eco2 diving, marine research & education centre mikindani, mtwara

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eco2 signs Memorandum of Understanding with Marine Park

To further the development of an ongoing reef monitoring programme in the Mtwara region, eco2 has signed a Memorandum of Understanding with the Mnazi Bay Ruvuma Estuary Marine Park (MBREMP). It is hoped that by joining forces eco2 and Marine Park staff will be able to enhance existing monitoring efforts and create an effective marine resource monitoring programme both inside the Park and in surrounding buffer zones. The agreement also aims to advance marine research, conservation and education initiatives in the Mtwara district.

Planned research includes projects to explore the impact of climate change on the marine environment and on the local communities and that rely on it for sustenance and to examine the effects of disturbance – in 2008 Mikindani Bay suffered a Crown-of-Thorns Starfish outbreak and later in the year the reappearance of destructive dynamite fishing.

eco2 will be developing proposals with the Marine Park and other partners, including the University of Dar es Salaam and the WWF East African Marine Eco-region programme.

eco2 divers to monitor bleaching

Next month eco2 will begin monitoring coral bleaching in Mikindani Bay with the start of Coral Watch dives. The Coral Watch programme was developed at the University of Queensland, Australia, and uses a colour chart to assess the extent of bleaching.

Brought to dive centres through PADI's Project Aware programme, Coral Watch provides training in coral conservation initiatives and coral identification, and encourages divers to help monitor bleaching. After monitoring dives, survey results are submitted online to the University of Queensland, and the results are presented as graphs of colour scores for the monitored sites.

eco2 is developing a training programme to introduce divers to the project and develop coral identification skills. After completing the programme divers will be able to participate in monitoring dives.

If you are interested in joining Coral Watch dives please email us with your details or become a fan of eco2 on Facebook (see right).

NEWS IN BRIEF

Cryptomania is still surprising us with new cryptic creatures. In January Frogfish returned to the Crypto sightings list, and again in March. In early February, a night dive brought out the beautiful Spanish Dancer and March saw Sea Moths join the list.

Painted frogfish, *Antennarius pictus*
PHOTO: Marc Grau

eco2 now has a Facebook Page where you can see photos from our dives. We've created albums for all of our sites and we'll be using the page to communicate regular events including local diver days and reef monitoring. Join us at eco2 on Facebook.

Our local divers are growing in number and we hope to have a reef monitoring crew soon. Mark and Suzanne have completed their Open Water course, Nick and Neil from the Old Boma are not far behind, and Brit has almost completed her Rescue diver training.

Squid mating rituals

At the end of last year we were privileged to see a squid mating ritual at our Hulls Rocks dive site. Studies have revealed that the squid mating ritual is akin to lekking - a behavior best known in birds, in particular Birds of Paradise and Grouse. In lekking species all the males gather together and put on an elaborate display, while the females move among them and choose a mate.

Squid mating ritual at Hulls Rocks in December 2008. PHOTO: Ness Smith

With squid, the ritual begins with a nuptial dance, where the males circle the spawning beds. After several hours the females arrive and dance with the males to choose a partner. They then begin a mating session that lasts all day, stopping only for the female to deposit her eggs. Throughout the ritual smaller males wait on the periphery and attempt to dart in and pair with receptive females. At dusk the ritual ends and the squid go to feed and rest.

It was certainly a stunning sight that kept us captivated for 20 minutes until we had to surface and end the dive.

Ref: Sauer et al, 1997, The Biological Bulletin, 192:2, 203-207.

Crack down on illegal fishing gears

Early 2009 saw the arrest of 12 people for dynamite fishing, and the confiscation of over 100 illegal fishing nets in the Mnazi and Mikindani Bay regions.

At the end of 2008 dynamite fishing returned to the Mtwara region, but an operation in early January 2009 led to the arrests and the confiscation of nearly 100 illegal nets. Carried out by joint patrols of Mnazi Bay-Ruvuma Estuary Marine Park wardens, the Tanzanian Fisheries Department Monitoring, Control and Surveillance (MCS) unit, district councils and local police, more nets were confiscated in March, bringing the total to 113, as well as two boats.

The confiscated gears included monofilament nets, nets with small mesh sizes and beach seines. Beach seines in particular have a detrimental effect on artisanal fisheries and the environment because as well as catching juvenile fish, they destroy their habitats; in use they are dragged across near shore seagrass beds.

On a more positive note Marine Park Wardens report that the Fishing Gear Exchange Programme has issued 2,649 new nets in exchange for the surrender of illegal fishing gears. This has benefited some 476 fishers operating within the Marine Park.

Special species watch

eco_2 divers are now monitoring and reporting sightings of Special Species, and submitting monthly data reports to the MBREMP Monitoring Programme.

The species fall into a number of groups: endangered species, including Cetaceans, Turtles, Sharks, Rays and Groupers; reef health indicator species such as Butterflyfish; threats to the reef such as Crown-of-Thorns starfish; and a number of species for which we believe numbers in the area are declining.

The Giant grouper, Epinephelus lanceolatus, *considered vulnerable by the IUCN (World Conservation Union)*

We're also planning monitoring programme for Giant Clams which will involve mapping dives to record their positions and monitoring dives to check on their well-being – Giant Clam populations are considered at Lower Risk by the IUCN (World Conservation Union) but it is recognised that their survival may be dependant on conservation efforts.

Over the coming months we'll be doing training for monitoring, and setting up survey sites. We'll also be putting together dive monitoring and accommodation packages for divers from the rest of Tanzania to join us.