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.

BGS 1835

KMFRI

ODA

ODA LOCS

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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.)

PHYTOPLANKTON AS BIOINDICATORS OF ENVIRONMENTAL STRESS: COMPARISON BETWEEN A POLLUTED (KIBARANI DUMP SITE) AND A PRISTINE (MIDA CREEK) ENVIRONMENT ALONG THE KENYA COASTLINE

O Wawiye, T Dzeha, B Ohawa, J Njoya

The phytoplankton populations were monitored in Makupa Creek where there is high anthropogenic input of nutrients from ship waste, sludge from septic tanks, pit latrines and municipal solid waste. Two stations were chosen in the creek, one station adjacent to the point of disposition of the solid waste and the other station adjacent to the Kipevu power plant where there is the influence of thermal stress. A reference station was chosen at Mida Creek where the influence of anthropogenic nutrient loading is very minimal and there is nil counting of faecal coliforms. Multivariate direct gradient analysis was then applied to assess the possible influence of the high anthropogenic nutrient loading on the species assemblages in the three sites. Simpsons diversity index was used to compare the diversity in the three sites. A relation was observed between the species assemblages and the supplied environmental variables after the application of the Monte Carlo permutation test between the Mida and Makupa stations. The species assemblage within the Makupa Creek stations were similar, probably as a consequence of mixing between the two sites. The phytoplankton population in Makupa Creek was very low as compared to Mida Creek and showed a dominance of Prorocentrum micans when there was high count of faecal coliforms indicating recent discharge of sewage or contamination by other anthropogenic sources.