

### Advancing the Analysis Potential of Topographic Maps in the Digital World

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# Foundation: The National Map

- **Base topographic data** ightarrow✓ NSDI Framework layers ✓ Seamless ✓ Nationally consistent
- Ongoing maintenance through partnerships
- Available on line
- Source for US Topo •



US Topo maps can be printed from personal computers or plotters as complete full-sized, maps, or in customized sections, in a user specified format. Paper copies of the maps can also be purchased from the USGS Store.<sup>1</sup> The US Topo Web site<sup>4</sup> features downloadable oks and a users guide.





#### The National Map & US Topo Background

Legacy 1:24,000 USGS Topographic maps

- 55,000 maps
- Nationwide coverage

Seamless with consistent scale and content
Maps from the 1970s and 1980s were used to generate digital datasets (hydro, DEM data, etc)
Now it's the other way around
Maps remain available as GeoPDF files



# The US Topo Digital Datasets

#### US Topo Content

- ✓ Orthorectified image
- ✓ Roads
- ✓ Names

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- ✓ Contours
- Hydrography
- ✓ Woodland tint
- ✓ State & county boundaries
- All but contours are currently available on The National Map

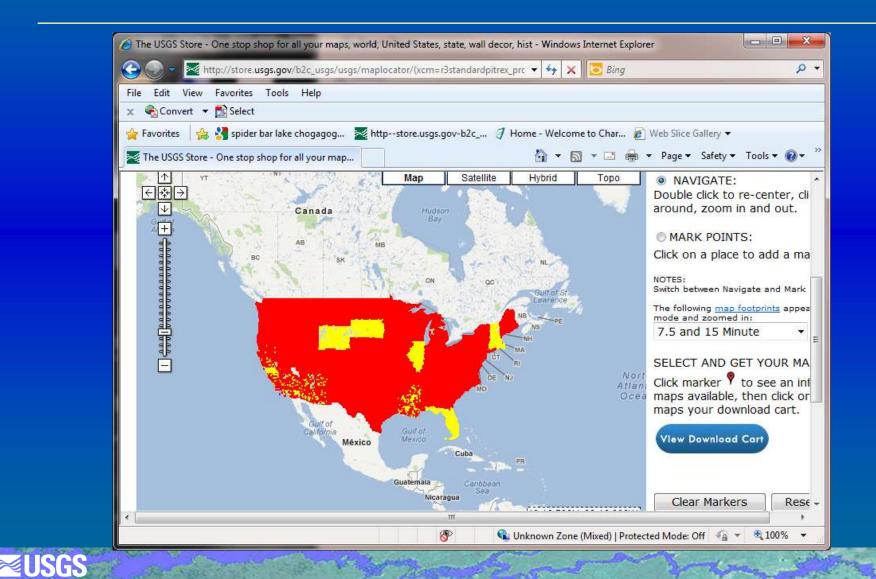


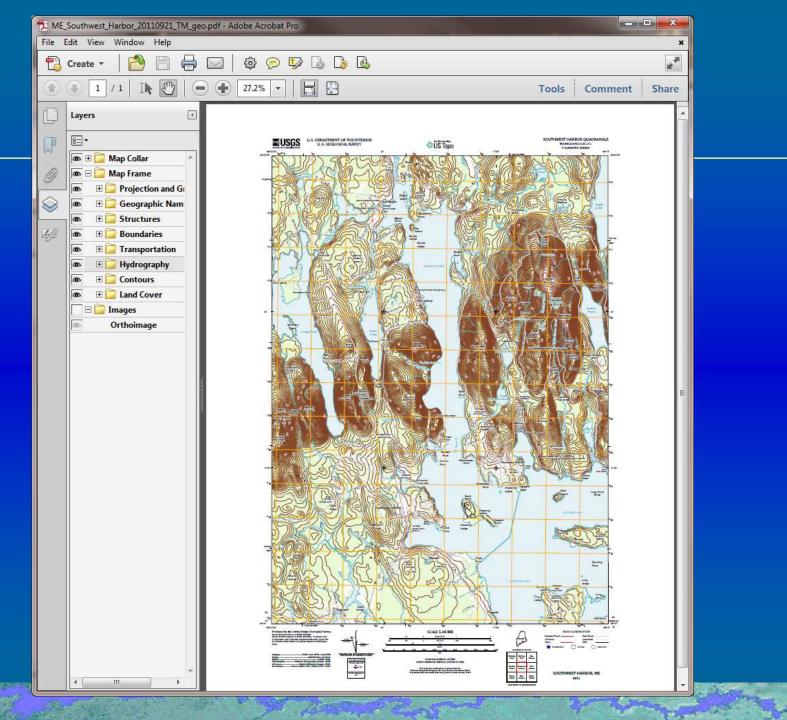
#### **GeoPDF Product Characteristics**

- Traditional USGS 7.5-minute topographic quadrangle format
- Nationally consistent
- Can be used electronically or plotted
- Reference systems:
  - ✓ Latitude/Longitude
  - ✓ National Grid and Coordinates (Military Grid Reference System)
  - ✓ Universal Transverse Mercator

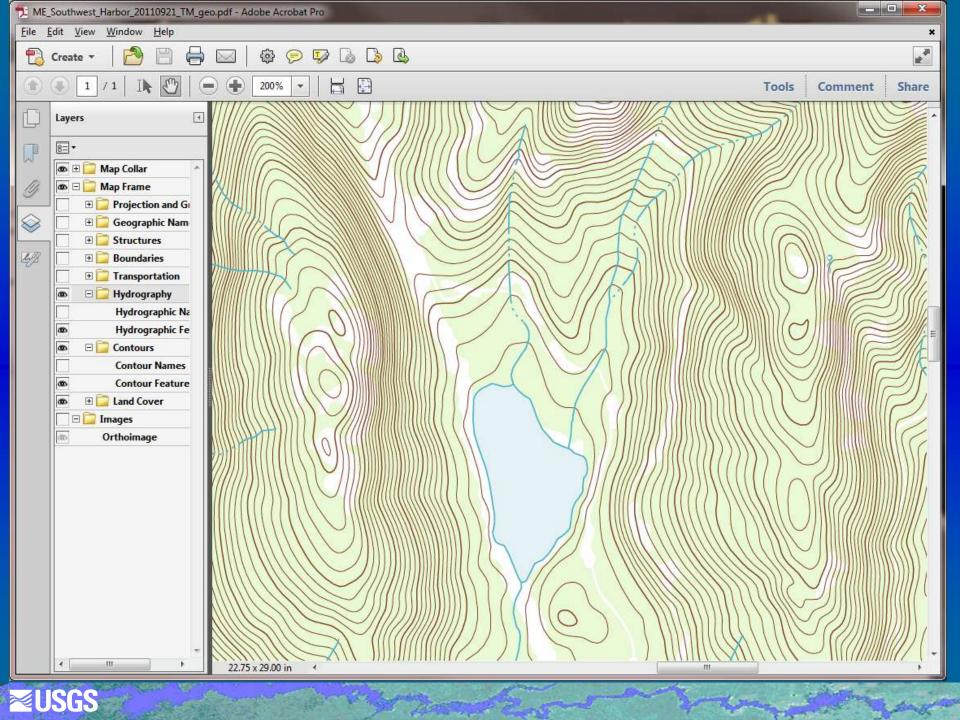


# **USGS Map Store**





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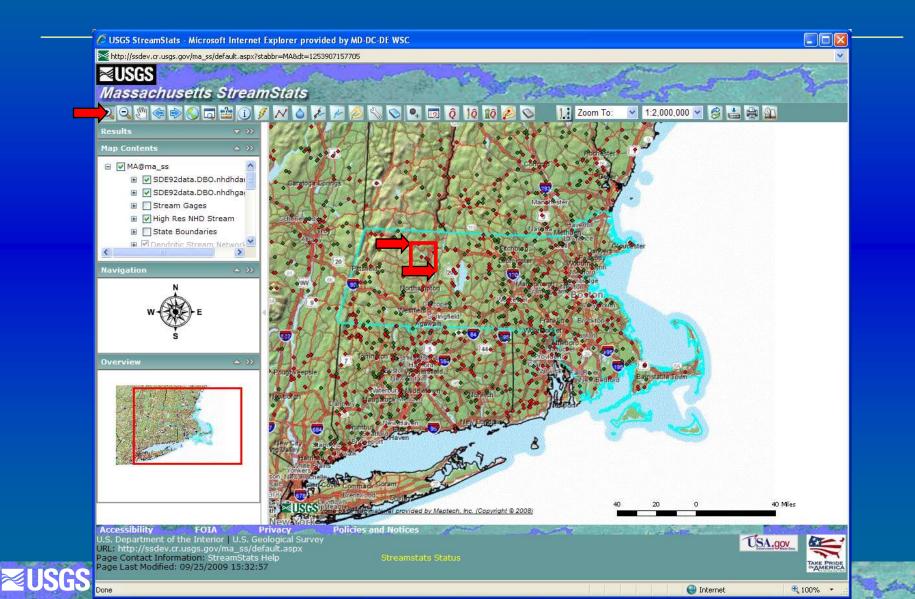
#### What makes the Topographic Map Intelligent?

- Much is based on the complimentary aspects of the hydrography and surface contour features
  - Channel slope functionality
  - Stream Network navigation
  - Terrain Profiles
  - Raindrop tools

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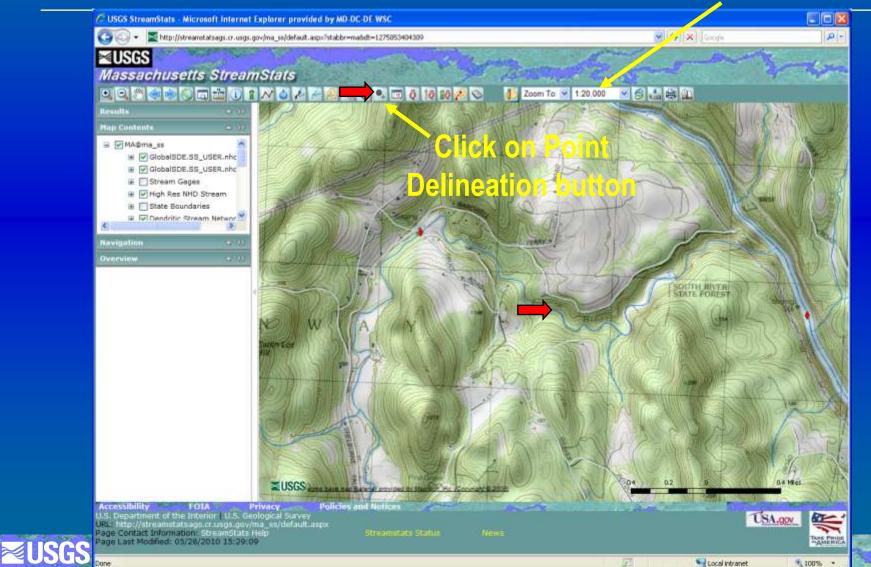
- Cross Section Profiles
- 3 Dimensional "Viewsheds"
- Some of this is already available in StreamStats

#### **StreamStats with NHD Gages and Dams**

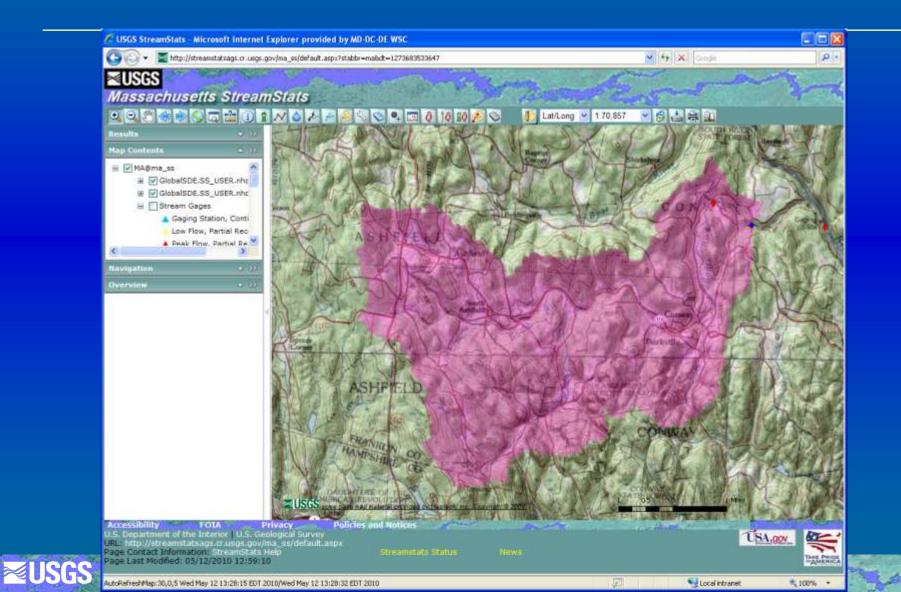


# **Select Ungaged Site**

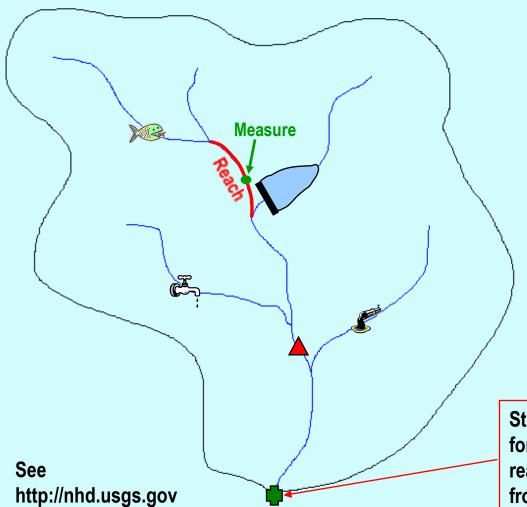
# Note: Scale must be at least 1:24,000



#### **Delineated Basin**



#### **Network Navigation/NHD Reach Indexing**



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#### **Explanation User-selected site Streamgaging station** Dam site **Point discharge** (Ch Water withdrawal **Biological sampling site**

StreamStats provides reach addresses for user-selected sites, consisting of reach number and percentage distance from downstream end of reach

#### **NHD Navigation Tools on Toolbar**

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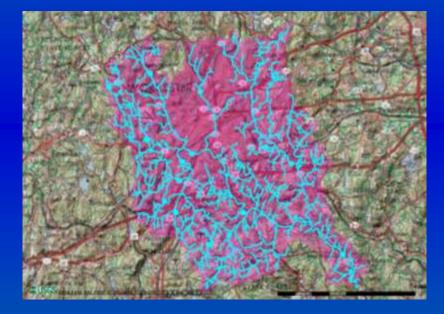
# **Network Tracing in StreamStats**

#### Configure trace

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- Specify layer used (NHD, NHDPlus)
- Direction of tracing (upstream, downstream)
- Participating event layers (gages, dams, etc.)
- Trace from delineated point
  - Select and display reaches
  - Select and display point events
- Raindrop trace to network
  - Display path from point to network, and downstream
  - Compute reach address at point on network

#### **Trace From Delineated Point**



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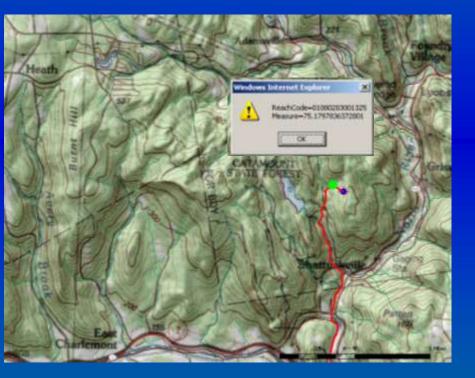
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#### **Raindrop Trace to Network**







#### **Network Profile Plots**

Plot of distance vs elevation - Microsoft Internet Explorer provided by MD-DC-DE WSC ដី 🛙 🖬 ធំពីធំពី Microsoft Excel 10 × E 80 Trace 1 Report EW. Calibri -111 General Die Braart. 1 A The Delete Sort & Find & Paste 12 -92 復 佳 Elformat Fillet+ Select+ Cipponent 13 Abgeinient Number Cells Editing Elevation (Feet) (10^3) A1 ÷ (m fx ¥ Ef DataView[1].ds E 6 D G E 2 UserPoint 7 x 13 0 9345.338 2443635 1475355 TRUE 4 0.06 9214.426 2443555 1475315 TRUE 0.13 9060.317 2443455 1475295 TRUE 15 0.19 8975.799 2443355 1475295 TRUE 0.27 8949.846 2443305 1475395 TRUE 0.36 8834.289 2443255 1475515 TRUE 0.45 8671.453 2443225 1475635 TRUE 10 0.55 8636.084 2443305 1475745 TRUE 11 0.64 8603.996 2443375 1475865 TRUE 12 0.72 8579.546 2443375 1475985 TRUE 13 0.8 8534.997 2443415 1476105 TRUE 14 0.89 8477.317 2443455 1476225 TRUE 15 0.99 8341.024 2443555 1476345 TRUE -16 1.08 8230.52 2443615 1476465 TRUE 1.17 8145,509 17 2443715 1476555 TRUE 18 1.27 8074.869 2443815 1476675 TRUE 1.37 7999.439 2443905 19 1476795 TRUE 2443975 20 1.46 7927.421 1476915 TRUE 21 1.56 7870.955 2444065 1477025 TRUE 22 1.64 7808.813 2444185 1477045 TRUE 1.73 7779.481 2444255 23 1477155 TRUE 24 2444315 1.82 7751.723 1477275 TRUE 25 1.9 7729,216 2444355 1477395 TRUE 26 2 7683.741 2444455 1477505 TRUE 27 2.09 7652.67 2444545 1477605 TRUE 28 2.18 7623,436 2444645 1477695 TRUE 29 2.28 7602.778 2444735 1477805 TRUE 1477835 30 2.37 7595.974 2444855 TRUE \* 31 2.46 7567.069 2444965 1477915 TRUE 37 2.55 7546.989 2445045 1478035 TRUE **USGS \$**1 ----14 4 5 51 DataView 085 Ready Scroll Lock (<del>+</del>)

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#### **Terrain Profile Tool**

