Materials and Methods

Marcus Beck, [mbeck@tbep.org](mailto:mbeck@tbep.org)

2023-07-21

Under the new [Supreme Court decision](https://www.supremecourt.gov/opinions/22pdf/21-454_4g15.pdf), wetlands are jurisdictional to Waters of the United States (WOTUS) if 1) a continuous surface connection is present with an existing WOTUS, and 2) the wetland is practically indistinguishable from an ocean, river, stream, or lake where the continuous surface water connection is identified. A national-scale assessment for the United States was conducted to identify potential hydrologically isolated wetlands (HIWs), focusing specifically on the first requirement to define those beyond a given straight-line distance from existing waterbodies. The second requirement that a wetland must be “practically indistinguishable” cannot be assessed at a national scale with existing datasets. The analysis further recognized that existing wetland protections at the state level may have precedence over federal protections. All HIWs were considered similarly across states regardless of existing protections as state rules can now be challenged under the new federal WOTUS definition.

The National Wetland Inventory (NWI, <https://www.fws.gov/program/national-wetlands-inventory>) maintained by the US Fish and Wildlife Service and the National Hydrograpy Dataset (NHD, <https://www.usgs.gov/national-hydrography/national-hydrography-dataset>) maintained by the US Geological Survey were used for the assessment. The NWI is the most comprehensive geospatial dataset (1:24,000 scale) of wetlands in the US, representing the combined mapping efforts of states, federal agencies, tribal governments, regional and local governments, and nonprofit organizations. Data are available for over 35 million wetlands classified as estuarine and marine deepwater, estuarine and marine wetland, freshwater emergent wetland, freshwater forested/shrub wetland, freshwater pond, lake, riverine, and other. The final category includes farmed wetlands, saline seeps, or other miscellaneous types (Federal Geographic Data Committee 2013). The NHD is mapped at 1:24,000 scale and includes line and area features for flow networks and waterbodies, respectively. Both the NWI and NHD are available as separate geodatabases or shapefiles for each state. A custom analysis workflow at this spatial scale was used to quantity the amount and areal coverage of HIWs by state. Both the NWI and NHD are not without accuracy limitations, which primarily include errors of omission/commission based on constraints of the data used to create each layer (Matthews et al. 2016; Hafen et al. 2020). However, both datasets represent the best estimate of surface water coverage in the US and an assessment of potential HIWs is informative regardless of the limitations.

Federal Geographic Data Committee. 2013. “Classification of Wetlands and Deepwater Habitats of the United States.” Standard FGDC-STD-004-2013. Second. Washington, DC: Wetlands Subcommittee, Federal Geographic Data Committee; U.S. Fish; Wildlife Service.