WETLAND EVALUATION TOOL (WET)

User Guide

For more information about WET or supporting research please contact Teagan Hayes, IWJV Science to Implementation Specialist
teagan.hayes@iwjv.org

Wetland Trend Layers

Surface Water

Surface water layers depict the monthly extent of flooding within wetland, riparian, and agricultural systems. Areas of darker blue represent more open or deeper water; more transparent shades are characteristic of shallow areas or areas interspersed with emergent vegetation (Figure 1). Surface water models are inclusive of public and private lands, including agricultural land-use practices associated with wetland habitats. Historical data can be viewed as averaged monthly conditions within four 10-year periods spanning the mid-1980s to the present. Near real-time conditions are provided for 2022. Data are produced monthly as satellite imagery and wetland modeling results become available—typically within the first week of the following month; e.g., wetland monitoring data for June would be available in early July.

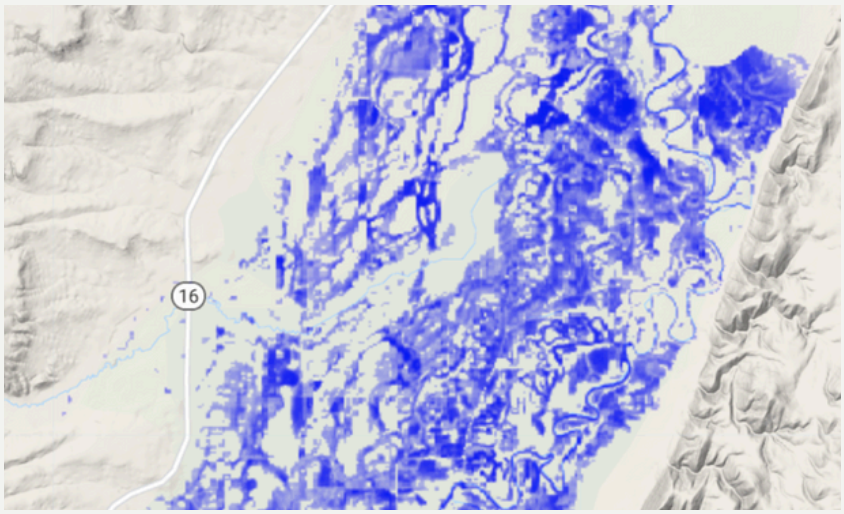

Figure 1. Surface water layer – areas of deeper blue represent more open or deeper water, while more transparent shades represent shallow areas and/or areas interspersed with emergent vegetation.

Hydroperiod

Hydroperiod layers depict wetlands classified by hydroperiods, which are defined as: temporary (flooded <2 months), seasonal (flooded >2 and <9 months), or semi-permanent (flooded >9 months). Data provides ecological context to wetland function and agricultural irrigation practices supporting wildlife habitat. Layers are inclusive of wetland, riparian, and agricultural systems. Hydroperiod layers are provided as monthly averages over approximately four 10-year periods from the mid-1980s to the present.

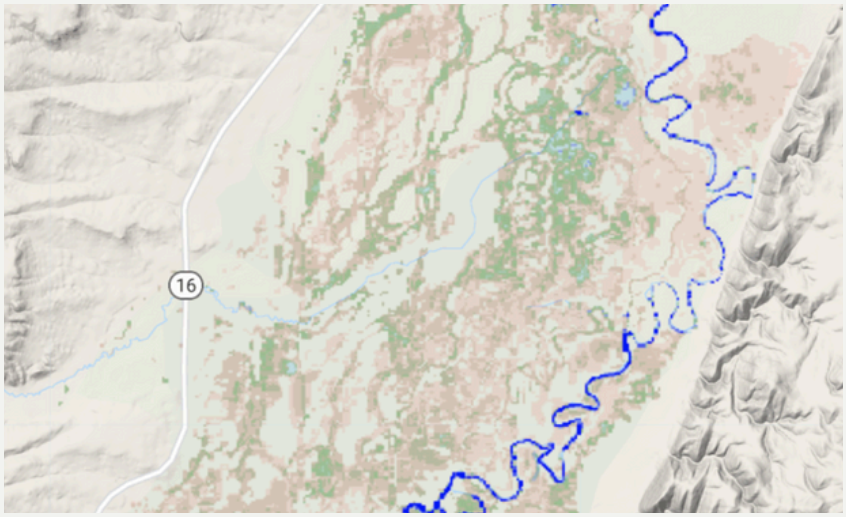

Figure 2. Hydroperiod layer – hydroperiods represent wetland classes defined by Cowardin (1979) as; temporary (pink, flooded < 2 months), seasonal (green, flooded >2 and <9 months), or semi-permanent (blue, flooded > 9 months).

It is important to note that hydroperiods can be split when flooding is separated by drying in the same year. This pattern is naturally rare, but can be associated with hay meadow flood irrigation when water is applied during the growing season and again in the fall post-harvest. Simarially, moist soil management on wildlife refuges can result in staggered flood events used to stimulate plant productivity. These actions can result in false hydroperiods where, for example, a site is classified as a seasonal wetland (total flooded months >2 and <9) but ecologically functions as a temporary wetland (flooded <2 months) split over multiple periods.

Wetland Trend Layers, continued

Resilience

Wetland resilience layers depict resilience as long-term surface water trends (1984-2021) in temporary, seasonal, and semi-permanent wetlands. Trends are displayed monthly within the averaged surface water extent from 2015 to 2021 to reflect changes influencing current conditions. Layers are inclusive of wetland, riparian, and agricultural systems. Areas of wetland drying are shown in red with darker shades representative of consistently dryer conditions associated with shorter or less frequent periods of inundation. Areas that have become wet more frequently or for longer periods are shown in blue with darker shades indicating consistently wetter conditions. White areas represent stable conditions. All trends are relative to local patterns, for example, a site that is rarely inundated but has experienced abnormal flooding events in recent years, will be depicted as trending wetter despite relatively dry conditions otherwise.

Users should be aware that the interpretation of wetland resiliency trends can be complex as patterns are frequently influenced by multiple factors that include: hydrology, climate, irrigation practices, water delivery, and water use laws. Local knowledge of these factors is necessary when determining causation.

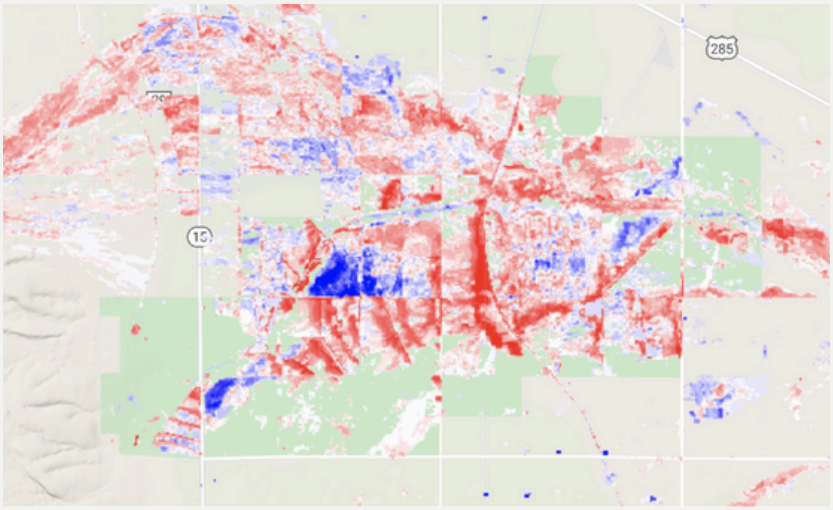

Figure 3. Resilience layers – areas of wetland drying are shown in red with darker shades representative of consistently dryer conditions. Areas that have trended wetter are shown in blue with darker shades indicating consistently wetter conditions.

Common uses of the resiliency layer include:

- As a **screening tool** for easement programs seeking to ensure conservation investments targeting sandhill summering habitats remain viable by prioritizing protections of climate-resilient wetlands—i.e., wetlands that show positive or neutral trends in surface water hydrology over time.

- As a **restoration tool** that allows users to focus on areas of wetland drying to target on-the-ground examination of their restoration potential.

References & Associated Research

Donnelly, J.P., Moore, J.N., Casazza, M.L., Coons, S.P. (2022) *Functional Wetland Loss Drives Emerging Risks to Waterbird Migration Networks.* Frontiers in Ecology and Evolution. https://www.frontiersin.org/articles/10.3389/fevo.2022.844278/full

Cowardin LM, Carter FC, Golet ET. 1979. *Classification of wetlands and deepwater habitats of the United States.* United States Department of the Interior, Fish and Wildlife Service, Washington, DC, USA. https://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States.pdf.