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TCD FRG Activity Report
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**The Future of Fisheries in a Global Biodiversity Hotspot:
Analyzing Socioeconomic and Cultural Influences on Fisher Adaptations to Climate Change on
Lake Tanganyika, East Africa**

Thanks in large part to the TCD Field Research Grant, I was able to spend two and a half months in Tanzania this summer collecting data for my Masters research project on Lake Tanganyika. This report provides an overview of the activities conducted, results obtained, and challenges faced during this rich and productive field work experience.

Activities

The entire trip ran from May 10 to July 29. Outside of transit days, I was based in the Tanzanian city/town of Kigoma, on the shore of Lake Tanganyika. Kigoma is home to the offices of numerous NGOs, development agencies, and government bodies, including the Tanzania Fisheries Research Institute, which is where I was housed. TAFIRI-Kigoma serves as the host for the Denmark/DANIDA-funded CLEAT research project on the impacts of climate change on Lake Tanganyika, which my study is in collaboration with. This was critical as being at TAFIRI gave me access to office space as well as staff support and research/translation assistance. They also helped me navigate various official government requirements and introductions so that I was able to obtain a research permit along with clearance to collect data at fishery landing sites.

After this clearance was obtained, I provided a training lecture for all TAFIRI research staff in fisheries social science research methods, which gave me an opportunity to introduce everyone to my project. I then worked with key staffers to conduct a short pilot study to help finalize my survey questions. We then translated and pilot tested the survey in two sites – one up by Kigoma and the other down by the Mahale Mountains. Based on the pilot test, we modified the survey and translation, selected our study sites, and then began the study. The surveys took about 45min to complete per person, and included questions on their perceptions of changes in the catch, how they adapted (or did not adapt) to perceived changes, their views on management practices, and the role that religion and spirituality play in their lives and fishing activities in particular.

During the pilot testing phase, we realized that my presence during surveys at landing sites was often a major distraction and led to various complications. Thus, I ended up sending trained teams of TAFIRI staff to conduct the surveys while I remained in the office entering data gathered from the previous day. I started out with a large group of TAFIRI staff but soon narrowed this down to work with three staff on the bulk of the surveys. The sampling trips to closer sites were completed within a morning. Other sites were further away, however, and required overnight stays at local guest houses.

In total, it took almost a month to set up the project, train staff, pilot test, and launch the surveys. It then took a bit longer than a month to survey all our study sites. This left a couple weeks at the end where I was able to catch up on data entry and conduct some semi-

structured interviews to give more context to our survey data. This also gave me the opportunity to visit some of the landing sites again and take photos.

Results

With collaboration from the TAFIRI staff, I was able to collect 154 surveys from littoral fishers at 11 landing sites from Kibirizi in the north (by Kigoma town) to Buhingu in the south (by the Mahale Mountains). All our respondents were male – we did not come across any littoral fishers who were female, which is not surprising for this region. The fishers we surveyed ranged from eighteen to eighty-seven years old with a mean of thirty-six years. Their length of time in the fishery (fishing tenure) ranged from half a year to sixty-one years, with a mean of ten and a half years.

In addition to the survey data, I was also able to obtain ten semi-structured interviews with three fishery officers (covering six of the landing sites), seven pelagic fishers, three littoral fishers, and two local Christian church leaders who have fishers in their churches. These interviews were very helpful for understanding the survey responses we received, and also for bringing to light other fishing and religious practices that we were not aware of.

One particular area of developing interest in our analysis has to do with the role of religion and spirituality in fishery management. For example, we found that 94% of fishers view religion as “usually important” to them, while only 5.3% say it is “sometimes important” and only 0.7% (or one person) say it is “not important.” This high level of religiosity becomes particularly relevant when, for example, we asked fishers about the subjective norms around keeping illegal catch:

18. When you catch juvenile fish, what do these groups want you to do with them?	Throw Fish Back	No Preference	Keep Fish
a. Other fishers	29.3%	15.6%	55.1%
b. Fishery Officers	93.1%	3.4%	3.4%
c. Family members	12.2%	6.8%	81%
d. Spirits of ancestors	24.2%	16.5%	59.3%
e. God	28.8%	6.5%	64.7%

While 93.1% of fishers say that fishery officers want them to release any illegal catch, 64.7% say that God wants them to keep it, 59.3% say that the ancestral spirits want them to keep it, and 81% say that family members want them to keep it. The fishery officers share that fishers often tell them that they prayed for a good catch and God answered by giving them juvenile fish, so how can they be illegal to keep? There were other, similarly interesting, religious themes that came up in both the quantitative survey and qualitative interview portions of this project.

These various types of data we collected will be analyzed throughout the fall semester, and we plan to seek publication of any interesting and significant findings. TAFIRI and COSTECH (the Tanzanian Committee on Science and Technology, which grants research permits) will receive reports on our findings and copies of all publications. I will also seek to present this

research at relevant academic conferences like the American Fisheries Society's annual conference, which I have just given an oral presentation at based on our preliminary findings.

Difficulties

There were four main challenge we faced in implementing this field research.

First, housing was an issue in Kigoma. The research center was putting me up for a relatively low cost, but the room they provided was in quite poor and dirty condition (lots of things were broken, holes in the wall and windows, very dirty and smelly, etc.). The shared kitchen area was sparse and so most folks eat in town every evening. I eventually also found out that I was being charged a significantly higher rate to live there than others from Tanzania (about four times the cost). At that point, I asked around and some friends invited me to stay in an empty guesthouse that they operated, which was a much better and even cheaper setup.

Second, finding and training dependable research assistants was critical but not easy. Some contacts that I initially used would not fill out the surveys well or completely, while others made changes to how they conducted the survey without consulting with me beforehand (they did not like some of our questions and so took the liberty to change them). Eventually I was able to narrow down the people I could trust and the research became a lot smoother.

Third, whenever I showed up at the landing sites things became complicated. Some fishers would refuse to be surveyed since there was a foreigner present. Many others wanted money in return for talking with us (which was a challenge, though less of one, even when I was not around). Even the local officials became nervous by my presence at times and would ask for various assurances (and permits) to prove that I was not going to get them in trouble. Eventually we decided that I would not go to the landings sites to conduct the surveys but would send my TAFIRI collaborators instead.

Finally, I found it challenging to implement this project largely independently. It was tough to be in a cross-cultural context, struggling with language learning, and figuring out how to get good human dimensions data without an advisor or team around me who could provide greater expertise, experience, and support. I imagine it could be easier if I was part of a lab working together on this project, with our professor being the PI and familiar with the location. My situation could feel a bit isolated but, at the same time, it pushed me to learn more and figure things out better than if I could depend on others to take care of problems that cropped up. So, overall, I am very thankful for this rich experience, and grateful to TCD for providing the funding to make it possible.