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MAI Field Technician
Field Notes: 01/15/2026

Vancouver, WA.

What have you worked on, and how has it benefited your service site or community?

During my service, I balanced complex technical data management with field operations to support the recovery of threatened and culturally significant species in the Columbia River Basin. I strengthened monitoring efforts by installing fish weirs on Pinhead Creek and conducting Pacific lamprey surveys at Willamette River, Multnomah Channel, East fork Lewis River, and I-5 bridge sites. I enhanced operational efficiency by assisting as a technician in the installation and troubleshooting of equipment such as solar-powered RFID antenna arrays at Steigerwald National Wildlife Refuge. Additionally, I ensured mission readiness by maintaining research vessels and verified over 605 survey videos, and proofing data sets, to maintain high data integrity.

How has the program helped you?

This program served as a vital bridge from my military background to a career in conservation, providing the technical training necessary to transition into a federal role. Through hands-on experience in National Fish hatchery operations, vessel operations, electrofishing, and PIT tag antenna configuration, I mastered the diverse skills required for field biology. This comprehensive exposure has solidified my goal of becoming a Biological Science Technician with the U.S. Fish and Wildlife Service, a path I am actively pursuing through recent federal applications and ongoing professional certifications.

NWR Ridgefield log jam

NWR Ridgefield log jam

A significant log jam presented a public safety hazard within the NWR Ridgefield near Bachelor's Bridge. The debris was exerting pressure against the bridge's structural components. Some logs measured 60–80 feet in length and 1–5 feet in diameter. The removal process was challenging, comparable to a game of Jenga, as loose logs were significantly easier to dislodge than those that were tightly pinched. We utilized a grappling hook to secure loose logs, which were then tied off to a boat cleat. By reversing the engines, we were able to begin pulling the logs free.

Occasionally, large sections of the log jam would break away and follow the boat. In these instances, we guided the floating debris downstream, clearing the bridge's structure. A secondary issue was the presence of a massive tree, approximately 4–5 feet in diameter and over 40ft in length, resting against the base of the eastern bridge structure. This obstruction was catching all the newly freed log debris. We concluded that this large tree was likely the primary catalyst for the log jam formation.

Cougar Creek

Cougar Creek

Cougar Creek is part of a multi-agency effort to ensure the recovery and persistence of threatened species, such as bull trout, within the Columbia River Basin. By installing and maintaining PIT tag antennas and monitoring nodes, researchers can track the movement and survival of individual fish without the need for physical handling.

This monitoring is essential for identifying habitat connectivity issues, such as sediment gaps or structural damage caused by high-flow events, which are promptly repaired to maintain fish passage. Through a combination of field maintenance, data analysis, and collaborative research on climate change impacts, this project provides the scientific foundation necessary to manage these ecosystems and support the goals of the USFWS Bull Trout Reintroduction Program.

East Fork Lewis River Salvage

East Fork Lewis River Salvage

The East Fork Lewis River Reconnection Project is a major habitat restoration initiative focused on reclaiming former gravel mines, the Ridgefield Pits, to restore the river's historical floodplain and braided channel system. Before construction could begin, a massive aquatic salvage operation was conducted to safely relocate native species from the project boundary to suitable nearby habitats.

This effort successfully salvaged more than 81,000 larval Lampreys and 45,000 freshwater mussels, along with several thousands fish, including salmonids species, and more than 50 native painted turtles. These relocation efforts, are vital for preserving the genetic diversity of the river. Simultaneously, construction teams were engaged in environmental intervention: the re-establishment of a natural, braided stream connection.

East Fork Lewis River Salvage

This endeavor is specifically engineered to rectify the current hydrological anomaly, which has promoted undesirable, pond-like conditions within the area where low velocity, cold ground water fills in the ponds. These stagnant, low-velocity water bodies have, regrettably, fostered an ideal and permissive habitat for numerous invasive predators, and become a thermal trap for salmonids in the summer.

The restoration project is designed to introduce dynamic, flowing water and a complex channel network to disrupt this advantageous environment, thereby restoring the ecosystem's equilibrium and mitigating increased predation pressure on native aquatic species. The successful completion of this re-establishment is considered a vital constituent of the broader conservation objectives for the entire watershed.

East Fork Lewis River Salvage

Bonneville Dam and SMOLT Research Facility

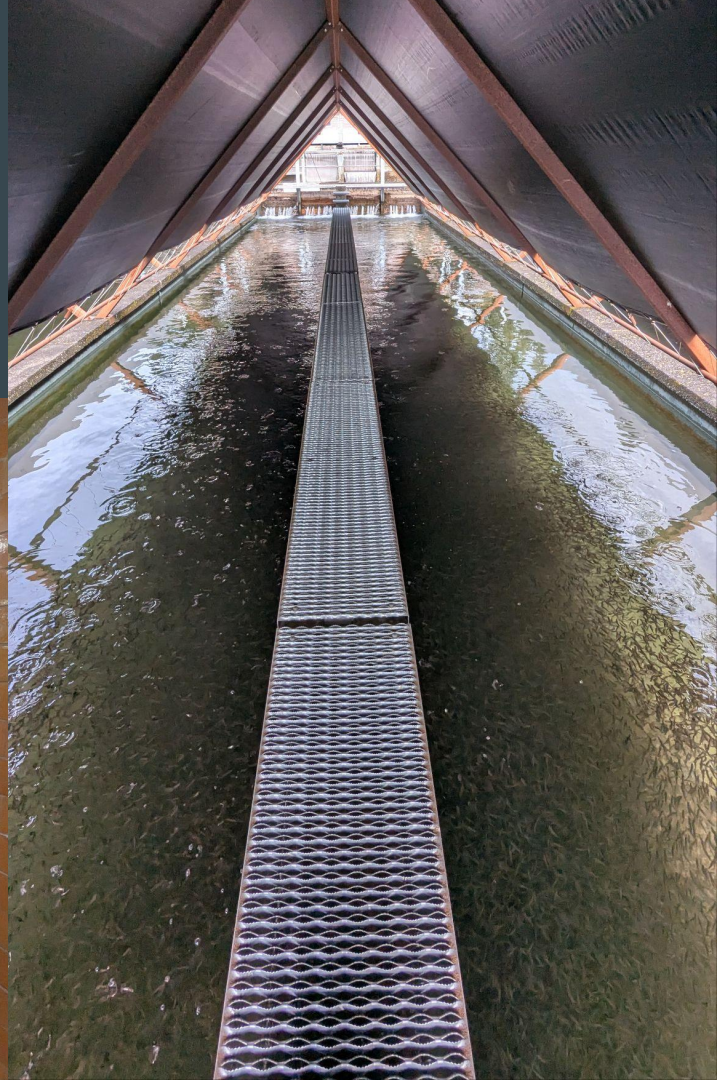
Bonneville Dam and SMOLT Research Facility

Bonneville Dam and SMOLT Research Facility have focuses on salmonids and Pacific lamprey. A part of this work involves experimental feeding and rearing to understand the ideal conditions for lamprey as they transform from larvae to juveniles. To ensure these experiments are scientifically sound, technicians perform biosecurity inspections, such as checking for invasive New Zealand Mudsnails, temperature adjustments, weekly feedings and other assorted maintenance.

Additionally, researchers use the facility to track the success of adult translocations and the effectiveness of specialized Lamprey Passage Systems (LPSs). These structures are designed with rounded corners and suction-friendly surfaces to help lamprey navigate the dam's 90-degree concrete angles that often block their migration.

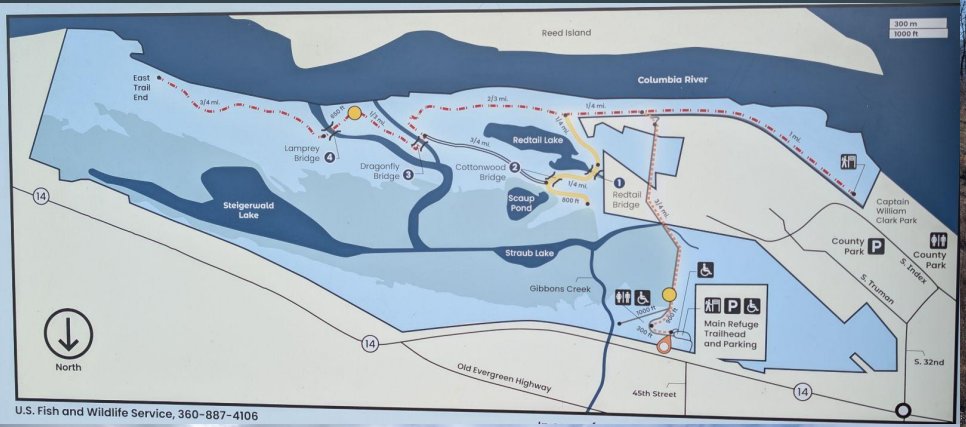
National Fish Hatcheries

National fish hatcheries serve as a vital safety net for Columbia River salmon and steelhead, mitigating the loss of natural habitat caused by the construction of hydroelectric dams. Facilities like **Carson, Little White Salmon, Spring Creek and Willard National Fish Hatchery** fulfill several key roles:



- **Mitigation and Harvest Support** : Hatcheries produce millions of salmon (such as spring and fall-bright Chinook) to sustain commercial, tribal, and recreational fisheries that would otherwise be depleted due to lost spawning grounds.
- **Biological Sampling and Science** : During spawning, staff perform "bio-sampling," collecting tissue and scale samples to determine the age of returning fish and screen for diseases to ensure the health of the entire river system.
- **Conservation and Reintroduction** : These facilities act as a genetic bank, providing "eyed eggs" and juvenile fish for reintroduction programs in rivers where native runs have been completely lost (extirpated).
- **Marking and Monitoring** : Most hatchery fish are marked by removing their small adipose fin as juveniles. This allows scientists and the public to distinguish between hatchery-raised and wild fish, which is essential for managing sustainable harvest levels.

NWR Steigerwald and Gibson Creek



NWR Steigerwald and Gibson Creek

Steigerwald Lake National Wildlife Refuge (NWR) is a vital component of the Columbia River restoration effort, focusing on the reconnection of Gibbons Creek to its natural floodplain to improve fish passage and habitat quality. A highlight of this project is the monitoring of Pacific lamprey, utilizing specialized equipment such as Biomarker wagon wheel antennas and RFID systems powered by solar panels to track fish movement.

However, there was a larger sampling size for Western Brook lamprey for the FY 25. Biological Science Technicians conduct frequent checks on the equipment due to the "flashiness" nature of the creek, which often causes sediment buildup, water reaching over its banks, debris on willows, canary reed grass overgrown root mats, and structural gaps beneath antennas that require filling with sandbags to ensure accurate data collection.

NWR Steigerwald and Gibson Creek

In addition to physical maintenance, the project includes research on the refuge's geospatial and geologic history. This analysis aims to understand how factors like sediment transport, altered flow patterns, changes in soil composition, and changes in vegetation influence the effectiveness of lamprey passage.

While these factors can negatively impact passage efficiency, they can also offer benefits such as providing shade and protection from predators. This data-driven approach, combined with regular electrofishing surveys and tagging efforts, allows scientists to determine the upstream migration routes and survival rates of lamprey within this restored wetland ecosystem.


RED CLOUD

Tyee Springs Brook trout Removal

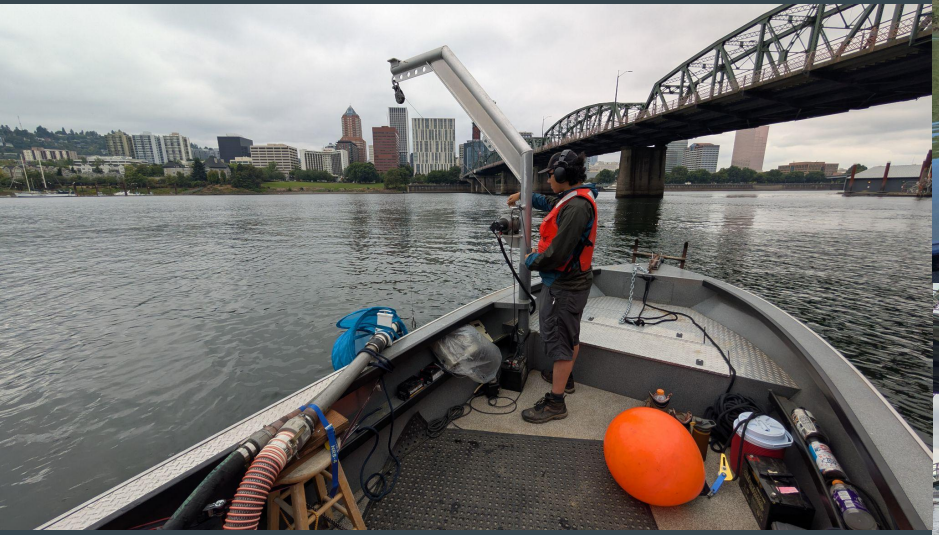
Tyee Springs Brook trout Removal

An intriguing environmental endeavor that is aimed at the removal of non-native brook trout to protect the water source for the Carson National Fish Hatchery and safeguard native bull trout populations. Brook trout are a significant threat because they outcompete native species for food and habitat, and they can hybridize with bull trout to produce infertile offspring, further depleting the native population.

To address this, the U.S. Fish and Wildlife Service (USFWS) has implemented an innovative biological control strategy using YY male brook trout. Key elements of the project include:

- **YY Stocking**: Scientists release male brook trout with two Y-chromosomes into the springs; their offspring are 100% male, eventually shifting the population sex ratio until the species can no longer reproduce.
- **Population Suppression**: Intensive manual removal via **electroshocking and netting** is conducted annually to reduce the resident population and maximize the impact of the YY stocking.
- **Monitoring Success**: Field teams track progress by capturing and tagging fish, collecting genetic samples for parentage analysis, and performing visual surveys for brook trout redds (nests).
- **Project Scale**: Between 2020 and 2023, thousands of resident brook trout were removed (e.g., 1,827 in 2022 alone), while thousands of YY brook trout were stocked annually to reach the goal of extirpating the species from the springs

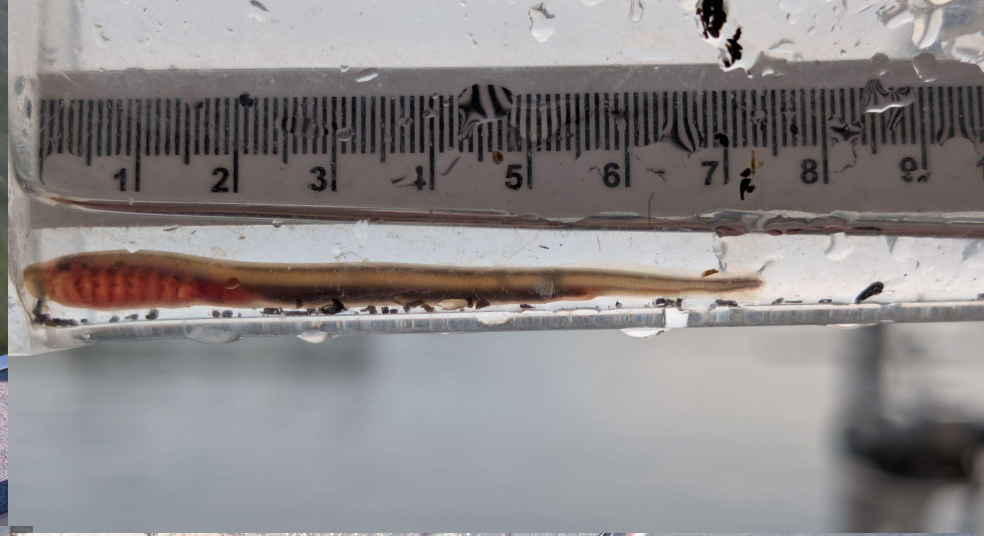
River and I-5 Bridge Replacement Survey

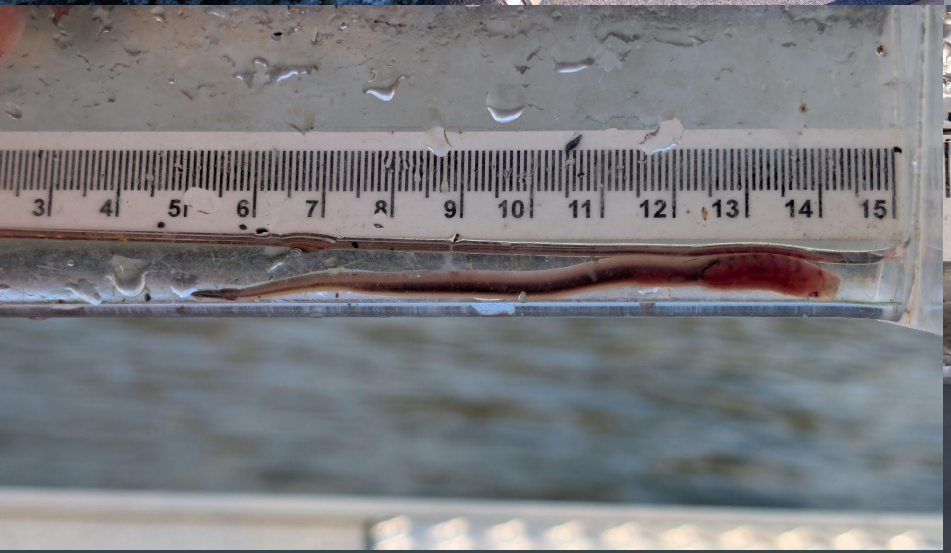


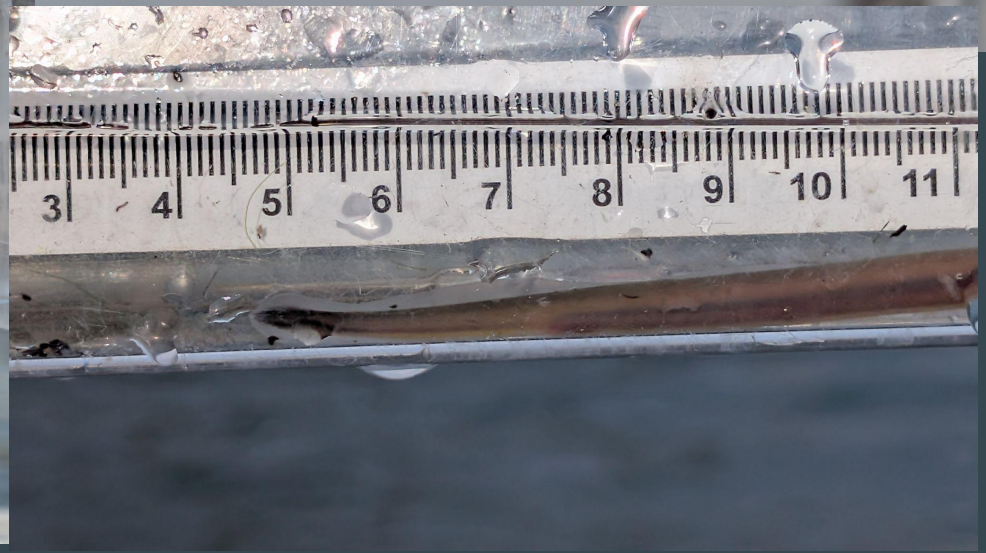
River and I-5 Bridge Replacement Survey

A 26-foot research vessel with a deep-water electrofisher is used to survey larval lamprey in deep, otherwise inaccessible habitats within the Portland Harbor Superfund and Multnomah Channel. This NRDA (Natural Resource Damage Assessment) work evaluates how legacy contaminants (PCBs, heavy metals) affect lamprey growth and burrowing. Documenting lamprey occupancy at sites like Harborton and Linnton provides data on habitat remediation success, ensuring the lower Willamette River remains a viable lamprey rearing environment.

For the I-5 BRS program, our team conducts underwater surveys, reviewing video and data to map and protect sensitive aquatic life, primarily native freshwater mussels and Pacific lamprey. Because sedentary mussels are highly vulnerable to construction-related sediment shifts, these surveys inform engineers, allowing them to adjust pier locations and design seismically resilient foundations to minimize ecological impact on the riverbed.





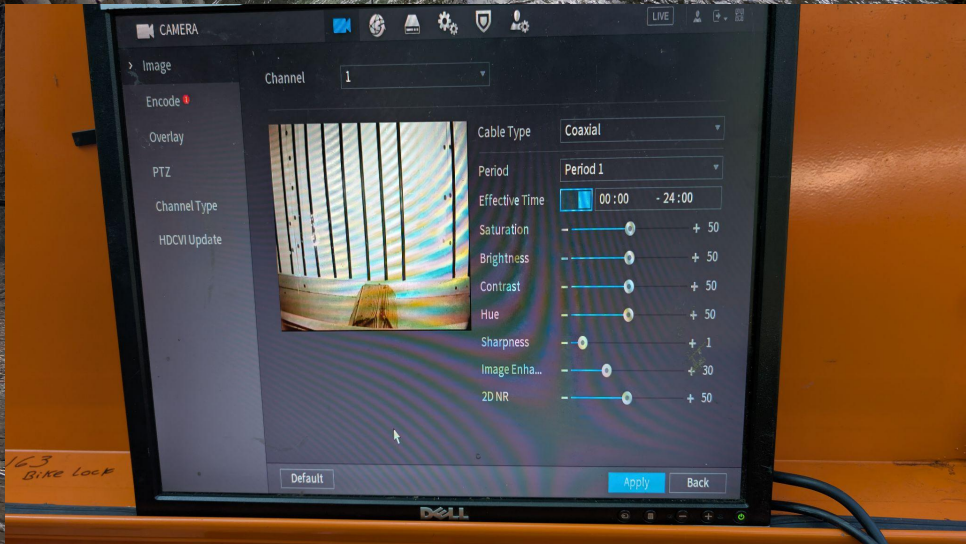


Clackamas River Bull Trout

Clackamas River Bull Trout

Pinhead Creek and the Upper Clackamas River are part of a dedicated USFWS program to monitor and restore bull trout populations. To track these fish, teams install and maintain specialized fish weirs and traps equipped with video camera DVR systems and PIT tag readers, which allow for the sampling and identification of both new and recaptured individuals. This field work involves constant maintenance, such as cleaning debris from picket fences, exchanging large battery sets for the electronics, and modifying water gates with piping or boards to redirect flow and ensure fish safety during high-velocity events.

By downloading and analyzing video and tag data, researchers can document the health and migration patterns of this sensitive species, providing essential data for long-term reintroduction and conservation efforts in the Clackamas River basin. These efforts include capturing and tagging new individuals, such as a 630mm female documented in August 2025, while also recording recaptures to build a dataset on the species' survival and habitat use. To maintain the integrity of the study and prevent the spread of invasive species, technicians perform regular equipment maintenance, including swapping batteries, cleaning and disinfecting gear, and carefully managing large databases to ensure accurate long-term reporting.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Pendelton OR./ Umatilla River Alcove and Feed Canal

Pendleton, OR./ Umatilla River Alcove and Feed Canal

Feed Canal involves critical monitoring of Pacific lamprey to evaluate their survival and migration patterns within the Umatilla River basin. Field teams perform regular "carcass and tag" surveys, where they search for and document deceased lamprey to recover internal tags. This data is used to calculate mortality rates and identify potential hazards in the canal system. Following these surveys, the collected data is proofed and entered into a centralized database to assist biologists in managing lamprey recovery efforts and improving the design of fish passage structures in the area.

The Umatilla River near Pendleton, Oregon, is a collaborative effort between the U.S. Fish and Wildlife Service (USFWS) and the Oregon Department of Fish and Wildlife (ODFW) to monitor the health and migration of Pacific lamprey. In two designated alcove monitoring areas, field teams utilize BioMarker "wagon wheel" antennas and electrofishing to identify and track individual lamprey.


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