



EXCURSIONS AND OTHER NEWS

Small insights in BioS points of view, field trips, and other stuff we do.

Bridging the Gap Between Laboratory Science and Social Reality

Damla Cicek Karadag, Emily Ellis Franke and Alp Kuşçu

This March, the 4th Interdisciplinary Global Health Initiative Spring School [1] brought together international speakers and students from diverse fields to tackle the world's most pressing health challenges. The program was a deep dive into promoting health through organized efforts (Public Health), achieving equity in health for all people worldwide (Global Health), and the connection of human health and the state of natural systems (Planetary Health).

Three attending BioS students share their thoughts on this experience:



Emily: "I was particularly interested in the Spring School because it connected closely to the topic of poliomyelitis in our 'Health Challenges' course. The program deepened this knowledge through case studies, such as tuberculosis, and interactive group work on integrated community care. One key realization for me was that primary health care, as a concept, is not fully implemented in Germany, where the system remains largely physician-centered. The case study on the Poliklinik Veddel in Hamburg illustrated alternative, community-based approaches. The most impactful day for me was Wednesday, focusing on planetary health, inter- and intra-generational equity, and the resource nexus. I was especially fascinated by Prof. Peter Krebs' presentation on wastewater as a tool for monitoring diseases such as COVID-19 and pharmaceuticals, showing that E. coli variants in Dresden wastewater are largely multiresistant. I was also moved by Martina Bothur, a volunteer in the Shining Eyes India project, who demonstrated through a practical example how she works to educate and empower women in India. The final days addressed community engagement in polycrisis and the links between mental health and migration, including valuable insights from Ukrainian physician Dr. Pavlo Kolesnyk."

Alp: "Although the course looked like it offered a wide range of approaches to global health, the focus was the policies and social aspects of global health: How to structure a health policy, what are the upstream/downstream applications, where and who provides services. One aspect I found lacking was the use of real-life scenarios and case studies. I would have loved to investigate an epidemic from history to see what could've been done. The medical and natural science aspects were also discussed less than I had imagined. I tried to contribute by presenting how we can include non-human primates in global healthcare under one health standard. We had the chance to meet with brilliant fellow students and academics. I learned a lot, just not what I was expecting to learn."

Cicek: "Participating in this program made me realize once again the immense value of the Biology in Society (BioS) master's program. It was a pivotal experience that directly addressed the 'society' and 'science communication' pillars of our curriculum and this school provided the necessary tools to become better communicators. Also, thanks to our comprehensive 'Health Challenges' curriculum, I felt fully equipped to analyse the presented global health issues from a rigorous biological perspective. I realized that with our roles as science communicators, we act as a strategic bridge: we start from the downstream level - with our direct understanding of the individual and biological pathology - and connect it to the upstream processes that seek permanent, systemic solutions for global health issues. Through the mastery of Design Thinking (to translate complex biological data into meaningful community engagement), case-study group works and exploring various health concepts, we gained vital insights into effective community communication and the socio-political frameworks. This experience has reminded me that to solve global health issues, we must be able to communicate across disciplines, bridging the gap between a lab result and a policy decision. I highly recommend this intensive school to all BioS students; it is where the theory of our master's program meets the reality of the global field."

ANIMALS AND MONEY

This part of BioS Reports unravels relationships between animals and the economy.

The Silver Fish of Lake Victoria: Economic Importance of Omena

Vivian Chogo

Fisheries play a vital role in global food security, employment, and trade. However, overfishing, pollution, and habitat destruction have threatened fish populations worldwide [1].



Rastrineobola argentea, commonly known as Omena, is a small pelagic fish of great economic importance in the Lake Victoria Basin, Kenya. Omena's short lifespan and high reproductive rate ensure consistent yields, while its affordability and nutritional value make it a staple for local communities [2].

In 2007, the estimated maximum sustainable yield for Omena in Lake Victoria was approximately 150,000 to 200,000 tonnes per year [3]. By contrast, production reached only 47,000 tonnes in 2008, emphasizing the untapped potential of the fishing harvest [4]. By 2009, Omena was estimated to support over 2 million livelihoods. Export volumes increased from 12,449 tonnes in 2010 to 29,065 tonnes in 2011 [4], but declined by 2015 due to rising domestic demand. In 2021, 60% of Lake Victoria's total fish catch was Omena [5], amounting to 50,948 metric tonnes. Given that the average price per kilogram was €3, the estimated revenue reached almost €153 million.

Although precise figures for Omena's direct GDP contributions are lacking, its substantial production value and employment contributions underscore its significance. Fisheries and aquaculture contribute approximately 2% of Kenya's GDP, with fisheries accounting for approximately 75% of the country's fish production [6]. Omena's international demand is increasing as well, particularly in China.

Despite its economic importance, the Omena fishery in Lake Victoria has exhibited fluctuating catch levels influenced by environmental factors, overfishing, and regulatory challenges [7]. Post-harvest losses due to poor drying and storage methods set back the economy significantly [5]. To address these challenges, the Kenyan government and agencies have implemented regulatory measures, including seasonal bans and controlled fishing zones.

Several measures can be suggested to enhance Omena production and market expansion. They include enforcing regulations to protect juvenile fish, adopting sustainable nets, and using LED technology for night fishing. Expanding aquaculture through cage farming, investing in hatcheries, and promoting high-quality feed production can boost yields. Additionally, using solar drying technology and improved cold storage could help preserve the fish and reduce post-harvest losses. Expanding exports, particularly to China and African markets such as Rwanda, could drive additional revenue.

Omena plays a crucial role in Western Kenya's economy, supporting employment, food security, and trade. By improving fishing practices, minimizing post-harvest losses, and expanding market access, Omena can continue to drive economic growth. Sustainable management practices are essential to ensure the long-term viability of this valuable fishery.

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Mastering the Grill at the Biology Barbecue

Patience Blossfeld Dodgson

On April 15th, FSR hosted a start of semester barbecue for all Masters students in biology programs to meet and mingle. There were vegan and vegetarian foods for purchase along with beers and other drinks. Students from the Biology in Society, Organismic Molecular Biology, and Regenerative Biology programs were all present, along with those from a variety of years and a few teachers as well.



People discussed who they were working with, future plans, and hurdles with those from other years as well as other programs. On a less stressful basis, people also talked about their lives outside of studies. Overall, it was a great night for people to meet and mingle with students they normally would not see.

Best of luck to everyone with the start of the new semester!

