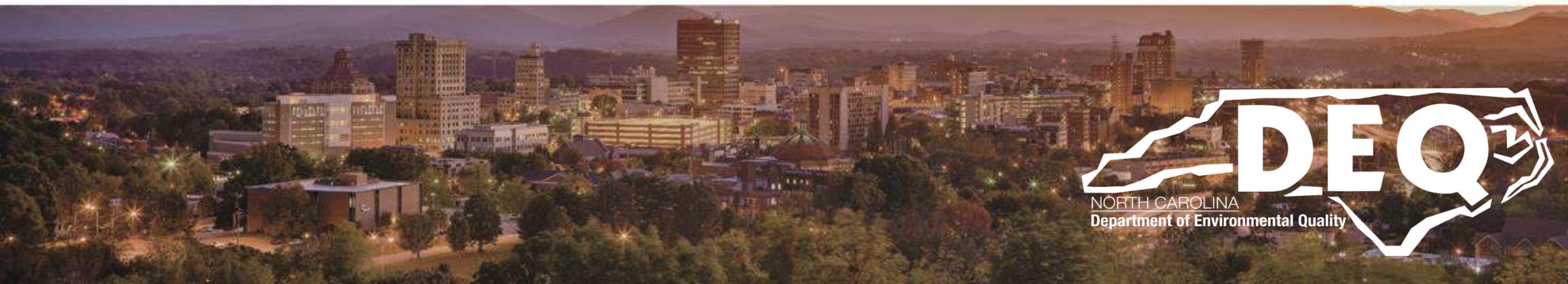




Division of Energy, Mineral, and Land Resources Overview

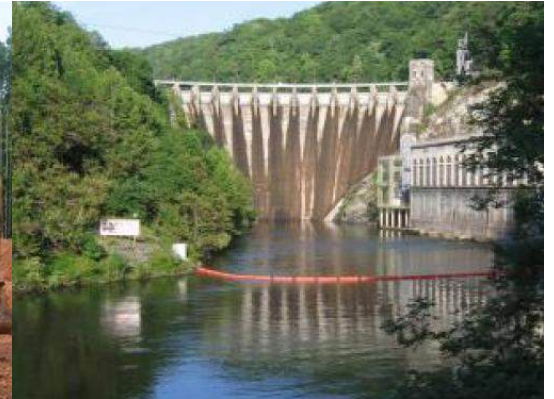
W.E. Toby Vinson, PE, Director

February 6, 2025



Organizational Information

- 3 Sections
 - Land Quality Central Operations
 - Land Quality Regional Operations
 - NC Geological Survey
- 6 regulatory Programs
 - Erosion and Sedimentation Control
 - Stormwater
 - Mining
 - Dam Safety
 - Onshore Wind Energy
 - Oil and Gas
- 3 Non-Regulatory Programs
 - State Mapping
 - Rare Earth Minerals
 - Landslide Mapping/Response

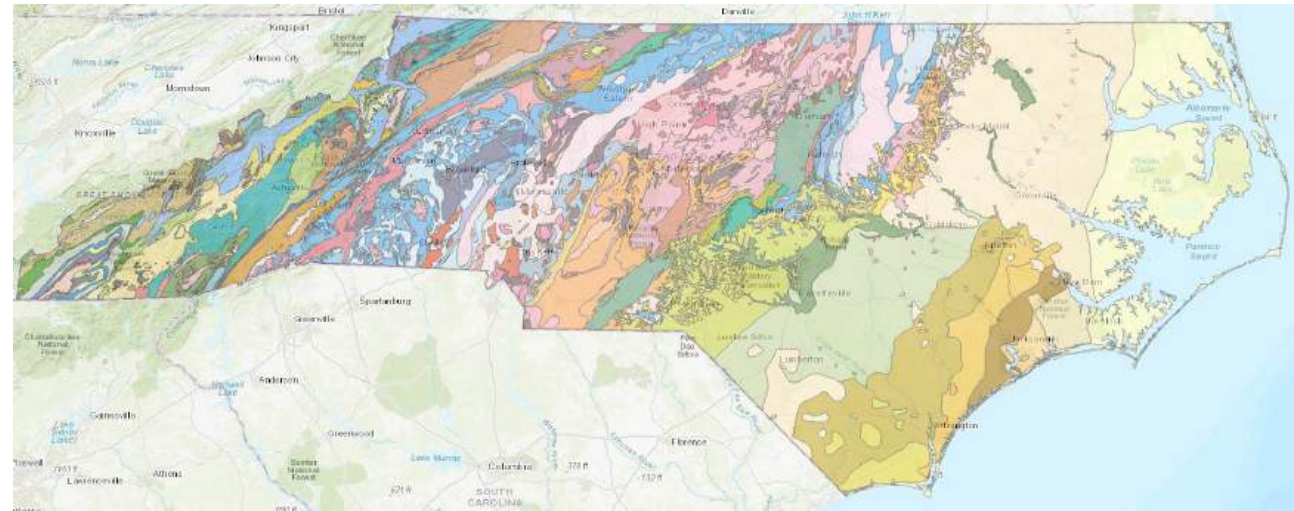


NC Geological Survey

- Research-based program focused on the geological resources and hazards of NC
- Program relies very heavily on grants from the US Geological Survey)
- Products include State Geological Map, rare earth mineral mapping, oil and gas research, NC topographic maps, Landslides in Western NC (mapping tool) [Landslides Hazard Website Link](#) [Link\(arcgis.com\)](#)



The screenshot shows the website for 'Landslides in Western North Carolina'. At the top left is the NC Geological Survey logo (1824). The title 'Landslides in Western North Carolina' is prominently displayed. Below the title is a subtitle: 'Explore current and historical information about landslides across the region, and access resources to help you plan for and build resilience to landslide hazards.' A navigation menu includes 'Home', 'Data Tour Guide', 'Learn More', 'Downloads', and 'About'. The main content area features four interactive panels: 1) 'Reducing Landslide Risk' with a topographic map and icons for risk reduction; 2) 'Explore Data in a Map Viewer' with a map showing landslide locations; 3) 'Data Tour Guide' with a map showing data distribution; and 4) 'Learn More' with a photograph of a landslide site. The footer contains contact information for the Asheville Regional Office: 828-296-4500.



Regulatory Programs

Sedimentation and Erosion Control

- Erosion and Sedimentation Control (ESC) – Regulates land disturbing activity (residential, commercial, industrial development) one acre or greater in size
 - Sedimentation Pollution Control Act of 1973 is primary general statute
 - Plan reviews and compliance are conducted in the ROs
 - Approximately 9,000 + active projects at any one time
 - Has oversight and audit authority on 54 delegated local programs plus NC DOT, managed in CO
 - Sedimentation Control Commission



Regulatory Programs

Stormwater

- Stormwater (SW) – Regulates stormwater discharges through a variety of federal, state, and local programs. [Active Stormwater Permits Map \(arcgis.com\)](http://arcgis.com)
 - NPDES construction SW, NPDES Industrial SW, Post-Construction SW (coastal and watershed-based), Municipal Separate Storm Sewer Systems (MS4s), local Water Supply Watersheds
 - Permitting conducted in Washington and Wilmington ROs and Raleigh Central office
 - Approximately 9,000 + construction SW at any one time, 4,600 industrial SW, 18,000 + post-construction SW, 115 MS4, 286 local water supply watershed
 - Environmental Management Commission



Regulatory Programs

Mining

- Mining – Regulates mining activities with disturbed/affected area of greater than 1 acre. [North Carolina Mining Permits \(oregis.com\)](#)
 - Permitting (Mining Act of 1971) is conducted in CO along with Enforcement and Compliance is conducted in ROs.
 - Approximately 700 surface mines in NC. These include sand mines, quarries, and industrial mineral mines among others.
 - Mine reclamation covered through sureties (max \$1 million - Blanket)
 - Mining Commission



Regulatory Programs

Dam Safety

- Dam Safety – Regulates dam design, construction, repair, and removal
 - Reviews/Approvals and Enforcement are conducted out of CO and compliance conducted out of ROs
 - ~3,000 regulated dams, of which 1,700 + are high and intermediate hazard dams
 - Emergency Action Plans (EAPs) required for High and Intermediate Hazard potential dams
 - Play an important role in resiliency and emergency response planning
 - Environmental Management Commission



Regulatory Programs

Wind Energy

- Onshore Wind Energy – Regulates construction, operation, and expansion of onshore wind energy facilities (<3 nautical miles from NC coast and landward)
 - Permitting conducted out of central office
 - Only one current project, Timbermill Wind, Chowan County, is now permitted
 - EMC



Regulatory Programs

Oil and Gas

- Oil and Gas – Regulates oil and gas exploration and wells
 - No applications received to date
 - Oil and Gas Commission



Hot Topics – E-Permitting - AccessDEQ

- IBEAM
- BIMS
- Access databases
- AccessDEQ rollout priorities
 1. ESC, November 1, 2023
 2. NPDES Construction SW, Two Phases, Spring and Summer 2025
 3. Post-construction SW, Two Phases, Spring and Summer 2025
 4. Mining, Winter 2025
 5. Dam Safety, next



Hot Topics – New General Permits

This year 2025:

- NPDES General Permit NCG020000 – Mining Activities, July 1, 2025
- NPDES General Permit NCG190000 – Marinas and Shipbuilding, July 1, 2025

Next year 2026:

- NPDES General Permit NCG030000 – Metal Fabrication, July 1, 2026
- NPDES General Permit NCG060000 – Food and Kindred, July 1, 2026
- NPDES General Permit NCG080000 – Transit and Transportation, July 1, 2026
- NPDES General Permit NCG090000 – Paints and Varnishes, July 1, 2026
- NPDES General Permit NCG100000 – Use Motor Vehicles, July 1, 2026
- NPDES General Permit NCG120000 – Landfills, July 1, 2026



Hot Topics – Hurricane Helene



- As a result of Hurricane Helene, the Dam Safety Program has inspected over 400 dams in the impacted areas since September 2024.
- Although there were several emergency evacuations in several counties, we did not have loss of life as a result of dam failures.
- There was moderate to significant damage on 40 of the dams that we have inspected so far with estimated damage totals for the dams alone at over \$11 million.



Hot Topics – Hurricane Helene

Dam Recovery

- We will have a drawn-out recovery for the impacted dams as many of those owners have limited finances
- Recovery includes Repairs, Modifications, Breaches and Removals
- We are working with dam owners to work through systematic and phased processes to work towards improved safety and reducing risks.



Hot Topics – Hurricane Helene



North Carolina Geological Survey - Landslides

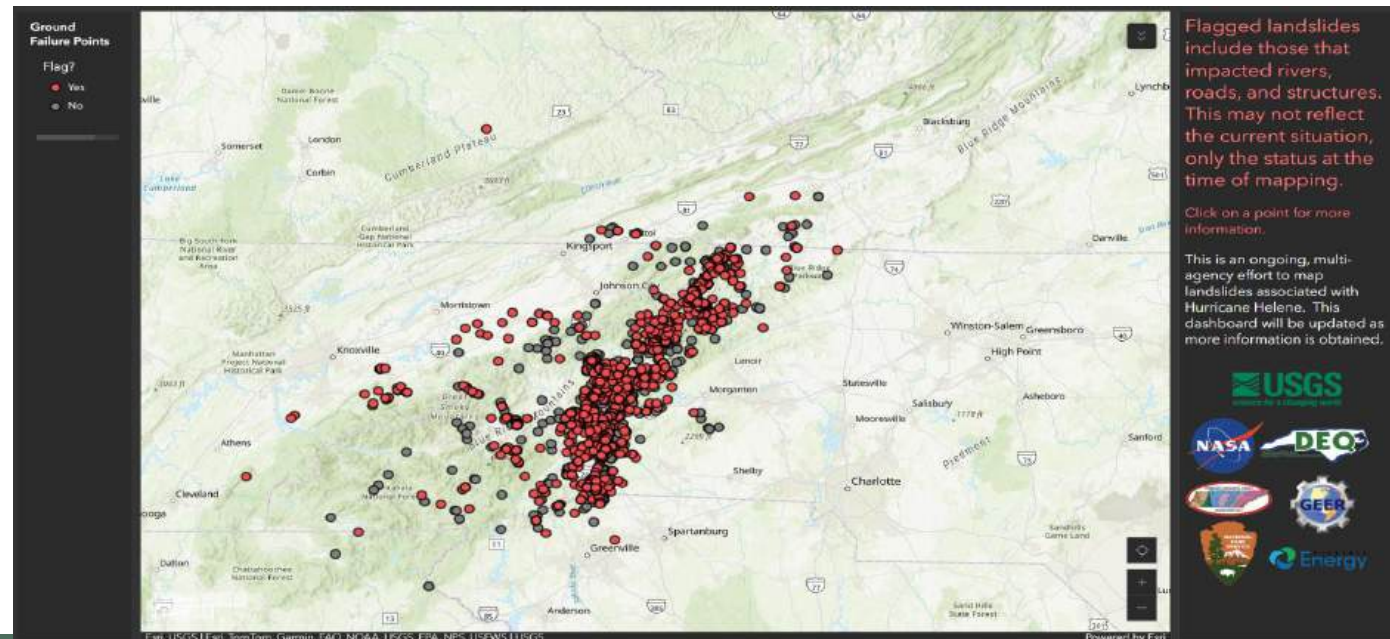
- 2,004 USGS mapped landslides primarily along Blue Ridge Escarpment – 23 fatalities, damage ranges from complete destruction of infrastructure and physical property to damage only to raw land.
- NCGS Geohazards Landslide Team has investigated 328 of the 2,004. Additional landslides frequently discovered during investigations into remotely-mapped or reported landslides.
- County EMS and private entities asking for landslide assessments.

Buncombe County EMS > 600 landslides will take approximately a year with existing staff.

Other counties asking for assessments: Henderson, Yancy, Watauga, Avery, Ashe, Total > 1,750 landslides.

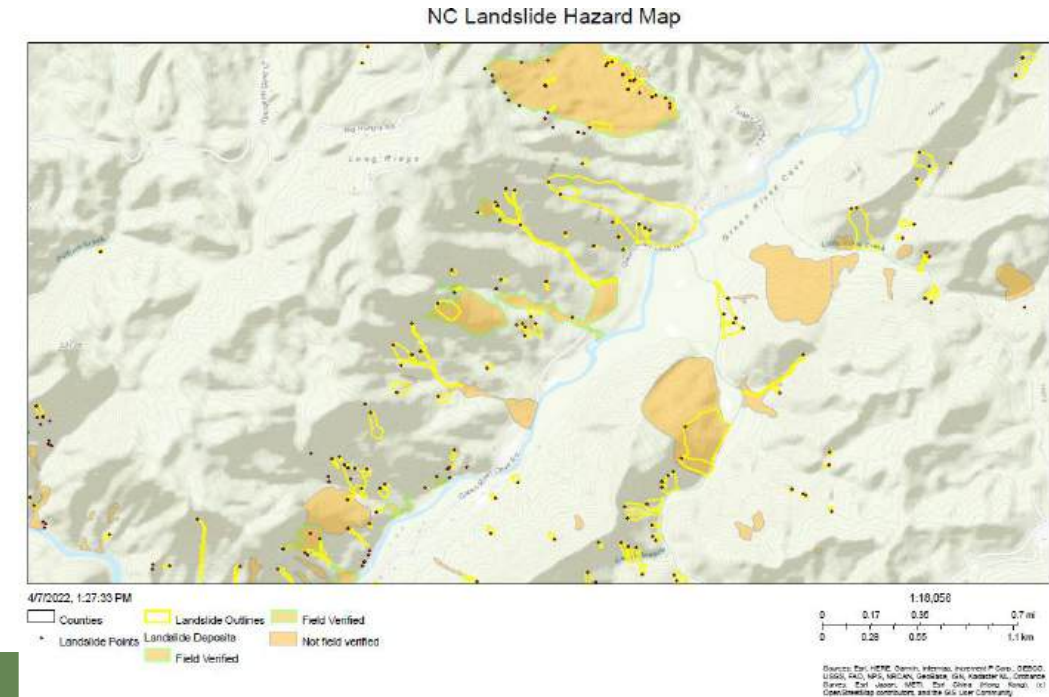
Approximately \$380,000 needed to contract lidar differencing between 2017 and newly flown 2025 lidar.

Department of Environmental Quality



Hot Topics – Hurricane Helene

- Identified Needs as a Result:
 - Development of new inundation maps for High and Intermediate Hazard dams that can be used by dam owners to complete Emergency Action Plans and for State and Local Emergency Management to develop emergency transportation and access/evacuation routing.
 - Expansion of our Landslide Mapping and Response capabilities to address the greater than 2000 new landslides, resulting from Hurricane Helene.



Hot Topics – Probably Maximum Precipitation (PMP) Study

- Study by **AWA** (Applied Weather Associates) lead by Chief Meteorologist Bill Kappel.
- Contract signed in **July 2023**.
- Scheduled to be completed by **March 2025**.

HMR51:

- **24-hour PMP = 29.7 inches**
- **72-hour PMP = 35.4 inches**

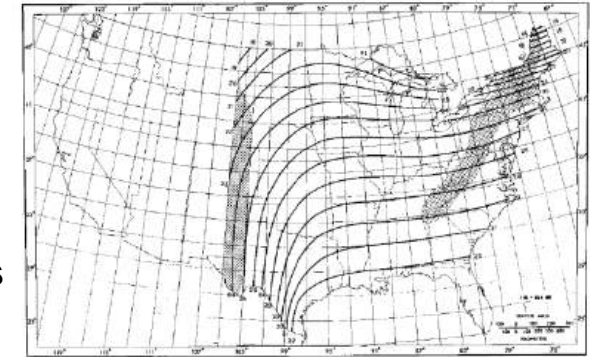


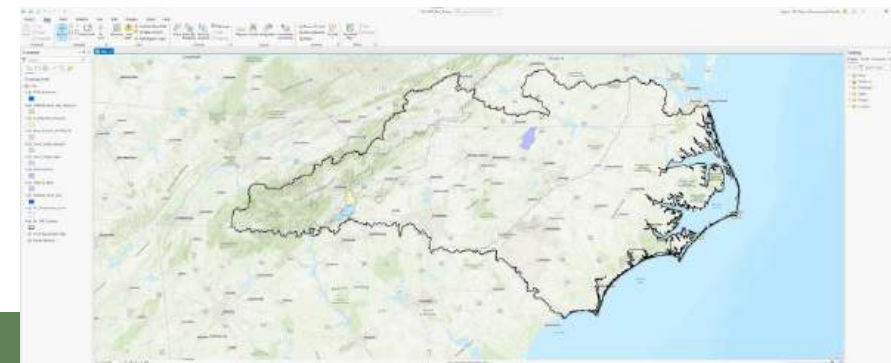
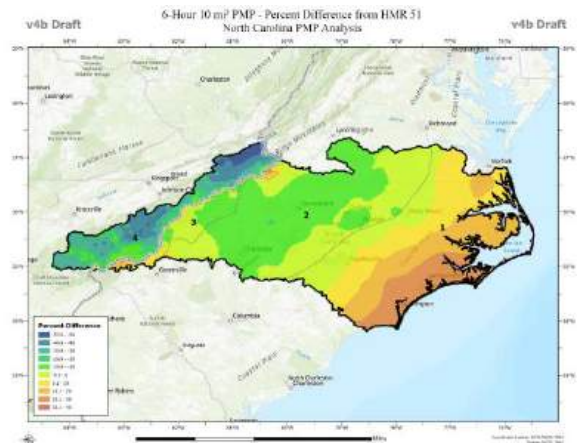
Figure 26.—All-season PMP (in.) for 6 hr 10 m² (30 ft²).

Main tasks:

- Develop **PMP Values** for different storm types & different durations.
 - **Local Storms (1-hr to 24-hr)**
 - **General Storms (1-hr to 72-hr)**
 - **Tropical Storms (1-hr to 72-hr)**
- **Temporal Distributions.**
- **AEP:** Annual Exceedance Probability Analyses (many return periods).
- Projected Effects of **Climate Change** on PMP.

Lake Lure Example

No	STORM_TYPE	PMP_01	PMP_02	PMP_03	PMP_04	PMP_05	PMP_06	PMP_12	PMP_24	PMP_48	PMP_72
1	Local	6.99	10.97	14.81	17.54	19.94	21.91	24.04	24.1		
2	General	5.22	5.68	9.45	9.54	10.06	13.5	15.69	15.98	17.16	17.75
3	Tropical	3.74	5.9	7.2	8.52	10.23	12.13	21.11	21.36	21.69	21.95



Partners



Questions?

