

Highlights of the Uganda Atlas of Our Changing Environment

POLLUTION OF WATER BODIES

LAKE VICTORIA AND LAKE ALBERT

Fresh water lakes occupy 36,280 km² (15%) of Uganda. Lake Victoria is the largest in Uganda and the world's second largest fresh water. This water is used in several ways: domestic consumption in rural and urban areas, industry, agriculture, wildlife, and transport and power generation. In addition, the open water bodies and wetlands are home to rich biodiversity including fisheries resources. Lakes have varying depths which have important bearing on the water storage capacity and sensitivity to reduction of the storage due to the increasing problem of silting.

River Semliki – Lake Albert

River Semliki is one of the most important rivers that form Uganda's natural drainage system found in Bundibugyo District, in the Western Uganda. The river derives its origin from Lake Edward through Mt. Rwenzori, and also through a series of tributaries that join along its 140 km course in the Albertine Rift (Western Rift Valley) before draining into Lake Albert. Over 10m of the river bank on Uganda's territory is eroded annually at various points of the river and as a result, the river seems to have doubled its width within the last ten years. Increased river bank erosion due to overgrazing, melting of ice on the Mount Ruwenzori and degradation of the water catchments has resulted in siltation changing the river course significantly over the years as it enters the Lake Albert (NEMA 2006). The bathymetry of Lake Albert shows that the lake is shallower in the south where the Semliki River drains into the lake.



Figure 1: Silt from River Semliki drains into Lake Albert.

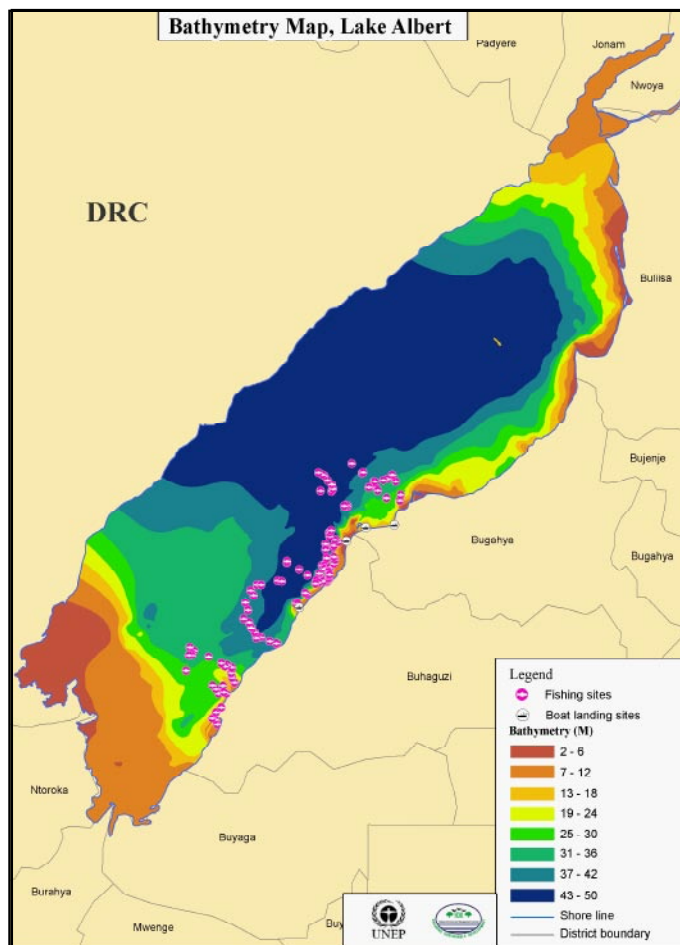


Figure 2: Bathymetry of Lake Albert.

There is evidence from the 1960 topographic maps, spot image of 1980 and Landsat TM image of 2000 that the delta on the southern shoreline of Lake Albert is expanding into the lake due to siltation from River Semliki. From 1960 to 1980 it expanded 3.5 km and the same occurred from 1980 to 2000 it expanded 2 km into the lake. This has resulted in the expansion of the southern shoreline on to the land.



Figure 3: Cattle grazing at a river bank.



Figure 4: The process of riverbank breakage.



Figure 5: An eroded river bank threatens a village.

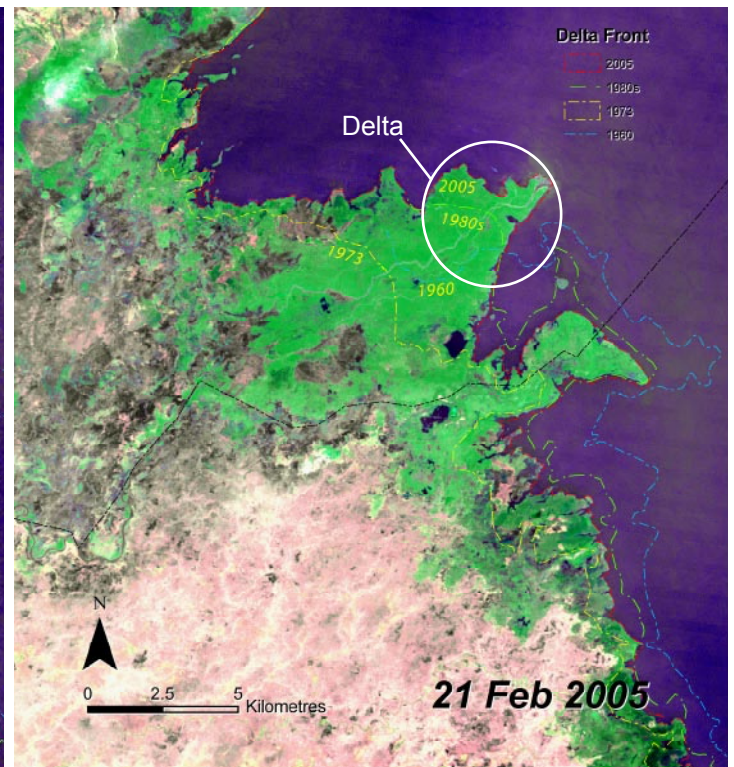
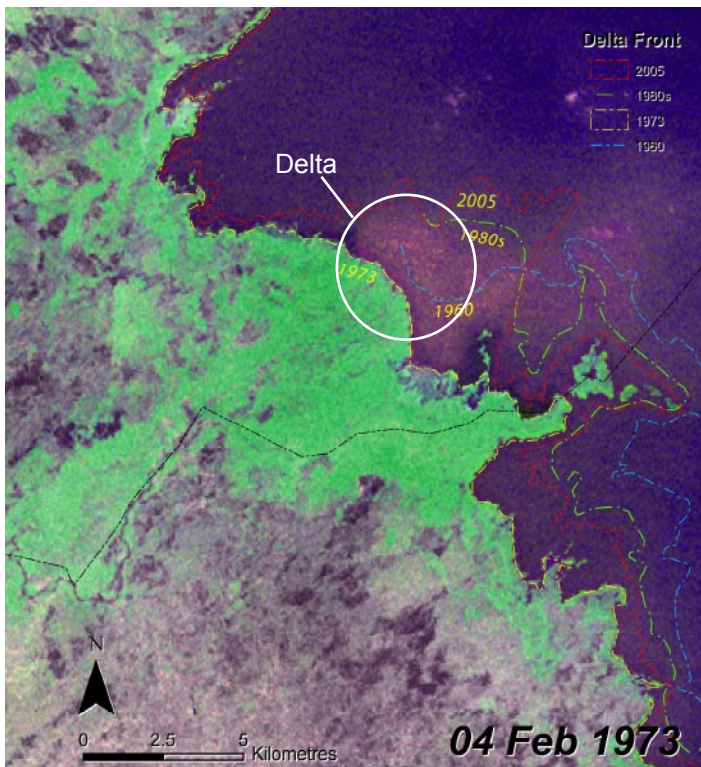


Figure 6: Formation of a delta at the mouth of River Semliki. The delta formed after 1973.

Lake Victoria

Lake Victoria, the second largest freshwater body in the world (area 68,800 Km²), is generally shallow (maximum depth 84m; mean depth 40m), and has an irregular shoreline of about 3,440 km in length. Lake Victoria catchments are constituted by five countries (Kenya, Tanzania, Uganda, Burundi, and Rwanda) and drained by a number of large rivers plus many small rivers and streams. River Nile is the single outlet and 82% of the water input in the lake comes directly from rainfall.

The Kagera River which originates from Burundi, forms the Rwanda-Tanzania, Tanzania-Uganda borders is the largest contributor of water from the catchments. The satellite images of 1987 and 2008 show high reflectance of water from the Kagera River due to silt. Silt and suspended solids impact on water bodies by loading nutrients into the lake. Nutrients stimulate algae growth which reduces oxygen leading to eutrophication and reduction in fish. Siltation is mostly associated with agricultural activities.

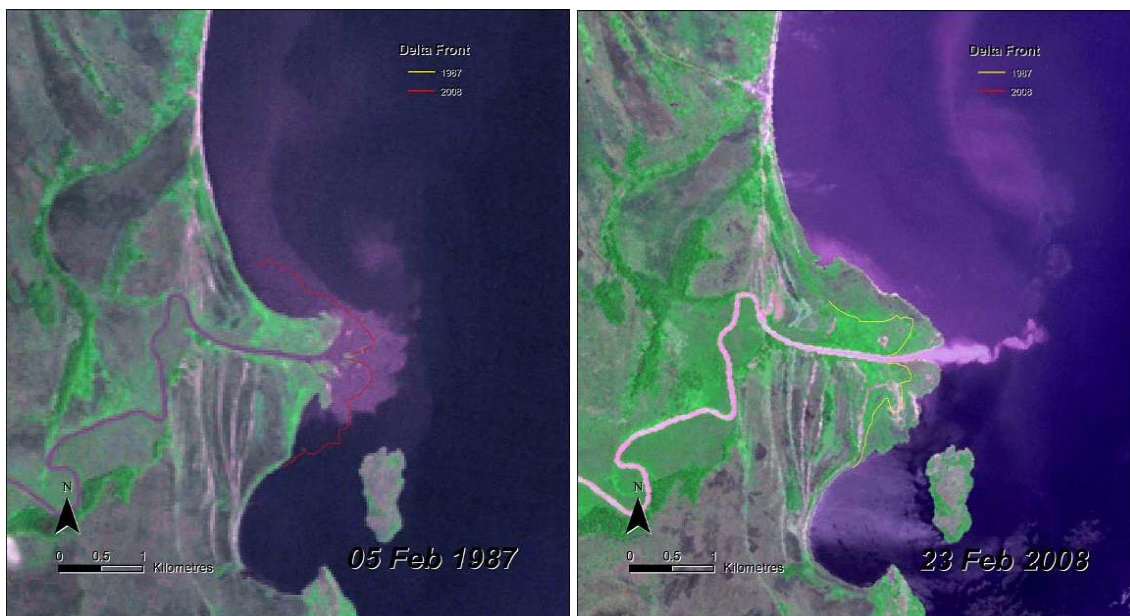


Figure 7: Silt from River Kagera enters Lake Victoria. The delta at the mouth of the river had increased in size by 2008 and it threatens to join with Musambwa island.

Algae bloom on Lake Victoria

Overtime the water in the Lake Victoria has become more turbid and this has a negative impact on the fish industry since it leads to silting up of the breeding grounds for fish. The algae mass, which looks like green oil paint on the lake surface, is a result of increased pollution from human disposal and industrial waste. This is an image shows Lake Victoria at Entebbe reflecting green colour.

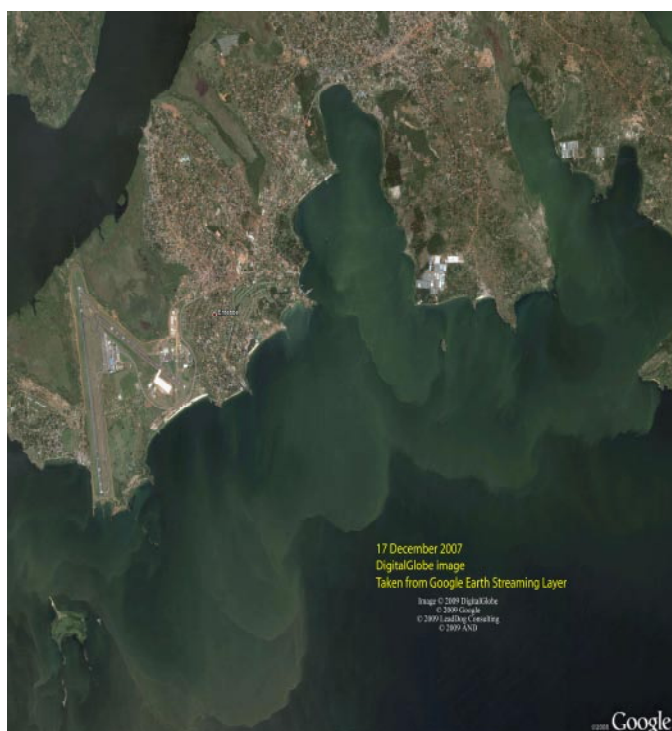


Figure 8: High turbidity on Lake Victoria on the 17th December 2007. The green substance is the algae bloom

Policy recommendations

- The banks of River Semliki should be stabilized by appropriate technology.
- Overstocking of cattle should be halted.
- Tree planting should be promoted on the Semliki banks.
- The Kagera River has its origin in Burundi and Rwanda; efforts to halt the increased erosion in its catchments should be stepped up at regional level. It might require direct negotiations with the countries.