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DFSW Fish Sampling Internship

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COLLEGE OF THE ENVIRONMENT



Internship Title: Fish Sampler

Organization Worked For: Washington State Department of Fish and Wildlife

Student Name: Dylan Adams

Internship Dates: 07/06/2023 09/30/2023

Faculty Advisor Name David Wallin

Department ESCI

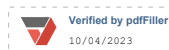
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STUDENT SIGNATURE *Dylan Adams*



DATE: 10/04/2023

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Abstract

This paper provides an overview of my experience with the Washington State Department of Fish and Wildlife (WDFW) in the summer of 2023. I was part of the Puget Sound Sampling Unit (PSSU) and aimed to enhance my knowledge of state biological data collection techniques and scientific data organization. The job responsibilities included interviewing recreational anglers, collecting data on salmon, marine fish, and shellfish catches, and obtaining specific biological data to support fisheries sampling goals. This paper highlights the challenges faced during the initial days of the job and the development of technical and communication skills, including teamwork and effective data management. The contributions of the PSSU to fishery management are emphasized. I reflect on the academic knowledge applied from their education at Huxley College of the Environment, and the personal growth and career aspirations fostered through this valuable experience in fishery management and preservation.

1. Introduction

1.1 Background and Objectives

The organization I worked under this last summer was the Washington State Department of Fish and Wildlife, also known as WDFW. WDFW was formed to preserve, protect, and perpetuate Washington's fish, wildlife, and ecosystems. Specifically, I was in their PSSU (Puget Sound Sampling Unit) while working with them. While in the PSSU, I aimed to learn state biological data collection techniques and refine my scientific data organization. I wanted to learn how to operate commonly used biological data collection equipment that I will have to use in my career. I also wanted to refine my skills with citizen-based science, a scientific

research method involving participation from the public. This provides the potential for a larger sample size for scientific analysis, but it requires a significant effort to organize the collected data.

1.2 Duration and Location

I worked in the PSSU during the summer of 2023 from the beginning of July to the end of September. This seasonal position coincides with the recreational chinook and coho salmon seasons. I was part of the northern group of samplers that covered the sampling sites within marine areas 6, 7, 8, and 9 (Figure 1). However, the PSSU has units that cover the entirety of Puget Sound. My specific sampling location was Washington Park near Anacortes, Washington. However, there were some shifts where I was sent to other locations, such as Cornet Bay County Park, Camano Island State Park, and Fort Casey State Park.

1.3 Scope of Work

The main part of my job was to conduct interviews with recreational anglers at my assigned boat ramp. The information from my interviews collects and summarizes recreational salmon, marine fish, and shellfish catch information and specific biological data to meet fisheries sampling goals. This data helps obtain the stock composition of the fishery, age structure of Chinook (scales), length information for legal and sub-legal proportions, and hatchery/natural-origin proportions (clipped/un-clipped adipose fin status) for salmon fisheries.

2. Job Responsibilities

2.1 Overview of Duties

My specific duties changed daily, but every shift consisted of waiting at my assigned boat ramp for the entirety of my shift and interviewing all boats being taken out of the water at my ramp.

My duties sometimes change because the interview is modified based on our survey design status for that sampling day. The PSSU is under a mark-selective survey design where it was baseline collection days with minimal requirements on the data being collected. But on other days, it would be considered selective, which means we are trying to ensure we cover every boat that comes through our ramp and get their time fishing and other fishing-related information. Specifically in Marine Areas 6 and 7 (Figure 1), aerial data was collected on the number of boats on the water on certain selective days. For those "Flight days," we were also tasked with collecting additional "flight times," which are the times the boat was on the water in the specified marine areas being surveyed in addition to their time fishing.

2.2 Learning Objectives

As I stated earlier in the paper, I wanted to achieve my learning goals through the experience in this job. I wanted to learn biological data collection techniques and refine my data organization skills. During this job, one of the main parts of the interviews was taking biological data of several salmon species. Most of our data collection involved *Oncorhynchus tshawtscha*, the Chinook salmon. When interviewing an angler who brought back a chinook salmon, we also took fork lengths and scale samples of every specimen, unlike the other salmon species.

Additionally, during the second half of August through the end of September, Bellingham Bay (area 28), a sub-area within area 7, opens up to retain chinook salmon after the primary season. This special opening allows anglers to keep hatchery and wild chinook. If an angler brings back a wild chinook through your ramp, you must collect a full-length measurement and a fin sample from the fish's dorsal for DNA collection. With all these experiences from the job, I gained data collection and organizational skills.

2.3 Challenges Faced

This was my first introduction to working for the state and using the knowledge I acquired at Western. That being the case, some things challenged me while working for WDFW. One of the things that occurred was during my first day of dockside sampling. That day was also the opening day of the chinook season. During orientation for all the new members of the northern section of the PSSU, we were informed that there would be an experienced sampler at all locations during our first several days of sampling. That day, the person who was supposed to be the experienced person for our ramp had gotten sick. That left me and another first-time sampler scheduled for the morning by ourselves until the next experienced person came for the evening shift. At first, it was an overwhelming first-day doing interviews without an experienced person to fall back on. However, I still completed my interviews with the skills and knowledge gained from the training we received during orientation and the skills I already had from volunteering and dealing with public interaction. Dealing with challenges like that helped me to utilize and further develop the skills I learned in classes through Huxley.

3. Skills and Knowledge Gained

3.1 Technical Skills

During my time at the PSSU, I gained experience and honed my skills in biological data collection. As I said before, this was my first time collecting real-world data that will be applied to the state's fishery management. I honed my skills in identifying salmon in their marine phases, and I'm now confident to distinguish all seven native species of salmonids that can be found here in the Pacific Northwest. We not only had to collect data on our electronic forms, but we also had additional handwritten forms for collecting the scale and DNA samples for

chinook salmon. These processes of collecting biological data made proper data management key not to double-count fish for fishery management.

3.2 Communication Skills

One of the critical aspects of this job was having practical communication skills. This job involved collecting data from recreational anglers and using it to manage our salmon fisheries properly. So, effectively communicating the questions we are asking and understanding the responses from the anglers to get data is crucial. At the beginning of the season, it took some time to develop my communication skills to have a smooth interview. However, after the first two weeks, I am significantly more confident in my communication skills.

Not only was I able to develop my communication skills, but I was also able to work on my teamwork skills as well. At my assigned ramp, I always had one or two fellow samplers with me. Working with my fellow samplers, we developed our unique teamwork system when it came to sampling. We would often take turns when it came to boat interviews. Still, if we saw another sampler with many fish to process, we would assist them by writing down length measurements or filling out the electronic form during the biological collection part of the interview. By doing this, we improved the speed and quality of the interview for both the anglers and ourselves.

4. Contributions

4.1 Overall Contributions

Being part of the PSSU is a collaborative effort from samplers across Puget Sound to collect data for the fishery. Given the study design, every interview we did was significant since the fishery management determined when quotas were filled and helped establish new quotas for future

salmon seasons. All the DNA samples we collected were also used to see the genetic health of the wild chinook population.

4.2 Positive Outcomes

While our interviews are arguably the most crucial part of our job regarding managing the fishery, we also strived to keep our morale up during our long shifts at our ramp. During certain times of the salmon season, the samplers can get extremely busy due to the high quantity of anglers going out to fish. On the other hand, there are also times when few people fish, leading to long hours of attentively sitting at the boat ramp waiting for your next boat to come through. During those times, our ramp made sure to stay attentive and socialize with each other. This practice built our relationships and kept our morale up so that we would have a positive mindset when we dealt with the anglers during our interviews. This helped us be more diplomatic in interviews and interactions with the public.

5. Reflection

5.1 Summary of Job Experience

Being part of the PSSU has been an excellent opportunity for refining my skills and gaining real-world experience. Through this job, I collected in-the-field biological data through fish lengths, scales, DNA, and coded wire tags. Through my interviews with anglers, I was a part of citizen-based science. After completing my time with the PSSU, I learned how crucial proper data management is in science and that a project on this scale can positively affect fish populations for future generations.

5.2 Academic Knowledge Application

Huxley College of the Environment has been a great stepping stone in preparing me for this job. All the intermediate science classes gave me a solid foundation for proper data collection when participating in a scientific study. The many salmon and riparian-focused classes built my background of the ecological importance of salmon in marine, freshwater, and terrestrial ecosystems. With this background, when talking to anglers and other boaters, I could explain why our interviews were important and spread the knowledge to help sustain our salmon populations for the future.

5.3 Personal Growth and Future Goals

This job was a great first introduction to fishery management and preservation. Working with the state to help manage one of the most important fisheries in the state has re-instilled my love for salmon and how important they are to our local ecosystems, not to mention the economic aspect of the salmon fishery. Working with my fellow samplers and interviewing various recreational anglers showed me how important this line of work is. This job experience has solidified my passion for going into this field of work as a career path, and I couldn't be more excited about what the future brings.

Acknowledgments

Special Thanks to my supervisors, Nate Layman and Patrick Morrison, for giving me this opportunity and guiding me throughout my time as part of the WDFW. I also must thank my fellow Creel samplers in my unit. The other two people assigned to the Washington Park boat ramp, John Biehman and Emily Stevenson, helped me in the last few weeks of the job when I was having vehicle issues.

Appendix

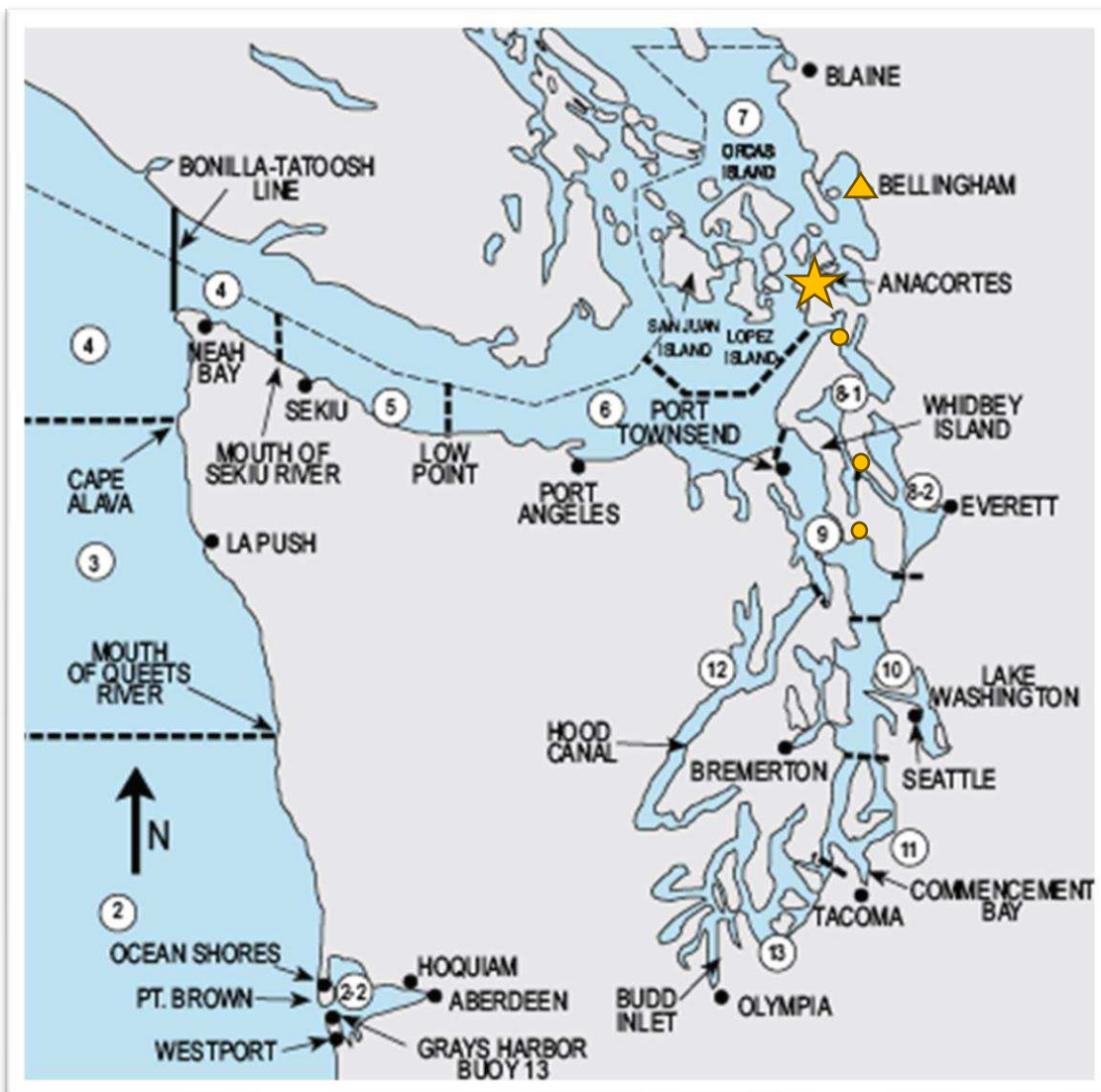


Figure 1: A map of the marine area designations decided by the state government for fishery management purposes. I also added a ★ for my main sampling location, a ● for additional places I sampled throughout the season, and a ▲ for the main office for my unit.
Original Source: Regulations.com