

Communicating the Coelacanth Initiative

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Abstract**Background:**

The **South** African Institute for Aquatic Biodiversity is a National Facility within the National Research Foundation. Initiatives like the **South** African Coelacanth Conservation and Genome Resource Programme form part of the new service-driven role of the Institute where education and public programmes play an important part in disseminating scientific information.

Partners:

The **South** African Coelacanth Conservation and Genome Resource Programme is a large, multi-disciplinary, collaborative programme, presently involving 24 partner organisations.

Public awareness strategies:

The public awareness campaign includes raising science awareness nationally and internationally to create enthusiasm and positive action from stakeholders and the general public. The coelacanth is an icon for **marine** conservation and its presence in the **South** African deep waters provides an opening for research, and an increase in awareness in areas such as **marine** biology, oceanography, geoscience, population genetics, genome resources and environmental education.

Environmental education products and services:

A purpose of the Programme's environmental group is to make science popular and accessible through developing educational material and programmes which ensure change in attitudes of teachers, school children, communities and general publics.

Funding:

The Department of Arts, Culture, Science and Technology (DACST) made a R10 million commitment as core funding and leverage for future fund raising. Additional funding, support and sponsorship have enabled the Programme to realize two wide-ranging expeditions, various workshops, exhibitions and development of educational resources.

Paper**Background:**

In 1999, the then JLB Smith Institute of Ichthyology became a National Facility within the National Research Foundation and its mandate changed from being a cultural institution to being a National Facility with a vision of serving **Africa**'s needs in understanding fishes and aquatic environments. Initiatives like the **South** African Coelacanth Conservation and Genome Resource Programme form part of the new service-driven role of the institute, now named the **South** African Institute for Aquatic Biodiversity (SAIAB). Education, science awareness initiatives and public programmes form part of the vehicle for disseminating scientific information to stakeholders, communities, schools and the general public.

The Coelacanth Programme and partnerships:

The **South** African Coelacanth Conservation and Genome Resource Programme is a large, multi-disciplinary, collaborative programme that seeks to achieve various scientific, environmental education and public awareness objectives. The SAIAB is the lead organisation and facilitates the various components of the Initiative from the Programmes Unit, which was primarily formed in response to accommodating the Coelacanth Initiative, however, an increasing number of large programmes will be co-ordinated by the Unit. Dr Tony Ribbink heads the Unit and is assisted by

financial, administrative, communications and environmental education personnel. At present, the Programme has 24 partner organisations including the Max Planke Institute in Germany, Dept. of Science and Technology, Dept. of Environmental Affairs and Tourism, Mozambique, Madagascar and Tanzania Fisheries Departments, Rhodes University, Fort Hare University, Ezemvelo KwaZulu Natal Wildlife, Marine and Coastal Management, Bay! world, Sea World, ORI, Marine Geosolutions, and Geodatec, among others.

As a high-profile research programme, the Coelacanth Initiative receives media attention in various forms. The need for co-ordinated internal and external communication is essential and the multi-organisational context of the programme makes this more challenging. To encourage the youth of South Africa to enter science at secondary and tertiary levels, the coelacanth is promoted as an icon for marine science, biodiversity, and conservation. Communicating the project involves using public awareness strategies, and developing and implementing environmental education products and services.

Public awareness strategies:

The public awareness campaign includes raising science awareness nationally and internationally to create enthusiasm and positive action from stakeholders and the general public. As the icon for marine conservation the coelacanth's presence in the South African deep waters not only attracts scientists interested in solving the mysteries of the prehistoric fish, but also provides an opening for research, and an increase in awareness, in areas such as marine biology, oceanography, geoscience, population genetics, genome resources and environmental education. By studying the environment of the coelacanths holistically, the various components fulfil the multi-disciplinary role of the Programme.

The Coelacanth Initiative received considerable publicity during the first exploratory expedition to Sodwana Bay in March 2002. In April, the official launch of the programme attracted dignitaries, local communities and the news media. Coelacanths were located by the South African-German team using the manned submersible Jago, on the very first dive and this caused a great deal of excitement and enabled the scientific team on board the FRS Algoa to begin their research on the mysterious, age-old creatures. In all, 11 coelacanths were seen with multiple sightings of several individuals, indicating distribution and movement.

Throughout the exploratory expedition, the coelacanth website was managed from the mother ship. Articles and photographs representing the various aspects of the programme were beamed live from the website and updated on a daily basis (www.saiab.ru.ac.za/coelacanth). A film, documenting aspects of the oceanographic, marine biology and coelacanth studies was compiled during the first expedition and forms part of the continuous raising of public awareness and appreciation for marine conservation, biodiversity and the coelacanth. Ongoing publicity includes publication of expedition reports, press releases, development of promotional material, public lectures and maintenance of the website.

The second expedition, a biophysical exploration that focused on capacity building and training, took place in July 2002 and extended the programme to the Mozambique Channel. The ship docked in Durban, Richards Bay, Maputo, East London, Port Elizabeth and Cape Town. As part of the capacity building aspect of the Programme, a group of five students from each port boarded the ship for one leg of the journey. Given that the East Coast is served by numerous tertiary institutions, museums and schools, the value of the 'hands-on' training in terms of attracting youth, and particularly black youth, into a marine science study or career option is enormous.

At each port, the Programmes Manager, Dr Tony Ribbink, delivered a series of public lectures to interested groups. Students and scholars were encouraged to interact on issues relating to physical and biological marine sciences and sustainable use of resources. The documentary film produced on the first coelacanth expedition was premiered at the various ports and formed part of the public awareness and environmental education campaign.

While docked in each port, institutional visits were arranged such that groups of 12 teachers, 12

teenage scholars and 12 students would visit the ship for the day and be exposed to an introduction of shipboard, **marine** biophysical research and conservation. All visitors received an instructional tour and information handouts, which together with the film and lectures formed part of the proactive campaign to heighten the understanding of the Programme and its focus on science, conservation and biodiversity.

As part of the collaboration with Mozambique, the team hosted the Minister of **Fisheries**, Mr Cadmiel Mutemba, the Vice-Minister of **Fisheries**, Mr Alfredo Massinga and the Director of the **Fisheries** Research Institute (IIP), Mr Joaquim Russo de Sá on the FRS Algoa. Valuable discussions on the Programme and collaboration in the longer term were held. The Ministry and IIP offered support for the programme and permission to conduct coelacanth research in Mozambique. Another important visitor to the ship was Dr Marjory Courtenay-Latimer, who came on board for lunch and also attended the public lecture and film. In 1938, Ms Courtenay-Latimer, the curator of the East London Museum, discovered the first ever coelacanth, which was caught in a trawl off the coast near East London.

Materials that have been developed for promotion and public awareness include a series of informative posters, postcards, brochures and a life size coelacanth model and have contributed to raising awareness and appreciation at various exhibitions and functions. The coelacanth display has been exhibited in Parliament during the Press Briefings Week, the Science Festival in Grahamstown, the official launch of the programme at Sodwana Bay, and the World Summit for Sustainable Development (WSSD) where an interactive Geographic Information System (GIS) component allowed delegates to view the canyons of Sodwana Bay to a point where the coelacanths were first located and a video clip of the local coelacanth population was also shown. Lectures were delivered in Pretoria and Johannesburg as part of the international awareness thrust that was made possible through the WSSD.

Environmental Education products and services:

An important aim of the Programme's environmental group is to make science popular and accessible through developing educational material and programmes which ensure change in attitudes of teachers, school children, communities, tour guides, and general publics.

During the exploratory expedition and launch, programme staff interacted with school children in their classrooms and on site at the St Lucia Park. Groups of children were filmed on the beach, in inter-tidal pools and on the ship as they interacted with scientists and crew. Prior to the launch three workshops were held in the Greater St Lucia Wetland Park to introduce the Coelacanth Programme to teachers. An essay competition followed and children were asked to answer the following important question: What are the main environmental issues faced on our coast and how will being part of the expedition benefit my community and me? The children with the best essays were selected to participate in the expedition, which included a trip onto the FRS Algoa where they were exposed to the various scientific aspects of the Programme as well as the scientists and crew. A selection is included as appendix A and can be viewed on the Programme website. [4]

Research and training were the parallel goals of the Capacity Building expedition and this took the form of practical shipboard experience for 21 students and 7 educators/teachers. The overall project was explained to the students as well as a demonstration of bridge operations, oceanography, trawl operations, fish biodiversity and systematics and fish handling for scientific purposes. Among other visitors, a group of teachers from Richards Bay and Empangeni were brought on board for demonstrations and discussions related to the programme, bridge operations and scientific activities. At the various ports, groups of school children boarded the Algoa for demonstrations and lessons in conservation. Environmental education officers and volunteer environmental guides from the **Marine** and Coastal Educators Network (MCEN) joined the cruise as part of the 'train-the-trainer' exercise. It is envisaged that the educators reach many more people and exposure to the practical and scientific aspects of the programme would be

invaluable in disseminating environmental information to school groups and interested communities.

The development of learner support materials include an animated coelacanth booklet, an

environmental poster (17 000 for distribution) and a series of activity packs which focus on the coelacanth as well as science education and **marine** and coastal conservation. These resources have been designed for use in the revised Curriculum 2005 for the three phases of the General Education and Training (GET) Band. A two day **Marine** and Coastal educators workshop will be held in February 2003 to introduce the resources to designated educators and National Environmental Education Programme (NEEP) co-ordinators with the objective of promoting **marine** and coastal conservation in the schools by developing teachers' capacity for using the new and existing materials, such as the Coastcare Fact Sheet Series, in the development of learning programmes. Educators registered for this workshop have committed themselves to running two **marine** and coastal conservation workshops for 25 teachers in the first quarter of 2003.

The benefits of these types of training activities and resource development contribute meaningfully to the goals of the NEEP-GET, a national project of the Department of Education, which aims to support teachers in the implementation of environmental education (EE) within the new **South African** curriculum and ensures the integration of EE through the GET Band.

Objectives of NEEP-GET that are addressed by the Coelacanth Initiative include

- integrating environmental learning in the curriculum
- professional development programme for provincial EE co-ordinators and teachers

- resource material to support integration of environmental learning [3]

Funding:

In February 2002, the Dept of Arts Culture Science and Technology (DACST) committed R10 million as core funding and leverage for future fund raising. To date, additional funding and support has been provided by the Dept. Science and Technology, Dept. Environmental Affairs and Tourism, German Government, National Research Foundation, **Marine** and Coastal Management, Ezemvelo KwaZulu Natal Wildlife, WWF, National Ports Authority, Royal Society of **South Africa**, SAIAB. Sponsorship has been received from Anglo American Chairman's Fund, AVIS, AFROX, Microsoft, Grahamstown Side Bar Association, SciFest (through Grahamstown Foundation), Dimension Data, Geodatec, Omega, Projects **Africa** and The World Conservation Union (IUCN).

In discussion with government, Dr Ribbink has indicated the importance of a long-term perspective relating to the Coelacanth Programme and the need for stable core funding. On this basis, funds will be sought internationally from partners and sponsors and Dr Ribbink will visit organisations in Europe and the USA at the end of 2002 to put fundraising into motion.

Conclusion:

The Coelacanth Initiative is a flagship scientific programme for southern **Africa** and the coelacanth is an icon for the conservation of **marine** resources, it is about sustainable development of **marine** resources and a means to encourage the youth of **Africa** to become excited about science. The Programme has provided a unique opportunity to convey educational messages to teachers, students and also capture the public imagination. It is an opportunity for investment in the future development and promotion of environmental science and education in **Africa**.

The project has fared well thus far in obtaining exciting new scientific data as well as communicating its findings to the public to inspire an interest and increase science awareness. To date, capacity building within the various components of the Programme has been successful and continues to be an essential objective, broadening the scope of **marine** research, environmental education and science communication.

“The high profile and multidisciplinary nature of the coelacanth initiative offers a wonderful opportunity to boost substantially the public understanding of science and technology. This programme recognises that, for **South African** to be globally competitive, it needs a solid base of highly skilled professionals in science, engineering and technology” (Ngubane, B. 2002). Dr Ngubane added that in terms of development, most countries focus on practical technologies, but that real advances often arise from exploratory research, innovation and imaginative endeavour, sometimes of a fundamental nature. Discoveries emanating from such fundamental research can

lead to unexpected waves of development and economic growth. [6]

For this to happen, it is crucial to communicate such discoveries to the scientific community and the general public. The Coelacanth Programme continues to make a significant contribution to both fundamental research and the communication thereof.

Appendix A:

Extracts from Essays composed by school children in the Greater St Lucia Wetland area
Mduduzi Nyawo, Mmemezi High School

...I just want to be one of the researchers because I want to study many things. I get that there are no museum on my coast. So I am going to play an important role in the building of museum in Sodwana Bay, and also I am going to build game reserves to take all the other animals and put them in, so that they will be safe.

By doing that the rate of the visitors is going to rise. I know the many visitors who come to see the coast are going to be interested to come again.

I think that this fish is going to help us in so many ways so we have to make an example on our communities that they must be interested in discovering things. I think that will help my community because we are going to catch that coelacanth and make studies about it so that will help the school of my community...

Vusumuzi Magwanyana, Silethuthukhanya High School

...Along our environment there is a coast which is the most attractive and precious area. There are attractive features and natural thing or animal living along the coast which make many of the visitors likes to spend most time along the coast.

The environmental issues faced by our coast today is a problem of killing of animals live along the coast. Some of them lay their eggs on the sea sand like sea turtle. Then what a problem is that our visitors they destroy those eggs when they drive by their 4X4's along the sea and some of them are poachers.

Some of the problems obtained by our coast is a problem of water pollution and floods entering impure water with some insecticides poisonous coming from farms that affect some of animals and plants living in water such as fish, tortoise, crabs, crocodiles etc...

Sphehile Sindisiwe Jobe, Mqbandleni High School

...Poverty is one factor which force people to poach and overuse natural resources. They need fish for consumer or consumption and selling. They do not have workshops where they leave about fishing and conserving wild life. We are doing a great job by telling People about the important of conserving our Natural resources. As a member of Bhekimvelo environmental club I am involved in telling people to care for nature....

Thandeka A Ngobese, Moses Zikhali High

... First of all I would like to pass a voice of thanks to the Divers and Fisherman of Sodwana and to the rest hounarable staff of NCS.

Because without them, we would never heard of such a fish in our bay. Due to the park Sodwana Bay is now amongst the famous places. Therefor most of the people from various provinces and continents would come to investigate this kind of fish. And this not the end of the story, by the end of the day Hotels, restaurants, stores and everywhere where guests can be provided with facilities...

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