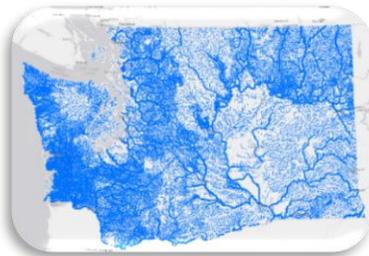


Project

A Decision package was submitted in response to, and in support of recommendations from the State/Tribal Riparian Protection & Restoration Workgroup in 2021. The recommendations identified improving the accuracy of the NHD as a top priority for being able to develop a statewide riparian assessment and monitoring program. This two-year pilot project in the Stillaguamish watershed will determine the appropriate resource levels needed to improve and maintain the accuracy of mapped waters. The results will be incorporated into the WA-NHD Strategic Plan and will inform future funding needed to improve and maintain the WA-NHD through an ongoing, statewide effort.



Mapped Streams of Washington State

Background

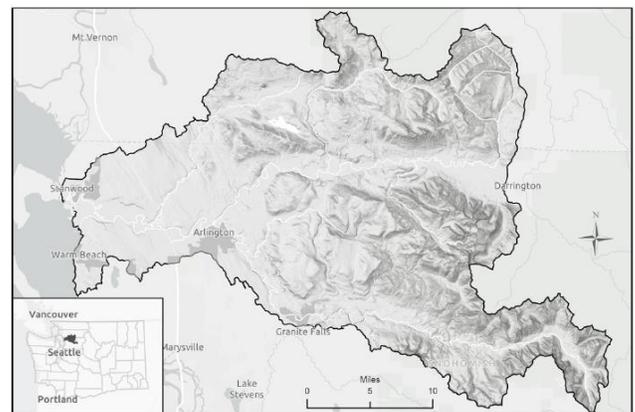
The U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) maps locations of streams and other surface waterbodies across the country. This fundamental dataset is used to support the environmental quality and protection of air, land, and water resources, and is integral to activities managed by government entities (federal, state, regional, county, local, Tribal), nonprofit organizations, and private companies. Office of the Chief Information Officer (OCIO) Policy 161.03 - Hydrography Data Standard directs that the NHD be the data standard for all surface water geospatial datasets in the State of Washington, and that the Department of Ecology serves as the steward of the NHD (WA-NHD).

Project Outcomes

- Accurately map Washington’s waters.
- Determine if high resolution land cover is a cost effective data source.
- Obtain elevation derived data.
- Incorporate local data and knowledge.
- Estimate the cost of a statewide update.
- Document level of effort and change in process needed to integrate improved data.
- Document impacts to users.
- Identify tools necessary to use data.
- Continue editing existing data.

Funding

The \$1.5 million package funds data acquisition, staff, and support for local jurisdictions to determine the appropriate resource levels needed to improve and maintain the accuracy of mapped waters across the state. Funding will also support ongoing editing outside of the pilot project area to help keep the WA-NHD current.

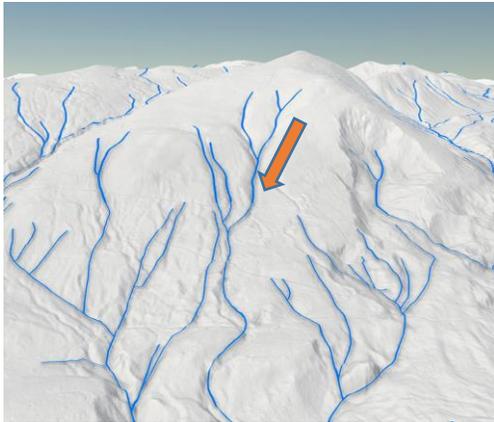


Stillaguamish Watershed in NW Washington State.

Assessing Hydrography Mapping Methods

Elevation Derived Hydrography

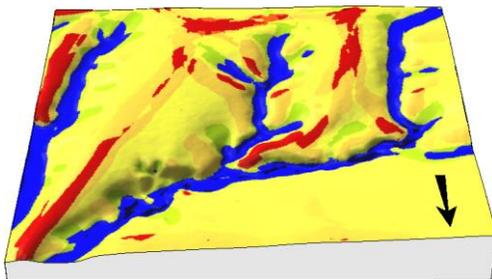
Surface waters can be mapped with high accuracy using Lidar to create high-resolution elevation surfaces. The technology uses airplane mounted laser



beams to create a 3D representation of the bare ground and model how water will flow.

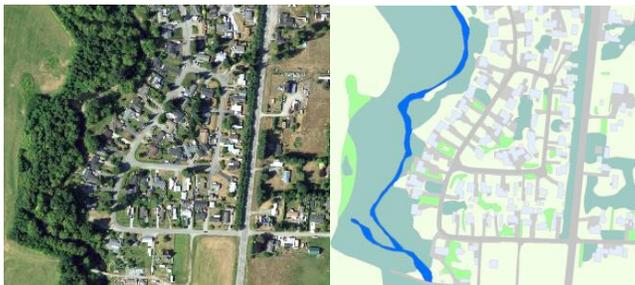
Geomorphon-based Hydrography

Another approach to mapping surface water uses a topographic classification method using Lidar and land cover called Geomorphons. In addition to providing surface water location, this method can predict culvert locations and stream bank width.



Land Cover

High-resolution land cover data can be used to identify open water and roads. This information will help determine where water crosses roads and where culverts are likely to be present.

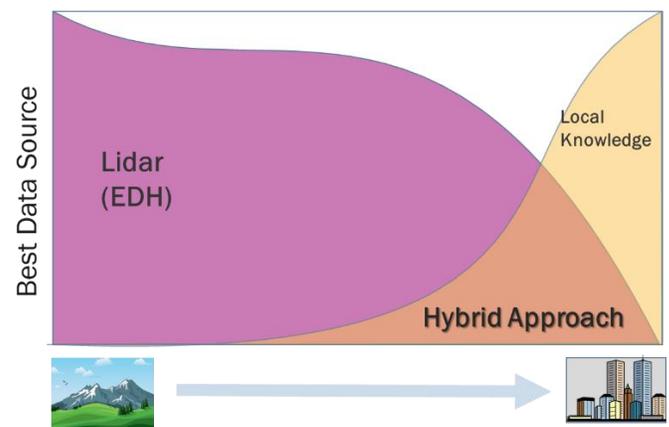


Local Knowledge

When it comes to determining an accurate location of surface water, there are times when nothing works better than a field visit. However, gathering and verifying data in this way can be expensive and time consuming. To supplement modeled and other classified data, local knowledge from organizations managing water resources within their Washington jurisdictions will be a key component of this pilot project.

Determining a Path Forward

Lidar derived hydrography works well in mountainous unpopulated areas, but becomes less reliable in flat heavily populated areas. This project will help determine when the different datasets provide the most accurate location of our surface water.



Local Data Integration and NHD Adoption

Project staff will work with local jurisdictions to prepare their data to meet WA-NHD standards, evaluate and verify the accuracy of the data, and incorporate the data into the WA-NHD. Project staff will also work with local jurisdictions to identify and document impacts and tools needed to assist these organizations with the adoption and use of the WA-NHD.

More Information

<https://ecology.wa.gov/NHD>

