

3DHP FTN Monthly Forum:

Question and Answers

Washington State Piloting 3DHP and Measuring Success

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Participant Questions:

How has your state agencies reacted to all of the additional mapping of features (more blue lines)?

There's been some hesitation, especially with forestry practices and required setbacks. It's important to remember that the blue lines don't yet have all the attributes that will make them useful in determining where are streams based on local jurisdictions definitions. 3DHP presents the opportunity to measure attributes that determine what is a 'stream' and be clearer in meeting the requirements for regulations... It's challenging but an opportunity to make this a truly useful dataset.

Community discussion comment: We find that is scares people, especially when it comes to regulation and taxation. We find it's easier to explain that lidar maps the water conveyance landforms on earth's surface {and subsurface channels}. Knowing water shapes earth surface and that the greater the accuracy and point density of lidar, we have a greater chance of mapping water conveyance features with narrower banks and shallower depth. As a result, the lidar data will map more features and will extend the mapping of features beyond decades old legacy data.

NWI data is still being created with heads-up digitizing using imagery, am I right? How will that match up with 3DHP? Common definitions will be a challenge.

It will be a challenge and I know that the NWI is working closely with USGS to find common ground. NWI is very expensive to update and requires a lot of field work and needs to be updated for entire watershed or jurisdictions (not just the areas impacted by 3DHP updates). We are exploring using land cover data like NOAA's HR CCAP data to provide an intermediate indicator of wetland locations until a full NWI update can be made.

Steve Aichele (USGS): 3DHP is a network model. NWI is more of an ecology land cover dataset resulting in fundamental differences in their source, method,

and intent. We meet with NWI to work out differences such as common definitions of channels, etc. We also provide updates as able but updates happen in different times. We are working to provide info as to when NWI features are in proximity to wetlands

Your OneHydro graphic showed a farmer, but you didn't mention that. Are you looking to include drain tiles / ag ditches?

Tough question – agricultural ditches can be modified annually based on the crop which make them challenging to map. Other ditches actually support fish migration including salmon and are important to include. I think the 'canal ditch' 3DHP attribute must be mapped and characterized with local input.

Were there any small urban areas in the pilot area and how did the evaluation go?

Yes, we included the city of Arlington. To be honest, we thought the data would fall apart in urban environment, especially with humans engineering and changing the water flow. Surprisingly, we did not see an increase in error in these urban areas.

Can you talk about your funding partnerships and strategies for utilizing 3DHP? What's the cost per square mile, roughly? How did you determine your vendor?

Partnerships are open to all. We have had strong participation from the tribal community. Sometimes it comes down to who you know so its important to build and maintain partnerships at every opportunity. Maintain regular and open communications with the usual suspects, USFS, NRCS, etc. but be open to the unexpected stakeholders. We found it especially useful to focus on 3DEP gaps as this impacts stakeholders at all levels of government.

We focused on funding at the state level and therefore dedicated a lot of effort and energy on education and outreach to decision makers. The more we could do to help them understand the value of the data, especially to constituents, the more support we gained.

Our strategic plan includes developing tools to connect attribute data to 3DHP and other GIS layers and identify what's useful across our different communities.

With regard to vendor selection, we were able to piggyback on our 3DEP acquisition project. Since then, Washington state has created a Statewide approved vendor list so that we can purchase without going through the proposal process.

Estimating a cost is tricky. It's not just an area calculation, it's also dependent on the number of hydro features. It cost ~\$125K to do the entire huc 8 but that included a lot of back and forth built in to do bug testing and pilot the effort. Future acquisitions will not incur that cost and will benefit from it.

Was the pilot area lidar QL2? Any plans for QL1 in specific areas?

WA 3DEP – has ensured QL1 for the state. In the pilot, we didn't see differences in areas using older, data but the contractor used a process that recreated the DEM based on the point cloud of the different flight data and creating a consistent 'DEM.

Is that monotonic DEM a required output for 3DHP projects? I get that the vendor had to make it to create the vector data, but I am wondering if USGS requires that DEM as an output as well.

The contractor provides USGS the EDH layer and the mosaiced DEM. USGS then creates the hydroenforced DEM. Both DEMs have great utility. WA will store and distribute the pre-hydroenforced DEM. USGS will distribute the hydroenforced DEM.

Steve Aichele, USGS: USGS would like to make both DEMS available via webservices but the funding is not there at this time.

There will likely be 4 DEM products:

- 3DEP Original Product Resolution (OPR) DEM
- 3DEP 1 meter flight product
- 3DNTM 1m seamless mosaic to a watershed produced by vendor during the EDH creation and delivered to USGS
- 3DHP hydroenforced/monotonic DEM produced by USGS

Can you explain what methods will be used to map Bank Full Width .vs. current water limits in lidar data, e.g., are you looking to use some other RS resource like NASA's Surface Water Ocean Topography (SWOT) mission data?

NV5 and others are looking at a more automated approach. Will need some rules to group gravel and water, etc. Requires iterating between visual For project we worked with Tim Hyatt (SRSC) and Tyson Waldo(NWIFC, WWU) who had a method that combined automations with heads up digitizing.

Are you willing to share your stakeholder survey? Currently Rhode Island is attempting to "test the waters" but a stakeholder engagement survey is probably in our near future.

Keep in mind this was done 2 years ago before we were discussing 3DHP.

Here are the simple questions we asked:

- Name (First Last)
- Email
- Your organization name
- Does your organization use GIS hydrography data?
- Does your organization use NHD data
- Is NHD your primary Hydrography dataset?
- Do you link your own data to NHD?
- Are you interested in learning more about NHD?

- Are you interested in being a local NHD stakeholder
- Any Comments?

Have you found anyone who is concerned about this EDH data revealing too much information - in particular, private/timber/Tribal lands?

Tribes have been big supporter because they have a strong interest in protecting salmon species. No real concerns expressed by private and timber industries. We find that clear definitions are fundamental to success. With better data and clear attributes, there are fewer questions to field and more accurate applications. Win-win for all stakeholders

Has the EDH been submitted to USGS yet? If not, will that be done by NV5 or by WA Dept. of Ecology?

NV5 will submit the data to USGS but that has not been done yet. We felt it was a little early to submit. We also recognized that it was an error on our part to require the contractor to work in our projection. We now need to pay the contractor to reproject the data for 3DHP submission. Additional processing is needed and we will wait to submit a larger, more contiguous, road tested, area.

Did you address storm water systems and drain tile for your project?

We requested local data but did not integrate stormwater and drain tail data. However, we actually did a stormwater pilot near the city of Everett and that info is in the Final Pilot Report. We're currently not asking for storm water to be integrated at our cost but it could be an option in urban areas by working with local jurisdictions and our vendor.