

Oregon Hydrography Framework Implementation Team (OR Hydro FIT)

MS Teams Meeting, August 1, 2022

Attendees:

Bob Harmon, OWRD (OR Hydro FIT lead, scribe)	Sue Buto, USGS
Tom Carlson, USGS	Brian Staab, USFS
Nathan Herzog, City of Salem	Whityn Owen, NRCS
Erin Gilbert, ODFW	Mischa Hey, NV5 Geospatial
Ed Hall, USFS	Don Pettit, DEQ
Arthur Rodriguez, ODF	Jay Stevens, BLM
Meredith Carine, OWRD	Jon Bowers, ODFW
Lowell Anthony, DOGAMI	Robert Hairston-Porter, DOGAMI
Reed Burgette, DOGAMI	Steve Timbrook, ODF
Scott Campbell, USFS	Rachel Smith, DAS
Joe Severson, OR Marine Board	David Pray, DEQ
Carl Swanson, ODF	Tanya Haddad, DLCD

Notes:

- **Intros**
- **Hydro Elements, Bob H.**
 - Brief background on Oregon Framework structure and requirement to finalize list of elements to send on to OGIC (by the end of this year); no dissent on elements
 - List of hydro elements to put forward to OGIC:
 - NHD Flowlines
 - NHD Waterbodies/Areas
 - NHD Points
 - Water wells
 - Stream gages
 - Watershed Boundary Dataset
 - (Rachel) Goal to have public facing inventory; to include following attributes: element name, description, steward, point of contact, link to standard, link to stewardship doc, distribution link (not full metadata)
 - Bob to draft list and send out to this group to check
 - Useful info for OGIC so that they can understand what they're seeing
- **ODF & ODFW hydro work in support of Private Forests Accord (PFA)**
 - Jon, lead off
 - PFA background
 - 2020 bill directing bring stakeholders together from conservation and forest industry to reach agreement on updates to PFA
 - Agreement reached in October '21
 - 2022 short session, codified in several bills

- Some issues addressed: expands stream buffers; addresses issues arounds roads & road maintenance; steep slopes; sedimentation; fish habitat; and mitigation measures
- Focused on 11 million ac of private forest acres (industrial & non-industrial)
- Goal to develop habitat conservation plan to protect several species (50-yr timeline)
- PFA & hydro
 - ODF contracted with contractor for creation of streams layers to support fish presence & steep slope modeling
 - Existing NHD geometry (derived from elevation data) completed for HU6s will be leveraged
 - Best available elevation DEMs (2m DEM from lidar & 10m DEM (NED))
 - Initial streamflow attributes to be populated from the NHD; eventually replaced with USGS-developed streamflow models; to be validated by ODFW in the field
- Arthur, continuing
- Focus on TerrainWorks (TW) synthetic stream modeling
- Applying Fransen fish model: modeled fish presence
- Calc stream size
- Perennity
- NHD hydro enforcement; to match NHD
- ODF looking at first pilot data
- Working w/ Jay (BLM) & Ed Hall (USFS) to get updated NHD data that's near completion (ready to be posted back to USGS)
- Close match, but not exact as zoom in; will discuss with TW
- ODF Data Prep for Conflation
 - TW to conflate ODF attributes to the synthetic streams to identify differences between the fish model and fish surveys
 - TW supply point FC where ODF end of fish use differs from model
 - Requires streams with consistent digitized flow directions & snapped junctions
- ODF statewide streams
 - ~30-yrs old; edited/maintained on multiple systems
 - Clean up necessary
 - Cleanup workflow
 - Check out data by HU8
 - Enforce topology rules
 - Calc elevation for start & end points, and Id danglers & overlay with not an endpoints to id streams that need to be flipped
 - Use trace network to find disconnects
 - Synchronize changes when done
 - Initial review (started ~2 weeks)
 - Received 5 watersheds of data from TW
 - Built internal web review app for staff along with fish presence (before & after conflation)
 - ODFW is validating stream surveys
 - Meet w/ TW to discuss first round of comments
 - Ways to verify conflation success?
- Lots going on
 - Next 4 watershed will complete group 1

- Groups of 8-10 watersheds processed every month
- Final group will be completed in May '23
- Developing web tracking app (available upon request)
- Jon
 - Any hydrography "solutions" must continue to meet ODF's business needs
 - Long-term goal is to standardize on the NHD
 - ODFW LD hydro position to coordinate with ODF and others to create a plan for updating the NHD and managing associated data on it
 - Stream flow information will be improved through new modeling efforts and field validation
 - This will replace ODF's statewide hydro July '23; joint management by ODF & ODFW
- Q&A
 - Jay
 - Re fish habitat modeling, how does it compare to ODFW distribution?; (Jon) varies depending on the watershed and, cumulatively, the Fransen model tends to identify less habitat; (Arthur) validated field surveys will supersede model
 - Time frame for releasing data?: available incrementally or at end; (Steve T) probably can work out sharing with agencies (contact Arthur)
 - Sue B, comment regarding standardizing on NHD; USGS transition to 3D hydrography; timing uncertain now, but plans being developed
 - Probably a good idea to not to conflate to the NHD at this time
 - Relevant docs:
 - <https://www.usgs.gov/national-hydrography/3d-national-topography-model-call-action-part-1-3d-hydrography-program>
 - <https://www.usgs.gov/programs/national-geospatial-program/geospatial-products-and-services-contracts>
 - Rachel, regarding the effect of 10m DEM data; Arthur, they're looking into it
 - (Rachel) getting new terrain model from 2022 imagery, by end of this year
 - Lowell, has observed that lines generated from automated often require more work to clean up
- **3D NHD: Considerations and complexities of elevation derived hydrography**, Mischa Hey, Analytics Practice Lead at NV5 Geospatial (previously Quantum); topics covered
 - Source data consolidation and management
 - Has worked with USGS for many years
 - Doesn't use structure in motion terrain models; use 1m or better terrain models
 - USGS BAA seminar on 9/10 for getting matched funding: <https://www.usgs.gov/3d-elevation-program/fy23-usgs-broad-agency-announcement-baa>
 - Data schema development
 - Capture specification
 - Goal to make an objective data set
 - Feature density
 - Can be lots of variation

- USGS trying to create feature density guidelines for various regions
- Data currency
- Open water delineation
 - Object based image analysis (OBIA)
- Geomorphic indicators (geomorphon cleanest)
- Hydro-enforcement
 - Still an iterative process
 - Use scalable open source process
- Stream derivation
 - Still qc process to clean up
- Smoothing requirements (XYZ)
 - Out of the box can be problematic
 - d-infinity not much better in finer DEM; little better in coarser scale
 - Has routine to smooth and keep in channel
- Z values
 - Process to Create monotonic flow throughout entire network
- Creation of complete networks
- Agriculture canals
 - Non-directional (in NHD)
 - Super high density
 - Lots of enforcement
 - Requires selection for inclusion
- Non-intersecting crossing
 - Pipes/conduits
 - Elevation separation
- Subsurface network integration
- Stakeholder engagement & review
 - Periodicity modeling difficult
 - Working on detection of periodicity from satellites (for PFA)
- Watershed boundaries
 - Easier to approach, even down to HUC16s
- Other considerations
 - More agreement betw 3DH? & NWI
- Q&A
 - Jay, process for identifying headwater inception points?: still tricky issue; working with group out of Univ. of Maryland; USGS has guidelines for how they would like them mapped that can be replace with field knowledge; NV5 will usually overextend streams
 - Jon, timeline for NHD replacement?: current BAAs (Broad Agency Announcements) to fill in current gaps, and not designed to replace NHD yet; Mischa recommends working in a pilot area and develop a schema; Sue, USGS working on timeline in progress; BAAs could be amended to include collections for 3DHP if funding available
 - Reed, how much change applying when applying down gradient enforcement?: depends on the area
- **Reports**

- USFS, Brian Staab: continuing to do elevation derived elevation work on ~50 sub-watersheds in Oregon and Washington; got some money from the infrastructure bill to do additional work; have an agreement with USGS to build a study design to gather flow permanence observations as part of flow permanence project focused in Western Oregon; look to expand across Oregon and Washington
- BLM, Jay
 - (referring to status map (link below)) NHD delineation to current elevation data focus on upper Willamette, to be completed by fall; work in Rogue around Medford, finish in spring; take a 6-month break and look at next priorities for FY24: <https://blm-egis.maps.arcgis.com/apps/webappviewer/index.html?id=8cc5ae5558f94c949d05f5540366a2ef>
- Brian and Sue discussion about continued work on EDH (elevational-derived hydro) in the NHD: it's important to continue that work while USGS gets 3DHP fully ramped up and they figure out how to bring it in provisionally