

## **JOB 4: MARINE FISHERIES GIS**

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## **JOB 4: MARINE FISHERIES GIS**

### **GOAL**

To maintain a geographic information system (GIS) of Project data to support map applications and geospatial analyses, assist with planning and executing Connecticut DEEP Marine Fisheries Program (MFP) surveys that support sport fish restoration goals, help people visualize the spatial extent of MFP project sampling efforts, assist in evaluating the effects of fishing and environmental conditions on the distribution and abundance of living resources in Long Island Sound, evaluate effects of marine spatial planning projects on living marine resources and fisheries in Long Island Sound, and improve coordination with other agencies.

### **OBJECTIVES**

*1) Provide GIS-compatible, or GIS-ready, datasets and geo-referenced layers of data collected through other Jobs of this Project that are sanctioned by the Marine Fisheries Program.*

*2) Provide maps and geospatial analyses of Marine Fisheries Program data or other information relevant to managing living marine resources in Long Island Sound.*

### **INTRODUCTION**

In recent years, there has been an increased need for staff to use geospatial technology to map and analyze marine environmental or fisheries related information. Project staff have also experienced an increasing number of requests to provide geospatial data to others (intra-agency, inter-agency, NGOs, academic institutions, etc.) for use in, for example, fisheries stock assessments, habitat assessments, environmental sensitivity maps, and public outreach efforts. Therefore, in 2012, a new job was created within the project to support this need for geospatial datasets, data layers, analyses and products. This report includes results from the most recent year of the Job (2021).

### **METHODS**

GIS work was accomplished using ESRI products licensed by the Connecticut DEEP including ArcMap desktop and ArcGIS Online. Published products comply with Department policy pertaining to GIS data. Script development used well established scripting utilities (*e.g.* Python, HTML, CSS, Javascript). Products designed for the Internet adhere to Agency requirements for Agency websites, pages and products. A number of the custom applications, scripts and tools created during earlier segments of the Job continued to be used as templates in subsequent years.

## RESULTS

As was the case for most activities in 2021, work for this project segment continued to be impacted by COVID19 and CT DEEP’s virus-mitigation policies requesting project staff to work remotely when possible and limit the amount of time spent working near others in the office during 2021. Although GIS-related work is computer oriented, teleworking impacted staff’s ability to collaborate on some projects. Never-the-less, considerable GIS-related work was accomplished.

The “[American Shad & Land Cover on the Connecticut River, 1965-2016](#)” ESRI StoryMap produced by project staff in early 2020 (Pacileo 2020) was promoted on the CT DEEP Facebook (Meta) page ([CTFishAndWildlife](#)), screen shot below. Within a day of the post, the number of people reached through the post was over 12,000, making it one of the most popular posts for this page.

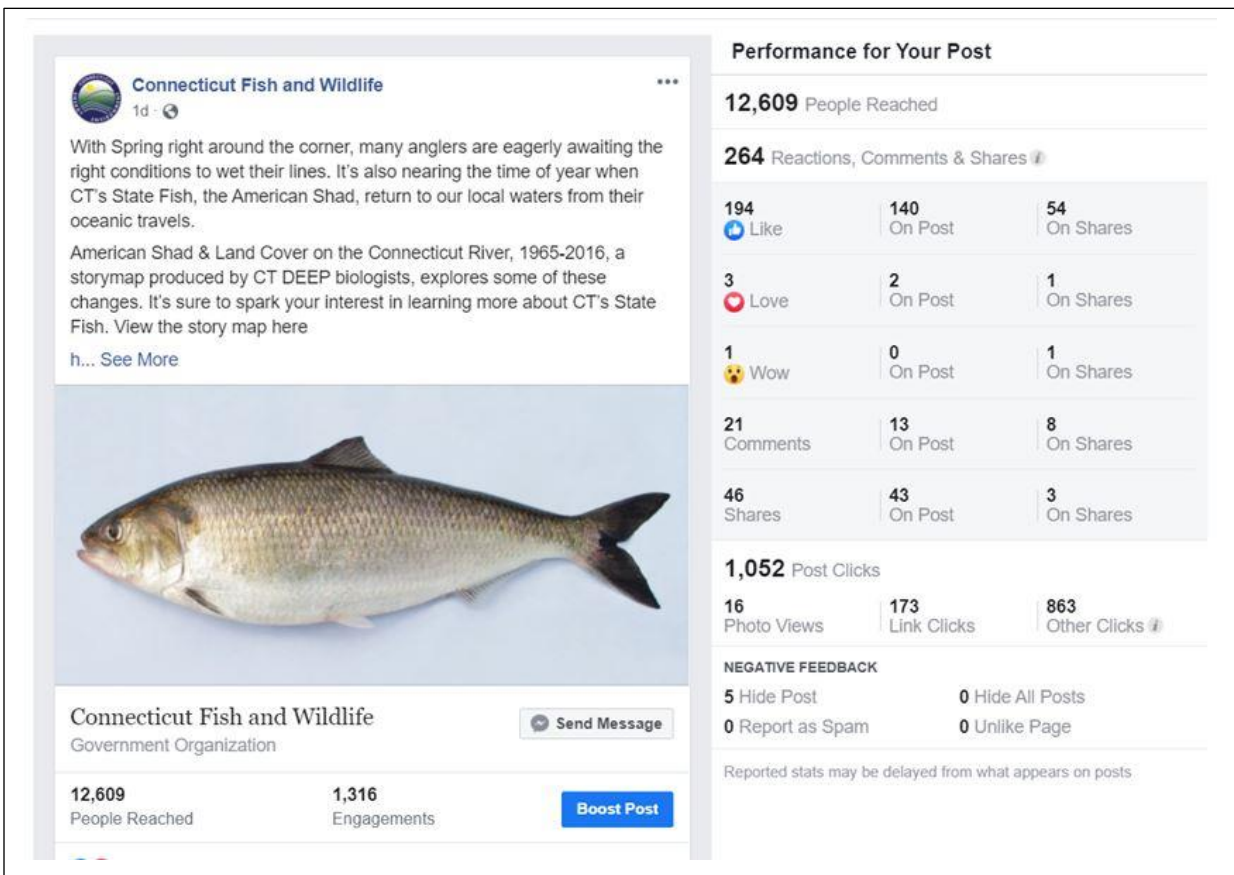


Figure 4.1 Screen grab of Connecticut Fish and Wildlife Facebook/Meta page with performance statistics for the post promoting the Project’s StoryMap called “American Shad & Land Cover on the Connecticut River, 1965-2016”.

GIS staff continue to support other jobs in the project as needs arise. For example, in Fall 2021, seasonal catch distribution plots for bluefish caught on the LIS Trawl Survey were generated for the entire time-series of data available at that time for use by project staff on the ASMFC Bluefish Technical Committee.

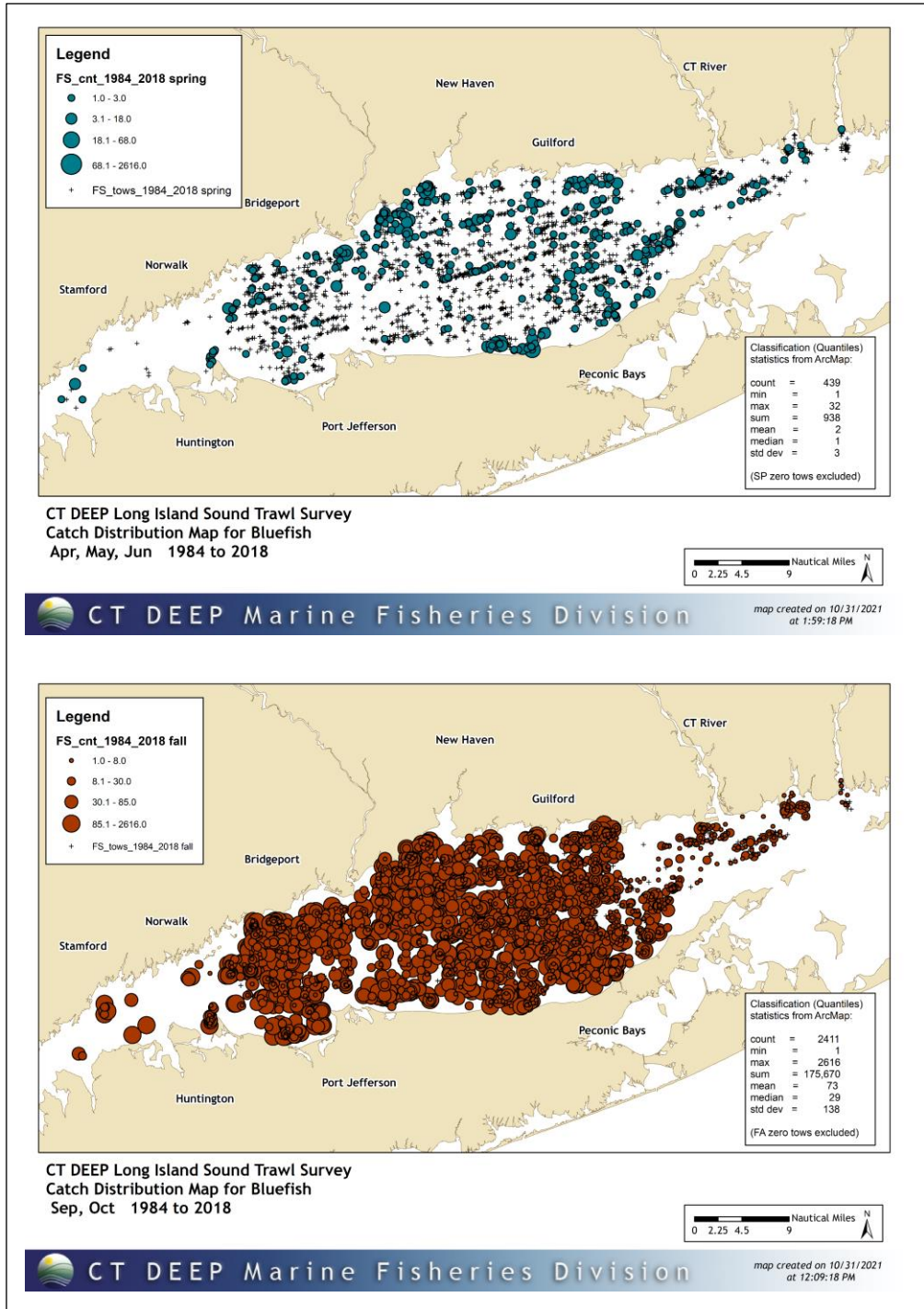


Figure 4.2 Example of seasonal catch distribution maps for bluefish generated from LISTS time-series of data.

Project staff participated in multiple virtual training sessions on new ESRI software (ArcGIS Pro) that the Agency will begin using. Additional staff training will occur in the next project segment as well. The new software, frequently referred to as ArcPro or Pro, is designed to make sharing GIS data and products more easily with others, especially with web users, which will be very beneficial for the jobs in this project. Unfortunately, some of the old data structures (namely shapefiles) will need to be updated by creating more feature classes in geodatabases for the new software. Additionally, most of the custom tools and scripts developed under the old software will not be compatible with the new software and will need to be re-created. For the time being staff can continue to use the old software (ArcMap) concurrently with the new software (ArcPro) if necessary to complete project tasks.

Project staff virtually attended LIS Blue Plan Advisory Committee meetings during this project segment. On February 11, 2022, NOAA's Office for Coastal Management approved Connecticut's request for a program change to incorporate Blue Plan enforceable policies into the state's coastal management program. This means the CT Blue Plan is now a critical marine spatial planning tool that can help preserve and protect marine recreational fish resources and angler opportunities in Long Island Sound. As detailed in previous years' reports (Pacileo 2020, Pacileo and Roberts 2018, 2019, 2021) a substantial amount of Project data from multiple jobs within the project are included in the Blue Plan and Blue Plan data viewer ([Blue Plan Viewer \(uconn.edu\)](https://blueplanviewer.uconn.edu)), particularly data from the Long Island Sound Trawl Survey and Recreational Angler Surveys. Part of the CT Blue Plan legislation calls for periodic updates to the data included in the Blue Plan viewer, so project staff may be asked to update the GIS layers included in the Blue Plan or create additional layers. Additional information on the CT Blue Plan can be found on the CT DEEP [Long Island Sound Blue Plan website](https://www.ctdeep.org/blue-plan).

Developed staff tutorials for maintaining ESRI Survey123 apps launched in previous project segment and trained other project staff in use of the apps and their data. A companion tutorial for the public on how to find and use data from the Survey123 apps on the CT DEEP GIS OpenData website [CT DEEP GIS Open Data Website \(arcgis.com\)](https://www.ctdeep.org/gis-open-data) was also developed during this segment.

## **MODIFICATIONS**

To reduce the administrative tasks related to GIS work in support other jobs in this project, GIS staff plan to incorporate the reporting of GIS work under the respective F54R jobs (instead of maintaining a separate section of the report).

## **LITERATURE CITED**

Pacileo, D. 2020. Marine Fisheries GIS, Job 4. In: A Study of Marine Recreational Fisheries in Connecticut. Annual Progress Report, CT DEEP Fisheries Division, Old Lyme, CT.

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