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Mid Klamath Watershed Council: Stream Bathymetry Surveys Summer 2023

Survey Crew at Camp Creek

What are Stream Topographic and Bathymetric Surveys and Why are They Important?

When thinking about what restoration steps to take, it's important to consider how the water is moving, its velocity and depth at different flows. That is where stream topographic surveys come in and the idea of bathymetry, the measurement of underwater depth. When talking with Mitzi

Wickman, Project Coordinator, she supplied an example, "Consider you are working on a project, where your goal is to restore fish habitat and spawning grounds. You want to put a log in the stream to provide cover. If we want to increase the amount of cover available, we might run the hydraulic model, at a ten-year flood event, on the surface with a log with root wad added. We can predict how well that log will stay in place by evaluating the water depth. Will the log be too buoyant and float away? We can also evaluate the force on that log from the stream's current. How much resisting force is needed to keep the log from being pushed downstream?" Using this, we can plan out restoration projects in detail and with hydraulic modeling, give a representation of water on a 3D surface, seeing what the water does; How deep is it? What is the water's velocity? How far does it extend on the banks? How did the intended restoration efforts change this?


Pano of Camp Creek section

What are the goals of this surveying project?

The goals of the Camp Creek stream topographic and bathymetric surveys are to help provide insight of land and stream features to further restoration plans on a 24 acre, 1 mile section of Camp Creek near the Old Hatchery. The ultimate goal is to increase the number of spawning adult salmon, steelhead, and lamprey by increasing the quality and quantity of spawning and rearing habitat. The surveys serve as a key ingredient in informing a restoration design.

Photos and Methods:
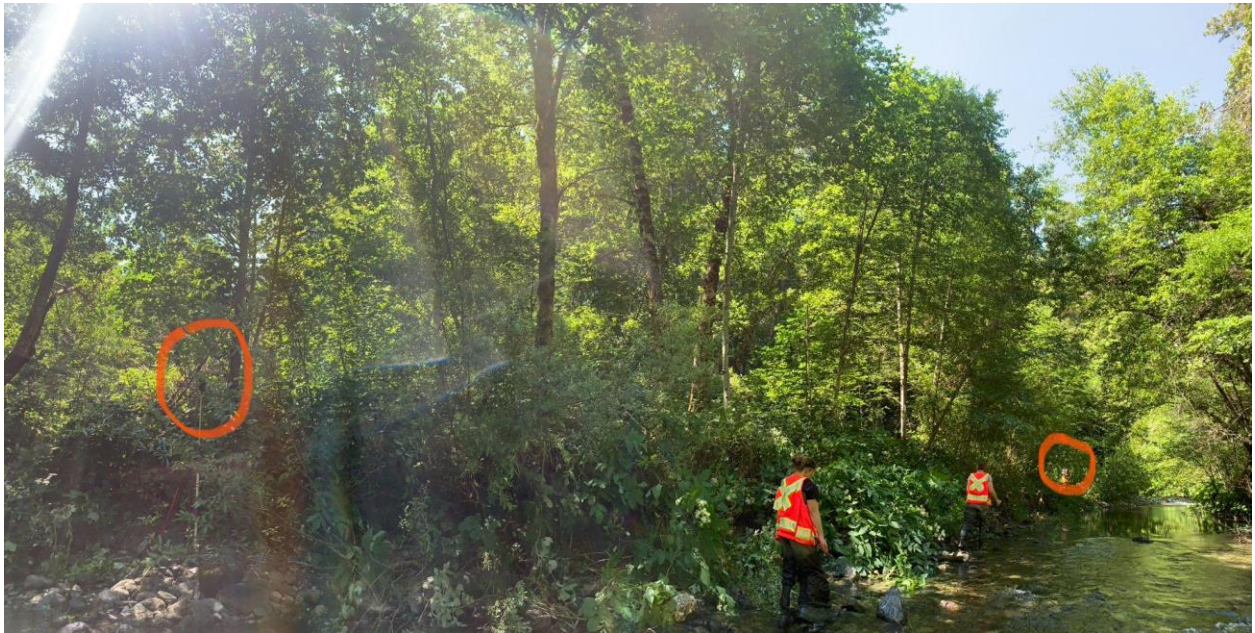
Pano of Prism (Left) and Total Station (Right)

Using the prism method, the total station sends out a laser beam to the prism, calculating its location.

Looking through, aligning the Total Station with the Station point