

ShadeBuffers_PredictionPoints_Time

Type File Geodatabase Feature Class

Tags Environment, Geoscientific, Inland Waters, Streams, NHDPLUSHR, shade, Penobscot River Basin, Maine, U.S.A.

Summary

Estimation of shade from riparian vegetation.

Description

Upstream "buffers" using SSN edges were created to delineate the buffer from a set of identified points (observation or prediction) along the river network upstream. The primary data required for this analysis is a completed SSN object or stream network with flowlines, a set of locations (points) along the flow network that need upstream buffers to be calculated, and the flowline attributes from NHDPlusHR data.

The output from the buffer analysis/calculation are lines.

Credits

U.S. Environmental Protection Agency and U.S. Geological Survey. National Hydrography Dataset Plus High resolution (NHDPlusV2 flowline) <https://www.usgs.gov/national-hydrography/nhdplus-high-resolution>; USGS NHDPlus HR VAA; USGS <http://water.usgs.gov/lookup/getspatial?bfi48grd>; Miller_etal_2018_data_manipulation_protocol; Fuller, Matthew. Upstream Shade Buffers: As-the-fish-swims)

Use limitations

https://edg.epa.gov/EPA_Data_License.html

Extent

West -73.3772849 East -64.6181008
North 47.5165215 South 43.2870834

Scale Range

Maximum (zoomed in) 1:5,000
Minimum (zoomed out) 1:150,000,000

Topics and Keywords ▶

Themes or categories of the resource Environment, Geoscientific, Inland Waters

Content type Downloadable Data
Export to FGDC CSDGM XML format as Resource Description No

Theme keywords Streams, NHDPLUSHR, shade

Place keywords Penobscot River Basin, Maine, U.S.A.

Citation ▶

Title ShadeBuffers_PredictionPoints_Time
Creation date 2024-07-01 00:00:00
Publication date 2024-07-01 00:00:00

Presentation formats ⇌ digital map

Citation Contacts ▶

Responsible party - originator
Individual's name Naomi Detenbeck
Organization's name U.S. EPA Office of Research and Development (ORD), Center for Environmental Measurement & Modeling -(CEMM)

Contact information ▶

Phone
Voice 401-782-3162

Address
Type postal
City Narragansett
Administrative area Rhode Island
Postal code 02882
Delivery point 27 Tarzwell Drive
e-mail address detenbeck.naomi@epa.gov

Resource Details ▶

Dataset languages ⇌ English (UNITED STATES)
Dataset character set utf8 - 8 bit UCS Transfer Format

Status completed
Spatial representation type ⇌ vector

Processing environment ⇌ Microsoft Windows 10 Version 10.0 (Build 22621) ; Esri ArcGIS 13.1.2.41833

Credits
U.S. Environmental Protection Agency and U.S. Geological Survey. National Hydrography Dataset Plus High resolution (NHDPlusV2 flowline) <https://www.usgs.gov/national-hydrography/nhdplus-high-resolution>; USGS NHDPlus HR VAA; USGS <http://water.usgs.gov/lookup/getspatial?bfi48grd>; Miller_etal_2018_data_manipulation_protocol; Fuller, Matthew. Upstream Shade Buffers: As-the-fish-swims)

ArcGIS item properties

Name ⇌ ShadeBuffers_ObservationSites_Distance1000
Location ⇌ file:///D:/2626UCLANE01/E\$/Ellen/Detenbeck/Penobscot/gdb/Penobscot_ShadeBuffers_040824.gdb
Access protocol ⇌ Local Area Network

Extents ▶

Extent

Description
Temporal extent concur with the temporal extent of the input datasets

Geographic extent

Bounding rectangle
Extent type
Extent used for searching
West longitude -73.3772849
East longitude -64.6181008
North latitude 47.5165215
South latitude 43.2870834
Extent contains the resource Yes

Temporal extent

Date and time 2024-07-01 00:00:00

Resource Points of Contact ▶

Point of contact - point of contact

Individual's name Naomi Detenbeck
Organization's name U.S. EPA Office of Research and Development (ORD), Center for Environmental Measurement & Modeling -(CEMM)

Contact information ▶

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e-mail address detenbeck.naomi@epa.gov

Resource Maintenance ▶

Resource maintenance
Update frequency not planned

Resource Constraints ▶

Constraints
Limitations of use
https://edg.epa.gov/EPA_Data_License.html

Spatial Reference ▶

ArcGIS coordinate system

Type ⇌ Projected
Geographic coordinate reference ⇌ GCS_NAD_1983_2011
Projection ⇌ NAD_1983_2011_Contiguous_USA_Albers
Coordinate reference details ⇌
ProjectedCoordinateSystem
WKID 102965
XOrigin -16901100
YOrigin -6972200
XYScale 10000
ZOrigin -100000
ZScale 10000
MOrigin 0
MScale 41943040000
XYTolerance 0.001
ZTolerance 0.001
MTolerance 4.7683715820312502e-11
HighPrecision true
LatestWKID 6350
WKT
PROJCS["NAD_1983_2011_Contiguous_USA_Albers",GEOGCS["GCS_NAD_1983_2011",DATUM["D_NAD_1983_2011",SPHEROID["GRS_1980",6378137.0,298.257222101]],PRIMEM["G

Reference system identifier

Value ⇌ 6350
Codespace ⇌ EPSG
Version ⇌ 8.2.2(10.2.1)

Spatial Data Properties ►

Vector ►
Level of topology for this dataset ⇔ geometry only

Geometric objects
Feature class name ShadeBuffers_ObservationSites_Distance1000
Object type ⇔ composite
Object count ⇔ 0

ArcGIS Feature Class Properties ►
Feature class name ShadeBuffers_ObservationSites_Distance1000
Feature type ⇔ Simple
Geometry type ⇔ Polyline
Has topology ⇔ FALSE
Feature count ⇔ 0
Spatial index ⇔ TRUE
Linear referencing ⇔ TRUE

Data Quality ►

Data quality report - Conceptual consistency ►

Data quality report - Completeness omission ►

Lineage ►

Lineage statement
Create Shade buffers

Process step ►
When the process occurred 2024-05-06 00:00:00
Description
Create network follow steps in Shade_Buffer_Protocol_using_NetworkAnalyst.docx through step 4.

Process contact - processor
Individual's name Ellen D'Amico
Organization's name Pegasus Technical Services c/o U.S. EPA

Contact information ►
Phone
Voice (513) 569-7167
Address
Type postal
Delivery point 26 W. Martin Luther King Dr.
City Cincinnati
Administrative area OH
Postal code 45268
e-mail address damico.ellen@epa.gov

Process step ►
When the process occurred 2024-06-10 00:00:00
Description
In the Catalog window path to network created in first step and updated the Travel Mode
Description: to Time(hours)
Type: Other
Under Costs: For Impedance choose Travel Time (hours)
Under Restrictions: There should be a check in the check box Oneway - Prohibited
Under U-turns - ALL

Note: All parameters are set following Shade_Buffer_Protocol_using_NetworkAnalyst.docx

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Individual's name Ellen D'Amico
Organization's name Pegasus Technical Services c/o U.S. EPA

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e-mail address damico.ellen@epa.gov

Process step ►
When the process occurred 2024-06-11 00:00:00
Description
Build Network

Process contact - processor
Individual's name Ellen D'Amico

Organization's name Pegasus Technical Services c/o U.S. EPA

Contact information ►

Phone

Voice (513) 569-7167

Address

Type postal

Delivery point 26 W. Martin Luther King Dr.

City Cincinnati

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Postal code 45268

e-mail address damico.ellen@epa.gov

Process step ►

When the process occurred 2024-06-12 00:00:00

Description

Make Service Area Analysis with travel direction toward facility and using the following cutoffs: 1,2,3,4,5,6,12,24,1000.

Output type = Lines.

Geometry at Overlaps = Overlap

Process contact - processor

Individual's name Ellen D'Amico

Organization's name Pegasus Technical Services c/o U.S. EPA

Contact information ►

Phone

Voice (513) 569-7167

Address

Type postal

Delivery point 26 W. Martin Luther King Dr.

City Cincinnati

Administrative area OH

Postal code 45268

e-mail address damico.ellen@epa.gov

Process step ►

When the process occurred 2024-07-01 00:00:00

Description

Add Locations to the Network using the observation points as the input location and UniqueID as the Unique Identifier (Field Name on the right in the GUI window).

Append the existing locations and snap to Network. Used a 5 meter tolerance and snap offset.

Process contact - processor

Individual's name Ellen D'Amico

Organization's name Pegasus Technical Services c/o U.S. EPA

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Administrative area OH

Postal code 45268

e-mail address damico.ellen@epa.gov

Process step ►

When the process occurred 2024-07-01 00:00:00

Description

Created a point file from the scenario points provided by Naomi

Process contact - processor

Individual's name Ellen D'Amico

Organization's name Pegasus Technical Services c/o U.S. EPA

Contact information ►

Phone

Voice (513) 569-7167

Address

Type postal

Delivery point 26 W. Martin Luther King Dr.

City Cincinnati

Administrative area OH

Postal code 45268

e-mail address damico.ellen@epa.gov

Process step ►

When the process occurred 2024-07-01 00:00:00

Description

Join the scenario data to the observation sites.

Process contact - processor

Individual's name Ellen D'Amico

Organization's name Pegasus Technical Services c/o U.S. EPA

Contact information ▶

Phone
Voice (513) 569-7167
Address
Type postal
Delivery point 26 W. Martin Luther King Dr.
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Postal code 45268
e-mail address damico.ellen@epa.gov

Process step ▶

When the process occurred 2024-07-01 00:00:00
Description
Run a spatial join for scenario for each of the shade buffer outputs.

Process contact - processor

Individual's name Ellen D'Amico
Organization's name Pegasus Technical Services c/o U.S. EPA

Contact information ▶

Phone
Voice (513) 569-7167
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Type postal
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City Cincinnati
Administrative area OH
Postal code 45268
e-mail address damico.ellen@epa.gov

Process step ▶

When the process occurred 2024-07-01 04:00:00
Description
Using the Solve tool, leaving defaults Solve (run) the analysis.

Process contact - processor

Individual's name Ellen D'Amico
Organization's name Pegasus Technical Services c/o U.S. EPA

Contact information ▶

Phone
Voice (513) 569-7167
Address
Type postal
Delivery point 26 W. Martin Luther King Dr.
City Cincinnati
Administrative area OH
Postal code 45268
e-mail address damico.ellen@epa.gov

Geoprocessing history ▶

Process

Process name
Date 2024-04-09 13:42:37
Tool location c:\users\edamico\appdata\local\programs\arcgis\pro\Resources\ArcToolbox\toolboxes\Conversion Tools.tbx\ExportFeatures
Command issued
ExportFeatures "ServiceArea Distance\Lines"
E:\Ellen\Detenbeck\Penobscot\gdb\Penobscot_ShadeBuffers_040824.gdb\Shade_Output\ShadeBuffers_ObservationSites_Distance # NOT_USE_ALIAS
"FacilityID" "FacilityID" true true true 4 Long 0 0,First,#,ServiceArea Distance\Lines,FacilityID,-1,-1;SourceID "SourceID" true true true 4
Long 0 0,First,#,ServiceArea Distance\Lines,SourceID,-1,-1;SourceOID "SourceOID" true true true 4 Long 0 0,First,#,ServiceArea
Distance\Lines,SourceOID,-1,-1;FromPosition "FromPosition" true true true 8 Double 0 0,First,#,ServiceArea
Distance\Lines,FromPosition,-1,-1;ToPosition "ToPosition" true true true 8 Double 0 0,First,#,ServiceArea
Distance\Lines,ToPosition,-1,-1;FromCumul_TravelTime "FromCumul_TravelTime" true true true 8 Double 0 0,First,#,ServiceArea
Distance\Lines,FromCumul_TravelTime,-1,-1;FromCumul_Length "FromCumul_Length" true true true 8 Double 0 0,First,#,ServiceArea
Distance\Lines,FromCumul_Length,-1,-1;ToCumul_TravelTime "ToCumul_TravelTime" true true true 8 Double 0 0,First,#,ServiceArea
Distance\Lines,ToCumul_TravelTime,-1,-1;ToCumul_Length "ToCumul_Length" true true true 8 Double 0 0,First,#,ServiceArea
Distance\Lines,ToCumul_Length,-1,-1;Shape_Length "Shape_Length" false true true 8 Double 0 0,First,#,ServiceArea
Distance\Lines,Shape_Length,-1,-1" #
Include in lineage when exporting metadata No

Process

Process name
Date 2024-04-10 11:48:05
Tool location c:\users\edamico\appdata\local\programs\arcgis\pro\Resources\ArcToolbox\toolboxes\Data Management Tools.tbx\AddField
Command issued
AddField ShadeBuffers_ObservationSites_Distance SourceID_ObSite Text 20 # # # NULLABLE NON_REQUIRED #
Include in lineage when exporting metadata No

Process

Process name
Date 2024-04-11 15:22:56
Tool location c:\users\edamico\appdata\local\programs\arcgis\pro\Resources\ArcToolbox\toolboxes\Data Management Tools.tbx\Rename
Command issued
Rename E:\Ellen\Detenbeck\Penobscot\gdb\Penobscot_ShadeBuffers_040824.gdb\Shade_Output\ShadeBuffers_ObservationSites_Distance
E:\Ellen\Detenbeck\Penobscot\gdb\Penobscot_ShadeBuffers_040824.gdb\Shade_Output\ShadeBuffers_ObservationSites_Distance FeatureClass

Include in lineage when exporting metadata No

Process

Process name
Date 2024-04-11 15:28:12
Tool location c:\users\edamico\appdata\local\programs\arcgis\pro\Resources\ArcToolbox\toolboxes\Data Management Tools.tbx\Dissolve
Command issued
Dissolve ShadeBuffers_ObservationSite1
E:\Ellen\Detenbeck\Penobscot\gdb\Penobscot_ShadeBuffers_040824.gdb\Shade_Output\ShadeBuffers_ObservationSites_Distance1000 SourceID_ObSite #
MULTI_PART DISSOLVE_LINES #
Include in lineage when exporting metadata No

Distribution ►

Distribution format
Name ⇔ File Geodatabase Feature Class

Fields ►

Details for object ShadeBuffers_ObservationSites_Distance1000 ►

Type ⇔ Feature Class
Row count ⇔ 0
Definition
Shade buffers with data

Definition source
U.S. EPA

Field OBJECTID ►

Alias ⇔ OBJECTID
Data type ⇔ OID
Width ⇔ 4
Precision ⇔ 0
Scale ⇔ 0

Field description ⇔
Internal feature number.

Description source ⇔
Esri

Description of values ⇔
Sequential unique whole numbers that are automatically generated.

Field Shape ►

Alias ⇔ Shape
Data type ⇔ Geometry
Width ⇔ 0
Precision ⇔ 0
Scale ⇔ 0

Field description ⇔
Feature geometry.

Description source ⇔
Esri

Description of values ⇔
Coordinates defining the features.

Field SourceID_ObSite ►

Alias ⇔ SourceID_ObSite
Data type ⇔ String
Width ⇔ 255
Precision ⇔ 0
Scale ⇔ 0

Field description
Unique Id that links Observation points (fld= UniqueID) to Shade buffers

Description source
U.S. EPA

Description of values
Unique identifier

Field Shape_Length ►

Alias ⇔ Shape_Length
Data type ⇔ Double
Width ⇔ 8

Precision ⇔ 0
Scale ⇔ 0

Field description ⇔
Length of feature in internal units.

Description source ⇔
Esri

Description of values ⇔
Positive real numbers that are automatically generated.

Field Solar_FLUX_above ▶

Data type Double
Width 15

Field description
The total solar radiation (W/m2) reaching a site before shading of topography or vegetation occurs.

Description source
U.S. EPA

Range of values
Minimum value 275.485252
Maximum value 281.0713816

Field Solar_FLUX_below ▶

Data type Double
Width 15

Field description
The total solar radiation (W/m2) reaching the stream surface after shading by topography and vegetation. Will be less than Solar_FLUX_above value.

Description source
U.S. EPA

Range of values
Minimum value 1.111608899
Maximum value 281.0077199

Field Solar_FLUX_inh2o ▶

Data type Double
Width 15

Field description
The total solar radiation (W/m2) that enters the water after surface reflection. Will be less than Solar_FLUX_below value.

Description source
U.S. EPA

Range of values
Minimum value 1.011564098
Maximum value 260.9216361

Field effshd_TV ▶

Data type Double
Width 15

Field description
The percent shade (0-100% range) at a site from topography and vegetation shade.

Description source
U.S. EPA

Range of values
Minimum value 0
Maximum value 99.6

Field effshd_TVR ▶

Data type Double
Width 15

Field description
The percent shade (0-100% range) at a site from topography and vegetation shade as well as water surface reflectance.

Description source
U.S. EPA

Range of values
Minimum value 7.15

Maximum value 99.64

Metadata Details ▶

Metadata language ⇔ English (UNITED STATES)
Metadata character set utf8 - 8 bit UCS Transfer Format

Scope of the data described by the metadata ⇔ dataset
Scope name ⇔ dataset

Last update ⇔ 2024-07-24

ArcGIS metadata properties
Metadata format ArcGIS 1.0
Standard or profile used to edit metadata FGDC

Created in ArcGIS for the item 2024-04-09 13:42:34
Last modified in ArcGIS for the item 2024-07-24 85:34:00

Automatic updates
Have been performed Yes
Last update 2024-04-11 15:28:11

Metadata Contacts ▶

Metadata contact - owner
Individual's name Naomi Detenbeck
Organization's name U.S. EPA Office of Research and Development (ORD), Center for Environmental Measurement & Modeling -(CEMM)

Contact information ▶
Phone
Voice 401-782-3162
Address
Type postal
City Narragansett
Administrative area Rhode Island
Postal code 02882
Delivery point 27 Tarzwell Drive
e-mail address detenbeck.naomi@epa.gov

Metadata Maintenance ▶

Maintenance
Update frequency not planned