

RIMORPHIS

River Morphology Information System

1st Annual Stakeholder Workshop

May 12 & 19, 2021

U.S. Geological Survey, National Geospatial Program

Jason Stoker (jstoker@usgs.gov)

Al Rea (ahrea@usgs.gov)

USGS science for a changing world

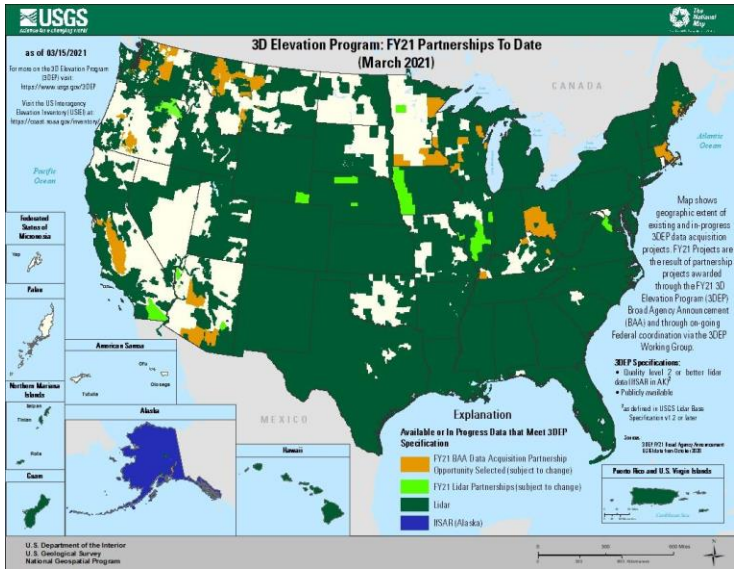
The National Map
Your Source for Topographic Information

About Your Organization/Group

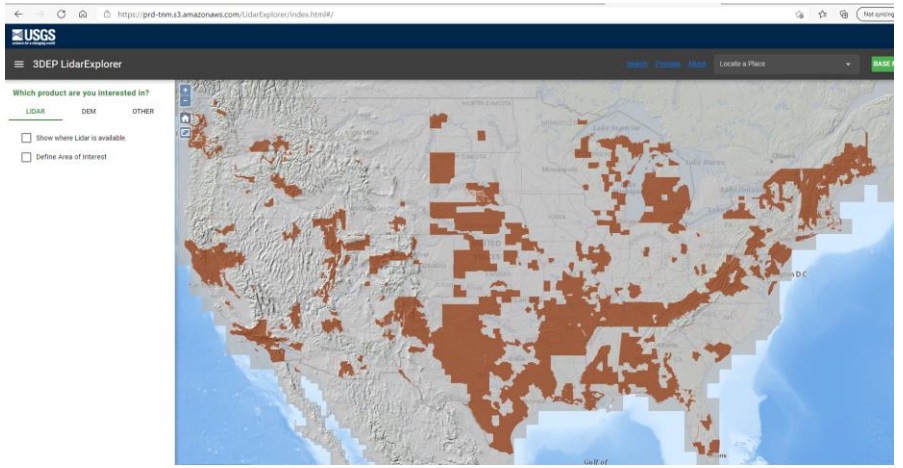
- Describe your organization/group
  - The USGS National Geospatial Program (NGP) provides a foundation of digital geospatial data representing the topography, natural landscape, and manmade environment of the United States
- What your group does
  - NGP produces the 3D Elevation Program (3DEP), with the goal of completing acquisition of a national baseline lidar dataset, with IfSAR in Alaska, in less than a decade, by 2023
  - NGP produces and delivers the Nation's most comprehensive and up-to-date portfolio of surface waters datasets, including the National Hydrography Dataset, the Watershed Boundary Dataset, and NHDPlus HR
  - In the future, the 3D National Topography Model (3DNTM) to integrate elevation and hydrography and model the Nation's topography in 3D. Under 3DNTM, NGP will complete and build on our existing baseline programs and develop the next generation of 3DEP and a new 3D Hydrography Program that will
    - renew the hydrography data model
    - derive hydrography from lidar and IfSAR in Alaska to produce nationwide consistent data
    - integrate inland bathymetry
    - link with groundwater, engineered hydrology and wetlands

River Morphology Data and Tools

- List data that your group collects/generates (e.g. sediment analysis, bathymetry, other morphological features) including their spatial and temporal scale – lidar point cloud and 1-m DEMs, IfSAR 5-m DEMs, NHD, WBD, and NHDPlus HR – update frequency goal is <= 8 years
- Are these data accessible or available in the public domain? YES!
- Does your group use/have tools related to river morphology that may be of interest to the broader community? Can these be shared? We have several services right now. Input welcome on what more would be useful. (See next slide.)



2021 3D Elevation Program Lidar Partnerships Selected (usgs.gov)



River Morphology Data and Tools (continued)

- https://apps.nationalmap.gov/viewer/
- USGS & Entwine
- LidarExplorer (prd-tnm.s3.amazonaws.com)
- USGS 3DEP LiDAR Point Clouds - Registry of Open Data on AWS
- NHDPlus HR navigation tools and workshop on GitHub: https://github.com/ACWI-SSWD/nhdplushr_tools
- GitHub - USGS-R/nhdplusTools: https://code.usgs.gov/water/nhdplusTools
- Xstrm – network calculator for catchment or channel characteristics (https://doi.org/10.5066/P9P8P7Z0)
- FCPGtools – Flow-conditioned Parameter Grid tools compute upstream basin characteristics for every grid cell. Can be run on HPC systems or local Windows or Linux system (https://doi.org/10.5066/P9W8UZ47)

Wish List for River Morphology Data & Tools

- Can you think of any dataset(s) that you do not have but would like to have?
  - Comprehensive inventory of culvert locations and other characteristics
- Can you think of any tool(s) that you do not have but would like to have?
  - An “Easy Button” automated process to derive good quality hydrography from lidar/IfSAR