FY23 - Expansion of the FISHstory Citizen Science Project

Progress Report: January 2024 – June 2024

Submitted By:

Julia Byrd

South Atlantic Fishery Management Council

4055 Faber Place Drive, Suite 201

North Charleston, SC 20405

julia.byrd@safmc.net

843-302-8439

Jie Cao

North Carolina State University

303 College Circle

Morehead City, NC 28557

jcao22@ncsu.edu

252-222-6331

Report Title: FY23 - Expansion of the FISHstory Citizen Science Project

Recipient Organization: South Atlantic Fishery Management Council (SAFMC) & North Carolina State University (NCSU)

Principal Investigators (PIs): Julia Byrd and Jie Cao

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Grant Summary:
The FISHstory pilot project was developed through the SAFMC's Citizen Science Program. It uses historic photos from the 1940s-1970s to document for-hire catch and size composition for a time before recreational catch monitoring programs were established in the South Atlantic region. This proposal builds on the success of the pilot and will expand the geographic and temporal scope of the project by compiling, archiving, and analyzing additional historic photos from multiple fleets, geographic regions, and from an expanded time range. It will provide additional catch, effort, and length data on the recreational for-hire sector during its nascent period which will offer researchers and managers an understanding of long-term changes in the fisheries and fish populations.

The primary objectives of this project are to:

- Expand geographical and temporal range of the FISHstory citizen science project in support of developing abundance indices for stock assessments of South Atlantic species
- Improve efficiency of data collection and photo processing
- Estimate length compositions for multiple species using the protocols developed during the pilot project with focus on Red Snapper and King Mackerel
- Implement an outreach and engagement strategy to retain FISHstory's current volunteer base and recruit new users

To accomplish the objectives, work has been divided into four primary tasks outlined below.
- **Task 1**: Compile, digitize and archive historic photos from different fleets, geographic regions, and from an expanded time range (1940s-1990s).
- **Task 2**: Collect for-hire species composition data via the Zooniverse platform.
- **Task 3**: Estimate length compositions for multiple species from photo archive focusing initially on Red Snapper and King Mackerel.
- **Task 4**: Design and implement an outreach and engagement strategy.

Summary of Progress:
Project PI's were notified that their FY24 ACCSP proposal, 'Expansion of the FISHstory citizen science project' was approved for funding. Per communication with NOAA Fisheries' SERO grant staff, the FY24 work will be a continuation of the FY23 proposal extending the project timeline through June 2025.

Biweekly meetings with the NC State graduate student (Alex Rocco) have continued through the reporting period. The FISHstory Design Team (diverse stakeholder group providing guidance to the project) met once during the reporting period.

Progress updates are summarized by task below.

Task 1: Compile, digitize and archive historic photos from different fleets, geographic regions, and from an expanded time range (1940s-1990s).

During the reporting period, staff planned, coordinated, and implemented three FISHstory photo scanning events in conjunction with Council Advisory Panel (AP) meetings during spring 2024. Photo scanning events were held in conjunction with the Snapper Grouper, Shrimp, and Habitat AP spring meetings. The events were promoted directly to the relevant AP members and via the FISHstory webpage. Through these efforts, staff were able to gather ~30 new photos and AP members provided additional suggestions and helped connect staff to individuals and organizations that may have photos to contribute to the project.

Through outreach efforts and scanning events conducted in fall 2023 and spring 2024, ~625 photos were archived for the FISHstory project. During the reporting period, the FISHstory team reviewed the newly archived photos to identify those that are appropriate for analysis and those that are helpful for informational content, project promotion, and/or training materials. Metadata for all photos was catalogued in the FISHstory photo index. Of the newly archived photos 580 were prepped for Zooniverse classification (e.g., resized, watermarked with photo credits, and compiled into 100 photo batches).

The FISHstory team will follow up and connect with additional individuals, organizations, and businesses to continue gathering historical photos for the project. Scanning events will continue to be held in conjunction with appropriate Council AP meetings.

Task 2: Collect for-hire species composition data via the Zooniverse platform.

The FISHstory team continued to refine the workflows, background materials, and training materials in the Zooniverse platform. Workflow changes included: reducing the overall number of species for volunteers to identify from 16 species/species groups to 10 species/species groups; increasing the number of workflows from 2 to 4 which will decrease the number of species volunteers will identify within each workflow; using a 'mark' tool for species identification and counts within each workflow which will provide point locations for each volunteer identification; incorporating a 'leveling up' system in which higher level workflows will be unlocked after volunteers complete a set amount of photos at lower level workflows; and refining the way volunteers identify photos with obstructed fish. The team met with Zooniverse personnel once during the reporting period to finalize the leveling criteria and to prepare for the Zooniverse beta test and re-launch.

The Zooniverse beta test for FISHstory occurred in May 2024. During the beta test, Zooniverse 'gold star' volunteers tested the project workflows and training materials and provided feedback. Overall feedback from the beta test was positive. Feedback primarily focused on enhancing the tutorials and field guide to better assist volunteers with some of the trickier species' identifications. Staff met with the Design Team to discuss the beta test feedback and final edits to the project were made in preparation to re-launch the project in July 2024.

Task 3: Estimate length compositions for multiple species from photo archive focusing initially on Red Snapper and King Mackerel.

An additional training session was held with the FISHstory length analysts in January 2024. Results from the calibration/training photo set were shared which determined a centerline length measurement would be used for Red Snapper. Length protocols and logistics were reviewed and Red Snapper production measurements began for the photos archived during the pilot project.

Red Snapper length measurements have been completed for 1,174 of the 1,374 photos archived during the pilot project. Measurements for the remaining pilot projects photos will be complete in July 2024 and then analysts will move on to the newly archived photos.

Task 4: Design and implement an outreach and engagement strategy.

Staff have updated the project's communication plan, incorporating strategies to gather new photos and promote the re-launch in Zooniverse. Staff planned outreach strategies and developed content for FISHstory's re-launch in Zooniverse – which included updating the Council's FISHstory webpage; developing content for the Zooniverse project launch announcement; developing social media posts/stories for Council communication platforms; coordinating with NC State University's Applied Ecology Department on social media posts; developing content for the Council's newsletter; coordinating with NOAA Fisheries to share information via their citizen science community of practice and communication platforms, as appropriate; and coordinating with SciStarter to feature FISHstory in one of their July live webinar events. In the upcoming months staff will continue outreach efforts to recruit and retain volunteers for the Zooniverse component of the project including monitoring Talk Boards, distributing monthly newsletters to project participants, and working on additional events/opportunities to promote the project to new volunteers.

Project Challenges & Opportunities
- FISHstory Design team members have been key partners. Not only are they providing guidance on the project's expansion, but they have also helped recruit length analysts for the project, promoted FISHstory scanning events, and reached out to fishermen and organizations within their communities to help gather additional historic photos. Their high level of engagement has increased the number of project participants and the project's overall reach.
- FISHstory scanning events have not yielded photo collections of the magnitude initially provided by Captain Hudson for the pilot project. However, the scanning events have helped connect staff

to individuals and organizations that have larger archives of historic photos. The most productive scanning events were those held in conjunction with Council AP meetings, so staff are planning to continue scanning events at AP meetings for the remainder of the year. Gathering historic photos is taking longer than initially anticipated, so the team plans to continue working to identify and gather historic photos for the project in the upcoming months.

- Re-launching the Zooniverse portion of the project has taken longer than anticipated. To incorporate leveling into the workflows, assistance from Zooniverse staff was needed, which took time due to their workload. Additionally, due to the changes made to the workflows from the pilot, we found out we needed to beta test the project again with Zooniverse 'gold-star' volunteers before re-launching to the public which extended the project timeline. FISHstory is scheduled to re-launch in Zooniverse in July 2024. With the additional FY24 ACCSP funding extending the timeline for this project, we are hopeful to still be able to meet our target photo classification goals.

Expenditures

Project PI's were notified that their FY24 ACCSP proposal, 'Expansion of the FISHstory citizen science project' was approved for funding. Per communication with NOAA Fisheries' SERO grant staff, the FY24 work will be a continuation of the FY23 proposal extending the project timeline through June 2025. FY24 funding has not yet been received. FY23 project expenditures are summarized below.

Expense Category	FY23 Grant Total	Expenditures through 7/1/2024
Contract	$66,313	$66,313
Travel	$6,325	$1,605
Other / Supplies	$6,970	$1,079
Indirect	$7,961	$0
TOTAL	$87,569	$68,998