

#### 14. Egagasini Environmental Science Education (Key collaborators, UCT, DEA OC, Two Oceans Aquarium, MCM Science Centre, Department of Education)

SAEON currently has an 'education experts committee' specifically to advise the Node Education Officers. However, a brief summary of the education program is included in this report for interest and also to expose any potential further collaborations or suggestions.

Since the last Node Liaison Committee meeting the education program has expanded considerably and the key achievements have included:

- School Cluster selected
- Monitoring Teams Established
- Argo Programme Launched (educator workshops and support activities for learners) and Magic Planet purchased
- Partnerships with stakeholders explored and developed (Marine organisation national and internationally, school management – curriculum advisors and developers)

Five schools were selected to be part of the Nodes education program. As part of the selection criteria: schools had to be **coastal and/or fishing communities** and in **areas of abject poverty**. Houtbay High, Ocean View High, Masiphumelele, Sentinel Intermediate, Sophumelela and Usasazo High, were selected by the SAEON Science Education programme and these schools have remained extremely enthusiastic and dedicated to the program since its inception. The program has also interacted and received positive input from curriculum advisor and developers.



Fig. 14.1 Photos from some of the educator workshops

##### 14.1. Educator Support

Egagasini's first educator support workshop's objective was aimed to obtain an educator perspective on the importance of marine sciences in the curriculum. The interaction was among, two to three educators from each school, a curriculum advisor and five scientists (SAEON, UCT and MCM\*). Thanks to support from MCM the meeting was held on the SA Agulhas over a weekend. Educators were very keen and happy to give up an evening which allowed for great team building and a good deal of time for relaxed discussions. Educator by-in is essential as for the program to be successful in assisting them to facilitate better development of science skills.

Summary of educator interactions

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\* Please note that MCM (Marine and Coastal Management) has been referred to in projects which occurred prior to April 2010 as input was received from a mixture of DEA OC and DAFF.

- Educator workshop on the Agulhas to investigate the need for marine science support – an educator perspective. Curriculum advisors were included in this workshop and their approval was given to the program.
- Forum meeting to encourage further interaction and discussion among educators on the progress of the workshops and whether they still believed in the idea.
- The Argo Float Programme as the actual platform to encourage inquiry learning in the school community.
- A workshop on Robben Island (again supported by MCM) to inspire discussions on what the Argo Float Programme is and its relevance in a schools' science context.
- Now that the educators were well onboard (!) and excited the end users of the programme, the learners, were considered.

#### 14.2. Learner Support

An initial 30 learners from the difference schools were selected and invited to an introductory science camp. The objective was to investigate the interest and the knowledgebase of the learners on matters marine. Learners from different schools away from home needed a well thought out program to encourage interaction and to achieve the objectives, it was also important to assess the learner perspective on science skills and the development.

It became clear that a lot needs to be done to support the learner's concept of Marine Sciences. Two major ways to support this are: working towards opportunities for learners to understand exactly what science happens at sea, as well as what scientists do when out there. Participating in a short leg monitoring cruise assisted greatly in opening the learners' minds. Learners were once again selected from the different schools to participate in the St. Helena Bay Monitoring Cruise that Dr. Larry Hutchings (Chief Scientist – Department of Environmental Affairs) runs every month.



**Fig. 14.2 Photos from the St Helena Bay monitoring cruise**

All this has paved a great way to assume a great school based monitoring project!!

### 14.3. School Based Monitoring

- Monitoring team's selection: 15 learners at each school were selected to be the ones who will be responsible to download, collect and make sense of the temperature and the salinity profiles from the two Argo floats. They will make monthly, quarterly and annual comparison of the data. Monitoring the changes as profiled by these floats.
  - Infrastructure survey: Each of the schools has a computer lab from which ten day cycle downloads will be made.
- To maintain enthusiasm this group will also be supported through their interaction with the Argo data. The educators, education officers and scientists will regularly interact with this group to facilitate the skills obtained from the interaction.

### 14.4. Awareness

We have taken full advantage to continue creating awareness and interests in learners, students and the public whenever opportunities have availed themselves in platforms such as:

- Marine Month Activities in October.
- UCT Science Open Days in partnership with UCT's schools Liaison unit.
- Mandela Day in partnership with DAFF.
- National Science Week in partnership with HMO, Ithemba Labs, SAAO.
- Careers' Day with UWC Science Faculty and HMO.

To enhance the awareness programs and the Argo program, the Node purchased a 'Global Magic Planet'. President Obama says the Magic Planet digital video globe is 'an innovative and engaging way of teaching young people about the world'. We trust that the latest acquisition will provide the needed flair to engage learners and encourage an interest in science. The Magic Planet provides us an opportunity to use additional innovative ways in the support of school science skills development.

### 14.5. Networks and Interaction with Scientists

From the above, it is clear that one of the key successes of the Egagasini education programme has been the interaction and support from Egagasini's partner organisations' scientists. The role of the scientists has been to inform the content of our programme and to work with Thomas to explain marine science and monitoring at a level suitable for educators and learners, as well as to inspire learners into the field of marine science. The eagerness and constant enthusiasm of some of our key partner scientists has been incredible and has made the program a success, in particular **Dr. Isabelle Ansoorge from UCT's Oceanographic Department** has provided continued support (including a night on the Agulhas and a night on Robben Island) and if she was unable to be present, she has appealed to her students to support our learners at schools. Isabelle provides a good role model for the younger learners and invokes enthusiasm with her fun approach to oceanography. The **Department of Environmental Affairs' Dr. Larry Hutchings** has charismatically shared the wealth of knowledge on his monitoring line to support skills development with learners and instilled deep interests in ocean sciences. The Department of Environment's **Marine Scientists Mthuthuzeli Gulekana** and others are always at hand to help and we are indebted to their keenness in the endeavours to change this nation.

Through participation and presentation on National Marine and Coastal Educators Network Conferences we are now serving on the regional structure of this Network (MCEN Western Cape) and have utilized the scientists within the Node to present marine science in a fun and interesting way. Juliet gave a presentation in early 2008 that even won a fun award and Lara will be giving the MCEN 2010 plenary address on marine biodiversity. The Node also participated in at least two regional and National Conferences of the South African Advancement of Science and Technology Educators.

Thomas is kept informed of each of Egagsini's projects and networks and, where possible, these are integrated into the education program. A successful example of this is Dr Lisa Beal's Agulhas Project which was used to expose our learners to interact with international scientists and enabled them to visit The Knorr Marine Research Vessel with all the equipment. A further project from this was Dr Paolo Cipollini's CALTACT (Coastal Altimetry of the Agulhas Current Transport) proposal whereby both Wayne and Thomas worked together to write a letter of support. Thomas Mtontsi also recently visited the National Oceanographic Centre in Southampton where he learned about similar education programmes for Secondary School learners. (*Classroom @sea and Ocean 4 kids*). Thomas also learned from Centre's outreach failures and successes to and looked at opportunities to collaborate.

#### **14.6. Challenges**

Retraining replacement educators that have left the core group sometimes take a bit of time.