

# KWS Launch Adaptive Management Programme In Mombasa Marine Park

The land and marine areas managed by the Kenya Wildlife Service (KWS) protect incredible biodiversity and are a natural and cultural resource for the people of Kenya and the world.

Though these areas are protected, they must be actively managed because they can be threatened by changing environmental conditions and external pressures.

For example, coral reefs worldwide are at risk of bleaching and death because of global warming, and taking action to reduce the risk of bleaching is a management concern.

Similarly, marine and terrestrial parks can be threatened by activities beyond their boundaries such as overharvest and pollution.

For example, water pollution from beyond park boundaries can kill corals, reduce coral habitat, and harm other coral reef organisms.

Thus, simple closure of an area is not enough to ensure long-term ecological sustainability.

Effective and sustainable management must include continual assessment of conditions and active response to threats.

In the 2009-2010 KWS Strategic Plan, the first of 20 high priority concerns was to re-focus management of marine parks. Accordingly, KWS has launched a project in Mombasa to develop an adaptive management program.

The program fundamentally changes the way the KWS manages its marine resources.

It provides strong links between science and management and allows active management response to threats as they occur.

The Mombasa program is a pilot that will be used as a model for the other marine parks in Kenya (Watamu, Malindi, and Kisite).

The program is being developed by a postdoctoral researcher from the American Museum of Natural History (Dr. Jennifer O'Leary) and senior warden Arthur Tuda.

Adaptive management is a decision making process where conditions are continually monitored to determine whether management is successful in meeting objectives.

While Kenyan marine parks have management plans with broad goals (e.g. protect areas of critical habitat and promote sustainable fisheries), they do not currently have measurable objectives.

This lack makes it difficult to assess the success of management efforts.

For example, how much protection is "enough" to ensure that critical habitat is preserved.

Are the current numbers of patrols sufficiently reducing poaching?

If so, does this effort allow the recovery of enough fish predators to keep populations of bioeroding sea urchins in check?

We cannot answer these types of questions without measurable objectives that can then be assessed using scientific data.

Thus, the first step in adaptive management is to define success with objectives.

Once objectives have been established, park conditions are

monitored via surveys of park ecology and human use patterns.

If monitoring results indicate that objectives are met, the current management is effective and monitoring continues because conditions can change.

If objectives are not met, then new management strategies must be employed.

Once a new management strategy is in place, results of ongoing monitoring indicate if the strategy has improved conditions and helped progress toward the stated objectives.

The key feature of adaptive management is strong feedback between monitoring (data) and decision making in a process of "learning by doing".

The Mombasa Marine Park Adaptive Management Program has been developed with feedback from local scientists.

Scientists have worked collaboratively to develop a list of ecological indicators of park health that will be monitored.

Scientific research programs such as the Wildlife Conservation Society's Coral Reef Conservation Project will contribute most of the data needed on park ecology.

However, it has become apparent that there are also substantial data gaps, especially about human use patterns in marine parks and reserves.

Mombasa park rangers have therefore been trained in park ecology, management principles, data collection (for missing data), and data entry.

The trainings have been hugely successful and have given the rangers opportunities to contribute to the program with ideas on what conditions monitor and how to effectively monitor these conditions.

Results of exams given to rangers before and after the trainings indicate that ranger knowledge has been greatly improved.

This knowledge will help the program run smoothly, and also make the rangers better ambassadors for the marine parks as they interact with the public.

The trainings have been attended not just by rangers, but also by coast office staff including tourism officers, the coastal research team, and attachment students. Participants have indicated that the trainings are useful for staff of all levels and have greatly contributed to their ability to successfully fulfill their job duties.

The trainings ended in January and the Adaptive Management Program was launched on February 2, 2010.

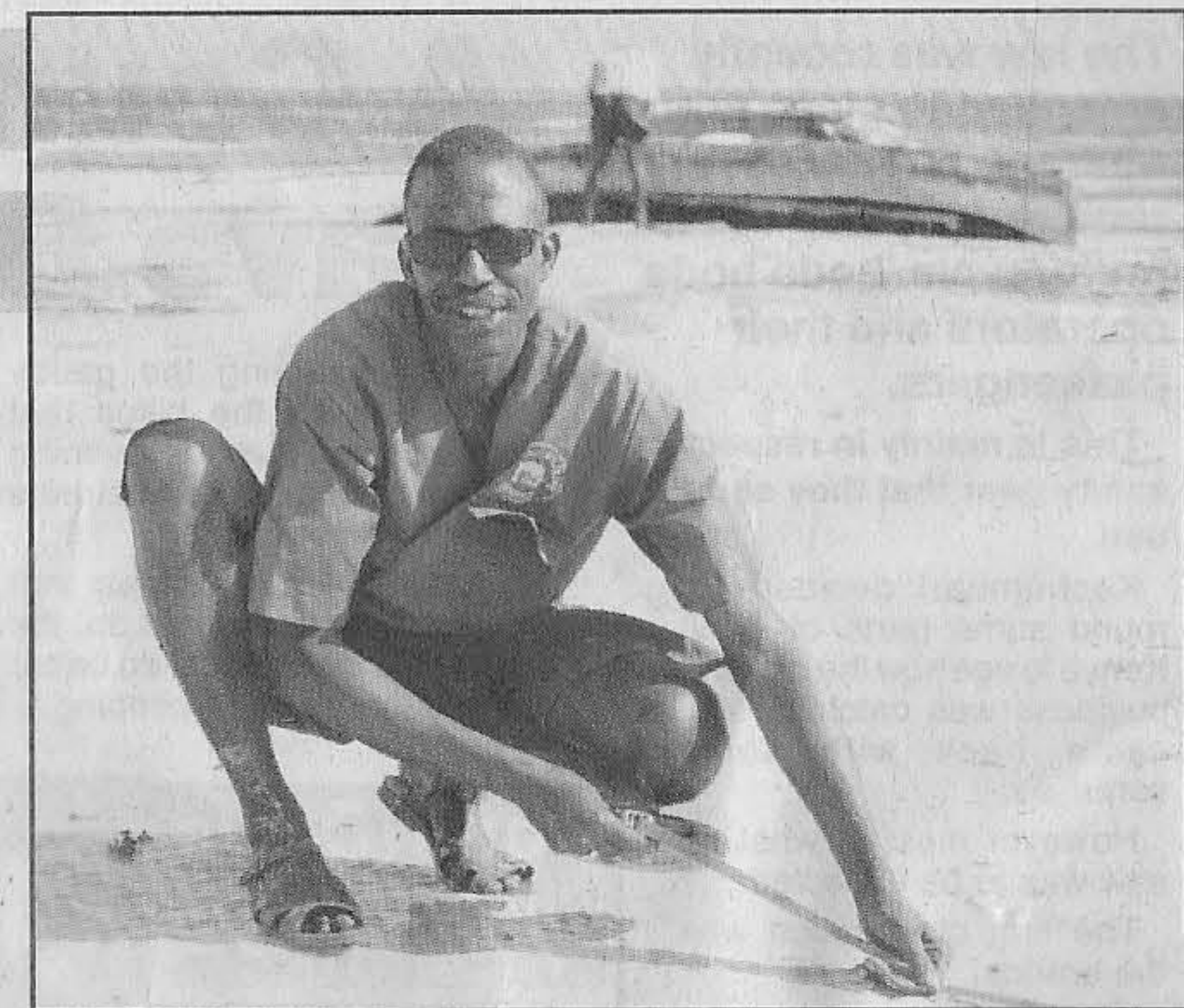
Rangers collect and enter data on key ecological and human use indicators on a monthly basis.

Rangers will also integrate annual data on indicators collected by researchers into the database.

Rangers will submit monthly reports on trends in ecological and human use indicators to the park wardens.

Thus any threats to the park will come quickly to the attention of wardens who can take appropriate management actions.

When the program expands to the other marine parks, wardens can compare trends along the coast and determine if local or widespread management action is needed.



**Kenya Wildlife Service corporal collecting beach erosion information at the Mombasa Public Beach.**

As part of the program, a comprehensive list of management strategies is being established that will allow response to a wide variety of threats to the marine parks.

A bulletin board has been established at the Mombasa Marine Park Headquarters at the public beach with a full program description, graphs of indicator trends, and reviews of training courses.

The bulletin board will be updated monthly so that the whole park community can help identify potential threats as they occur and work to develop solutions.

The rangers and coastal KWS staff are extremely excited about this initiative, and view it as an example of "conservation in action!"

The program will make KWS a leader in practicing active management in protected areas.