

ENVIRONMENTAL MONITORING IN THE COASTAL ZONE

**NYALI BEACH HOTEL, MOMBASA:
Wednesday 23rd - Friday 25th April 1997**



A contribution to the UK Overseas Development Administration (ODA)
Land-Ocean Contamination Study (LOCS) in East Africa.

Organised by the British Geological Survey and Kenya Marine and Fisheries
Research Institute.



KMFRI

ODA



ODA LOCS

ENVIRONMENTAL MONITORING IN THE COASTAL ZONE

Bibliographic reference:

Rawlins, B. G. and Williams, T. M. 1997. Abstracts of the ODA / LOCS Workshop-Environmental Monitoring in the Coastal Zone, Mombasa, Kenya, 23rd-25th April, 1997. British Geological Survey, Keyworth, Nottingham, U. K.

WORKSHOP PROGRAMME

WEDNESDAY 23RD APRIL

Introduction and Coastal Zone Management

- 9-00 Registration
- 9-45 Martin Williams (BGS) Introduction: background to the ODA LOCS project
- 10-30 Coffee
- 11-00 Martin Williams and John Rees (BGS) Contaminant monitoring in estuarine and nearshore marine systems. 1: Survey framework, design and sample collection
- 12-30 Lunch

Chemical oceanography and pollution

- 14-00 Abdalla C Yobe (KMFRI) Assessment of land based sources of pollution along the Kenya coast
- 14-20 Peter J Shunula (IMS) Considerations on sources and control of pollution of the coastal zone in Tanzania
- 14-40 Alfred Muzuka (IMS) 1. Methods of dating coastal sediments and corals.
- 15-00 Alfred Muzuka (IMS) 2. Can stable isotope compositions of tropical East African flora be used as source indicators of organic matter in coastal marine sediments?
- 15-20 R. B. Owen (Dept. of Geog., Hong-Kong) Heavy metals in Hong Kong coastal sediments
- 15-40 C. Z. Kaaya (Dept of Geology, Dar-es-Salaam) Sources of Chemical Pollution in Dar-es-Salaam Coastal Waters
- 16-00 Coffee

Remote sensing in Coastal Zone Management

- 16-20 Peter Mumby
(CTCMS, U. K.) Practical remote sensing of coral reefs and seagrass beds: a cost benefit assessment.
- 16-40 Edmund Green (CTCMS, U. K.) A Comparative Assessment of Mangrove Areas using Remotely Sensed Data from Satellites and Airborne Sensors.

THURSDAY 24TH APRIL

Interpretation of marine pollution data

- 9-00 Martin Williams (BGS) Contaminant monitoring in estuarine and nearshore marine systems. 2: Analysis, interpretation and integration of chemical data.
- 9-45 John Rees (BGS) Estimation of residence time of sediment-hosted contaminants, based on interpretation of sedimentological and oceanographic data
- 10-30 Coffee**
- 11-00 Barry Rawlins (BGS) Obtaining pollution chronologies in marine sediments
- 11-30 Jason Weeks (ITE) Biomarkers in marine pollution monitoring

12-30 Lunch

Biological / Ecological studies

- 14-00 Nyawira Muthiga
(Kenya Wildlife Service) Coral reef monitoring within protected areas in Kenya
- 14-20 Johnson Kazungu (KMFRI) Nitrogen transformational processes in a mangrove ecosystem
- 14-40 Jacqueline N Uku (KMFRI) Submerged marine flora as indicators of environmental health
- 15-00 Coffee**
- 15-30 Omondi Wawiye (KMFRI) Phytoplankton as bio-indicators of environmental stress: comparison between a polluted and a pristine environment along the Kenyan coastline
- 15-50 Patrick Gwada (KMFRI) Regeneration structure of Kenyan mangroves after human perturbation: case study of Mida creek
- 16-10 Helida Oyieke (National Museums of Kenya) Coastal zone environmental quality vs biological diversity

FRIDAY 25TH APRIL

Physical oceanography

- 9-00 Mika Odido (KMFRI) Tidal flushing of the creeks around Mombasa Island
- 9-20 Michael Mutua Nguli (KMFRI) Water exchange and mixing in tropical inlets - a case study of Tudor inlet, Mombasa
- 9-40 Johnson Kitheka (KMFRI) Coastal water-circulation, groundwater flux and salinity anomalies at Mida Creek, Kenya

10-20 Coffee

Coastal zone management and GIS

- 11-00 Dirk Van Speybroeck (UNEP) UNEP's eastern African Coastal and Marine environment resources database and atlas project
- 11-20 Dixon Waruinge (UNEP) Integrated coastal area management in Eastern Africa
- 11-40 B. A. J. Mwandotto (Coastal Development Authority) Kenya integrated coastal area management (ICAM) Pilot project
- 12-00 Prof. J. Bauer (ECO-TERRA) Holistic coastal zone protection in areas of conflict (the case of Somalia's coast during the last 10 years)

12-30 Lunch

Beach erosion

- 14-00 Jeremiah Daffa (NEMC) Oil spills and marine contingency planning in Tanzania
- 14-20 N. Nyandwi (IMS) Man induced coastal erosion and its management in Tanzania
- 14-40 A. M. Dubi (IMS) Beach erosion and the role of coastal structures in beach protection
- 15-00 Yohannah Shagude (IMS) Sediment distribution and transport off the western coast of Zanzibar
- 15-20 Pamela Aboudha (KMFRI) Beach erosion and its management strategies in Kenya

Acronyms:

- KMFRI: Kenya Marine Research Fisheries Institute
IMS: Institute of Marine Sciences (Tanzania)
UNEP: United Nations Environment Programme
NEMC: National Environment Management Council (Tanzania)
BGS: British Geological Survey (U.K.)
ITE: Institute of Terrestrial Ecology (U.K.)

LITTER PRODUCTION IN A MANGROVE FOREST OF A SEMI-ARID INLET
CREEK OF MIDA, KENYA.

Patrick Gwada.

Kenya Marine and Fisheries Research Institute, P. O. Box 81651, Mombasa, Kenya.

Litter fall by component parts from four dominant species of mangrove trees fringing an inlet creek at Mida, Kenya, are being monitored bimonthly since August 1996. The average daily production shows variability between different species. Within the same species, variations across time are also noticed, an indication of some periodicity in these activities. The Rhizophora - Bruguiera mixed community so far has shown a maxima in shedding intensity at around November - December (more than 1g dry weight /day /m²) made up mostly of leaves. An interesting contrast to this is the shedding maxima in the other species which so far tend to peak a few months earlier before that of Rhizophora. In the Avicennia marina community, this occurs between August and September. In Ceriops tagal plots, it is maintained between August to October. The production of reproductive units into litter is minimal except for few sporadic incidences of propagule fall in Rhizophora-Bruguiera community. In A. marina community, aborted flower buds and flowers are being recovered in litter catches in high numbers since December 1996. Infact this production alone outweighs that of leaf fall during this period in this community. These spatial and temporary variability in litter production by component parts and by species types are discussed in relation to possible trade-off mechanisms in resource use and allocation strategies across some environmental gradients. The management problems that may arise due to the current shift in species dominance induced by anthropogenic impacts is raised in the light of these preliminary results.