

## **A Significant Nexus Toolkit: NHDPlus as the Core for Analyses of Wetlands and Headwater Streams**

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### **ABSTRACT**

The Environmental Protection Agency, working with the states and federal agencies such as the USGS and NOAA, has established baselines for national assessments focused on estuaries and for perennial Wadeable Streams. National assessments for lakes are in progress, and attention will then turn to addressing all other waterbody types (large rivers, headwater streams, and wetlands) to achieve a comprehensive view of the condition of the nation's aquatic resources. For non-navigable streams and wetlands there is ongoing concerns to define as accurately as possible those waters that satisfy jurisdictional determination significant nexus tests on their status as waters of the United States. Examples will be provided for a set of geospatial tools to assist in making significant nexus decisions for specific areas of investigation (AOI) within larger regional watershed assessment frameworks. The documentation of the significant nexus of a study area can also draw on emerging research efforts anchored on the concept of ecosystem services.

A Significant Nexus Toolkit will involve two types of products. First, a set of core products can be anchored on the features and functionality of the enhanced National Hydrography Dataset (NHDPlus) to document features related to Traditional Navigable Waters (TNWs), Relatively Permanent Waters (RPWs), impoundments, pollution assimilation functions related to NPDES discharges, waters with drinking water intakes, and other features that would clearly be part of the jurisdictional waters of the United States. Second, special data mining tools can also be applied using technique such as Correlation and Regression Tree (CART) analysis. The rulesets resulting from the CART analysis can help identify areas of investigation that show high probabilities of meeting a significant nexus test. The results of such regional analyses could then be combined with the core significant nexus materials based on national datasets to progressively augment GIS and database materials to facilitate identifying waters of the United States.

### **KEYWORDS**

NHDPlus, Significant Nexus, Ecosystem Services, Non-navigable Streams and Wetlands, Correlation and Regression Tree (CART) analysis.