NorWeST Modeled Stream Temperature Stream Lines

Shapefile

Tags

stream, water, temperature, hydrography, stream temperature, model

Summary

These data were originally intended to be used for managing biological resources and predicting species distributions that are affected by August mean stream temperature.

Description

These data represent modeled stream temperatures for a portion of a larger dataset known as the Great Northern Landscape Conservation Cooperative (GNLCC) (http://greatnorthernlcc.org/). This metadata record is a combined description for two spatial data feature types, vector lines and points, which cover the same geographic area. The line features are derived from NHDPlus version 2 (http://www.horizon-systems.com/NHDPlus/NHDPlusV2_home.php) (USEPA and USGS, 2010) stream lines and the point data represent 1 km intervals along the NHDPlus version 2 stream network. Both datasets contain identical modeled stream temperature attributes.

These modeled stream temperatures were generated as part of the U.S. Forest Service NorWeST stream temperature project https://www.fs.fed.us/rm/boise/AWAE/projects/NorWeST.html

These data reside in ESRI shapefile format, ArcGIS version 10.2. The line and point shapefile extents correspond to NorWeST production units, which generally relate to 6 digit (3rd code) hydrologic unit codes (HUCs). August mean stream temperature was the metric selected to be modeled in the NorWeST temperature model. Use of this metric allowed the largest proportion of data in the NorWeST observed temperature database to be used (~80%), which facilitated calibration of the model to thousands of unique stream sites across the region. The vector stream line data were derived from the NHDPlus data through a process referred to as reconditioning. This reconditioned data set was modified from the original NHDPlus data to ensure stream connectivity, which was required to fit spatial statistical models to the stream network data. Braided channels, most canals, and disconnected streams were deleted from NHDPlus Version 2. Additionally, where three or more segments converged into a single downstream segment the stream layer was manually edited to offset two of the three segments. Because many stream segments were deleted, this dataset does not contain all of the line features of the original NHDPlus v2 data.

The FLoWS and STARS toolboxes (https://www.fs.fed.us/rm/boise/AWAE/projects/SpatialStreamNetworks.shtml) were used to identify topological errors and generate the final spatial layer. The stream lines were further processed into 1 km segments to be used as input for the NorWeST stream temperature model. The point shapefiles correspond to the mid-point location for each 1 km stream segment. Stream temperatures were modeled at each point location. Modeled temperature values were subsequently attributed back to the 1 km stream line dataset. Stream temperatures were modeled from a set of covariate predictors using spatial statistical software called SSN and STARS (Ver Hoef et al. 2006). (https://www.fs.fed.us/rm/boise/AWAE/projects/SSN_STARS/downloads/VerHoef06StreamNetworksModelsThatUseFlowDistance.pdf)

The spatial covariates used for modeling stream temperature were derived from various sources as described below:

1. Air temperature_August (degree C). Mean August air temperature across the river basin derived from the dynamically downscaled NCEP RegCM3 reanalysis (Hostetler et al. 2011). Data were downloaded from the USGS Regional Climate Downscaling website (http://regclim.coas.oregonstate.edu/index.html).

2. Stream discharge_August (m3/s). Mean August stream discharge across the river based derived from USGS flow gages on streams with minimal water abstraction or storage reservoirs. Data were downloaded from the NWIS website (http://waterdata.usgs.gov/nwis/rt).

3. Elevation (m). Elevation at stream temperature sites was used to represent the vertical trend towards cooler air temperatures. Data were obtained from the 30-m resolution digital elevation model associated with NHDPlus (USEPA and USGS, 2010). Data were downloaded from http://www.horizon-systems.com/NHDPlus/NHDPlusV2_home.php.

4. Latitude (m). The y-coordinate at stream temperature sites from the Albers Equal Area projection was used to represent latitude and the poleward trend towards cooler air temperatures.

5. Canopy %. The percent canopy variable from the 2001 version of the National Land Cover Database (NLCD; Homer et al., 2007) was used to represent stream shade at each temperature site. Canopy % values in areas with recent wildfires between 2001 and 2008 were reduced based on U.S. Forest Service burn severity data following procedures developed by Miller et al. (2009). NLCD data were downloaded from http://www.mrlc.gov/nlcd2001.php.

6. Cumulative drainage area (km sq.). The value of CUMDRAINAG in NHDPlus (USEPA and USGS, 2010) at each stream temperature site was used to represent stream size and amount of insolation. It was assumed that larger streams had been exposed to insolation over a greater length and were less shaded by adjacent riparian vegetation. Data were downloaded from http://www.horizon-systems.com/NHDPlus/NHDPlusV2_home.php.

7. Stream slope %. The stream slope value in NHDPlus (USEPA and USGS, 2010) at a stream temperature site. It was assumed that slope affects flow velocity and equilibration time to local heating conditions. Steeper slopes, therefore, should negatively affect stream temperatures because conditions further upstream at higher elevations have greater influence on local temperatures. Data were downloaded from http://www.horizon-systems.com/NHDPlus/NHDPlusV2_home.php.

8. Mean annual precipitation (mm). The value of AREAWTMAP in NHDPlus (USEPA and USGS, 2010) at each stream temperature site. Areas with high annual precipitation may have higher water yields that cool streams. Data were downloaded from http://www.horizon-systems.com/NHDPlus/NHDPlusV2_home.php.

9. Base flow index (BFI). The value of the base flow index (Wolock, 2003) at a stream temperature site. Streams with larger baseflows and groundwater contributions are thought to be colder than other streams and potentially less sensitive to climate warming. Data were downloaded from http://ks.water.usgs.gov/pubs/abstracts/of.03-263.htm.

10. Glacier %. The percentage of the catchment area classified as glacier at each temperature site. Summaries were computed using a standard flow accumulation routine. This covariate represents the local cooling effect that glaciers may have on downstream temperatures. Data were downloaded from http://glaciers.research.pdx.edu/Downloads.

11. Lake %. The value of NLCD11PC in NHDPlus (USEPA and USGS, 2010), which is the percentage of the catchment area classified as open water, at a temperature site. This covariate represents the warming effect that natural lakes and many reservoirs have on downstream temperatures. Data were downloaded from http://www.horizon-systems.com/NHDPlus/NHDPlusV2_home.php

12. Tailwater. Categorical predictor variable coded as 0/1 to indicate whether a stream temperature site is downstream from a reservoir that creates an anomalously cold tailwater. Using the SSN and STARS tools along with the covariate predictors, various mean August stream temperature scenarios were modeled. The scenarios include the 19 year average from 1993-2011, the 10 year average from 2002-2001, and single year scenarios for the years 1993 through 2011.

Referenced Cited:

Homer, C., Dewitz, J., Fry, J., Coan, M., Hossain, N., Larson, C., Herold, N., McKerrow, A., VanDriel, J.N., and Wickham, J. 2007. Completion of the 2001 National Land Cover Database for the Conterminous United States. Photogrammetric Engineering and Remote Sensing, 73:337-341.

Hostetler, S.W., J.R. Alder, and A.M. Allan. 2011. Dynamically downscaled climate simulations over North America: Methods, evaluation and supporting documentation for users: U.S. Geological Survey Open-File Report 2011-1238, 64 p. website: http://regclim.coas.oregonstate.edu/index.htmlUSEPA and USGS, 2010.

NHDPlus Version 2 (NHDPlusV2) User Guide, available online at http://www.horizon-systems.com/NHDPlus/NHDPlusV2_documentation.php

Miller, J.D., E.E. Knapp, C.H. Key, C.N. Skinner, C.J. Isbell, R.M. Creasy, J.W. Sherlock, 2009. Calibration and validation of the relative differenced Normalized Burn Ratio (RdNBR) to three measures of fire severity in the Sierra Nevada and Klamath Mountains, California, USA. Remote Sensing of the Environment, 113:645-656.

Ver Hoef, J.M., E.E. Peterson, and D. Theobald. 2006. Spatial statistical models that use flow and stream distance. Environmental and Ecological Statistics 13:449-464. Wolock, D.M. 2003. Base - Flow Index Grid for the Conterminous United States. U.S. Geological Survey open-file report 03-263, USGS, Lawrence, KS.

Credits

U.S. Forest Service; Rocky Mountain Research Station; Air, Water, and Aquatic Environments Program (AWAE). https://www.fs.fed.us/rm/boise/awae_home.shtml

Use limitations

These data should be used with the understanding that the stream temperature values contained herein are modeled temperatures, not actual temperatures, and are subject error. The USDA Forest Service makes no warranty, expressed or implied, including the warranties of merchantability and fitness for a particular purpose, nor assumes any legal liability or responsibility for the accuracy, reliability, completeness or utility of these geospatial data, or for the improper or incorrect use of these geospatial data. These geospatial data and related maps or graphics are not legal documents and are not intended to be used as such. The data and maps may not be used to determine title, ownership, legal descriptions or boundaries, legal jurisdiction, or restrictions that may be in place on either public or private land. Natural hazards may or may not be depicted on the data and maps, and land users should exercise due caution. The data are dynamic and may change over time. The user is responsible to verify the limitations of the geospatial data and to use the data accordingly.

Extent

West -109.994205 **East** -102.605180

North 41.550390 **South** 35.961908

Scale Range

Maximum (zoomed in) 1:5,000

Minimum (zoomed out) 1:150,000,000

ArcGIS Metadata ►

Topics and Keywords ►

* CONTENT TYPE Downloadable Data

Hide Topics and Keywords ▲

Citation ►

TITLE “XXXX” Processing Unit - NorWeST Predicted Stream Temperature Lines

PUBLICATION DATE 2014-12-31 00:00:00

PRESENTATION FORMATS * digital map

OTHER CITATION DETAILS

Citation to use with these scenarios: Isaak, D.J.; Wenger, S.J.; Peterson, E.E.; Ver Hoef, J.M.; Hostetler, S.W.; Luce, C.H.; Dunham, J.B.; Kershner, J.L.; Roper, B.B.; Nagel, D.E.; Chandler, G.L.; Wollrab, S.P.; Parkes, S.L.; Horan, D.L. 2016. NorWeST modeled summer stream temperature scenarios for the western U.S. Fort Collins, CO: Forest Service Research Data Archive. https://doi.org/10.2737/RDS-2016-0033.

Hide Citation ▲

Citation Contacts ►

RESPONSIBLE PARTY

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ORGANIZATION'S NAME USDA Forest Service RMRS Boise ASL

CONTACT'S POSITION GIS Specialist

CONTACT'S ROLE distributor

CONTACT INFORMATION ►

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CITY Boise
ADMINISTRATIVE AREA ID
POSTAL CODE 83702
COUNTRY US

Hide Contact information ▲

Hide Citation Contacts ▲

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 7 Version 6.1 (Build 7601) Service Pack 1; Esri ArcGIS 10.2.1.3497

CREDITS

U.S. Forest Service; Rocky Mountain Research Station; Air, Water, and Aquatic Environments Program (AWAE). https://www.fs.fed.us/rm/boise/awae_home.shtml

ARCGIS ITEM PROPERTIES

* NAME NorWeST_PredictedStreamTempLines_XXXX

* SIZE 32.446

* LOCATION

* ACCESS PROTOCOL Local Area Network

Hide Resource Details ▲

Extents ►

EXTENT

GEOGRAPHIC EXTENT

BOUNDING RECTANGLE

EXTENT TYPE Extent used for searching

* WEST LONGITUDE -109.994205

* EAST LONGITUDE -102.605180

* NORTH LATITUDE 41.550390

* SOUTH LATITUDE 35.961908

* EXTENT CONTAINS THE RESOURCE Yes

EXTENT IN THE ITEM'S COORDINATE SYSTEM

* WEST LONGITUDE 1862305.031100

* EAST LONGITUDE 2456707.391700

* SOUTH LATITUDE 711497.577500

* NORTH LATITUDE 1276226.438900

* EXTENT CONTAINS THE RESOURCE Yes

Hide Extents ▲

Resource Maintenance ►

RESOURCE MAINTENANCE

UPDATE FREQUENCY as needed

Hide Resource Maintenance ▲

Resource Constraints ►

CONSTRAINTS

LIMITATIONS OF USE

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Hide Resource Constraints ▲

Spatial Reference ►

ARCGIS COORDINATE SYSTEM

* TYPE Projected

* GEOGRAPHIC COORDINATE REFERENCE GCS_North_American_1983

* PROJECTION GNLCC

* COORDINATE REFERENCE DETAILS

PROJECTED COORDINATE SYSTEM

SEE INDIVIDUAL XML FILE FOR COORDINATE SYSTEM AND BOUNDARY INFORMATION

WELL-KNOWN TEXT

PROJCS["GNLCC",GEOGCS["GCS_North_American_1983",DATUM["D_North_American_1983",SPHEROID["GRS_1980",6378137.0,298.257222101]],PRIMEM["Greenwich",0.0],UNIT["Degree",0.0174532925199433]],PROJECTION["Albers"],PARAMETER["False_Easting",1500000.0],PARAMETER["False_Northing",0.0],PARAMETER["Central_Meridian",-114.0],PARAMETER["Standard_Parallel_1",43.0],PARAMETER["Standard_Parallel_2",47.0],PARAMETER["Latitude_Of_Origin",30.0],UNIT["Meter",1.0]]

REFERENCE SYSTEM IDENTIFIER

* VALUE 0

Hide Spatial Reference ▲

Spatial Data Properties ►

VECTOR ►

* LEVEL OF TOPOLOGY FOR THIS DATASET geometry only

GEOMETRIC OBJECTS

FEATURE CLASS NAME NorWeST_PredictedStreamTempLines_XXXX

* OBJECT TYPE composite

* OBJECT COUNT 135714

ARCGIS FEATURE CLASS PROPERTIES ►

FEATURE CLASS NAME NorWeST_PredictedStreamTempLines_XXXX

* FEATURE TYPE Simple

* GEOMETRY TYPE Polyline

* HAS TOPOLOGY FALSE

* FEATURE COUNT see individual shapefile metadata

* SPATIAL INDEX FALSE

* LINEAR REFERENCING FALSE

Hide ArcGIS Feature Class Properties ▲

Hide Spatial Data Properties ▲

Distribution ►

DISTRIBUTION FORMAT

* NAME Shapefile

TRANSFER OPTIONS

* TRANSFER SIZE see individual metadata

Fields ►

DETAILS FOR OBJECT NorWeST_PredictedStreamTempLines_XXXX ►

* TYPE Feature Class

* ROW COUNT 135714

DEFINITION

Attribute Table

DEFINITION SOURCE

ESRI

FIELD FID ►

* ALIAS FID

* 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.

Hide Field FID ▲

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.

Hide Field Shape ▲

FIELD OBSPRED_ID ►

* ALIAS OBSPRED_ID
* DATA TYPE Integer
* WIDTH 9
* PRECISION 9
* SCALE 0

FIELD DESCRIPTION

A unique ID for each feature

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field OBSPRED_ID ▲

FIELD ELEV ►

* ALIAS ELEV
* DATA TYPE Double
* WIDTH 11
* PRECISION 10
* SCALE 2

FIELD DESCRIPTION

Elevation in meters

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field ELEV ▲

FIELD CANOPY ►

* ALIAS CANOPY

* DATA TYPE Double

* WIDTH 11

* PRECISION 10

* SCALE 2

FIELD DESCRIPTION

Percent canopy for each 1 km stream segment

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field CANOPY ▲

FIELD TAILWATER ►

* ALIAS TAILWATER

* DATA TYPE Integer

* WIDTH 8

* PRECISION 8

* SCALE 0

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

FIELD DESCRIPTION

Categorical predictor variable coded as 0/1 to indicate whether a stream temperature site is downstream from a reservoir that creates an anomalously cold tailwater.

Hide Field TAILWATER ▲

FIELD SLOPE ►

* ALIAS SLOPE

* DATA TYPE Double

* WIDTH 14

* PRECISION 13

* SCALE 8

FIELD DESCRIPTION

Slope (rise/run) for each NHDPlus stream reach

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field SLOPE ▲

FIELD PRECIP ►

* ALIAS PRECIP
* DATA TYPE Double
* WIDTH 19
* PRECISION 18
* SCALE 2

FIELD DESCRIPTION

NHDPlus precipitation measure (mm)

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field PRECIP ▲

FIELD CUMDRAINAG ►

* ALIAS CUMDRAINAG
* DATA TYPE Double
* WIDTH 19
* PRECISION 18
* SCALE 2

FIELD DESCRIPTION

Cumulative drainage area (sq. km) for each NHDPlus stream reach

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field CUMDRAINAG ▲

FIELD Y_COORD ►

* ALIAS Y_COORD

* DATA TYPE Double

* WIDTH 13

* PRECISION 12

* SCALE 2

FIELD DESCRIPTION

Y coordinate of Albers Equal Area projection with units meters, used as surrogate for latitude

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field Y_COORD ▲

FIELD NLCD11PC ►

* ALIAS NLCD11PC

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Percent cumulative open water from NHDPlus, derived from National Land Cover Dataset

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field NLCD11PC ▲

FIELD BFI ►

* ALIAS BFI

* DATA TYPE Integer

* WIDTH 8

* PRECISION 8

* SCALE 0

FIELD DESCRIPTION

Base flow index. Base flow to total flow as a percentage

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field BFI ▲

FIELD Air_Aug ►

* ALIAS Air_Aug

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

August mean air temperature for the NorWeST processing unit

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field Air_Aug ▲

FIELD GLACIER ►

* ALIAS GLACIER

* DATA TYPE Double

* WIDTH 11

* PRECISION 10

* SCALE 2

FIELD DESCRIPTION

The percentage of the catchment area classified as glacier at each temperature site.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field GLACIER ▲

FIELD Flow_Aug ►

* ALIAS Flow_Aug
* DATA TYPE Double
* WIDTH 19
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

August mean stream flow metric for the NorWeST processing unit

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field Flow_Aug ▲

FIELD S1_93_11 ►

* ALIAS S1_93_11
* DATA TYPE Double
* WIDTH 19
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Scenario 1, modeled stream temperature from 1993-2011

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S1_93_11 ▲

FIELD S2_02_11 ►

* ALIAS S2_02_11

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 2, modeled stream temperature from 2002-2011

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S2_02_11 ▲

FIELD S3_1993 ►

* ALIAS S3_1993

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 3, modeled stream temperature for the year 1993

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S3_1993 ▲

FIELD S4_1994 ►

* ALIAS S4_1994

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 4, modeled stream temperature for the year 1994

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S4_1994 ▲

FIELD S5_1995 ►

* ALIAS S5_1995

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 5, modeled stream temperature for the year 1995

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S5_1995 ▲

FIELD S6_1996 ►

* ALIAS S6_1996

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 6, modeled stream temperature for the year 1996

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S6_1996 ▲

FIELD S7_1997 ►

* ALIAS S7_1997

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 7, modeled stream temperature for the year 1997

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S7_1997 ▲

FIELD S8_1998 ►

* ALIAS S8_1998

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 8, modeled stream temperature for the year 1998

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S8_1998 ▲

FIELD S9_1999 ►

* ALIAS S9_1999

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 9, modeled stream temperature for the year 1999

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S9_1999 ▲

FIELD S10_2000 ►

* ALIAS S10_2000

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 10, modeled stream temperature for the year 2000

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S10_2000 ▲

FIELD S11_2001 ►

* ALIAS S11_2001

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 11, modeled stream temperature for the year 2001

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S11_2001 ▲

FIELD S12_2002 ►

* ALIAS S12_2002

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 12, modeled stream temperature for the year 2002

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S12_2002 ▲

FIELD S13_2003 ►

* ALIAS S13_2003

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 13, modeled stream temperature for the year 2003

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S13_2003 ▲

FIELD S14_2004 ►

* ALIAS S14_2004

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 14, modeled stream temperature for the year 2004

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S14_2004 ▲

FIELD S15_2005 ►

* ALIAS S15_2005

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 15, modeled stream temperature for the year 2005

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S15_2005 ▲

FIELD S16_2006 ►

* ALIAS S16_2006

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 16, modeled stream temperature for the year 2006

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S16_2006 ▲

FIELD S17_2007 ►

* ALIAS S17_2007

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 17, modeled stream temperature for the year 2007

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S17_2007 ▲

FIELD S18_2008 ►

* ALIAS S18_2008

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 18, modeled stream temperature for the year 2008

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S18_2008 ▲

FIELD S19_2009 ►

* ALIAS S19_2009

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 19, modeled stream temperature for the year 2009

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S19_2009 ▲

FIELD S20_2010 ►

* ALIAS S20_2010

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 20, modeled stream temperature for the year 2010

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S20_2010 ▲

FIELD S21_2011 ►

* ALIAS S21_2011

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 21, modeled stream temperature for the year 2011

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S21_2011 ▲

FIELD FTYPE ►

* ALIAS FTYPE

* DATA TYPE String

* WIDTH 24

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

This attribute is only for the predicted temperature locations. This attribute is the NHDPlus feature type and can have one of two values, either 'StreamRiver' or 'ArtificialPath'. This is an NHDPlus defined attribute

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field FTYPE ▲

FIELD WATERBODY ►

* ALIAS WATERBODY

* DATA TYPE Integer

* WIDTH 8

* PRECISION 8

* SCALE 0

FIELD DESCRIPTION

This attribute is only for the predicted temperature locations. This attribute is for prediction points that fall within an NHDPlus water body feature. Values may be 0 or 1. 1 represents a point or stream segment within a water body feature. This attribute was generated at the Boise Lab to designate line segments that fall within water bodies.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field WATERBODY ▲

FIELD S22_PredSE ►

* ALIAS S22_PredSE

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Standard errors of stream temperature predictions

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S22_PredSE ▲

FIELD S23_1C ►

* ALIAS S23_1C

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Future scenario adds 1.00° C to S1_93-11

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S23_1C ▲

FIELD S24_1C_D ►

* ALIAS S24_1C_D

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Future scenario adds 1.00 ℃ to S1_93-11 but also accounts for differential warming of streams by using historical temperatures to scale temperature increases so that cold streams warm less than warm streams.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S24_1C_D ▲

FIELD S25_2C ►

* ALIAS S25_2C

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Future scenario adds 2.00° C to S1_93-11

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S25_2C ▲

FIELD S26_2C_D ►

* ALIAS S26_2C_D

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Future scenario adds 2.00℃ to S1_93-11 but also accounts for differential warming of streams by using historical temperatures to scale temperature increases so that cold streams warm less than warm streams.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S26_2C_D ▲

FIELD S27_3C ►

* ALIAS S27_3C

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Future scenario adds 3.00° C to S1_93-11

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S27_3C ▲

FIELD S28_3C_D ►

* ALIAS S28_3C_D

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Future scenario adds 3.00℃ to S1_93-11 but also accounts for differential warming of streams by using historical temperatures to scale temperature increases so that cold streams warm less than warm streams.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S28_3C_D ▲

FIELD S29_2040 ►

* ALIAS S29_2040

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Future scenario based on global climate model ensemble averages that represent the A1B warming trajectory for 2040s (2030 - 2059). Future stream deltas within a processing unit were similar and based on projected changes in August air temperature and stream discharge.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S29_2040 ▲

FIELD S30_2040D ►

* ALIAS S30_2040D

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Future scenario based on global climate model ensemble averages that represent the A1B warming trajectory for 2040s (2030 - 2059). Future stream deltas within a processing unit were based on similar

projected changes in August air temperature and stream discharge, but also accounted for differential warming of streams by using historical temperatures to scale temperature increases so that cold streams warm less than warm streams.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S30_2040D ▲

FIELD S31_2080 ►

* ALIAS S31_2080

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Future scenario based on global climate model ensemble averages that represent the A1B warming trajectory for 2080s (2070-2099). Future stream deltas within a processing unit were similar and based on projected changes in August air temperature and stream discharge.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S31_2080 ▲

FIELD S32_2080D ►

* ALIAS S32_2080D

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Future scenario based on global climate model ensemble averages that represent the A1B warming trajectory for 2080s (2070-2099). Future stream deltas within a processing unit were based on similar projected changes in August air temperature and stream discharge, but also accounted for differential warming of streams by using historical temperatures to scale temperature increases so that cold streams warm less than warm streams.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S32_2080D ▲

FIELD S33_2012 ►

* ALIAS S33_2012

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 33, modeled stream temperature for the year 2012

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S33_2012 ▲

FIELD S34_2013 ►

* ALIAS S34_2013

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 34, modeled stream temperature for the year 2013

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S34_2013 ▲

FIELD S35_2014 ►

* ALIAS S35_2014

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 35, modeled stream temperature for the year 2014

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S35_2014 ▲

FIELD S36_2015 ►

* ALIAS S36_2015

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Scenario 36, modeled stream temperature for the year 2015

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S36_2015 ▲

FIELD COMID ►

* ALIAS COMID

* DATA TYPE Integer

* WIDTH 9

* PRECISION 9

* SCALE 0

FIELD DESCRIPTION

COMID for the underlying 1:100,000 scale NHDPlus stream lines (version two).

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field COMID ▲

FIELD GNIS_NAME ►

* ALIAS GNIS_NAME

* DATA TYPE String

* WIDTH 65

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

The stream name from the Geographic Names Information System database

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field GNIS_NAME ▲

FIELD S37_9311M ►

* ALIAS S37_9311M

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Historical composite scenario representing 19 year average Maximum Weekly Maximum Temperature (MWMT or 7 DADM) for 1993 - 2011.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S37_9311M ▲

FIELD S38_2040M ►

* ALIAS S38_2040M

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Future Maximum Weekly Maximum Temperature (MWMT or 7DADM) stream scenario based on global climate model ensemble average projected changes for the A1B warming trajectory in the 2040s (2030-2059). Future stream deltas are identical at all sites within a NorWeST unit.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S38_2040M ▲

FIELD S39_2040DM ►

* ALIAS S39_2040DM

* DATA TYPE Double

* WIDTH 19

* PRECISION 0

* SCALE 0

FIELD DESCRIPTION

Future Maximum Weekly Maximum Temperature (MWMT or 7DADM) stream scenario based on global climate model ensemble average projected changes for the A1B warming trajectory in the 2040s (2030-2059). Future stream deltas within a NorWeST unit account for differential sensitivity among streams so that cold streams warm less than warm streams.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S39_2040DM ▲

FIELD S40_2080M ►

* ALIAS S40_2080M
* DATA TYPE Double
* WIDTH 19
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Future Maximum Weekly Maximum Temperature (MWMT or 7DADM) stream scenario based on global climate model ensemble average projected changes for the A1B warming trajectory in the 2080s (2070-2099). Future stream deltas are identical at all sites within a NorWeST unit.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S40_2080M ▲

FIELD S41_2080DM ►

* ALIAS S41_2080DM
* DATA TYPE Double
* WIDTH 19
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Future Maximum Weekly Maximum Temperature (MWMT or 7DADM) stream scenario based on global climate model ensemble average projected changes for the A1B warming trajectory in the 2080s (2070-2099). Future stream deltas within a NorWeST unit account for differential sensitivity among streams so that cold streams warm less than warm streams.
.

DESCRIPTION SOURCE

USFS RMRS Boise Aquatic Sciences Lab

Hide Field S41_2080DM ▲

Hide Details for object NorWeST_PredictedStreamTempLines_XXXX ▲

OVERVIEW DESCRIPTION ►

ENTITY AND ATTRIBUTE OVERVIEW

Records were queried for "FTYPE" = 'ArtificialPath' AND "WATERBODY" = 1.

Those modeled segments or points that were part of a lake or waterbody feature had their scenario fields calculated to equal -9999.

Hide Fields ▲

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 2017-01-23

ARCGIS METADATA PROPERTIES

METADATA FORMAT ArcGIS 1.0

METADATA STYLE FGDC CSDGM Metadata

STANDARD OR PROFILE USED TO EDIT METADATA FGDC

CREATED IN ARCGIS FOR THE ITEM 2017-01-23 14:33:12

LAST MODIFIED IN ARCGIS FOR THE ITEM 2017-01-23 15:26:18

AUTOMATIC UPDATES

HAVE BEEN PERFORMED Yes

LAST UPDATE 2017-01-23 15:26:18

Hide Metadata Details ▲

Metadata Contacts ►

METADATA CONTACT

INDIVIDUAL'S NAME Sharon (Parkes) Payne

ORGANIZATION'S NAME USDA Forest Service RMRS Boise ASL

CONTACT'S POSITION GIS Specialist

CONTACT'S ROLE distributor

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CITY Boise

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POSTAL CODE 83702

COUNTRY US

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Hide Metadata Details ▲

Metadata Contacts ►

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