**STATEMENT OF GRANT PURPOSE**

**Sophie Wulfing, Indonesia, Biology**

**The status of octopus fisheries in the Spermonde Islands, Indonesia**

In Indonesia, assessing the status of fisheries presents a unique challenge as it is the world's largest archipelagic country and about 95% of fishing that occurs here is small-scale. However, gaining a substantive knowledge of the health of fish stocks is especially important in Indonesia as this country boasts the most biodiverse waters in the world, is the second largest producer of fish globally, and one of the top ten producers of octopus due to growing international demand. The Spermonde Archipelago west of the island of Sulawesi is one of the largest artisanal fisheries in the country, meaning fishing is mostly conducted by individual households using traditional methods. The largest export from these islands is octopus, however very few studies have assessed the status and population health of these species in this region. With the intention of understanding how octopus populations are faring in this region, I propose to work with Dr. Rohani Ambo-Rappe from the Universitas Hasanuddin in Makassar, as well as the group Pesisir Lestari which works with local communities around the country in octopus conservation, yet doesn’t have any partnerships in the Spermonde Archipelago. We will conduct a stock assessment of octopus species to help regulators better understand what steps need to be taken to preserve this valuable resource.

There are several species of octopus being caught in this fishery, including the blue octopus (*Octopus cyanea*), the common octopus (*Octopus vulgaris*), and sandbird octopus (*Amphioctopus aegina*), among others. Data collection will include surveying fishers as they come off of the water. From them, we will ask if any octopus were caught during their trip, time at sea, location of fishing activity, fishing method, number of fishers and total catch (i.e. species, number, and weights). All of these are factors that go into conducting stock assessments and predicting future catch. Then, I will combine this data with that collected by the NGO Pesisir Lestari in order to create an assessment of octopus species around the country, and hopefully provide useful insight for community action leaders and decision makers. Currently, my timeline for the project is in September – November 2023: Focus on Bahasa language learning in Java (this part is contingent upon me receiving the CLEA award). I will also continue background research of the fisheries and octopus species I plan to study, review background literature, and finalize methodology with Dr. Ambo-Rappe. December 2023 – April 2024: Data collection in the Spermonde Archipelago. This will involve moving to Makassar, finding field workers to help with data collection, and beginning to work with local fishers. I will also connect with Pesisir Lestari at this time to begin basic analysis of their data and see which models I am able to run with the data provided. May – June 2024: Data analysis, model creation for the Spermonde region along with other regions provided by Pesisir Lestari. July – August 2024: I will present results to Dr. Ambo Rappe, Pesisir Lestari, and possibly at other scientific conferences. We will also discuss best course of action for presenting our findings to stakeholders and decision makers.

Dr. Rohani Ambo-Rappe is a seagrass ecologist that has worked extensively in the Spermonde Archipelago and works closely with both fisheries researchers and the local community in the area. She can provide expertise in the area, connect me with fish vendors, and has students who are willing to help me conduct the fieldwork component and communicate with local fishers and

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community members. I will also be applying for the Critical Language Enhancement Award (CLEA), which will be a key component of my communication skills, but the assistance of local students will facilitate these conversations with fishers as well as provide help in the best ways to approach community members. Dr. Ambo-Rappe has also helped me identify ways I can help support the local community. In order to engage with the students at Makassar, I plan on teaching courses in the statistical programming language R, a common analysis tool in ecology. I have run similar workshops during my master’s program and am familiar with the challenges new students face when learning to code. I would gain so much from a Fulbright Grant in Indonesia, and I hope to use this course to foster a mutualistic exchange of experience and knowledge.

Pesisir Lestari is a group that works around the country in octopus conservation. They use community leaders to facilitate data collection from small scale fishers in their area which is then sent to Pesisir Lestari. This NGO then creates assessments of the octopus stocks there and then returns this information in a format that is easily understood by local fishers and leave it up to the community members themselves to make decisions based on that information. They have been working since 2021 and have now expanded to 19 locations around the country.

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 CLEA 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 using resources such as Duolingo. On top of that, I am already pursuing a formal Bahasa Indonesia course through the language course website Babel. Further, I have contacted members of a local group in my area called Indonesia Community Connect that focuses on connecting Indonesian culture with the region and promotes Indonesian heritage in New Hampshire. I hope to find a native speaker willing to meet to have a language exchange in order to improve my language skills outside of coursework.

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. Despite the growing threats ocean environments face, Indonesia is still home to precious marine resources that require better understanding in order to protect them.