*internal report* **373**

# Environmental Research Institute of the Supervising Scientist Research & Monitoring Workplan 2001-2002

eriss staff

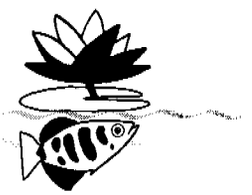
August 2001

*supervising scientist*

# Environmental Research Institute
# Of The
# Supervising Scientist

# Research & Monitoring
# Workplan

## 2001–2002



August 2001

# Contents

# 1 Introduction to *eriss*

The Environmental Research Institute of the Supervising Scientist (***eriss***) is part of the Supervising Scientist Division of Environment Australia which has the mission

> *To ensure the protection of the Alligator Rivers Region from the effects of uranium mining and to encourage best practice in wetland conservation and management.*

***eriss*** was established to carry out independent research to establish the best methods available for the protection of people and ecosystems in the Alligator Rivers Region (ARR) both during and following mining in the region. In 1994 we commenced a program of research on the ecology and conservation of wetlands which has resulted in the development of the National Centre for Tropical Wetland Research (***nctwr***) — a formalised alliance between ***eriss***, James Cook University, Northern Territory University and the University of Western Australia.

Our research and monitoring programs are developed in cooperation with the communities potentially affected, as well as regulators, mining companies and wetland managers. In particular, we have taken increased steps to ensure that Aboriginal people in the region are included in these processes and where possible, are able to participate in research and monitoring projects. The outcomes of our research and monitoring programs are communicated in forms that are suitable for a diverse audience.

To fulfil these expectations we carry-out the following programs:

- research on and monitoring of the impact of mining, particularly uranium mining, on people and ecosystems;
- research on the ecology and conservation of tropical wetlands; and
- other environmental research as requested by Government.

Our research and monitoring activities have been divided into four programs supported by a communications program. This differs from previous years when ***eriss*** was divided into two separate branches with five research programs and a communications program. The activities of these programs for 2001–2002 are described in this workplan. Our wetland research activities are spread across the programs as a contribution to the National Centre for Tropical Wetland Research. Development of projects in collaboration with our partners in the Centre will be given more prominence in 2001–2002. This will go ahead in hand with the development of landscape-scale analyses in the region resulting from the World Heritage investigations conducted in recent years. Further, a new program to monitor the Ranger and Jabiluka mines will commence.

In addition to the tasks and indicators shown in this workplan we spend considerable time attending to formal governmental processes that both assist the implementation of our programs and contribute to program, structural and personnel development within Environment Australia. Such activities include compliance with and promotion of Occupational Health and Safety (OH&S) procedures, redevelopment of buildings and facilities, personnel development schemes and career training and responding to requests for departmental briefs and information needs. We also assist and provide advice to national and international environmental committees and panels.

An outline of the workplan for each program is given below in a standardised format that includes an objective, list of priority activities for 2001–2002, and a table of all projects approved for 2001–2002. The table includes an outline of the aims, estimated work level,

indicators and an allotted outcome. The latter is a new inclusion and refers to internal outcomes linked to the Portfolio Budget Statements for the Supervising Scientist Division and are numbered:

**1 Industry**

1.1 Supervision of uranium mining in the Alligators Rivers Region

1.2 Protection of the Alligator Rivers Region ecosystem

1.3 Radiological protection in the Alligator Rivers Region

1.4 Minesite erosion in the Alligator Rivers Region

1.5 Risk identification and assessment

**2 Inland waters**

2.1 Risk identification and assessment

2.2 Wetland ecology and inventory

**3 Corporate Support**

3.1 Corporate Support.

In preparing this workplan we have attempted to take into account the time and effort required to relocate most staff in to a new laboratory. As this has been difficult to assess we will review the targets at approximately four (4) monthly intervals throughout the year. This will be done through regular meetings of program staff complemented with ***eriss***-wide appraisals of the workplan.

# 2 Environmental Radioactivity

The objective of the Environmental Radioactivity program is

> *To provide advice on the protection of people from radiological risk during and after mining activities in the Alligator Rivers Region and to use specialist expertise in remote sensing and isotopes to assist related environmental protection work in the Alligator Rivers Region and elsewhere.*

**Priority activities in 2001–02 include:**

- Provision of advice to Parks Australia North on radiological issues related to rehabilitation of old uranium mine and mill sites in the upper South Alligator River valley;
- Assessment of the radiological status of the rehabilitated Nabarlek uranium minesite, in particular completion of project work related to radon exhalation fluxes;
- Publication of research related to radionuclide uptake by freshwater mussels, and incorporation of the results into water release standards for uranium mining operations in the Alligator Rivers Region;
- Use of the regional radon station network to investigate transport of radon from the Ranger minesite;
- Development of a remote sensing facility with applications across the Supervising Scientist Division; and
- Achievement of NATA certification for radium analyses by the ***eriss*** radiochemistry laboratory.

During 2001–2002 work will continue on groundtruthing of remotely sensed data for the upper South Alligator River valley, with further provision of advice to Parks Australia North. A number of other continuing projects are largely in the write-up phase, including past work on radionuclides in Aboriginal foods (including mussels), on radiological assessment of Nabarlek, and on transport of radionuclides on dust.

In addition, the following new projects will be undertaken. Use of lead isotopes as a sensitive tracer for uranium mine-origin material will be trialled in a collaborative project with Curtin University on dispersion of dust. Two related projects on radon exhalation and lead-210 deposition in the Ranger/Jabiluka region will be started in collaboration with Queensland University of Technology — these will provide important data needed to link existing datasets on air quality with radon and dust dispersion models. Work on the Jabiluka baseline dataset will continue with a project involving the collection and analysis of sediment samples from Ngarradj (Swift Creek). All projects are listed in tables 2.1–2.6.

**Table 2.1** Bioaccumulation-related projects

| Project and aims | Staff commitment (p/w) | Targets | Outputs |
|---|---|---|---|
| **Identification of traditional Aboriginal foods for radiological assessment** | | | |
| *Aims*<br>Identification and cataloguing of traditional Aboriginal foods collected in the Alligator Rivers Region, including preparation techniques<br>Measurement of radionuclide content of traditional foods for estimation of radiological significance<br>*Project leader:* B Ryan<br>*Project file:* JR-05-281 | *Res staff:* 15 | *Commenced:* 1997<br>Internal Report: July 2001<br>FAQ video for Aboriginal people: September 2001<br>Journal paper: February 2002 | 1.1 |
| **Radiological impact arising from uptake by freshwater mussels of Magela Creek** | | | |
| *Aim:* Analyse and publish the data currently available on uptake of radionuclides by freshwater mussels in the Alligator Rivers Region<br>*Project leader:* P Martin<br>*Project file:* JR-04-013 | *Res staff:* 14 | *Commenced:* July 1997<br>Internal report: August 2001<br>Internal report: December 2001<br>Journal paper: March 2002 | 1.1 |

**Table 2.2** Air quality-related projects

| | | | |
|---|---|---|---|
| **Radiological impact arising from dispersion of dust** | | | |
| *Aim:* Determine dust dry and wet deposition factors to enable prediction of the transport of radionuclides on dust from uranium minesites<br>*Project leader:* B Ryan<br>*Project file:* SG2000/0171 | *Res staff:* 14 | *Commenced:* 1998<br>Journal paper: October 2001<br>Paper presented to SPERA conference: May 2002 | 1.1 |
| **Use of Pb isotopes in the study of the meso- to long-range dispersion of dust from Ranger** | | | |
| *Aim:* Determine Pb isotope ratios on dust deposited on leaves through the Alligator Rivers Region to study the longer-range dispersion of dust from the Ranger minesite<br>*Project leader:* A Bollhoefer<br>*Project file:* SG2001/0157 | *Res staff: 7*<br>*Tech staff: 3* | *Commenced:* July 2001<br>Deployment of air samplers: July 2001<br>Collection of leaves: September 2001 | 1.1 |
| **Radon concentrations within the Alligator Rivers Region** | | | |
| *Aim:* Establish a network of radon and meteorological stations in the Alligator Rivers Region and collect time-series data<br>*Project leader:* A Bollhoefer<br>*Project file:* JR-05-302 | *Res staff:* 16<br>*Tech staff:* 5 | *Commenced:* 1997<br>Internal Report: January 2002 | 1.1 |
| **Determination of Rn exhalation rates in the Ranger/Jabiluka region** | | | |
| *Aim:* Provide information on Rn exhalation rates from the Ranger site and region, in a format able to act as input to Rn dispersion models<br>*Project leader:* P Martin<br>*Project file:* SG2001/0215 | *Res staff:* 7<br>*Tech staff:* 5 | *Commenced:* July 2001<br>Research Plan: October 2001<br>Internal Report: July 2002 | 1.1 |

| Determination of Pb-210 deposition and soil mixing rates in the Ranger/Jabiluka region | | | |
|---|---|---|---|
| *Aim:* Obtain Pb-210 deposition rates in the Ranger/Jabiluka region, and use this information in a study of mixing in the soil column of dry- and wet-deposited radionuclides<br>*Project leader:* P Martin<br>*Project file:* SG2001/0215 | *Res staff:* 7<br>*Tech staff:* 5 | *Commenced:* July 2001<br>Research Plan: October 2001<br>Internal Report: July 2002 | 1.1 |

**Table 2.3** Water quality-related projects

| Uranium in groundwater seepage at ERA – Ranger | | | |
|---|---|---|---|
| *Aim:* Determine uranium retardation factors in the groundwater aquifer at Ranger<br>*Project leader:* M Iles<br>*Project file:* JR-05-214 | *Res staff:* 3<br>*Tech staff:* 1 | *Commenced:* 1996<br>Continue collection of samples on a 12-monthly basis<br>Paper presented to SPERA conference: May 2002 | 1.1 |
| **Radionuclides in creek sediments of the Jabiluka area** | | | |
| *Aim:* Obtain pre-mining data on concentrations of uranium, radium, thorium and potassium isotopes in sediments of creeks of the Jabiluka area<br>*Project leader:* A Bollhoefer<br>*Project file:* SG2001/0158 | *Res staff:* 9<br>*Tech staff:* 5 | *Commenced:* July 2001<br>Collection of samples: September 2001<br>Internal report: April 2002 | 1.1 |
| **Baseline dataset collection for western Arnhem Land rivers** | | | |
| *Aim:* Obtain baseline radionuclide concentration data for western Arnhem Land rivers in areas currently under exploration<br>*Project leader:* B Ryan<br>*Project file:* SG2001/0177 | *Res staff:* 1<br>*Tech staff:* 1 | *Commenced:* July 2001<br>Internal report: June 2002 | 1.1 |

**Table 2.4** Site assessment projects

| Radiological impact assessment of the rehabilitated Nabarlek site | | | |
|---|---|---|---|
| *Aim:* Validate radionuclide transport models and enable a prediction of radiological dose in the vicinity of the Nabarlek site<br>*Project leader:* P Martin<br>*Project file:* JR-05-219 | *Res staff:* 10<br>*Tech staff:* 5 | *Commenced:* 1996<br>Internal Report: August 2001<br>Paper presented to SPERA conference: May 2002 | 1.1 |
| **Airborne gamma survey of the upper South Alligator River valley** | | | |
| *Aim:* Provide remotely sensed data and images giving information on the state of abandoned uranium minesites in the upper South Alligator River valley<br>*Project leader:* K Pfitzner<br>*Project file:* SG2000/0144 | *Res staff:* 30<br>*Tech staff:* 5 | *Commenced:* July 2000<br>Internal report: July 2001<br>NARGIS Conference paper: July 2001<br>IGARSS Conference paper: July 2001<br>Reports on results supplied to Parks Australia North on a frequent basis up to mid-2002 | 1.1 |

**Table 2.5** Commercial radioanalytical laboratory projects

| **Obtaining NATA accreditation for the *eriss* radioanalytical laboratory** | | | |
|---|---|---|---|
| *Aim:* Obtain NATA accreditation for the ***eriss*** radioanalytical laboratory<br>*Project leader:* M Iles<br>*Project file:* SG2000/0187 | *Res staff:* 20<br>*Tech staff:* 5 | *Commenced:* 2000<br>Presentation to ARPS conference: September 2001<br>Quality control and procedures manuals: September 2001 | 1.1 |
| **Operation of the commercial radioanalytical laboratory** | | | |
| *Aim:* Provide radiological services on a commercial basis<br>*Project leader:* M Iles<br>*Project file:* SG2000/0189; SG2000/0190 | *Res staff:* 10<br>*Tech staff:* 20 | *Commenced:* 1999<br>Renewal of existing contracts/ establishment of new contracts: Ongoing<br>Report results and invoice clients: Ongoing<br>Annual financial statement: June 2002 | 1.1 |

**Table 2.6** Management of remote sensing facility

| **Project and aims** | **Staff commitment (p/w)** | **Targets** | **Outputs** |
|---|---|---|---|
| **Management of remotely sensed data** | | | |
| *Aim:* To develop and implement management protocols for remotely sensed data<br>*Project leader:* K Pfitzner<br>*Project file:* SG2001/0223 | *Res staff:* 4 | *Commenced:* July 2001<br>Organise data directory structure to include remotely sensed information RS and data management: Ongoing | 3.1 |

# 3 Ecosystem Protection

*The objective of the Ecosystem Protection program is to provide advice on the protection of aquatic and terrestrial ecosystems during and after mining activities in the Alligator Rivers Region and on the conservation and management of tropical wetlands.*

**Priority activities in 2001–02 include:**

- Chemical and biological monitoring data gathered during and immediately after the 2001–02 Wet season from streams associated with the Ranger mine are compared with historical data;
- Baseline data from the Jabiluka region are acquired for the purpose of monitoring and assessing the impact of current disturbance and any future mining at Jabiluka on adjacent streams and floodplain;
- Enhanced methods for monitoring, assessing and protecting aquatic and terrestrial ecosystems are developed; and
- Broad-scale data are collected to assess the impact of the proposed Jabiluka mine upon the broader Kakadu landscape.

In 2001–2002 we will instigate a routine annual program of biological and chemical monitoring (Ranger and Jabiluka) and baseline data collection (Jabiluka). This will commence during the 2001–02 Wet season with results made available to stakeholders over the ensuing year. In preparation for this work program, past data will be collated, analysed and written up with protocols finalised in the first half of 2001–2002. A number of other research investigations focus on the fate, control and ecological effects of mine contaminants on and off the Ranger mine site. An important project here is the field experimentation being conducted to assess the ecological effects of $MgSO_4$ in Magela Creek. Results from another two studies may also be used to develop techniques to assess the impact of the proposed Jabiluka mine upon the broader Kakadu landscape. Other projects include inventory of the biota of streams and wetlands in Arnhem Land, and an implementation project arising from publication of the revised Australian and New Zealand Water Quality Guidelines. These and other projects are outlined in tables 3.1–3.4.

**Table 3.1** Monitoring procedures

| Project and aims | Staff commitment (p/w) | Targets | Outputs |
|---|---|---|---|
| **Early detection of mine-related effects using creekside testing procedures: Ranger** | | | |
| *Aim:* Monitor water quality of Magela Creek using biological creekside tests<br>*Project leader:* C Humphrey<br>*Project file:* SG2001/0193; JR-05-116 | *Res & tech staff:* 25 | *Commence:* 2002<br>Conduct creekside tests: January–April 2002<br>Annual report of results: June 2002 | 1.2 |

| | | | |
|---|---|---|---|
| **Community structure of macroinvertebrates and fishes in streams: Ranger** | | | |
| *Aim:* Monitor effects of mining at Ranger on Magela Creek using benthic macroinvertebrate and fish communities<br>*Project leader:* C Humphrey & R Pidgeon<br>*Project file:*<br>Macroinvertebrates: SG2001/0190; SG2000/0179<br>Fishes: SG2001/0191; JR-05-170 | *Res staff:* 18<br>*Tech staff:* 10 (plus temp assistance) | *Commence:* 2002<br>Sampling in Magela Creek and control streams: April–June 2002<br>Annual report of results to Supervising Scientist and stakeholders: August (fish) & December (invertebrates) 2002 | 1.2 |
| **Fish and mussel bioaccumulation in Magela Creek: Ranger** | | | |
| *Aim:* Monitor metal and radionuclide content in mussels and organs of selected fish species from Mudginberri Billabong<br>*Project leader:* P Martin<br>*Project file:* SG2000/0082 | *Res & tech staff:* 8 | *Commence:* 2002<br>Conduct sampling: May 2002<br>Annual report of results to Supervising Scientist and stakeholders: December 2002 | 1.2 |
| **Water chemistry of Magela Creek** | | | |
| *Aim:* Monitor water chemistry of Magela and Gulungul Creeks upstream and downstream of Ranger mine<br>*Project leader:* C le Gras<br>*Project file:* SG2001/0200 | *Res staff:* 3<br>*Tech staff:* 9 | *Commenced:* 2002<br>Conduct sampling and analysis: December–July 2002<br>Annual report of results to Supervising Scientist and stakeholders: August 2002 | 1.2 |
| **Community structure of macroinvertebrates and fishes in streams: Jabiluka** | | | |
| *Aim:* Monitor biota of streams associated with the Jabiluka mine site and add data to accumulating baseline<br>*Project leader:* F Bouckaert & R Pidgeon<br>*Project file:* Macroinvertebrates: SG2001/0192; JR-05-294<br>Fishes: JR-05-308 | *Res staff:* 11<br>*Tech staff:* 15 | *Commenced:* 2001<br>Conduct sampling: December 2001–April 2002<br>Annual report of results to Supervising Scientist and stakeholders: March 2003 | 1.2 |
| **Water chemistry of streams associated with the proposed Jabiluka mine** | | | |
| *Aim:* Monitor water chemistry of streams associated with the Jabiluka mine site and add data to accumulating baseline<br>*Project leader:* C leGras<br>*Project file:* SG2001/0202; JR-05-279 | *Res staff:* 2<br>*Tech staff:* 10 | *Commenced:* 2001<br>Conduct sampling and analysis: December 2001–May 2002<br>Annual report of results to Supervising Scientist and stakeholders: August 2002 | 1.2 |
| **Baseline metal concentrations in fish from Swift Creek** | | | |
| *Aim:* Determine baseline concentration of metals in livers and flesh of fishes from Swift Creek and Catfish Creek<br>*Project leader:* C leGras & R Pidgeon<br>*Project file:* JR-05-313 | *Res & tech staff:* 6 | *Commenced:* 1998<br>Sampling and dissections: October 2001 & April 2002<br>Annual report of results to Supervising Scientist and stakeholders: October 2002 | 1.2 |

**Table 3.2** Chemical and biological monitoring techniques

| Project and aims | Staff commitment (p/w) | Targets | Outputs |
|---|---|---|---|
| **Development of biological and chemical monitoring techniques for the Ranger mine** | | | |
| *Aim:* Develop biological and chemical monitoring procedures for detecting any effects of Ranger waste waters in Magela Creek<br>*Project leaders:* C Humphrey, R Pidgeon & C leGras<br>*Project files*:<br>Creekside monitoring: JR-05-116<br>Macroinvertebrates: SG2000/0179<br>Fish communities: JR-05-170<br>Water chemistry: SG2001/0201 | *Res staff:* 57<br>*Tech staff:* 10 | *Commenced:* 1985<br>Process all sample backlogs from Magela and control streams: November 2001<br>Internal Reports of data and results for all Wet seasons to 2000–01: December 2001<br>SSR of finalised biological and chemical monitoring protocols: December 2001 | 1.2 |
| **Development of biological and chemical monitoring techniques for the proposed Jabiluka mine** | | | |
| *Aim:* Develop biological and chemical monitoring procedures for detecting any effects of the Jabiluka mine on receiving waters<br>*Project leaders:* C Humphrey, R Pidgeon & C leGras<br>*Project files:*<br>Macroinvertebrates: JR-05-294<br>Fish communities: JR-05-308<br>Water chemistry: JR-05-279<br>Metal concentrations in fishes: JR-05-313 | *Res staff:* 35<br>*Tech staff:* 9 | *Commenced:* 1997<br>Process all stream samples up to 2000–01 Wet season: November 2001<br>Internal reports of biological and chemical data and results up to 2001: December to February 2001<br>SSR, 'Physico-chemical characteristics of Swift Creek': December 2001 | 1.2 |
| **Review of the status of biological monitoring programs in the ARR** | | | |
| *Aim:* Review Ranger, Jabiluka and other monitoring programs in the ARR, factoring in the changing environment in the ARR with the ***eriss*** relocation, possible mining at Jabiluka, as well as funding for routine monitoring and the ISP recommendations for additional studies at Jabiluka<br>*Project leader:* C Humphrey<br>*Project File:* SG2001/0209 | *Res staff:* 3 | *Commenced:* 2000<br>Internal Report 'Proposed monitoring and research activities of the ***eriss*** EP program from 2001': November 2001 | 1.2 |

**Table 3.3** Investigative studies

| **Fish communities of Gulungul Creek: A landscape analysis** | | | |
|---|---|---|---|
| *Aim:* Assess whether fish communities in Gulungul Creek have changed over a 22-year period as a consequence of mining activities in the catchment<br>*Project leaders:* C Humphrey & R Pidgeon; Consultant – K Bishop<br>*Project file:* SG2001/0077 | *Res staff:* 1.5<br>*Tech staff:* 2<br>*Consultant:* 9 | *Commenced:* 1978<br>Internal Report, 'Persistence of fish communities in Gulungul Creek, 1978 to 2001': August 2001<br>SSR, 'Spatial and temporal patterns in Gulungul fish communities, 1978 to 2001': February 2002 | 1.2 |

| **Ecological effects of magnesium sulphate in Magela Creek** | | | |
|---|---|---|---|
| *Aim:* To assess toxicity of enhanced residual levels of $MgSO_4$ in Magela Creek through laboratory and field studies<br><br>*Project leaders:* C Humphrey & C McCullough<br>*Project file:* SG2000/0036 | *Student:* 45<br>*Res staff:* 2<br>*Tech staff:* 10 (plus temp assistance) | *Commenced:* 2000<br><br>Conduct laboratory and field studies on ecological effects of $MgSO_4$: Ongoing<br><br>Internal Report, 'Toxicity of $MgSO_4$ to freshwater snails: Results of a toxicity range-finding experiment': July 2001<br><br>SSR, 'A study of the development of seasonal pools of the Magela Creek': December 2001<br><br>Internal Report, 'Effects of $MgSO_4$ on macroinvertebrate communities of Magela Creek: Preliminary results': February 2002 | 1.2 |
| **Nutrient biopolishing trial for the Ranger constructed wetland filter** | | | |
| *Aim:* To determine the efficiency of the Ranger CWF in removing nutrient concentrations corresponding to reverse osmosis permeate<br><br>*Project leader:* C IeGras (with EWLS)<br>*Project file:* SG2001/0203 | *Res staff:* 5<br>*Tech staff:* 3 | *Commenced:* 2001<br><br>Measure ammonium and nitrate attenuation in the Ranger CWF: July–October 2001<br><br>Internal Report, 'The efficiency of the CWF in removing nitrogenous nutrients': October 2001 | 1.2 |
| **Taxonomic studies in water bodies around Jabiluka for conservation assessment** | | | |
| *Aim:* By way of outsourcing, collect taxonomic information on species richness, biodiversity and endemism of macroinvertebrate taxa in water bodies around Jabiluka<br><br>*Project leader:* C Humphrey<br>*Project files:* SG2000/0138; SG2001/0204 (isopods) | *Res staff:* 2 | *Commenced:* 1998<br><br>Internal Report, 'The aquatic invertebrates of streams and wetlands around Jabiluka': November 2001<br><br>Consultancy report: 'Taxonomic descriptions of isopods of the genus, Eophreatoicus, found in the NT': June 2002 | 1.2 |

**Table 3.4** Additional investigations and tasks

| **Metal concentrations of mussels in the upper South Alligator River** | | | |
|---|---|---|---|
| *Aim:* To measure and report metal concentrations of mussels at several sites and relate these to biological and environmental variables<br><br>*Project leader:* C IeGras<br>*Project file:* JR-04-075 | *Res staff:* 7 | *Commenced:* 1999<br><br>IR: 'Metal concentrations of mussels in the South Alligator River': August 2001 | 1.2 |

| | | | |
|---|---|---|---|
| **Use of the freshwater mussel, *Velesunio angasi*, in the monitoring and assessment of mining impact in Top End streams** | | | |
| *Aim:* Present at a symposium on pollution studies associated with Rum Jungle and Finniss River, an appraisal of the use of freshwater mussels in the monitoring and assessment of mining impact in Top End streams<br><br>*Project leaders:* C Humphrey & P Martin<br>*Project file:* SG2001/0210 | *Res staff:* 2 | *Commenced:* 2001<br><br>Symposium report, 'Use of the freshwater mussel, *Velesunio angasi*, in the monitoring and assessment of mining impact in Top End streams': August 2001 | 1.2 |
| **Baseline sampling needs for Arnhem Land streams** | | | |
| *Aim:* Develop with NLC a strategic approach to acquiring biological inventory data from mine exploration sites in Arnhem Land, as well as conduct limited surveys<br><br>*Project leader:* C Humphrey<br>*Project file:* SG2000/0175 | *Res staff:* 2 | *Commenced:* 1999<br><br>Collaborative report with NT Museum on Mann and Katherine Rivers aquatic fauna: November 2001<br><br>Develop strategic approach to acquiring biological inventory data from mine exploration sites in Arnhem Land: July 2001<br><br>Sample sites around King River: October 2001 | 1.2 |
| **Baseline diatom collection in streams and billabongs in the ARR** | | | |
| *Aim:* To collect opportunistically and by way of an Honours project, diatom samples for identification by Dr Jacob John (Curtin Uni) in order to build a baseline database on diatoms in the ARR<br><br>*Project leader*: F Bouckaert<br>*Project File*: SG2000/0131 | *Res & tech staff:* 3 weeks | *Commenced:* 2000<br><br>Honours thesis: 'Diatom species distribution in the ARR': November 2001 | 2.2 |
| **Survey and management planning for wetlands on Aboriginal lands in the NT** | | | |
| *Aim:* Undertake ecological surveys and management planning for wetlands on Aboriginal lands<br><br>*Project leaders:* M Finlayson & R Pidgeon<br>*Project files*: JR-05-216/231/258/267/278/280/287/288; JS-06-139 (Intecol paper) | *Res staff:* 4<br>*Tech staff:* 2 | *Commenced:* 1996<br><br>Internal Report on fish inventory of Djelk wetlands: November 2001<br><br>SS note on ***erlss*** involvement with Djelk Rangers: November 2001 | 2.2 |
| **Preparation of a handbook for ACMER on implementing the new Water Quality Guidelines** | | | |
| *Aim*: Prepare a handbook of case studies on implementing the revised Aust & NZ Water Quality Guidelines for the mining industry<br><br>*Project leader:* C Humphrey (with CSIRO Lucas Heights)<br>*Project file:* SG2001/0211 | *Res staff:* 4 | *Commenced:* 2001<br><br>Handbook containing case studies on implementation of the revised Aust & NZ Water Quality Guidelines for the mining industry: February 2002 | 2.2 |

# 4 Hydrological and Ecological Processes

*The objective of the Hydrological and Ecological Processess program is to provide advice on landscape processes to detect impacts that could arise during and after mining activities in the Alligator Rivers Region and on the conservation and management of tropical wetlands.*

**Priority activities in 2001–02 include:**

- Develop a technological framework to assess the impact of mine site erosion products on stream systems;
- Maintain and expand a stream flow database for the Ngarradj catchment to assess mine site erosion impacts;
- Characterise and map landscapes in the ARR for the purpose of environmental impact and risk assessment;
- Develop techniques for inventory, survey and monitoring of tropical wetlands; and
- Develop a GIS framework to support program priorities across SSD.

In 2001–2002 we will continue hydrological research and monitoring in the Ngarradj catchment and will finalise reporting for the first three years of the monitoring program. GIS development will continue and a physical risk assessment of Jabiluka mine will be conducted using landform evolution modelling (SIBERIA) in a GIS framework and erosion rates derived from the Jabiluka rainfall simulation study. We will commence an assessment of the hydrology of the rehabilitated Nabarlek minesite. A small amount of work will be conducted on testing a spatial and temporal soil development model in the Tin Camp Creek catchment to determine weathering and erosion rates.

Our wetland research will centre on the Asian Wetland Inventory in collaboration with external partners. This project will also provide support for our contributions to the international initiatives on wetland inventory and climate change. We will also continue our analysis of landscapes in the region and develop further projects to assess the criteria under which Kakadu was listed as a World Heritage site. In addition we will make a major effort to develop further projects with external partners and enhance the effectiveness of the ***nctwr***. Projects underway are shown in tables 4.1–4.4.

**Table 4.1** Development of technology to assess mine site impact

| Project and aims | Staff commitment (pw) | Targets | Outputs |
|---|---|---|---|
| **Application of GIS to assessment and management of mining impact** | | | |
| *Aim:* Establish a temporal and spatial database (GIS) on sediment movement and hydrology of the JML catchments and link to physical models to assess impact<br>*Project leader:* K Evans<br>*Registry file:* JR-05-327; JR-05-298 | *Res staff:* 6<br>*Tech staff:* 0 | *Commenced:* 1999<br>NARGIS conference paper: July 2001<br>GeoComputation conference paper: September 2001<br>Journal paper: December 2001<br>Supervising Scientist Note: January 2002<br>Journal paper: March 2002<br>Supervising Scientist Report: June 2002 | 1.4&1.5 |

| | | | |
|---|---|---|---|
| **Erosion rates from disturbed areas within the Jabiluka mine site** | | | |
| *Aim:* Use rainfall simulation to derive erosion rates from disturbed areas of the Jabiluka mine and derive sediment delivery to Swift Creek from the Jabiluka project<br>*Project leader:* D Moliere<br>*Registry file:* SG2001/0026 | *Res staff:* 4<br>*Tech staff:* 1 | *Commenced*: September 2000<br>Complete field work: July 2001<br>Report: January 2002<br>Supervising Scientist Note: February 2002 | 1.4 |
| **Application of landform evolution modelling to the Nabarlek Mine site** | | | |
| *Aims:*<br>Develop a GIS to manage and store data and information. To establish a temporal and spatial database (GIS) on sediment movement and hydrology of the Nabarlek mine site.<br>Assess minesite landform stability of the Nabarlek mine site using landform evolution modelling<br>*Project leaders:* J Lowry & D Moliere<br>*Registry file:* New Project | *Res staff:* 10<br>*Tech staff:* | *Commenced*: September 2001<br>Develop GIS for Nabarlek: December 2001<br>Develop DTM and conduct landform simulations: March 2002<br>Internal Report: June 2002 | 1.4&1.5 |
| **Calibration of the SIBERIA weathering module — ERA Ranger mine waste rock dump natural weathering processes** | | | |
| *Aim:* To gain an understanding of the rates that selected waste rocks from Ranger mine weather under natural conditions to aid in the calibration of the SIBERIA weathering module<br>*Project leader:* B Smith<br>*Registry file:* JR-05-291; JR-05-238 | *Tech staff:* 1.4 | *Commenced:* July 1998<br>Establish experimental program October 1998: Completed<br>Conduct annual measurements: September 2001 | 1.4 |
| **Assessment of erosion at Nabarlek mine site NT and environs** | | | |
| *Aim:* Compile an inventory of erosion features on the mine site and the surrounding natural environment to develop a model of site stability and assess future impact on downstream water quality<br>*Project leader:* K Evans<br>*Registry file:* SG2000/0136 | *Res staff:* 2<br>*Tech staff:* 0 | *Commenced*: January 2000<br>Journal paper: September 2001 | 1.4 |
| **A physically based method for spatial interpolation of soil measurements** | | | |
| *Aim:* Test a spatial and temporal soil development model in the Tin Camp Creek catchment to determine weathering and erosion rates<br>*Project leader:* K Evans (Dartmouth College & University of Newcastle)<br>*Registry file:* SG2001/0136 | *Res staff:* 1<br>*Tech staff:* 1 | *Commenced*: June 2001<br>Completion of field work and data collation: December 2001<br>Journal paper: 2003 | 1.4 |
| **Changes in hydrology of a mine-impacted catchment , Nabarlek, Arnhem Land, NT** | | | |
| *Aim:* Develop catchment hydrology models pre- and post-mine site construction for catchment impact assessment<br>*Project leaders:* K Evans & B Ryan<br>*Registry file:* SG2000/0135 | *Res staff:* 5<br>*Tech staff:* 2 | *Commenced*: January 2002<br>Completion of field work and data collation: August 2002<br>Reporting: December 2002 | 1.4 |

| Assessing rehabilitation at Nabarlek using remote sensing | | | |
|---|---|---|---|
| *Aim:* Acquire and interpret temporal remote sensed data for the assessment of vegetation status as an indicator of rehabilitation success<br><br>*Project leader:* K Pfitzner<br>*Registry file:* SG2001/0138 | *Res staff:* 6<br>*Tech staff:* 0 | *Commenced*: July 2001<br><br>Develop project plan: August 2001<br><br>Establish ongoing data base for temporal assessment | 1.4 |
| **Collection of multispectral video data from South Alligator valley mines** | | | |
| *Aim:* Evaluate the potential for multispectral video data to provide a useful baseline for environmental monitoring with particular reference to vegetation density, weeds and seeped chemical pollutants<br><br>*Project leader*: J Boyden<br>*Project file:* SG2000/0026 | *Staff:* 3 | *Commenced:* May 2000<br><br>Master Science thesis: December 2001 | 1.4 |

**Table 4.2** Landscape characterisation and monitoring for environmental impact

| Hydrology of the Ngarradj catchment | | | |
|---|---|---|---|
| *Aim*: Obtain baseline data on hydrology of catchments in the Jabiluka mining lease (JML) and calibrate a hydrology model for long-term 'total catchment' management<br><br>*Project leader*: D Moliere<br>*Registry file*: SG2000/0145; JR-05-298 | *Res staff:* 12<br>*Tech staff*: 8 | *Commenced:* 1998<br><br>Internal report (protocols): August 2001<br><br>Internal Report: December 2001<br><br>IAHS conference: December 2001<br><br>Complete annual Wet season monitoring program: April 2002 | 1.4 |
| **Suspended sediment loads in the Ngarradj catchment** | | | |
| *Aim*: Obtain baseline data on stream suspended sediment loads in catchments in the JML and derive sediment transport equations for Ngarradj<br><br>*Project leader*: K Evans<br>*Registry file*: SG2000/0146; JR-05-298 | *Res staff*: 15<br>*Tech staff*: 7 | *Commenced*: 1998<br><br>Journal paper: RUSLE: October 2001<br><br>Journal paper: Sediment Transport: October 2001<br><br>IAHS conference: December 2001<br><br>Complete annual Wet season monitoring program: April 2002<br><br>Supervising Scientists Report: November 2002 | 1.4 |
| **Stream bedload characterisation in the Ngarradj catchment** | | | |
| *Aim*: Obtain baseline data on stream bedloads in catchments in the JML and determine bedload size distributions and derive bedload fluxes in Ngarradj which can be used for long-term 'total catchment' management of the JML<br><br>*Project leader*: M Saynor<br>*Registry file*: SG2000/0149; JR-05-298 | *Res staff*: 14<br>*Tech staff*: 11 | *Commenced*: 1998<br><br>Internal Report: January 2002<br><br>Complete annual Wet season monitoring program: April 2002<br><br>Final report: December 2002 | 1.4 |

| | | | |
|---|---|---|---|
| **Assessment of stream channel stability in the Ngarradj catchment** | | | |
| *Aim*: To determine rates of change in stream channel characteristics in Ngarradj to predict the evolution of channels within the catchment and impact on tailings storage<br>*Project leader*: M Saynor<br>*Registry file*: SG2000/0150; JR-05-298 | *Res staff*: 16<br>*Tech staff*: 14 | *Commenced*: 1998<br>Internal Report: December 2001<br>Complete annual Dry season field program: December 2001<br>IAHS conference: December 2001<br>Journal paper: December 2001<br>Final report: June 2002 | 1.4 |
| **Morphology of the Ngarradj backwater plain and alluvial fan** | | | |
| *Aims*:<br>Map the form of the backwater plain and alluvial fan<br>Determine spatial distribution of sediment and main depositional areas<br>*Project leaders*: M Saynor & G Begg<br>*Registry file*: SG2001/0159 | *Res staff*: 5<br>*Tech staff*: 1 | *Commenced*: August 2001<br>Contract development: November 2001<br>Project plan: July 2002 | 2.2 |
| **Saltwater intrusion and its impact on the geomorphology of the floodplain catchment of a tidal creek at Point Farewell, Alligator Rivers Region** | | | |
| *Aim*: Determine the rate of sediment loss from shore embayment and rate of expansion of upper and intertidal mudflats to identify impacts of saltwater intrusion<br>*Project leader*: M Saynor<br>*Registry file*: SG2001/0105 | *Res staff*: 3<br>*Tech staff*: 3 | *Commenced*: July 2001<br>Completion of field work: August 2001<br>Honours thesis: December 2001 | 2.2 |
| **Stratigraphy of a Chenier Plain, East Alligator River, Northern Territory** | | | |
| *Aim:* Determine late-Holocene stratigrahy of a chenier ridge near Point Farewell at the mouth of the East Alligator River<br>*Project leaders:* M Saynor<br>*Registry file:* SG2001 | *Res staff:* 2<br>*Tech staff:* 2 | *Commence*: July 2001<br>Completion of field work: October 2001 | 2.2 |
| **Alligator River Region soils database** | | | |
| *Aim*: Archive and describe existing ARR soil samples<br>*Project leader*: B Bayliss<br>*Registry file*: SG2001/0180 | *Res staff*: 2<br>*Tech staff*: 8 | *Commenced*: July 2001<br>Internal report: November 2001 | 1.2 |
| **Landscape mapping of the Alligator Rivers Region** | | | |
| *Aim*: Collate, compile and integrate data sets in a GIS to delineate land systems within the Alligator Rivers Region<br>*Project leader*: J Lowry<br>*Project file*: SG2001/0049 | *Res staff*: 2<br>*Tech staff*: 1 | *Commenced*: March 2001<br>Supervising Scientist Report & poster: October 2001 | 2.2 |

**Table 4.3** Development of techniques for inventory and survey of tropical wetlands

| | | | |
|---|---|---|---|
| **Asian Wetland Inventory** | | | |
| *Aim*: Develop a protocol for the Asian Wetland Inventory<br>*Project leader*: G Begg<br>*Project files*: SG2000/0055<br>SG2000/0184 (MRC)<br>SG2001/0039 | *Res staff*: 5<br>*Tech staff*: 1 | *Commenced*: September 2000<br>Finalisation of AWI manual: December 2001<br>Presentation of paper at Asian Wetland Symposium: August 2001<br>Presentation of paper and poster at Kushiro Wetland workshop: September 2001<br>AWI training course in Japan: November 2001 | 2.2 |
| **Comparison of estimates of wetland area in the wet-dry tropics** | | | |
| *Aim*: Compare different estimates of wetland areas from existing data<br>*Project leader*: J Lowry<br>*Project files*: JR-05-199 (GAIM)<br>JR-05-296 (IGBP –DIS)<br>JR-03-023 (CIESIN)<br>SG2000/0151 | *Res staff*: 1<br>*Tech staff*: 0 | *Commenced*: September 2000<br>Presentation of paper at NARGIS conference: July 2001<br>Proposal for further work: October 2001 | 2.2 |
| **Review of global extent of wetland inventory information – Phase 2** | | | |
| *Aim*: To update global inventory project (GroW 1) and construct web-based metadatabase<br>*Project leader*: J Lowry<br>*Project files*: JK-02-036<br>JH-03-306 & 336<br>JG-10-007 & 013 | *Res staff*: 4<br>*Tech staff*: 0 | *Commenced*: July 2001<br>SSR and report to Ramsar: December 2001 | 2.2 |
| **Inventory and risk assessment of wetlands in the Daly basin** | | | |
| *Aim*: Provide a mapping base and risk assessment framework for determination of the environmental flow requirements of aquatic habitats in the Daly basin<br>*Project leader*: G Begg<br>*Project file*: SG2000/0091 | *Res staff*: 3<br>*Tech staff*: 0 | *Commenced*: March 2000<br>Paper at NARGIS '01 Conference: July 2001<br>Revision of draft report: September 2001<br>Supervising Scientist Report: November 2001 | 1.5&2.2 |
| **Habitat selection by wading birds in the Alligator Rivers Region, Northern Territory** | | | |
| *Aim*: Investigate and compare the selection of habitats by wading birds at Yellow Waters and Carmor Plains<br>*Project leader*: G Begg<br>*Registry file*: SG2001/0046 | *Res staff*: 1<br>*Tech staff*: 2 | *Commence*: July 2001<br>Completion of field work: August 2001<br>Honours thesis: December 2001 | 2.2 |

**Table 4.4** Support for collection and management of spatial data

| | | | |
|---|---|---|---|
| ***eriss* GIS support** | | | |
| *Aim:* To develop a framework for the provision of GIS services to ***eriss*** programs<br>*Project leader:* J Lowry<br>*Project file:* SG2001/0172 | *Res staff:* 8<br>*Tech staff:* | *Commenced:* July 2001<br>Ongoing maintenance of GIS and training provided as required | 1.2 |

| **Implementation of *eriss* dGPS** | | | |
|---|---|---|---|
| *Aim:* Establish an Institute differential global positioning system and ensure staff has the skill to apply the technology<br><br>*Project leader:* M Saynor<br>*Registry file:* SG2001/0006 | *Res staff:* 3<br>*Tech staff:* 4 | *Commenced*: 1996<br><br>Ongoing maintenance dGPS and training provided as required<br><br>Internal report (manual): February 2002<br><br>Supervising Scientist Note: March 2002 | 1.2 |

# 5 Ecological Risk Assessment

*The objective of the Ecological Risk Assessment program is to provide advice on the significance of threats to the biological diversity and functioning of tropical wetlands in the Alligator Rivers Region and elsewhere.*

**Priority activities in 2001–02 include:**

- Assessment of the aquatic toxicity of regionally relevant toxicants, and the associated derivation of site-specific water quality guidelines;
- Refine and develop ecotoxicological procedures using local aquatic species;
- Assessment of the ecological risks of threats (eg herbicides, invasive species) to wetlands;
- Advise the Ramsar Convention on the impacts of climate change to wetlands and methods of assessing their vulnerability; and
- Maintenance of the quality control and quality assurance system of the ***eriss*** ecotoxicology laboratory.

Reports for several projects undertaken during 2000–2001 will be completed early in 2001–2002, including the compilation of ***eriss*** ecotoxicology protocols, the toxicity of uranium to the green alga, *Chlorella* sp., the risk assessment of cane toads in Kakadu National Park, and a review and guidance document for the Ramsar Wetland Convention on the potential impacts of climate change on wetlands. Major research expected to commence in 2001–2002 includes an assessment of the toxicity of $MgSO_4$ to local aquatic species, and further assessment of the ecological risks of herbicides used to control *Mimosa pigra*. The former project complements an ongoing field study on the impacts of $MgSO_4$ on aquatic macroinvertebrate communities. These and other projects are outlined in tables 5.1–5.3.

**Table 5.1** Mining-related ecotoxicology projects

| Project and aims | Staff commitment (p/w) | Targets | Outputs |
|---|---|---|---|
| **Copper speciation and toxicity in estuarine water** | | | |
| *Aim:* Relate copper toxicity to copper speciation in estuarine water<br>*Project leader:* R van Dam<br>*Project file:* JR-05-237; JH-03-335 | *Res staff:* 0.1<br>*Tech staff:* - | *Commenced:* May 1997<br>Supervising Scientist Report: August 2001 | 2.1 |
| **Development of rapid waterflea toxicity test using feeding inhibition as an endpoint** | | | |
| *Aim:* Develop a rapid waterflea toxicity test to meet regulatory needs<br>*Project leader:* R van Dam<br>*Project file:* JR-05-295; SG2000/0059 | *Res staff:* 0.25<br>*Tech staff:* - | *Commenced:* July 1998<br>Journal paper (in press): August 2001 | 2.1 |
| **Aquatic toxicity of aluminium and the effect of silica** | | | |
| *Aim:* Assess the toxicity of aluminium to *Mogurnda mogurnda* and determine the influence of silica on Al toxicity<br>*Project leader:* C Camilleri<br>*Project file:* JR-05-311 | *Res staff:* 3<br>*Tech staff:* - | *Commenced:* September 1999<br>Research Summary paper: August 2001<br>Journal paper (submitted): January 2002 | 2.1 |

| | | | |
|---|---|---|---|
| **Toxicity of uranium to the green alga, *Chlorella* sp.** | | | |
| *Aim:* Assess the toxicity of uranium to the green alga, *Chlorella* sp. in Magela Creek water<br>*Project leader:* C Camilleri<br>*Project file:* SG2000/0093 | *Res staff:* 1<br>*Tech staff:* 2 | *Commenced:* April 2000<br>Internal Report: August 2001<br>Journal paper (submitted): January 2002 | 1.2 |
| **Application of the *Moinodaphnia macleayi* feeding rate bioassay as a rapid screening test for complex mixtures** | | | |
| *Aim:* Compare the sensitivity of the feeding rate bioassay and the standard 48-h survival and 3 brood reproduction bioassays to a range of complex mixtures<br>*Project leader:* R van Dam<br>*Project file:* JR-05-357 | *Res staff:* 1<br>*Tech staff:* - | *Commenced:* April 2000<br>Journal paper (submitted): January 2002 | 2.1 |
| **Compilation of ecotoxicology test protocols developed and/or used at *eriss*** | | | |
| *Aim:* Document and publish the existing, modified and new toxicity test protocols used at ***eriss***<br>*Project leader:* C Camilleri<br>*Project file:* SG2000/0194 | *Res staff:* 1<br>*Tech staff:* 1 | *Commenced:* April 2000<br>Internal Report: October 2001<br>Supervising Scientist Report: February 2002 | 2.1 |
| **Further studies on aluminium toxicity and the influence of silica** | | | |
| *Aim:* Determine the mechanism by which silica prevents aluminium toxicity<br>*Project leader:* R van Dam<br>*Project file:* SG2000/0211 | *Res staff:* 2<br>*Tech staff:* 2 | *Commenced:* January 2002<br>Project proposal: January 2002<br>Internal Report (Lit review): August 2002 | 2.1 |
| **Toxicity of $MgSO_4$ to local aquatic organisms** | | | |
| *Aim:* Assess the toxicity of $MgSO_4$ to local aquatic organisms and relate the results to levels in Magela Creek upstream and downstream of ERA Ranger mine<br>*Project leader:* C Camilleri<br>*Project file:* SG2001/0188 | *Res staff:* 10<br>*Tech staff:* 13 | *Commenced:* June 2001<br>Internal Report: March 2002<br>Journal paper (submitted): June 2002 | 1.2 |

**Table 5.2** Chemical risk assessment projects

| Project and aims | Staff commitment (p/w) | Targets | Outputs |
|---|---|---|---|
| **Risk assessment of control measures for *Mimosa pigra*** | | | |
| *Aim*: To assess the risks to Top End wetlands of the other major herbicides used to control Mimosa<br>*Project leader*: R van Dam<br>*Project file*: SG2001/0062 | *Res staff*: 21<br>*Tech staff*: 32 | *Commenced*: December 2001<br>Final report to National Weeds Program: October 2002<br>Supervising Scientist Report: February 2003 | 2.1 |

**Table 5.3** Vulnerability and non-chemical risk assessment projects

| Project and aims | Staff commitment (p/w) | Targets | Outputs |
|---|---|---|---|
| **Application of wetland risk assessment model to Mimosa in northern Australia and South East Asia** | | | |
| *Aim*: Undertake a wetland risk assessment of the wetland weed, *Mimosa pigra*<br>*Project leader*: R van Dam<br>*Project file*: JR-05-325; SG2001/0015 | *Res staff*: 2<br>*Tech staff*: 4 | *Commenced*: December 1998<br>Internal Report: August 2001<br>Supervising Scientist Report: October 2001<br>Journal paper (in press): February 2002 | 2.1 |
| **Ecological risk assessment of cane toads in Kakadu National Park and surrounding regions** | | | |
| *Aim*: Undertake a risk assessment of the potential impacts of cane toads to Kakadu National Park and the surrounding region<br>*Project leader*: R van Dam<br>*Project file*: JR-05-307; SG2001/0015 | *Res staff*: 1<br>*Tech staff*: 3 | *Commenced*: February 2000<br>Supervising Scientist Report: August 2001<br>Supervising Scientist Note: September 2001 | 2.1 |
| **Review of climate change impacts to wetlands (for the Ramsar Convention)** | | | |
| *Aim*: Review potential impacts of climate change on wetlands and provide guidance on mitigation and assessment methods<br>*Project leader*: R van Dam<br>*Project file*: SG2001/0016 | *Res staff*: 4<br>*Tech staff*: 4 | *Commenced*: February 2001<br>Final Report: September 2001 | 2.1 |

# 6 Research Support and Communications

*The objective of the Research Support and Communications program is to develop and implement communication programs to inform local Aboriginal communities and associations and other stakeholders about* ***eriss*** *and* ***oss*** *activities.*

**Priority activities in 2001–02 include:**

- Identify and coordinate involvement and employment of local and other Aboriginal people in research programs;
- Disseminate information on research work and results to stakeholders in appropriate medium;
- Build and strengthen communication networks within the community;
- Identify opportunities for using local Aboriginal names and language in reports and other information materials;
- Ensure all staff have a high level of cultural awareness;
- Develop internal communications strategies and policies that improve flow and dissemination of information within the organisation;
- Coordinate and administer the secretariat and other activities of the National Centre for Tropical Wetland Research; and
- Assist local community groups develop wetland monitoring and research programs.

The Research Support and Communications section will be focussing on internal and external mechanisms to facilitate effective communication. An integral part of all communication plans will be the impact that the relocation will have on the organisation, the work we carry out and the impact this has on all stakeholders, particularly the local Aboriginal community. The section will be involved in negotiations for access to Aboriginal land for ISP related research and to facilitate the involvement and employment of land owners in this work. Projects for 2001–2002 are shown in tables 6.1–6.2.

**Table 6.1** Research Support

| Project and aims | Staff commitment (p/w) | Targets | Outputs |
|---|---|---|---|
| **Identify internal communications needs and make recommendations for strategies to ensure effective communication flow** | | | |
| *Aim*: To ensure that internal information on projects and issues is provided to the relevant staff as it becomes available<br><br>*Project leader*: J Rovis-Hermann<br>*Project Files*: SG2000/0092 (held in Darwin) | *Staff*: 6 | *Commenced*: September 2000<br><br>Attend program meetings and provide briefing on what tasks the Aboriginal Communications Unit is undertaking across the organisation: Ongoing<br><br>Identify areas where the internal dissemination of information is required or could be enhanced and develop a strategy and proposal to enhance in consultation with relevant staff: Ongoing | 3.1 |

| | | | |
|---|---|---|---|
| **Coordinate, administer and promote the activities of the National Centre for Tropical Wetland Research** | | | |
| *Aim:* Administer the secretariat of the ***nctwr***, coordinate research and training projects and initiatives, and promote ***nctwr*** capabilities and activities<br><br>*Project leader:* M Finlayson (Secretariat: A Spiers)<br>*Project file:* SG2000/0199 | *Staff:* 20 | *Commenced:* June 2000<br><br>Organise six-monthly meetings of the Board of Management and Advisory Committee: August 2001 to March 2002<br><br>Prepare and distribute meeting minutes and related documentation: August 2001 to March 2002<br><br>Prepare ***nctwr*** Annual report and regular Ministerials to keep EA informed of progress: July 2001 to October 2001<br><br>Finalise the ***nctwr*** web site: September 2001<br><br>Publish ***nctwr*** Capability Statement, brochure: July 2001 and Note 2: December 2001<br><br>Distribute ***nctwr*** publications to stakeholders and general public: Ongoing<br><br>Maintain and improve ***nctwr*** contacts database, website, and other administrative and communication tools: Ongoing<br><br>Coordinate and promote wetland related publicity activities, such as seminars, open days: Ongoing | 3.1 |
| **Community based wetland monitoring** | | | |
| *Aim*:<br><br>Develop awareness of wetland values and processes in local community groups<br><br>Provide basic information on wetland ecology and threats<br><br>*Project leader:* M Finlayson<br>*Project files*: JR–05–284 (Yellow Waters)<br>285 (Carmor Plains)<br>286/194/324 (Lake Jabiru)<br>245/355 (Mary River)<br>SG2000/0203 (Intecol paper) | *Res staff:* 5<br>*Tech staff:* 3 | *Commenced*: July 2000<br><br>Supervising Scientist Report on Mary River Land Care Group: October 2001<br><br>Internal Report on ecology of Lake Jabiru: October 2001<br><br>Supervising Scientist note on community based monitoring: August 2001<br><br>Meetings with and talks to local community groups and NGOs: Ongoing | 3.1 |
| **Responding to EA and Ministerial enquiries and submissions** | | | |
| *Aim*: To provide comment on draft framework and/or policy documents being prepared or reviewed by EA Strategic Policy and Coordination Section (Canberra)<br><br>***eriss*** *contact*:: M Finlayson<br>*Project files*: JD–011–062 (Ecosystem services project) | *Res staff:* 4<br>*Tech staff:* 1 | *Commenced:* January 2000<br><br>Ecosystems services project: Ongoing<br><br>On as-needs basis | 3.1 |

| | | | |
|---|---|---|---|
| **Produce Research Summary** | | | |
| *Aim:* Produce a summary of research undertaken by ***eriss*** from 1995 to 2000<br><br>*Project leader:* M Finlayson<br>*Project files:* SG2000/0046 | *Res staff:* 4 | *Commenced:* March 2001<br><br>Research Summary produced and circulated: October 2001 | 3.1 |
| **Providing information to international conventions** | | | |
| *Aim:* Provide guidance to international conventions on guidelines for wetland inventory, assessment and monitoring, environmental allocation of water, and climate change<br><br>*Project leader:* M Finlayson<br>*Project files:* JH-02-234 (IPCC)<br>JG-10-007 (Ramsar) | *Res staff:* 2 | *Commenced:* July 1999<br><br>Inputs to Ramsar Convention Scientific & Technical Review Panel: June 2002 | 3.1 |
| **Representation on environmental committees and panels** | | | |
| *Aim:* To provide technical advice to local, national and international panels and committees<br><br>*Project leader:* A Spiers<br>*Project files:* JK-02-039 (PEAK)<br>JD-07-110 (MCRMC)<br>JD-07-037 (MRLCG)<br>JD-04-021 (KRAC)<br>JH-10-025 (WI-AP)<br>JD-07-089 (ASL) | *Res staff:* 5 | *Commenced:* March 1996<br><br>Attendance at meetings of Porgera Environmental Assessment Komiti; Macquarie-Cudgegong River Management Committee; Mary River Land Care Group; Wetlands International–Asia/Pacific Council; Australian Society for Limnology; Kakadu Research Advisory Committee<br><br>Assistance with Australian Wetland Forum 2: September 2001 | 3.1 |

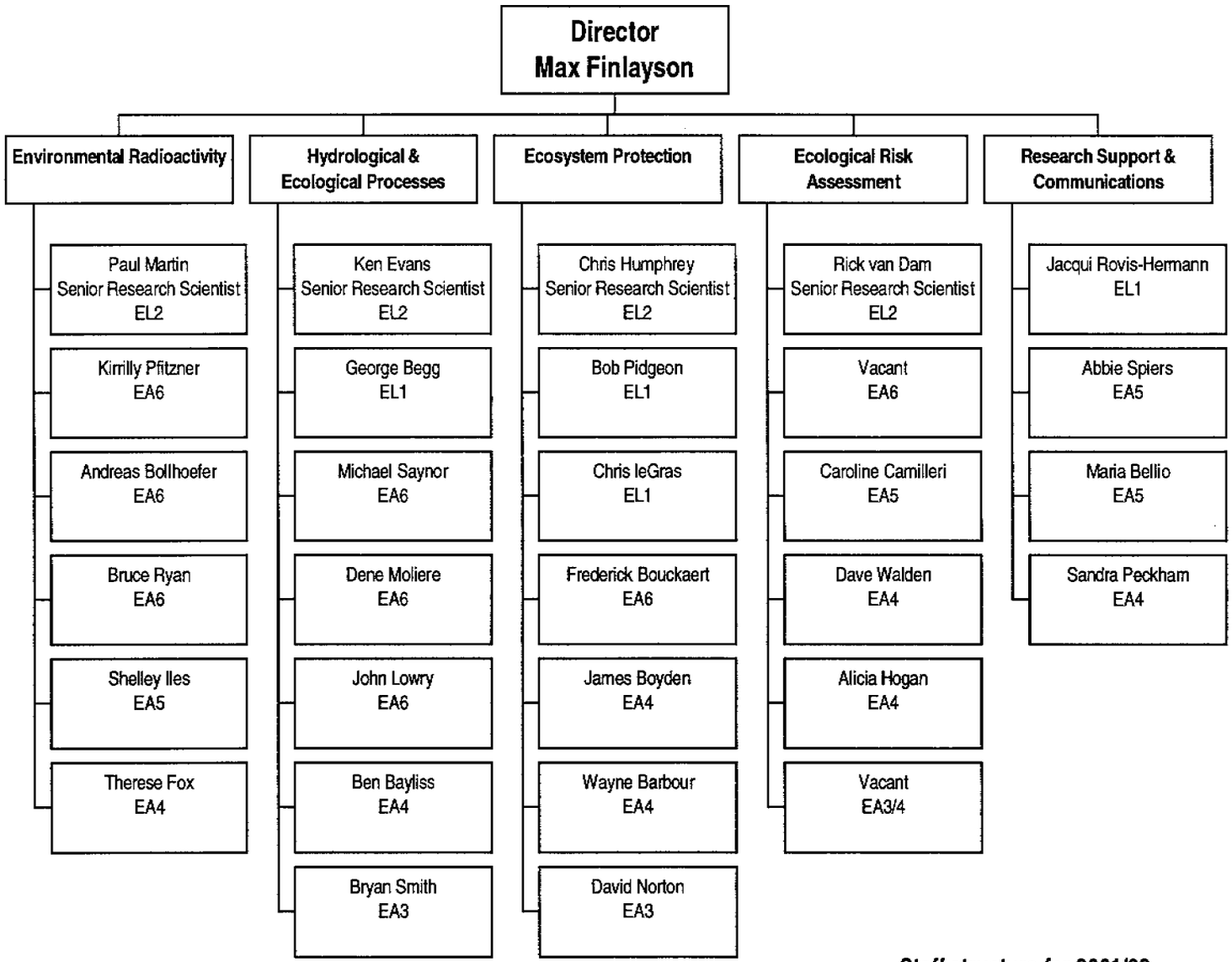
**Table 6.2** Communications

| Project and aims | Staff commitment (p/w) | Targets | Outputs |
|---|---|---|---|
| **Coordinate the employment and training of local Aboriginal people in *eriss* research** | | | |
| *Aim:* In conjunction with project leaders, identify and coordinate the involvement and employment of local and other Aboriginal people in ***eriss*** research programs where possible<br><br>*Project leader:* J Rovis-Hermann<br>*Project File:* JS-04-047 | *Staff:* 20 | *Commenced:* September 2000<br><br>Coordinate employment and contract arrangements for staff as required: Ongoing<br><br>Project plans to address employment options and indicate where opportunities: Ongoing<br><br>Investigate funding opportunities for employment and training support through EA Indigenous Employment Program: Ongoing<br><br>Produce inventory of short-term and long-term employment: Ongoing<br><br>Assess training needs for staff who will be working with Bininj: Ongoing | 3.1 |

| | | | |
|---|---|---|---|
| **Coordinate the effective communication of *eriss* research activities and findings to stakeholders** | | | |
| *Aim:* To ensure that ***eriss*** disseminates information on research work and results to stakeholders in an appropriate and timely manner<br><br>*Project leader:* J Rovis-Hermann<br>*Project file:* JS-04-047 | *Staff:* 20 | *Commenced:* September 2000<br><br>All new projects to have a communications strategy included as part of the project plan and to be approved by the program leader before the project can commence: Ongoing<br><br>Coordinate the production of ***eriss*** notes and other brochures, where appropriate, for communication of research outcomes and key issues to stakeholders and the general public: Ongoing<br><br>Develop publications policy to ensure that accurate and consistent information is produced and distributed to relevant stakeholders in a timely manner: October 2001<br><br>Assist programs with the production of 10 ***eriss*** notes: June 2002 | 3.1 |
| **Produce bimonthly newsletter for Aboriginal associations on key issues** | | | |
| *Aim:* Keep Aboriginal associations informed of the scientific and other work being conducted at ***eriss***<br><br>*Project leader:* J Rovis-Hermann<br>*Project file:* SG2000/0103 | *Staff:* 2 | *Commenced:* May 2000<br><br>Six newsletters produced a year | 3.1 |
| **Liaise with Aboriginal associations and other groups and represent *eriss* on appropriate committees** | | | |
| *Aim:* To maintain a high level of contact with relevant groups<br><br>*Project leader:* J Rovis-Hermann<br>*Project Files:* TALC File SG2000/0169 | *Staff:* 15 | *Commenced:* May 2000<br><br>Maintain regular contact (at least fortnightly), with Aboriginal associations: Ongoing<br><br>Attend meetings of the Kakadu Employment, Training and Education Committee, Gunbang Action Group, KRSIS Committee, Bininj Working Committee, and TALC Committee: Ongoing<br><br>Provide in-kind and other support to community and cultural events such as the Gunbalanya Open Day, NAIDOC Week: Ongoing<br><br>Represent ***eriss*** at all community events<br><br>Maintain regular contact with other stakeholder groups such as PAN, NLC, ERA<br><br>Produce protocol on access to Aboriginal land to ensure ***oss*** and ***eriss*** staff are aware of access requirements and that relevant Aboriginal groups are notified of indented access in advance: Ongoing | 3.1 |

| | | | |
|---|---|---|---|
| **Ensure that *eriss* and *oss* provide timely and accurate information to Traditional Owners on relevant environmental issues as they arise** | | | |
| *Aim:* Identify when information is required on environmental issues affecting the Traditional Owners of the Alligators Rivers Region and to devise appropriate communications strategies in consultation with staff and stakeholders<br><br>*Project leader:* J Rovis-Hermann<br>*Project Files:* SG2000/0169 | *Staff:* 5 | *Commenced:* June 2000<br><br>Assess what information is required to inform landowners and devise methodology in consultation with association and NLC: Ongoing<br><br>Prepare filenote on consultation with Traditional Owners outlining methodologies used and outcomes: Ongoing | 3.1 |
| **Ensure all staff are aware of the cross cultural aspects of living and working in Kakadu** | | | |
| *Aim:* Ensure all ***eriss*** staff are aware of the cultural issues that they may encounter living and working in the Alligators Rivers Region<br><br>*Project leader:* J Rovis-Hermann<br>*Project Files:* SG2000/0228 | *Staff:* 2 | *Commenced:* May 2000<br><br>All staff and students undertake cross cultural training: Ongoing<br><br>Refresher course offered annually for existing staff: Ongoing<br><br>All new staff undergo an Aboriginal Communications component as part of the induction: Ongoing | 3.1 |

# eriss




**Staff structure for 2001/02.**
This may be adjusted when decisions for staffing the Jabiru Field Station are finalised.