tshwane, 2 Cussonia Avenue, Brummeria

Presentation: "RHP Symposium Assurance/Control and Biomonitoring Course".
(Addendum 9).

Mr Graham began his presentation by outlining progress to date.

1. SASS Auditors:

- System of National & Provincial SASS Auditors established & in place
- National Auditor Christa Thirion
- Provincial Auditors – government and private.
- Standardised testing of Provincial Auditors.
- Only once passed can they audit provincially.
- SASS Certificates of Competency finalised and distributed.
- Provincial testing now being rolled out.
- First set of retests about to start in some provinces e.g. KZN in August.
- Finalisation of payment for audits.
- Fee of R500 charged in order to be tested.
- Government auditors to centralise monies into Invert Guide budget

2. Method validation guideline

- A draft method has been produced and distributed for comment.
- Diatom protocol may be the first "new" method to meet the standards set.
- Other methods due for testing are FAIL and IHI.
- Other methods will be developed to same the standard.

3. Other activities

- Meeting held to review requirements for method validation of the FAIL and IHI.
- FAIL – national testing field day to collect stats for method validation planned (7-18 August) in time for EcoStatus courses.
- IHI – WRC project - method validation planned once manual is completed.
- Draft IHI manual ready for field testing in Feb 2007.
- Perceived gap is setting of Reference conditions for IHI.

1.2 BIOMONITORING SHORT COURSE

Mr Mark Graham (presented on behalf of Dr Patsy Sherman)

Presentation: "Revision of Biomonitoring Course." (Addendum 9)

1. Revision of Biomonitoring Course:

- Designed to build on the excellent Biomonitoring courses held previously.

- Improve the courses and to ensure that the final product serves the RHP and its customers in the best possible way.
- Considerations are:
 - Content of the course.
 - Who the target market is.
 - Accreditation of the course, and
 - The training material that it offers.

2. Progress:

- Collection of information still required to fully understand the field in which the course operates.
- Canvassing of users and potential users of the course to seek guidance on the content of the course.
- Recent significant changes in the use of biological monitoring in the management of water resources have come to light so they can be incorporated into the course i.e. emergence of the Ecostatus concept as the chosen system for both the reserve and, latterly, the RHP.

3. Additional information:

- Attempts are being made to have this course accredited in terms of NQF ratings so that it is interchangeable with universities.
- The course is accredited NPF5 and thus an employer can apply for a refund from the skills development levy.

1.3 QUESTION, ANSWERS AND COMMENTS:

Question: Can the course be incorporated into university modules?

Answer: No, but it can form part of a course set-up. For example, if you register for a degree in Environmental Science any credits accruing to the course can contribute to your degree.

Question: When will the SASS accreditation fee of R500 be introduced?

Answer: Immediately.

Question: What about the paperwork involved in getting through the procurement regulations of government? This must be sorted out or else how can government funding be applied for to pay for the course?

Answer: We will have to keep this in mind. Possibly funding can come through an already registered project.

Question: What is the money for?

Answer: To pay for a non-governmental auditor to do the audit.

Comment: Perhaps one should obtain a contract through the Department of Water Affairs to appoint a service provider registered on DWAF's database.

Comment: The R500 will have to be reconsidered because of the bureaucracy associated with getting onto the government's database.

Comment: There is a network in place re auditing. Auditors are moving across provincial lines and helping in each province.

Question: Is the R500 for time only? What is the R500 going to be used for?

Answer: This issue is becoming complicated. Provincial auditors come from government and private organisations (e.g. consultants). Auditors not in government must be paid for. The R500 is to pay these auditors for their services and to cover the costs of the certificates and postage fees.

Comment: The ID guide for inverts – is it available on CD?

Answer: It is on Corel Draw but it is proving difficult to get the colours right. It is best to contact Joyce Maluleke.

2. RIVERS DATABASE

Dr Helen Dallas

Presentation: "Data Management and Storage – Current Status" (Addendum 10)

1. Background:

- Rivers Database Version 1.03 released March 2003.
- National coverage phase July 2005 – July 2007.

2. Data Management Activities:

- Training and support.
- Data capture assistance.
- Quality control.
- Linkages between Rivers Dbase and WMS.
- Technical Development.
- Regional Training.

3. Data Captured:

- 1 084 RHP sites and 4 030 sites visits.

4. Quality Control:

- Data Integrity Checker.
- Consultations with Mark Graham.

It is imperative that all data be provided in electronic or hard copy.

2.1 QUESTION, ANSWERS AND COMMENTS:

Question: Is this for discreet sites?

Answer: Yes, over 1 000 sites and more than 4 000 visits.

Question: Are you looking to get up and down stream and a general view of the site?

Answer: Yes.

Question: What about resolution? We cannot do any photograph greater than 2 megabytes.

Answer: We will see what we can do there. As of October 2006 no more data must be held on personal computers.

3. AQUATIC ECOSYSTEM HEALTH MONITORING PROGRAMME – INCEPTION PHASE.

Ms Liesl Hill

Presentation: “National Aquatic Ecosystem, Health Monitoring Programme”. (Addendum 11).

Ms Hill gave a brief background of the activities of the past year and what is planned for the current financial year since the inception phase.

Two aspects were focussed on during 2005/2006, namely national site selection process and the ten year report.

1. National Sites:

- Four regional macro site selection workshops.
- Three types of sites identified.
- 638 monitoring sites.
- 122 reference sites.

2. The Ten Year Report:

- Provides a ten year overview of RHP.
- An extensive review process

3. 2207/2007:

- Site verification.
- Prioritise monitoring of national sites.
- Development of a protocol to determine national reference conditions for fish.
- Information generation and dissemination.

3.1 QUESTIONS, ANSWERS AND COMMENTS:

Question: Will all the high priority monitoring sites be monitored by the end of 2006/2007?

Answer: No. The process to prioritise the national monitoring sites has only now started. As soon as this process is complete, actual monitoring of the priority sites will commence. **Comment:** We need to have this available soonest so that sites can be added, that are not on the priority lists.

Answer: Yes, agreed.

4. THE ECOLOGICAL STATE OF RIVERS IN THE USUTU/MHLATHUZE WATER MANAGEMENT AREA

Ms Colleen Todd

Presentation: "The Ecological State of Rivers in the Usutu/Mhlathue Water Management Area". (Addendum 12).

Ms Todd informed the delegates that this is one of the first projects for compulsory licensing.

1. Purpose and Scope of Project:

- Report on the ecological state of rivers in the U/M WMA.

There is a large amount of data which has never been collated or analysed and there is not enough data for a SoR report.

2. Aims and Objectives:

- Phase 1 – inventory and GAP analysis.
- Phase 2 – outstanding data collection.
- Phase 3 – SOR report.

4.1 QUESTIONS, ANSWERS AND COMMENTS:

Question: How is this going to differ from the baseline-monitoring program that RDM is in the process of procuring in terms of gathering the reserve baseline data over a period?

Answer: The objectives are slightly different in that we are reporting on the ecological state.

Comment: This is just phase 1 – the GAP analysis. When phase 2 starts there will be a clear link with RDM's monitoring initiatives.

Comment: There seems to be some duplication.

Note: Ms Jupsee to resend relevant information.

(ACTION: MS S JHUPSEE)

5. DIATOMS

Dr Jonathan Taylor

Presentation: "Diatoms – Indicators of Water Quality". (Addendum 13).
Jonathan Taylor

1. Why use Diatoms?

- They occur in all rivers and streams.
- Sampling is quick and easy.
- Cell cycle is rapid.
- Insensitive to physical features in the environment.
- Cell counting by microscopic techniques is quick.
- Permanent records can be made from every sample.
- Diatoms have no specific food requirements.
- Diatoms indices are widely used for water quality assessment in European countries.
- They lack dispersal barriers.
- They add another link in the biomonitoring/foodweb framework.
- Sampling costs approx. R400 which is relatively inexpensive.

2. Progress to date:

- Diatom testing has taken place in the Mooi, Vaal and Crocodile rivers as well as the Durban Metro area.

3. Envisaged projects:

- Examine using diatoms to determine water quality in urban canals.
- Using diatoms to determine water quality in wetlands.

5.1 QUESTIONS, ANSWERS AND COMMENTS:

Comment: You mentioned courses. Courses are often sprung at very short notice so please work out a programme covering the next year or so, so that proper planning can be made to attend courses.

Answer: Will do. There is a workshop coming up in Nelspruit in August. There are also individual training courses scheduled.

Question: How do you bring the concept of diatoms into RHP? Usually monitoring is a rapid assessment on site. The other problem is the lack of resources which is already prohibitive. Diatoms should be linked to water quality instead. People are willing to spend money on water quality, so should monitoring of diatoms not come into RHP?

Answer: Diatoms come into RHP where there are no habitats for any other alternative organisms but diatoms. They are a reflection of how the water system functions, not just an indication of water quality.

Comment: A project was done with Durban Metro. Diatoms are another tool in the box of options. Mark Graham said that although this research is exploratory, it is comparable.

Comment: Diatoms should be included in biomonitoring of water management areas as they allow you to exclude or include water quality.

Comment: Diatoms give a reflection of the nutrients of a river.

Comment: They are worth thinking about for national sites, but not so much on a provincial level because of resource constraints.

Comment: When doing a site for the first time, this is a good system to use as it gives an indication of the state of the water. However, it would not be necessary to collect diatoms at every visit.

Comment: Take a sample and send to North West University, even if they are not used immediately, so that they can be stored and used in the future.

Comment: Diatoms can be used in wetlands and dams so, is it possible to use them in estuaries?

Answer: It would be best to ask the people at UPE where they have used diatoms in estuaries. It is known that they have been used to indicate the intrusion of salt water into fresh water bodies.

Comment: They are certainly useful for *ad hoc* monitoring.

6. WETLANDS

Dr Mark Rountree

Presentation: "Development of Wetland Habitat Integrity Index". (Addendum 14).

1. Objectives:

- To develop a Wetland Habitat Integrity index that can be used to assess the Ecostatus of, and develop eco-classifications for wetlands systems.

2. Assessing wetland health:

- Functional Assessments
- Biotic Assessments (Bio-assessments).
- Habitat Assessments

3. Capacity Building:

- Capacity building to improve wetland expertise.

4. Approach:

- **Task 1:** Initiation and development of concept WHI
- **Task 2:** Testing of Draft WHI
- **Task 3:** Refinement of draft WHI
- **Task 4:** Ecostatus Model/ Multi Criteria Decision Analysis Process
- **Task 5:** Ecostatus Manual
- **Task 6:** Capacity Building

6.1 QUESTION, ANSWERS AND COMMENTS:

None.

7. ESTUARIES

Ms Barbara Weston

Presentation: "Estuarine Health – Research and Implications for Management".
(Addendum 15).

Ms Weston began her presentation by defining estuaries as:

- A water resource, and
- Having a requirement for freshwater and therefore must be protected.

1. The fundamental features of estuaries:

- They need a regular inflow of water and period of flood and drought.
- Unblocked access to a river.
- Intermittent connection to the sea.

2. Estuaries are under tremendous pressure due to:

- Water resource development, and
- Urban development.

3. Research into estuaries centres around three main questions:

- How much fresh water does an estuary need?
- How important are they?
- Is the ongoing harvesting of mangrove detrimental?

4. Functional importance:

- Estuaries deposit nutrients into the coastal zone.
- They are a nursery for marine life.
- They are a movement corridor for river invertebrates.
- Estuaries providing a "stop over" for migratory birds.
- They are roosting sites for birds.
- They have botanical importance.

7.1 QUESTION, ANSWERS AND COMMENTS:

Question: Do you foresee joint reporting in terms of estuaries and other aquatic systems within the next three to five years?

Answer: Yes, there must be.

Question: Will this be part of RHP or is it something additional you are thinking of doing at your office at Water Affairs? Where do you think this fits in with RHP?

Answer: In the report Resource Monitoring Procedures for Estuaries, it was suggested to expand the RHP program to include estuaries. The suggested reporting format is however too complicated and expensive. It was also one of the projects of C.A.P.E. to look at estuarine health.

Comment: The CAPE program is a three year program and regarding estuaries, will probably only start next year. However, several aspects of estuaries will fit in well with RHP.

Comment: Kas Hamman said that when this program is developed, Estuarine Health Champions will be appointed with a budget and will take responsibility for the bit of coast that will be monitored.

Comment: It must be remembered that the RHP is not confined to rivers and must be broadened.

Comment: There is difficulty getting local municipalities involved.

8. GROUND WATER – DEPENDENT ECO SYSTEMS

Ms Christine Colvin

Presentation: "Including Aquifer dependent eco systems in the RHP". (ADE's)
(Addendum 16).

1. What are ADE's?

Ecosystems which are dependent on groundwater in, or discharging from, an aquifer. They are distinctive because of their connection to the aquifer and would be fundamentally altered, in terms of their structure and functions, if groundwater was no longer available.

2. What is threatening ADE's?

- Disruption of aquifer flow regimes
- Surface impacts

8.1 QUESTIONS, ANSWERS AND COMMENTS:

Comment: We must involve the municipalities in this initiative. Two years ago it was mooted that the municipalities monitor the groundwater supply but this seems to have lost momentum.

Question: We have been grappling with the wetlands methodology – what is the link between wetlands and groundwater? In terms of wetlands, they recharge the groundwater and not the other way around. Does the initiative look at this?

Answer: Not as yet. It is important that the habitat indices indicate whether or not there is an underground water table in a specific area.

9. ECOSTATUS

Ms Delana Louw

Presentation: "Ecostatus Determination". (Addendum 17)

ECO-CLASSIFICATION

A process to determine and categorise the ecological state of various biological and physical attributes compared to the reference conditions (usually natural)

1. Why do we need eco-classification?
 - Biomonitoring
 - Environmental Flow Requirements
 - Prediction: React to the 'what if' scenario
2. How do we determine the ecological categories for the components and ecostatus?
 - Devising consistent indices for the assessment of the EC of the components.
 - Devising a consistent process to integrate the components' EC at various levels to determine an ecostatus

9.1 QUESTION, ANSWERS AND COMMENTS:

Question: How much extra work will it be to get to that EcoStatus for the derivation of the SoR's?

Answer: Essentially, the same. The difference is going through FRAI and expanding the information.

Comment: With MRAI the setting up of the reference conditions is time consuming.

Answer: If these can be set, then it will not take so much time.

10. VEGRAI

Mr Neels Kleynhans

Presentation: "So, what should be growing there?" (Addendum 18)

Mr Kleynhans gave a detailed presentation on the role of riparian vegetation on water development and health.

1. What do we have to consider for the determination of the condition of the riparian vegetation?

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- Existing riparian vegetation indices not considered suitable
- Need Index that fits.

2. Restrictions:

- Limited number of vegetation experts that can apply complicated riparian vegetation indices.
- Limited financial resources
- Limited sampling time.
- Limited sites.
- Limited knowledge of indicator species.

3. Approach:

- Series of workshops involving experts
- Field testing.

4. Decision and Outcomes: Characteristics of the VEGRAI

- Vegetation removal.
- Removal of exotics.
- Water quantity and quality.
- Weighting of importance of vegetation zones.

10.1 QUESTIONS, ANSWERS AND COMMENTS:

Question: How long would such an evaluation take to complete in terms of the actual assessment?

Answer: The time spent in your office to set the scene correctly and then in the field, with the correct information, it should not take longer than two hours. However, at the level required for the RHP it should be possible for MRAI, SASS or fish practitioners to do the riparian vegetation. It is not specialised. Only the reserve issue is specialised and requires riparian vegetation expert input.

Question: Are the people in the Cape, Lowveld and Natal all happy with this?

Answer: Yes. Countrywide workshops, involving a range of people have been held. We would, however, like to have more people from the Highveld involved.

Comment: Is VEGRAI is well suited to application in these areas.

Answer: Yes, and we have field sheets which are used to collect the data and this data is then put onto the database.

Question: Is that now in the Rivers database?

Answer: RVI data is still usable.

Question: Is your program adaptable to other future needs?

Answer: Yes. There is a RHP level and a reserve level of the VEGRAI (the level of input and detail varies).

11. FISH REFERENCE – FREQUENCY OF OCCURRENCE

Ms Delana Louw

Presentation: “Fish Reference, frequency of occurrence”. (Addendum 19).

1. Why do we need reference conditions?
 - FRAI is based on rating the degree of change in frequency of occurrence between estimated conditions and observed and derived present conditions.
2. What do we need to do to obtain a reference conditions database?
 - Study fish assemblage and the frequency of occurrence of the species.
3. What problems do we have with available information on reference conditions?
 - Too many errors in the database.
 - Too many different formats in which data is stored.
4. What will the output be?
 - Database of fish assemblage and occurrence.

11.1 QUESTION, ANSWERS AND COMMENTS:

None.

For main discussion points please refer to the Minutes of RHP Symposium 6/7 July 2006.

LIST OF ADDENDUMS

- 9. "06/07 RHP Symposium".**
- 10. "Data Management 7 July 2006".**
- 11. "Inception Phase".**
- 12. "Usuthu/Mhlathuze SoR".**
- 13. "Diatoms RHP".**
- 14. "WHI Development".**
- 15. "Estuarine Health talk 2".**
- 16. "RHP ADE"**
- 17. "RHP 7 July".**
- 18. "VEGRAI"**
- 19. "RHP 7July FOOC".**