Identification_Information:
  Citation:Fowler, K.K., 2016, Flood-inundation maps for the Wabash River at New Harmony, Indiana: U.S. Geological Survey Scientific Investigations Report 2016-5119, 14 p.
    Citation_Information:
      Originator: U.S. Geological Survey, Indiana-Kentucky Water Science Center
      Publication_Date: 2016
      Title: WabnewhIN
      Geospatial_Data_Presentation_Form: vector digital data
      Series_Information:
        Series_Name: Scientific Investigations Report
        Issue_Identification: SIR
      Publication_Information:
        Publication_Place: Reston, Virginia
        Publisher: U.S. Geological Survey
      Online_Linkage: http://water.usgs.gov/osw/flood_inundation/
      Online_Linkage: http://pubs.usgs.gov/sir/2016/5119
      Larger_Work_Citation:
        Citation_Information:
          Originator: U.S. Geological Survey, Indiana-Kentucky Water Science Center
          Publication_Date: 2016
          Title: Flood-Inundation Maps for the Wabash River at New Harmony, Indiana
          Geospatial_Data_Presentation_Form: document
          Series_Information:
            Series_Name: Scientific Investigations Report
            Issue_Identification: SIR
          Publication_Information:
            Publication_Place: Reston, Virginia
            Publisher: U.S. Geological Survey
          Other_Citation_Details: Fowler, K.K., 2016, Flood-inundation maps for the Wabash River at New Harmony, Indiana: U.S. Geological Survey Scientific Investigations Report 2016-5119, 14 p.
          Online_Linkage: http://pubs.usgs.gov/sir/2016/5119
  Description:
    Abstract: Digital flood-inundation maps for a 3.68-mile reach of the Wabash River extending 1.77 miles upstream and 1.91 miles downstream from streamgage 03378500 at New Harmony, Indiana, were created by the U.S. Geological Survey (USGS) in cooperation with the Indiana Office of Community and Rural Affairs. The flood-inundation maps, which can be accessed through the USGS Flood Inundation Mapping Science Web site at http://water.usgs.gov/osw/flood_inundation/, depict estimates of the areal extent and depth of flooding corresponding to selected water levels (stages) at the USGS streamgage at Wabash River at New Harmony, Ind. (station 03378500). Near-real-time stages at this streamgage may be obtained from the USGS National Water Information System at http://waterdata.usgs.gov/ or the National Weather Service (NWS) Advanced Hydrologic Prediction Service at http:/water.weather.gov/ahps/, which also forecasts flood hydrographs at this site (NHRI3).

Flood profiles were computed for the stream reach by means of a one-dimensional step-backwater model. The hydraulic model was calibrated by using the most current stage-discharge relations at the Wabash River at New Harmony, Ind., streamgage and the documented high-water marks from the flood of April 27–28, 2013. The calibrated hydraulic model was then used to compute 17 water-surface profiles for flood stages at approximately 1-foot intervals referenced to the streamgage datum and ranging from 10.0 feet, or near bankfull, to 25.4 feet, the highest stage of the stage-discharge rating curve used in the model. The simulated water-surface profiles were then combined with a geographic information system digital elevation model (derived from light detection and ranging (lidar) data having a 0.98-ft vertical accuracy and 4.9-ft horizontal resolution) to delineate the area flooded at each water level.
The availability of these maps along with Internet information regarding current stage from the USGS streamgage at Wabash River at New Harmony, Ind., and forecasted stream stages from the NWS will provide emergency management personnel and residents with information that is critical for flood response activities such as evacuations and road closures as well as for post-flood recovery efforts.

Purpose: This dataset was created to support the development of flood-inundation maps for a reach of the Wabash River at New Harmony, Indiana.

Supplemental_Information: Flood-inundation maps were created for USGS streamgage 03378500, Wabash River at New Harmony, Ind., which is also a NWS flood-forecast point. The maps were created in a geographic information system (GIS) by combining the water-surface profiles and digital elevation model data. The digital elevation model (DEM) data were derived from lidar data with a horizontal resolution of 4.9 feet (ft) and a vertical accuracy of 0.98 ft at a 95-percent confidence level, based on a root mean squared error of 0.49 ft for the open terrain land-cover category. Estimated flood-inundation boundaries for each simulated profile were developed with HEC-GeoRAS software. HEC-GeoRAS is a set of procedures, tools, and utilities for processing geospatial data in ArcGIS by using a graphical user interface. The interface allows for the preparation of geometric data for import into HEC-RAS and processes simulation results exported from HEC-RAS. USGS personnel then modified the HEC-GeoRAS results to ensure a hydraulically reasonable transition of the boundary between modeled cross sections relative to the contour data for the land surface. The maps show estimated flood-inundated areas for each of the water-surface profiles that were generated by the hydraulic model. For more information on data processing and checking procedures, see the full report at http://pubs.usgs.gov/sir/2016/5119. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government. Although this Federal Geographic Data Committee-compliant metadata file is intended to document the dataset in nonproprietary form, as well as in ArcGIS format, this metadata file may include some ArcGIS-specific terminology.

Time_Period_of_Content:

Time_Period_Information:

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      Single_Date/Time:
        Calendar_Date: 2016
    Currentness_Reference: ground condition
  Status:
    Progress: Complete
    Maintenance_and_Update_Frequency: None planned
  Spatial_Domain:
    Bounding_Coordinates:
      West_Bounding_Coordinate: -88.015792
      East_Bounding_Coordinate: -87.885714
      North_Bounding_Coordinate: 38.164132
      South_Bounding_Coordinate: 38.104940
  Keywords:
    Theme:
      Theme_Keyword_Thesaurus: none
      Theme_Keyword: flood
      Theme_Keyword: river/stream
      Theme_Keyword: flood-inundation maps
      Theme_Keyword: high-water marks
      Theme_Keyword: flooded area
      Theme_Keyword: geospatial analysis
    Place:
      Place_Keyword_Thesaurus: Board of Geographic Names
      Place_Keyword: New Harmony
      Place_Keyword: Indiana
      Place_Keyword: Wabash River
      Place_Keyword: Posey County
      Place_Keyword: United States
      Place_Keyword: USA
  Access_Constraints: None. This dataset is provided by USGS as a
public service. Users of this geospatial database and geologic
information derived there from should acknowledge the U.S. Geological
Survey as the source of the data.
  Use_Constraints: Users must assume responsibility to determine the
appropriate use of this data. Users should be aware of the limitations
of this dataset if using for critical application.
  Point_of_Contact:
    Contact_Information:
      Contact_Organization_Primary:
        Contact_Organization: U.S. Geological Survey, Indiana-Kentucky
Water Science Center
      Contact_Address:
        Address_Type: mailing and physical address
        Address: 5957 Lakeside Blvd.
        City: Indianapolis
        State_or_Province: Indiana
        Postal_Code: 46278
      Contact_Voice_Telephone: 317-290-3333
  Native_Data_Set_Environment: Microsoft Windows Vista Version 6.1
(Build 7601) Service Pack 1; ESRI ArcCatalog 9.3.1.3000
  Cross_Reference:
    Citation_Information:
```

Originator: U.S. Geological Survey, Indiana-Kentucky Water Science Center
Publication_Date: 2016
Publication_Time: Unknown
Title: Flood-Inundation Maps for the Wabash River at New Harmony, Indiana
Geospatial_Data_Presentation_Form: vector digital data
Series_Information:
Series_Name: Scientific Investigations Report
Issue_Identification: SIR 2016-5119
Publication_Information:
Publication_Place: Reston, VA
Publisher: U.S. Geological Survey
Online_Linkage: http://pubs.usgs.gov/sir/2016/5119
Online_Linkage: http://water.usgs.gov/osw/flood_inundation/
Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report: Attributes for water-surface elevation were input from the HEC-RAS model output data table. Flow input data for the HEC-RAS model were obtained from the most current stage-discharge relation at the USGS streamgage 03378500 Wabash River at New Harmony, Ind.
Logical_Consistency_Report: There are no unclosed polygons or intersections without nodes. The ArcGIS geodatabase topology tools were used to make corrections using rules including no gaps, no duplicate lines with the same beginning and ending nodes.
Completeness_Report: This dataset is complete; there are no planned revisions or updates at this time.
Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report: Used cross-section data points from surveyed data, accurate to the datum of the survey.
Vertical_Positional_Accuracy:
Vertical_Positional_Accuracy_Report: Used cross-section data points from surveyed data, accurate to the datum of the survey. Vertical accuracy to the input lidar DEM dataset.
Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Geological Survey, Indiana-Kentucky Water Science Center
Publication_Date: 2016
Title: Flood-Inundation Maps for the Wabash River at New Harmony, Indiana
Type_of_Source_Media: online
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2016
Source_Currentness_Reference: ground condition
Source_Citation_Abbreviation: Fowler (2016)

```
      Source_Contribution: Numeric hydraulic model was used to compute
water-surface profiles at selected elevations along mapped reach. The
water-surface profiles were then used to generate the inundation map
boundaries.
    Process_Step:
      Process_Description: This dataset was created to support the
development of flood-inundation maps for a reach of the Wabash River
at New Harmony, Indiana.
      Source_Used_Citation_Abbreviation: none
      Process_Date: 201600401
      Process_Time: 12010100
    Process_Step:
      Process_Description: Metadata imported.
      Source_Used_Citation_Abbreviation:
C:\Users\mkim\AppData\Local\Temp\3\xmlC13C.tmp
      Process_Date: 20160401
      Process_Time: 17063000
Spatial_Data_Organization_Information:
  Direct_Spatial_Reference_Method: Vector
  Point_and_Vector_Object_Information:
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: G-polygon
      Point_and_Vector_Object_Count: 4
Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Planar:
      Map_Projection:
        Map_Projection_Name: Mercator_Auxiliary_Sphere
        Map_Projection_Parameters:
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          Longitude_of_Central_Meridian: 0.000000
          False_Easting: 2952750.0
          False_Northing: 820208.33333
      Planar_Coordinate_Information:
        Planar_Coordinate_Encoding_Method: coordinate pair
        Coordinate_Representation:
          Abscissa_Resolution: 0.000001
          Ordinate_Resolution: 0.000001
        Planar_Distance_Units: feet
    Geodetic_Model:
      Horizontal_Datum_Name: D_WGS_1984
      Ellipsoid_Name: WGS_1984
      Semi-major_Axis: 6378137.000000
      Denominator_of_Flattening_Ratio: 298.257224
  Vertical_Coordinate_System_Definition:
    Altitude_System_Definition:
      Altitude_Datum_Name: North American Vertical Datum of 1988
      Altitude_Resolution: 0.000001
      Altitude_Distance_Units: meters
      Altitude_Encoding_Method: Attribute values
Entity_and_Attribute_Information:
  Overview_Description:
```

Entity_and_Attribute_Overview:
Each entity corresponds to an estimated flood extent area for stream stages 5-8 feet at the USGS streamgage 03378500 Wabash River at New Harmony, Indiana. The attributes represent the USGS station identifier (ID), USGS stage height associated with the area, and NAVD88 elevation that correlates with the stage.

Entity_Type_Label WabnewhIN
Entity_Type_Definition 03378500 (station ID) flood-inundation area

Attribute_Label FID
Attribute_Definition Internal feature number.

Attribute_Label Shape
Attribute_Definition Feature geometry.

Attribute_Label STAGE
Attribute_Definition USGS stage height associated with the area, in feet.

Attribute_Label ELEV
Attribute_Definition NAVD 88 elevation that correlates with the stage, in feet.

Attribute_Label USGSID
Attribute_Definition USGS station ID number

Attribute_Label GRIDID
Attribute_Definition sequential number

Entity_and_Attribute_Detail_Citation: Fowler, K.K., 2016, Flood-inundation maps for the Wabash River at New Harmony, Indiana: U.S. Geological Survey Scientific Investigations Report 2016-5119, xx p.

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: U.S. Geological Survey, Indiana-Kentucky Water Science Center
Contact_Position: GIS Specialist
Contact_Address:
Address_Type: mailing and physical address
Address: 5957 Lakeside Blvd.
City: Indianapolis
State_or_Province: Indiana
Postal_Code: 46278
Contact_Voice_Telephone: 317-290-3333
Resource_Description: Downloadable Data
Distribution_Liability:
This database, identified as SIR 2016-5119, has been approved for release and publication by the Director of the USGS. Although this database has been subjected to rigorous review and is substantially

complete, the USGS reserves the right to revise the data pursuant to further analysis and review. Furthermore, it is released on condition that neither the USGS nor the U.S. States Government may be held liable for any damages resulting from its authorized or unauthorized use.

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  Standard_Order_Process:
    Digital_Form:
      Digital_Transfer_Information:
        Format_Name: shapefile
        Transfer_Size: 3.01
      Digital_Transfer_Option:
        Online_Option:
          Computer_Contact_Information:
            Network_Address:
              Network_Resource_Name:
http://water.usgs.gov/osw/flood_inundation/
    Fees: none
    Ordering_Instructions: none
  Technical_Prerequisites: Data are supplied in ArcGIS shapefile
format.  Format compatibility is the user's responsibility.
Metadata_Reference_Information:
  Metadata_Date: 20160401
  Metadata_Review_Date: 20160401
  Metadata_Contact:
    Contact_Information:
      Contact_Organization_Primary:
        Contact_Organization: U.S. Geological Survey
        Contact_Person: GIS specialist
      Contact_Position: Ask USGS - Water Webserver Team
      Contact_Address:
        Address_Type: mailing address
        Address: 507 National Center
        City: Reston
        State_or_Province: Virginia
```

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        Postal_Code: 20192
        Country: USA
      Contact_Voice_Telephone: 1-888-275-8747 (1-888-ASK-USGS)
  Metadata_Standard_Name: FGDC Content Standards for Digital
Geospatial Metadata
  Metadata_Standard_Version: FGDC-STD-001-1998
  Metadata_Time_Convention: local time
  Metadata_Extensions:
    Online_Linkage: http://www.esri.com/metadata/esriprof80.html
    Profile_Name: ESRI Metadata Profile
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