

Mara River Flows

Integrated Water Resource Management

... for people and for nature

January 2010

Greetings from the Mara River Basin, where the El Niño has finally arrived! After the November-December short rains appeared to have failed, we were braced for more hardship and unsustainably low flows in the basin. However, Christmas brought the rains, raising the river to levels we haven't seen in over a year, and January has sustained them. It was a pleasant sight to return to after our holiday leave.

State of the River

The river had been falling steadily since September, and water quality was steadily declining as well. By mid-December, dissolved oxygen (DO) levels were down in the 50% range, which is remarkably low. Then the rains came, the river rose, and for the first time in four months, the DO levels rose above 80%. Although most aquatic organisms can probably survive DO levels in this range, sustained low levels can have negative impacts on feeding and reproductive behavior, leading to eventual impacts on population size. The rains helped to flush out the system and aerate the waters; however, they also brought significant loads of sediment. You can see from the pictures below how muddy the river became, and you can see in the table how turbidity rose from 149 to 781 NTU.



New Mara Bridge – December 13th, 2009



New Mara Bridge – January 19th, 2010

Water quality parameters for the Mara River

<i>Date</i> M/D/Y	<i>Time</i> hh:mm:ss	<i>Temp</i> C	<i>pH</i>	<i>DO%</i> %	<i>Salinity</i> ppt	<i>Turbidity</i> NTU
01/19/2010	12:54:26	23.80	7.19	85.7	0.05	781
12/13/2009	10:11:48	23.59	6.21	55.6	0.21	149

In fact, during some of the highest flows in January, around January 12, turbidity measured 2,026 NTU. These levels are significantly above acceptable standards by Kenyan law, and indicate major soil erosion coming from the upper and middle parts of the basin. Under the Kenya National Water Resources Management Strategy (2006), water quality parameters are prescribed for different bodies of water based on their Resource Quality Objectives (RQO). RQOs are determined for a given body of water based on its ecological, commercial and livelihood importance. The lower Mara River, where these samples were taken, has been identified by the Lake Victoria South Catchment Management Authority of Kenya as being of high ecological importance, which should correspond to turbidity levels not exceeding 50 NTU. We have measured turbidity at this site 35 times in the last 18 months, and we have only documented turbidity levels below 50 once-- 43.2 NTU on Jan 11, 2009.

Ongoing research by several graduate students in the GLOWS program is aimed at determining which portions of the basin and which land use types are the highest contributors to soil erosion, and which land management practices are most effective at preventing it. WWF has been working very actively with local landowners to implement soil conservation practices to prevent erosion, such as construction of terraces, planting of napier grass strips on steep hillsides and protection of riparian buffer zones. However, implementing these conservation practices requires resources, and many of the upstream farmers contributing to erosion in the basin are practicing small-scale subsistence cultivation, with barely enough resources to make ends meet. WWF and the GLOWS program have been working to assess the potential for implementation of a Payment for Ecosystem Services (PES) scheme in the basin that would establish a business relationship between downstream resource users and upstream resource providers. This relationship would allow downstream users to facilitate implementation of soil and water conservation practices in the upstream reaches, with increased benefits for all. We look forward to bringing you more updates on this project as it develops in the coming year.

Research

Fred Omengo and Veronica Minaya completed their sampling in the upper catchment of the Mara Basin this month. They were both studying first and second order streams—the very small streams that eventually lead into the larger tributaries of the Mara River—and comparing stream metabolism and macroinvertebrate communities between forested and non-forested catchments. They did an impressive amount of very difficult field work—scaling steep hillsides, pushing through dense forest, and driving a 2-wheel drive car on very rough roads—and now they have returned to Vienna, Austria to analyze their samples and compose their theses. We are very excited to report their findings to you upon completion this May.

Governance

After receiving final approval of the Environmental Flows Assessment and Biodiversity Strategy and Action Plan Final Reports by the Lake Victoria Basin Commission in December, we have been working very hard to get these documents prepared to send to the printer. WWF has been formatting the documents for printing, and FIU and LVBC have been assisting with final edits and preparation of policy briefs for the documents. We expect the documents to be printed in February and officially launched in

early March. This will be a very exciting culmination of years of hard work, and we look forward to moving into the implementation of the reports' recommendations.

We are also preparing for a number of exciting initiatives in the coming months. In February and March there will be many meetings to inform stakeholders on the findings and recommendations of the EFA and BSAP reports, as well as to begin our work on establishing a PES scheme in the basin.

Partners on the Ground

Soon after we returned from the holidays, all the partners in the Transboundary Water for Biodiversity and Human Health in the Mara River Basin (TWB-MRB) project gathered for a Quarterly Meeting in Kirindon, Kenya. Partners include Florida International University (FIU), which is the lead coordinating institution, Worldwide Fund for Nature – Eastern and Southern Africa Regional Programme Office (WWF-ESARPO), WorldVision, and CARE-Tanzania. We were also pleased to be joined by a representative from our funding institution—USAID – East Africa. Participants were hosted by Kilima Camp, located on the Siria Escarpment with a spectacular view of the Mara River.



Picture 1: View of the Mara River from Kilima Camp community was for WorldVision and USAID's assistance, and how proud they were for their role in bringing this project to completion.

The community also hosted us at the local school for a delicious feast, and we were pleased to see some of the awareness-raising they have been doing. They had colorful murals all over the school walls depicting the importance of good sanitation and hygiene practices. We thought the mural below best summarized the linkages between those practices and environmental health.

It was inspiring to meet with all of the partners and discuss synergy between our initiatives to promote sufficient clean water for people and ecosystems in the Mara River Basin. We were also delighted to have the opportunity to re-visit the now completed Kapsasian Rock Catchment for its commissioning. The fences and concrete walls around this huge rock outcropping catch the rainfall and funnel it into a large masonry tank, giving the members of this community their first local source of clean water. It was really inspiring to see how grateful the



Picture 2: Commissioning of the Kapsasian Rock Catchment



Picture 3: Mural at Kapsasian depicting the linkages between good sanitation practices and environmental health

Other Interesting Happenings

We recently had the opportunity to become involved with a new development initiative. This project is not directly related to our work with GLOWS, but it deals with many of the same themes—supporting local communities to improve their own situation—so we wanted to share it with you here. In the Maasai community of Oletukat, 16 km south of Narok, there is a very active community development initiative. They have prepared proposals for several development projects—camel rearing, rabbit keeping, water provision, and beekeeping—to help lift their community out of poverty. Recently, they were discovered by a beekeeping

group in the USA who have decided to sponsor them as a “sister bee group.” To learn more about Iltubula’s work with local government and development partners to establish an apiary in their community, please visit them at <http://sites.google.com/site/iltubula/>



Picture 4: The Iltubula Beekeeping Group, Oletukat, Kenya with a top bar beehive

See you next month!

With lots of rain and a full river, 2010 promises to be a great year in the Mara River Basin. We look forward to keeping you posted on all the exciting things happening this year to keep the river flowing, for people and for nature.

<p>Who are we? Christopher Dutton is the Coordinator of the Trans-boundary Water for Biodiversity and Human Health in the Mara River Basin (TWB-MRB) Project. Amanda Subalusky is the Research Coordinator – East Africa for Florida International University. We both work within the GLOWS consortium. Read more about us at http://maraadventure.blogspot.com</p>	<p>What is GLOWS? GLOWS is a consortium financed by the United States Agency for International Development (USAID) working to increase social, economic, and environmental benefits to people of the developing world through clean water, healthy aquatic ecosystems and sustainable water resources management. Read more about it at www.globalwaters.net</p>
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