NWIS Stream Gages, Reconciled to NHD and EDNA STREAMS in the Salt HUC (10200203), as a Prototype for the Nation

The National Water Information System (NWIS) contains 1,566,608 geo-located sites, most of which are located in the U.S. Numerous data have been collected for each location. We have determined that which points sites are gaging stations. Because these stream gages have no link to the appropriate stream coverage, we have also developed a process for "snapping" the stream gage point to the correct streams, both in the National Hydrography Dataset (NHD) and for the Elevation Derivatives for National Applications (EDNA) streams. Where the EDNA 250 flow lines and the EDNA 5000 flow lines differ, it was possible to determine in a high percentage of cases which flow line to use by comparing the derived flow accumulation area from a digital elevation model to the drainage area from the SITEFILE. In our Salt HUC (10200203) prototype for Lincoln, Nebraska, we were able to identify 23 out of 25 streams correctly. In two instances, the stream was missing from the NHD Dataset, but had generated in the denser EDNA 250 drainage paths. In those cases where the appropriate stream is not evident (which means that the drainage areas from the two sources don't match), we will generate a report that lists several fields that will help local experts identify the correct stream.

Three additional HUCS will be tested; one in mountainous terrain, one on relatively flat farmland, and one in a coastal wetland region. These tests may provide additional insights into the snapping process, before linking the national NWIS points to NHD and EDNA streams.

Identifying and geo-locating the gages on the appropriate stream will be useful for many modeling applications. Data gathered at these points can be incorporated into analysis.

A comparison of SITEFILE and Period of Record (POR) tables is also being done. Both of these tables will be linked to the NWIS sites. A national hydrologic unit code (HUC) coverage will be overlaid on the NWIS sites, to populate the missing HUCs. Where elevation is missing from the SITEFILE, elevation values and a source field will be populated. Linking two tables with the NWIS spatial data will give the ability to query and subset by smaller categories, such as HUC, state, or county.