

# Floodplain Prioritization Tool (Western Tennessee)



## CHEAT SHEET

### TOOL BASICS

#### FLOODPLAIN DATA

The floodplain data behind the tool uses the 10-meter resolution Fathom-U.S. 2.0 flood model. Learn more at: <https://www.fathom.global/fathom-us>

It is available at 3 flood frequencies:

- 1-in-5-year
- 1-in-100-year
- 1-in-500 year

This means the “1-in-5-year floodplain” delineates the area where a flood has a 20% chance (1 in 5 years) of happening in any given year – and so on.

All floodplain extents that fall within areas in the Protected Areas Database of the U.S. (PAD-US) are excluded from the tool.

#### TWO KEY PARAMETERS

##### Select Flood Frequency

Only floodplains of the selected frequency will be considered for prioritization.

##### View Floodplains By Watershed

Changes the size of the analysis units on the map. Average sizes: HUC8 = 2,379 km<sup>2</sup>; HUC12 = 112 km<sup>2</sup>; Catchment = 1.5 km<sup>2</sup>

#### SUPPLEMENTARY LAYERS

Toggle these layers on and off for added context:

- Soil drainage classes – View areas where the soil is somewhat poorly, poorly, or very poorly drained
- 5-, 100-, and 500-year floodplain – View the underlying Fathom floodplain data, minus protected areas (sourced from PAD-US)
- Inundation frequency – View empirical satellite data of inundation frequency from Gulf Coastal Plain and Ozarks Landscape Cons. Cooperative
- FEMA flood hazard zones
- Protected areas – From Protected Areas Database of the U.S. (PAD-US)

### DATA LAYERS

#### Available Floodplain Area

##### AVAILABLE FLOODPLAIN AREA

The area of floodplain that is:

- Not currently in protected status
- Of the specified flood frequency

#### Nutrients

##### LOCAL NUTRIENT LOADING

- Kg/yr of nitrogen and phosphorus exported from the watershed
- Normalized to 0-100 scale
- One metric for nitrogen and one metric for phosphorus

##### NUTRIENT LOADING TO GULF OF MEXICO

- Kg/yr of nitrogen and phosphorus from within a given watershed that reaches the Gulf of Mexico
- Normalized to 0-100 scale
- One metric for nitrogen and one metric for phosphorus

#### Soils / Land Use

##### AGRICULTURAL PRODUCTIVITY POTENTIAL OF SOILS

- An index characterizing soils' inherent capacity to produce non-irrigated commodity crops
- Lower value suggests less productive soil, and therefore more viable opportunity to take floodplain land out of ag use

##### PERCENT OF FLOODPLAIN IN POORLY DRAINED SOILS

- Soil drainage class data is taken from the Soil Survey Geographic (SSURGO) database
- % of floodplain in “somewhat poorly drained,” “poorly drained,” and “very poorly drained” soils

#### NRCS WATERSHED VULNERABILITY INDEX

- Index to quantify watershed vulnerability to pollutant transport from croplands by surface runoff and leaching
- Based on: SSURGO land capability class (soil suitability for field crops), land cover from 2020 Cropland Data Layer, and distance from stream

#### Habitat

##### FLOODPLAINS NEAR PROTECTED LANDS

- Acres of unprotected floodplain within 0.25 miles of protected lands in Protected Areas Database of the U.S. (PAD-US)

##### IMPORTANT BIRD AREAS

- Sites identified by the National Audubon Society as having significance for the conservation of birds, supporting rare and endangered species, as well as globally important concentrations of non-endangered species
- Watershed will be counted if it contains floodplain in an IBA

##### NATURE CONSERVANCY ECOREGIONAL

##### ASSESSMENT UNITS

- All features identified in ecoregional assessments across The Nature Conservancy as places of biodiversity significance and priority areas for conservation action

##### NATIONAL FISH HABITAT PARTNERSHIP

##### CUMULATIVE HABITAT CONDITION INDEX

- Degree to which anthropogenic stressors in the watershed may be affecting fish habitat.
- Higher values = less extreme stressors

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### TERRESTRIAL RESILIENCE

- Estimates the climate resilience of an area of land based on: a). Its landscape diversity (microclimates) and b). Local connectedness (lack of fragmentation)
- Scores are standard deviations above the average score across the ecoregion and geophysical setting

### TN-SWAP: PRIORITIES UPSTREAM OF AQUATIC HABITATS

- Land priorities adjacent to and upstream of aquatic habitat priorities
- Data from Tennessee State Wildlife Action Plan (SWAP)
- Score ranges from: 0 (no priority) to 9 (very high priority) statewide

### TN-SWAP: TERRESTRIAL RESTORATION

#### PRIORITIES

- Priority ag lands for restoration, based on potential near-term usage of restored habitat by terrestrial species of greatest conservation need
- Data from Tennessee State Wildlife Action Plan (SWAP)
- Score range: 0-100 statewide

### TN-SWAP: TERRESTRIAL HABITAT PRIORITIES

- Protection priorities for species of greatest conservation need
- Data from Tennessee State Wildlife Action Plan (SWAP)
- Score range: 0 (no priority) to 5 (very high priority) statewide

## Population Exposure

### POPULATION EXPOSURE

- People currently living in **unprotected** floodplain of the **selected flood frequency**.
- Population determined using land-cover-weighted allocation of population

## Flood Damages

### PROJECTED FUTURE FLOOD DAMAGES TO STRUCTURES (2050) (\$)

- Estimate of property damage in the floodplain of the **selected flood frequency**.
- Based on flood depth, building types, and 2050 projections of building location.
- Detailed methodology may be found in: Oliver E.J. Wing *et al.* 2018. *Environ. Res. Lett.* 13: 034023

## Social Vulnerability

### INDEX OF SOCIAL VULNERABILITY TO ENVIRONMENTAL HAZARDS

- Index characterizing social vulnerability to environmental hazards, drawing on 22 demographic variables
- At the national scale, values below -1 are considered low social vulnerability, -1 to +1 are medium, and above +1 are high.

Clicking on any watershed on the map will bring up a popup window with the data for that watershed.

#### Lower North Fork Forked Deer River

Watershed area (acres): 46,221  
Acres of 5-year floodplain: 0.00  
Nitrogen load at outflow (kg/yr): 190,745  
Phosphorus load at outflow (kg/yr): 32,926  
Nitrogen load to Gulf of Mexico (kg/yr): 169,556  
Nitrogen load from farm fertilizer and manure (%): 43.9  
Phosphorus load to Gulf of Mexico (kg/yr): 28,165  
Phosphorus load from farm fertilizer and manure (%): 63.2  
Current population in 5-year floodplain: 0  
Projected 2050 damage value (\$) in 5-year floodplain: \$0  
Social vulnerability index: 0.966

## Save and Share

### Filter Floodplain Units

Download Selected Data

Save and Share

Reset Filters

- The “Download Selected Data” button allows you to download your results as a shapefile
- The “Save and Share” button creates a permalink to the map with your specific filters applied. You can save this link to access the map in the future, or share via email or social media.

## Additional Information

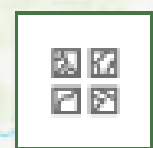
### FLOODPLAIN TOOL URL

<https://maps.freshwaternet.org/western-tennessee-floodplain/>

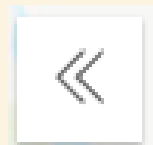
### FOR MORE INFORMATION

For more information about the FP Tool, contact TNC’s Eugene Yacobson ([eyacobson@tnc.org](mailto:eyacobson@tnc.org)) and / or Kris Johnson ([kjohnson@tnc.org](mailto:kjohnson@tnc.org)).

## OTHER USER INTERFACE ELEMENTS



Clicking on this button in the top right of the map pane will toggle the basemap between topographic, aerial imagery, and streets.



Clicking on this button in the bottom left of the map pane will toggle the map legend.



Use these buttons to view relevant info and links about each data layer.