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# 2019 Cooperative Summer Field Training Program

**Project Title:** Estimating Global River Fisheries Harvest Potential

**Project Scientists:** Abigail Lynch

**USGS Center:** National Climate Adaptation Science Center

**Location:** Reston, VA

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## Project Description:

### ***Background Information:***

Fish that are harvested from rivers and lakes play an important role in ensuring global food security. However, data on river fisheries is not collected in any standardized format globally. Although targeted analyses have been conducted on certain river systems, the approaches used, such as intensive field sampling, are not feasible at a global scale. Most river fish are harvested by small-scale operations and in countries that lack the necessary infrastructure and technology that would enable regular reporting of harvests.

Therefore, alternative approaches are needed for estimating the harvest potential of river fisheries at a global scale. Given changing climate conditions and the potential impact of these changes on river fisheries, developing a baseline understanding of estimated harvest potential will be key for monitoring change. For example, rivers in tropical and mid-latitude regions are expected to experience reductions in annual flow, while those in high-latitude regions are expected to have increased annual runoff. These changes will have implications for water supply, irrigation, hydropower demand, and ultimately, fisheries.

### ***Objectives:***

The goals of this project are to (1) compile a standardized database of global river fishery information, collected through a systematic literature review; (2) combine this database with remote sensing and other environmental data to develop a model of river harvest potential; and (3) identify ways in which river harvest might be expected to change as a result of changes in climate and land use.

### ***Intern Tasks:***

- Utilize a systematic literature review process to assemble river fishery data
- Georeference the river fishery data to combine with remote sensing and other environmental data to develop a model of river harvest potential
- Aid research in the area of fisheries management and conservation and impacts of climate change on inland fisheries resources

- Work with USGS scientists and university partners to integrate outputs of research into science to action projects ongoing within the DOI CASC network

***Expected Outcomes:***

This innovative approach will improve estimates of inland fisheries harvest globally to inform future management and conservation efforts. Better estimates of the contributions of small-scale fisheries are particularly important in the context of global change. Ultimately, how climate change, human population growth, or land use change will impact small-scale fisheries at a global scale has major implications for global food security, especially in food deficient countries, which commonly rely on small-scale fisheries for food and commercial uses. This Intern will acquire an international network of collaborators and an intimate understanding of how science can inform global policy discussions.

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**Details for Matching:**

**Type of Project:** Office Work

**Project Discipline:** Ecology, Modeling, Climate Science, Fisheries

**Project Start Date:** Wed May 15 2019 00:00:00 GMT-0400 (EDT)

**Project Duration:** Two months

**Level of Physical Demand:** Level 8-1: The work is sedentary. Typically, the employee may sit comfortably to do the work. However, there may be some walking; standing; bending; carrying of light items such as papers, books, or small parts; or driving an automobile. No special physical demands are required to perform the work.

**GIS Training:** ESA

**Special Skills and Interests:** • Training in fisheries ecology or a related discipline

- Knowledge of geospatial information systems (GIS) and geospatial analysis
- Excellent technical, analytical, computer, organizational, and problem-solving skills
- Ability to work collaboratively and independently