Statement of Grant Purpose

Sophie Wulfing, Indonesia, Biology

How international fishing affects small scale fisheries in Indonesia

*Note: I am still in the process of lining up an in-country advisor, so this project may change significantly depending on who I am able to connect with, their resources, and their location. I also know I’ve left out the community engagement portion, that part I’m still thinking of relevant ideas*. **Take this out you’ll be bringing it up in PE** There are three intersecting components when studying fisheries: the economy of the resource being harvested, the biological health of the fish population, and the culture surround catch methods and perceptions surrounding fishing. Small-scale fishing constitutes about 90-95% of the annual global fish output, yet they are some of the least studied and understood fisheries in the world. Indonesia represents a unique intersection between all three of these systems as about 95% of the fishing that occurs here is small scale, the country is home to the most biodiverse fishery in the world, and the vast diversities of cultures and language that exist in Indonesia result in highly unique fisheries across the island country.

As the world’s largest archipelagic country, Indonesia has over 50,000 km of coastline, with about 95% of the fishing that occurs here being small scale. On top of that, the Indonesian government recognizes that small scale fishing is the main source of nutrition and income for its fishers and therefore institutes very little regulation on their catch or permitting. This allows fishers the agency to support their families, yet creates challenges when trying to quantify the amount of fishing that occurs in Indonesia, and if fish stocks are healthy. Further, the Indonesian government decentralized in the 1990’s, meaning that fishing regulation and enforcement is managed at a regional level, maintaining the incredibly diverse culture of the country as over 700 languages are spoken by about 300 distinct ethnic groups. However, this also means that there is not a standardized method for managing fisheries in the country**.** In 2014, the Minister of Maritime Affairs and Fisheries, Susi Pudjiastuti, issued a moratorium banning all foreign fishing vessels from Indonesia’s Exclusive Economic Zone to replenish fish stocks and maintain sovereignty in the area. This effort has been seen to greatly improve population health in the area but no study has directly compared how much this international fishing was affecting the local fishers.

In order to conduct this research project, we will combine data collected in the field with Global Fishing Watch (GFW) data on foreign vessel interference in Indonesia from 2012 to 2018, where the group was able to identify changes in the amount of international fishing changes from before the 2014 moratorium to after that. According to the 2019 report, GFW found that foreign fishing in the Arafura was reduced significantly after the moratorium. Further, the report found that foreign fishing remained prevalent north of the island of Papua. Finally, GFW reported no foreign vessel interference south of the islands of Java and Sumatra before the moratorium, but dozens of foreign interferences in the years proceeding the decree. It is at these three locations where I hope to collect data to better understand the effect that these efforts have on the catch of local fishers in Indonesia.

Due to time and resource limitations, I cannot collect all of the data needed on my own, and will try to couple with an NGO already working in the area in order to help them further their efforts, as well as see if they have any available data in any of these regions. There are several Non-Governmental Organizations already collecting data in Indonesia, including Future of Fish, the Coral Triangle Center, the Nature Conservancy, and Yayasan Masyarakat dan Perikanan Indonesia- all of which I have reached out to regarding available data and potential affiliations. Because there are few formal markets for small scale fisheries in Indonesia, I will likely collect data through local mobile fish vendors who typically drive from port to port to buy from small scale fishers in the region. I hope to collect time at sea, location of fishing activity, number of fishers and total catch (i.e. species, number, and weights) in order to quantify how much is being harvested from these regions. My ultimate goal with the project is to create statistical models of how well fish populations in these regions are faring, and if foreign vessels are altering fish population health.

*This is the part I’m currently working on so this paragraph is very underdeveloped for now*. As this project will require outside data from longer term research, I plan on being co-advised in Indonesia, partially by a University Researcher, but also with someone working for an NGO that has some of the data I am hoping to incorporate in this project. I hope to gain affiliation with a larger university in Indonesia, hopefully in one of the areas mentioned above where I will be conducting research. In particular, I am looking into researchers at the University of Hasanuddin in Makassar in South Sulawesi both because of proximity to one of my proposed study sites, but also the prominence of the University in fisheries research in the country. Further, I hope to work with one of the NGO’s listed above in order to access data and field resources. As mentioned above, I have contacted several groups already.

My experiences in jobs, school, and internships have all prepared me for conducting a research project like this. I have conducted fisheries research both in the field and through data analysis. In 2017, I interned for the National Oceanic and Atmospheric Administration where I aided in a research project updating population models of Pacific fishes. Further, I participated in their bottom trawl survey, learning how to identify species in the Eastern Pacific and how fisheries are managed and regulated. Currently, I am getting my master’s degree UNH’s Quantitative Marine Ecology lab where I study mathematical applications in biology. My thesis is in studying small-scale fisheries in Madagascar and I hope to continue this line of research into the Fulbright Fellowship. Further, in order to understand small-scale fisheries, having an understanding of their culture is key which is why I will also be applying for the Critical Language Enhancement Award in order to be able to communicate effectively with my peers and colleagues. Before leaving for the country, I also plan on mastering the basics of Bahasa Indonesia through independent study.

My interests and experiences in small scale fisheries have all prepared me for conducting this project. After my master’s, I hope to work for an NGO or government agency to better understand and quantify the status of our world’s small-scale fisheries. This project will aid me in that goal as it will help me gain a better understanding of how diverse subsistence fishing can be and how to incorporate ecological needs with the culture of the people fishing it.