My GeoNetwork catalogue

Water Quality Model

Each soil map unit is categorized into one of four nutrient leaching potentials and one of four soil runoff potentials based on its published SSURGO map unit components. These ratings (low, moderate, moderately high, or high) were determined from the following properties of the components within each soil map unit; hydrologic soil group, taxonomic order, slope, coarse fragment volume, K factor, water table depth and kind. Ratings are provided as individual rasters. Included are seperate rasters for undrained and drained conditions to accommodate soil map units with components having dual hydrologic soil groups, The Conservation Assessment Ranking Tool (CART) uses thresholds to represent whether conservation planning criteria have been achieved, or, if additional practices are necessary to meet them. The CART threshold values included in the DSHub Water Quality Models are the product of the leaching and runoff potentials and a representation of the rainfall-runoff erosivity factor (R-Factor) derived from isoerodent maps published in the Agriculture Handbook Number 703. Threshold values are provided as individual rasters for undrained and drained conditions.

Simple

Identification info

Alternate title	WQM
Date (Creation)	2023-06-30T12:45:00
Citation identifier	47cacc4a-a468-434a-aa97-929a962d0d32
Purpose	The DSHub Water Quality Models contain soil map unit ratings for nutrient leaching and soil runoff potential and Conservation Assessment Ranking Tool (CART) threshold values for nonpoint nitrogen surface loss, nonpoint phosphorus surface loss, sediment transport, nonpoint nitrogen leaching loss, and nonpoint phosphorus leaching loss. Ratings and threshold values are provided for undrained and drained conditions to accomondate soils assigned dual hydrogic soil groups.
Status	Completed
Spatial representation type	Grid

Spatial resolution

Equivalent scale

Denominator	50000

Extent

13.65	N	13.18	S	144.96	E	144.56	W

Maintenance and update frequency	As needed

Point of contact

USDA NRCS Dynamic Soils Hub
1400 Independence Ave SW
Washington
20250
United States
202-270-2791

Keywords (Theme)	• water quality • water quality index • nitrogen leaving drained • nitrogen leaving undrained • nitrogen runoff drained • nitrogen runoff undrained • phosphorus leaving drained • phosphorus leaving undrained • phosphorus runoff drained • phosphorus runoff undrained • sediment runoff drained • sediment runoff undrained • leach drained • leach undrained • runoff drained • runoff undrained
FIPS County Codes	• 66010

Resource constraints

Access constraints	Other restrictions
Use constraints	Other restrictions
Other constraints	Access Constraints: There are no limitations for access. Use Constraints: None. The USDA-NRCS office asks to be credited in derived products. Distribution Liability: In no event shall the creators, custodians, or distributors of this information be liable for any damages arising out of its use (or the inability to use it).
Language	English
Country	United States
Character encoding	UTF8

Content Information

Attribute description	Water Quality Model Results
Processing level code	WQM -14 bands
Content type	Model Result
Name	Band1 - Nitrogen Leaving Drained
Type name	INTEGER
Name	Band2 - Nitrogen Leaving Undrained
Type name	INTEGER
Name	Band3 - Nitrogen Runoff Drained
Type name	INTEGER
Name	Band4 - Nitrogen Runoff Undrained
Type name	INTEGER
Name	Band5 - Phosphorus Leaving Drained
Type name	INTEGER
Name	Band6 - Phosphorus Leaving Undrained
Type name	INTEGER
Name	Band7 - Phosphorus Runoff Drained
Type name	INTEGER
Name	Band8 - Phosphorus Runoff Undrained
Type name	INTEGER
Name	Band9 - Sediment Runoff Drained
Type name	INTEGER
Name	Band10 - Sediment Runoff Undrained
Type name	INTEGER
Name	Band11 - Leach Drained
Type name	INTEGER
Name	Band12 - Leach Undrained
Type name	INTEGER
Name	Band13 - Runoff Drained
Type name	INTEGER
Name	Band14 - Runoff Undrained
Type name	INTEGER

Resource lineage

Hierarchy level	Dataset
Description	The Soil Survey Geographic Database (SSURGO) contains information about soil as collected by the National Cooperative Soil Survey over the course of a century. The information was gathered by walking over the land and observing the soil. Many soil samples were analyzed in laboratories.
Title	Soil Survey Geographic Database
Alternate title	SSURGO
Date (Adopted)	2023-06-30
Title	Soil Survey Geographic Database
Alternate title	SSURGO
Date (Adopted)	2023-06-15
Hierarchy level	Dataset

Extent

Process step

Description	1. Query SSURGO Database for soil property data (coarse fragment content (num), water table kind (char), taxorder (char), hsg (char), Water table within 24" (boolean), slope (int), kfact (num). Calculate 4 runoff/leaching ratings: Runoff undrain rating, runoff drain rating, leaching undrain rating, leaching drain rating.

Process step

Description	2. Query gSSURGO for raster data. Split into Tiles.

Process step

Description	3. Spatial join soil property data with gSSURGO

Process step

Description	4. Generate raster for Runoff/Leaving Rating (4)

Process step

Description	5. Calculate Classified R-factor (less than 50 equal to 1, 50-150 equal to10, 150-250 equal to100, greater than 250 equal to 1000) and resample to 3 meter resolution. (connects with #6)

Process step

Description	6. Using raster algebra (Runoff/Leaving Rating (4) + Classified R-factor) reclassify 4 outputs to create 10 raster threshold ratings: Nitrogen Leaching threshold (undrained), Nitrogen Leaching threshold (drained), Phosphorus Leaching threshold (undrained), Phosphorous Leaching threshold (drained), Nitrogen Runoff threshold (undrained), Nitrogen Runoff threshold (drained), Phosphorus Runoff threshold (undrained), Phosphorus Runoff threshold (drained), Sediment Transport threshold (undrained), Sediment Transport threshold (drained).

Process step

Description	7. Run function to create unique key based on all possible combinations of 10 threshold values to create final Water quality threshold.

Spatial representation info

Reference system identifier	4326

Metadata

Metadata identifier	urn:uuid/47cacc4a-a468-434a-aa97-929a962d0d32
Language	English
Character encoding	anyValidURI

Point of contact

USDA NRCS Dynamic Soils Hub - ()

Type of resource

Resource scope	Dataset

Metadata linkage	http://localhost:8080/geonetwork/srv/api/records/47cacc4a-a468-434a-aa97-929a962d0d32
Date info (Creation)	2023-07-20T14:32:48
Date info (Revision)	2024-07-31T17:09:27
Metadata standard	http://localhost:8080/geonetwork/srv/api/records/b3613f4a-7e5b-43e7-b4cd-4aea5937fcf9

Overviews

Provided by