



2022

## Skagit Fisheries Enhancement Group - GIS Internship

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# COLLEGE OF THE ENVIRONMENT



Internship Title: GIS Intern-Skagit Fisheries Enhancement Group  
Student Name: Stephen Hullin  
Internship Dates: MAY 2022 - AUG 2022

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STUDENT SIGNATURE 

DATE: 8/19/22

Stephen Hullin

Internship Report

May-August 2022

Skagit Fisheries Enhancement Group

1202 S 2nd St UNIT C, Mount Vernon, WA 98273

GIS Intern

During this internship, I worked with SFEG staff to transition their projects from ArcGIS Desktop to ArcGIS Pro. I developed a simple guidance document on the basics of getting started using ArcGIS Pro and presented to SFEG staff a simple ‘Introduction to ArcGIS Pro 101’ presentation. I worked with Riparian Manager to mine past vegetation monitoring data and figure out a way to represent it spatially. I also worked with the Habitat Restoration Coordinator to update current culvert files with new data and created maps for volunteers performing salmon surveys. I was able to participate in fish-rescue projects along the South Fork Skagit River.

During my internship experience with SFEG, I was able to develop my abilities in ArcGIS Pro and Desktop. I particularly found conversions between software to be useful in improving my skills. Although I found using old data to create new projects in updated software to be challenging, it was valuable in developing my skills. As an example, I created an outline of the Skagit watershed and merged it with every property parcel within it. I took publicly available tax data from multiple counties and converted them to fit together - since every county reports their data differently. Because I completed this project near the start of my internship the organization will be able to easily identify specific parcels, establish ownership, and be able to

contact the owners if necessary. This shapefile was by far the largest and most detailed I had worked on at the time.

I was also included in SFEG's ongoing knotweed project. Knotweed is a dangerous invasive plant species that overtakes native species in riparian areas. My job was to update SFEG's online database for Skagit watershed landowners with known knotweed issues. These owners were contacted and asked if SFEG could come onto their land to treat the invasive plants. I took all responses and updated their profiles based on availability. I used this data to create a map showing all parcels within the watershed to be treated for knotweed.

I was also tasked with generating maps showing progress of knotweed treatments over a 15+ year timespan. These maps will be sent to the Washington Department of Fish and Wildlife later this year. I made three maps, one for 2010, 2015, and 2021. Each map shows points along rivers in Skagit county and these points are color coded based on the severity of knotweed infestation. These maps show that SFEG has made great progress over the years in the places they treat.

The organization also conducts salmon-counting surveys throughout the year using volunteers. Every survey requires access to private lands. Some property owners do not want volunteers walking through their property, so I used the parcel data I had created earlier to identify these landowners and I generated maps for volunteers to use, enabling them to avoid lands where they are not welcome. Twenty maps were made for 16 different waterways for these volunteers.

I also updated culvert maps for Island County based on the “passability” for salmon to head upstream and spawn. More than 90 surveys had been conducted on culverts throughout the islands and I implemented the data into a usable shapefile in ArcGIS.

This summer, SFEG decided to use a new mobile software to collect field data. I was tasked for a day to learn the app and set up SFEG knotweed data collection strategies. The app is called iFormBuilder and it enables specific data collection, including classifications, photos, text entry, GPS data, etc. I helped the Stewardship Coordinator learn the software so that they can use the app for future work.

I wish I had been able to generate a large-scale map from scratch that could have been seen by a large audience, a statement piece that would have served as my final project. I believe I have the necessary skills to create an eye-pleasing and informative map that could be used by the general public. I understand that this is most likely outside the needs of SFEG at this time, but that I’ll might have the chance to do this in the future.

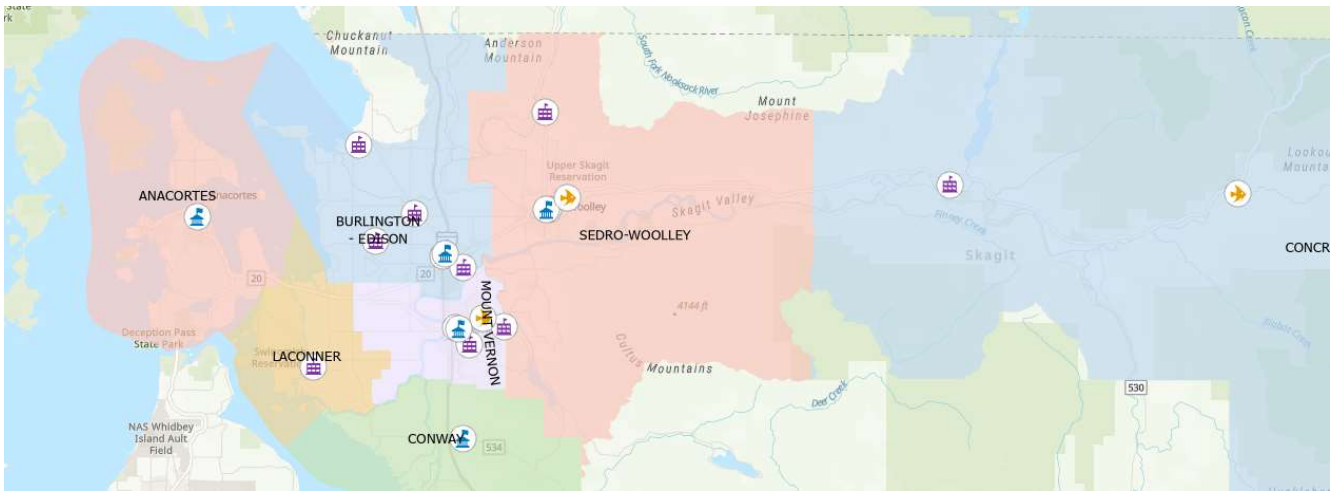
While I had many useful experiences at Skagit Fisheries Enhancement Group, I feel that I still need to develop my skills for using complicated geoprocessing tools for map creation. I would have enjoyed more time to learn these skills, but they are job-specific and were not needed during my time with the organization.

In conclusion, I am very thankful for the Skagit Fisheries Enhancement Group allowing me to benefit them while learning valuable skills throughout this summer. I am proud to say that I made a small contribution to the beneficial work this nonprofit does. I learned more about how nonprofits work and I cannot thank them enough for giving me the tools I need for geospatial analysis as I pursue a permanent position in this field.

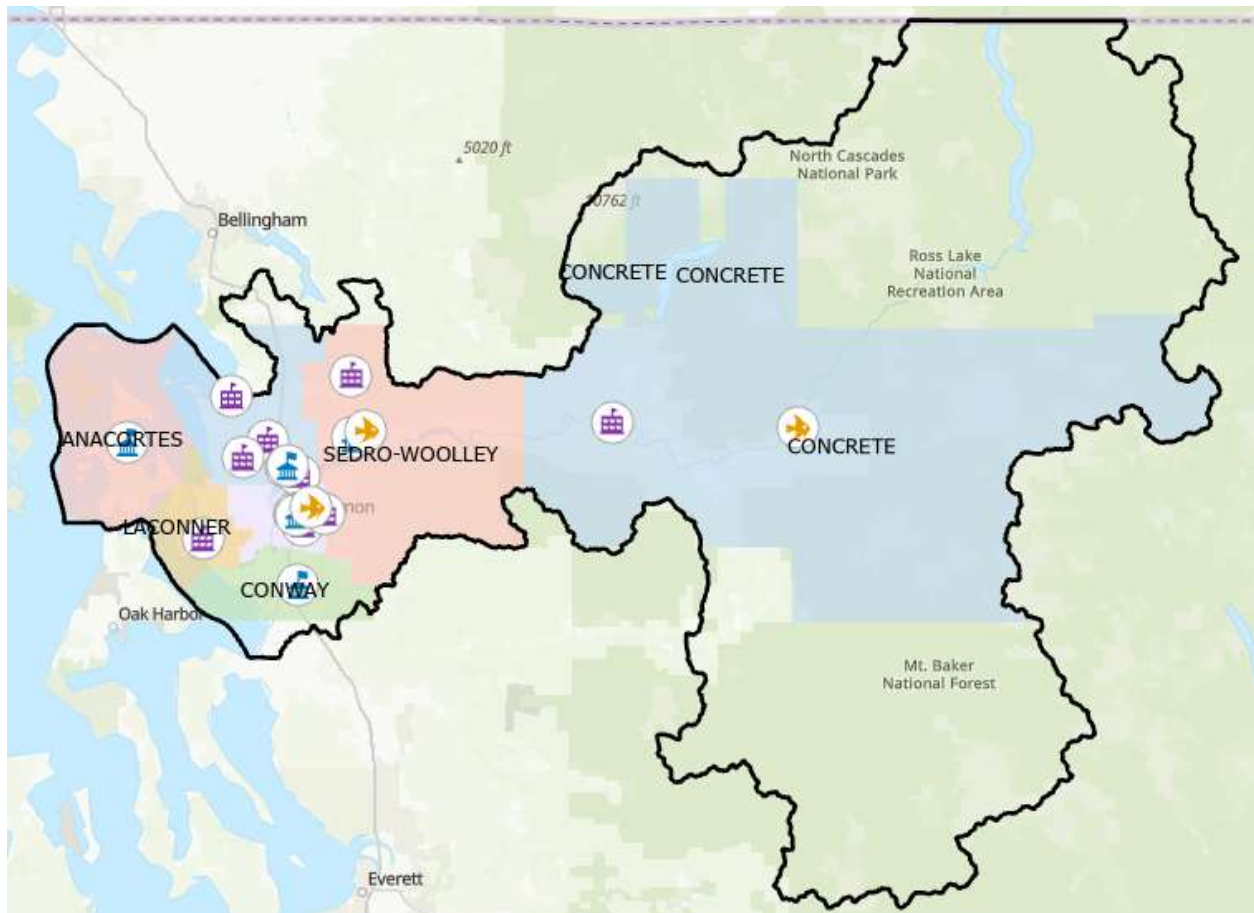


Example of a volunteer map made for salmon surveys.

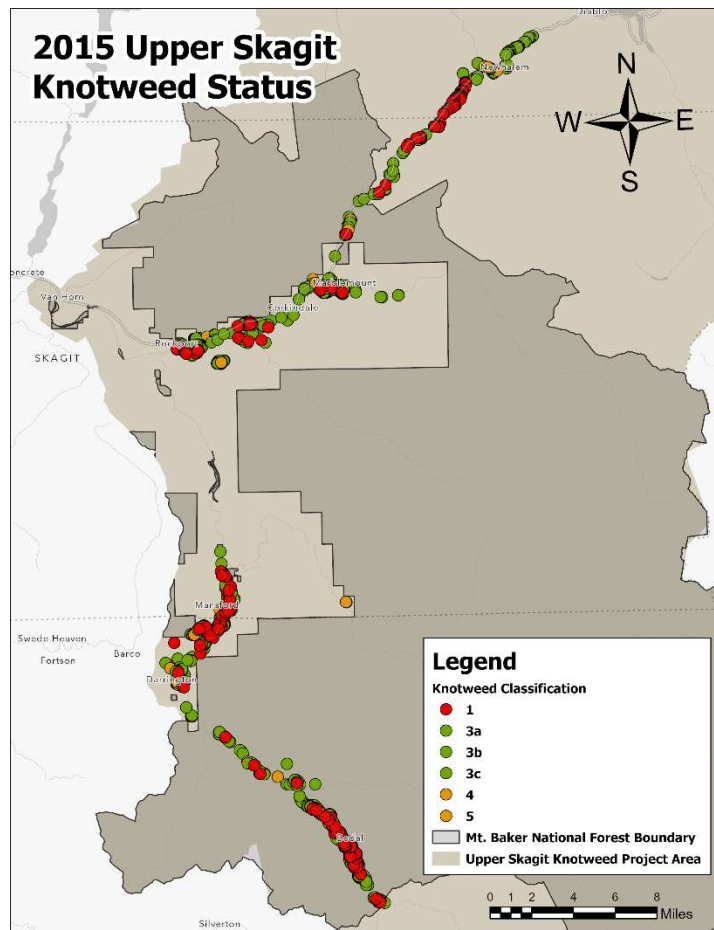




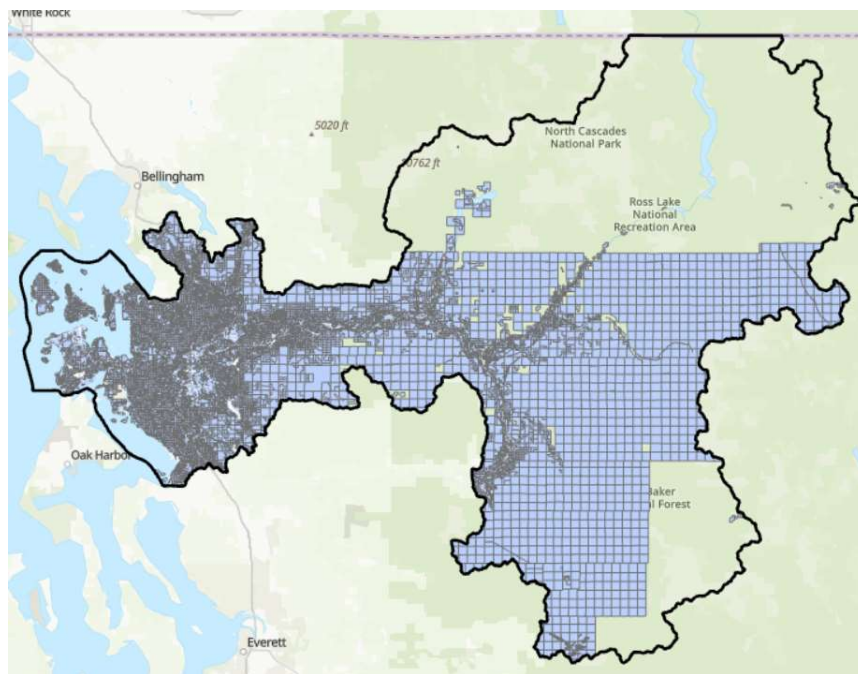
Map made for schools that raise salmon fry and their assigned release sights.



Map showing schools and school districts within the Skagit Watershed that raise/release salmon fry.



Map for knotweed classification during 2015 survey season.



A map showing all assessor parcels within the Skagit Watershed.