Hydrography Information Requirements **Survey**

Introduction

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Survey of Business Requirements for Hydrographic Data and Information

This survey is sponsored by the U.S. Geological Survey (USGS) National Geospatial Program (NGP), the USGS Office of Water Information (OWI), and the Natural Resource Conservation Service (NRCS). This questionnaire is part of an effort to develop and refine future program alternatives that would provide enhanced hydrographic data to meet many Federal, State, and other national business needs. For purposes of this survey, hydrographic data include the surface water drainage network with features such as rivers, streams, canals, lakes, ponds, coastline, dams, drainage basins, and streamgages. Questions will be asked about hydrographic data and how it relates to other data types such as groundwater, wetlands, and soils. A series of questions will be asked as they relate to specific Mission Critical Activities.

We would like to thank you in advance for participating in this study. By learning more about your mission critical activities and associated benefits that would be realized from improved hydrographic information, we will be able to prioritize and direct program investments that will best serve your needs.

Privacy and Paperwork Reduction Act statements: 16 U.S.C. 1a7 authorized collection of this information. This information will be used by the U.S. Geological Survey to better serve the public. Response to this request is voluntary. No action may be taken against you for refusing to supply the information requested. We will not distribute responses associated with you as an individual. We ask you for some basic organizational and contact information to help us interpret the results and, if needed, to contact you for clarification. When analysis of the questionnaires is completed, all name and address files will be destroyed. Thus, the permanent data will be anonymous.

This survey should not take more than **1 hour** to complete. This will include the time that you may need to read explanatory FAQs and supporting information that will help you to respond to the survey answers. You will not be able to return to a partially completed response. However, if you complete a response for a Mission Critical Activity you may return to the survey and complete a new entry for a new Mission Critical Activity. If you have any comments about the survey, you may send them to the USGS Collections Officer at gs-info_collections@usgs.gov.

Hydrography Information Requirements Survey

Instructions

Survey of Business Requirements for Hydrographic Data and Information

The responses to the survey questions are in two formats - open ended and single (or multiple) response. Reponses to the open-ended questions will be entered in a text box below the question. All single (or multiple) response questions will be entered by using drop-down or check boxes where you will choose the best response(s) for your agency and data uses.

It is recommended that you first review two tutorials linked to from this web site:

1. The first is a list of frequently asked questions (FAQs) pertaining to water data/information terms used throughout the questionnaire. Even if all the terms in the FAQs are familiar to you, reviewing this material will help ensure that all respondents are thinking of the same definitions when answering the questions.

2. The second tutorial provides examples of the kinds of benefits one might receive from improved hydrography information. These benefits are organized into three categories: (1) Operational Improvements, (2) Customer Service Improvements, and (3) Societal Benefits. This tutorial also demonstrates methods for estimating financial benefits, which you will be asked to assess in dollar amounts wherever possible.

Hydrography Information Requirements Survey

Part 1: A Little About You

1. Please enter your contact information so that we can contact you for clarification, if needed, and so we can aggregate responses by Agency, State, Tribe, organization, or program, etc.

Last Name:	
First Name:	
Agency, State, Tribe, or organization:	
Name of program supported by hydrography data/information:	
Job title:	
Telephone Number - enter text as xxx-xxx-xxxx (Ext.):	
Email address:	

2. Which type of organization do you represent?

Please select one of the following seven options:

- Federal Agencies and Commissions
- State Government
- Regional, County, City or Other Local Government
- U.S. Territorial Government
- Tribal Government
- Not for Profit
- Private or Commercial

Hydrography Information Requirements Survey

Part 1: A Little About You

3. What is the name of the Federal agency or Commission for which you are defining hydrography data/information requirements?

Please select one from the list:

Department of Agriculture (USDA)

- Agricultural Research Service
- Animal and Plant Health Inspection Service
- Farm Service Agency (FSA)
- Natural Resources Conservation Service (NRCS)
- U.S. Forest Service (USFS)

Department of Commerce (DOC)

- Economic Development Administration (EDA)
- National Oceanic and Atmospheric Administration (NOAA)
- U.S. Census Bureau (USCB)

Department of Defense (DOD)

- Defense Installations Spatial Data Infrastructure (DISDI)
- Defense Threat Reduction Agency (DTRA)
- National Geospatial-Intelligence Agency (NGA)
- U.S. Army Corps of Engineers (USACE)

Department of Energy (DOE)

- Office of Energy Efficiency and Renewable Energy (EERE)
- Bonneville Power Administration (BPA)
- Southeastern Power Administration (SEPA)

- **Environmental Protection Agency (EPA)**
- **National Aeronautics and Space Administration (NASA)**

Department of the Interior (DOI)

- Bureau of Indian Affairs (BIA)
- Bureau of Land Management (BLM)
- Bureau of Ocean Energy Management (BOEM)
- Bureau of Reclamation
- Bureau of Safety and Environmental Enforcement (BSEE)
- National Park Service (NPS)
- Office of Surface Mining Reclamation and Enforcement (OSMRE)
- U.S. Fish and Wildlife Service (USFWS)
- United States Geological Survey (USGS)

Department of Transportation (DOT)

- Federal Highway Administration (FHA)
- Federal Railway Administration (FRA)
- Pipeline and Hazardous Materials Safety Administration (PHMSA)

- **Federal Energy Regulatory Commission (FERC)**
- **Great Lakes Commission (GLC)**
- **International Boundary and Water**

- Southwestern Power Administration (SWPA)
- Western Area Power Administration (WAPA)

Department of Homeland Security (DHS)

- Federal Emergency Management Agency (FEMA)
- United States Coast Guard (USCG)

- **Department of State (DOS)**

Commission (IBWC)

- **International Joint Commission (IJC)**
- **Nuclear Regulatory Commission (NRC)**

4. What is the name of the sub-agency, division, department and/or branch for which your requirements pertain?

Please enter text (25 word limit):

Hydrography Information Requirements Survey

Part 1: A Little About You

5. What is the name of your State (or Washington, D.C.)?

Please select one:

- Alabama
- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- Florida
- Georgia
- Hawaii
- Idaho
- Illinois
- Indiana
- Iowa
- Kansas
- Kentucky
- Louisiana
- Maine
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Mississippi
- Missouri
- Montana
- Nebraska
- Nevada
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
- Vermont
- Virginia
- Washington
- Washington D.C.
- West Virginia
- Wisconsin
- Wyoming

Hydrography Information Requirements Survey

Part 1: A Little About You

6. What is the name of your regional, county, city or other local government agency?

Please enter text:

7. What is the name of your U.S. territory?

Please select one:

- American Samoa
- Guam
- Northern Mariana Islands
- Puerto Rico
- Virgin Islands

8. What is the name of your Tribe?

Please enter text:

9. What is the name of your not-for-profit organization?

Please enter text:

10. What is the name of your private or commercial organization?

Please enter text:

Hydrography Information Requirements Survey

Part 2: Mission Critical Activity Requirements for Hydrography Information

In part 2 of the questionnaire, we would like to learn about your Mission Critical Activities (MCAs), which require hydrographic data and related information products. Your first iteration through this section of the questionnaire is for your primary Mission Critical Activity. After completing this section, you will be allowed to repeat part 2 of the questionnaire for additional (up to 5) Mission Critical Activities.

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

11. What is your Mission Critical Activity? ***Mission Critical*** **is defined herein as "indispensable for mission accomplishment and/or essential for effective/efficient operations in accomplishing the core mission of the organization."**

Please describe your primary Mission Critical Activity in your own words (50 words or less). Examples of Mission Critical Activities include stormwater management, fisheries management, tsunami modeling, watershed protection and coastal hazards mitigation. We prefer a higher level activity, e.g., flood risk mapping, rather than a lower level activity, e.g., hydrologic and hydraulic modeling (used in flood risk mapping). You will be allowed to select additional Mission Critical Activities after this primary section is completed.

Please enter Mission Critical Activity:

Hydrography Information Requirements Survey

12. Please choose the Business Use from the list below that best describes the core business supported by use of your Mission Critical Activity.

Select one Business Use from the list below:

BU 1 - River and Stream Flow Management
(Example: Monitoring river flows, runoff, groundwater, and streamflow simulation, stormwater management)

BU 02 - Natural Resources Conservation
(Example: Conservation engineering, soils mapping, wetlands mapping and characterization, assessment of biological carbon stocks)

BU 03 - Water Resource Planning and Management
(Example: Management of drinking water sources, water rights administration)

BU 04 - Water Quality
(Example: Fate and transport of contaminants, pollution risk mitigation)

BU 05 - River and Stream Ecosystem Management
(Example: Aquatic habitat management, stream restoration, fisheries management)

BU 06 - Coastal Zone Management
(Example: Coastal mapping and modeling, coastal hazards mitigation, tsunami modeling, land use and environmental planning)

BU 07 - Forest Resources Management
(Example: Forest inventories, forest resource management, sustainable timberlands, forest species distribution modeling, forest conservation, watershed protection, harvest planning, haul road construction, silvicultural treatments, post-fire management)

BU 08 - Rangeland Management
(Example: Preservation and management of rangeland, rangeland stewardship, rangeland mapping and characterization)

BU 09 - Wildlife and Habitat Management (Off-stream)
(Example: Conservation planning for wildlife refuges, conservation of critical habitats, management of diverse migratory bird habitats)

BU 10 - Agriculture and Precision Farming
(Example: Reducing harmful runoff by site-specific application of fertilizer and pesticides, irrigation water use management)

BU 14 - Oil and Gas Resources
(Example: Pipeline and road route selection, facility siting to mitigate seismic hazards, regulatory compliance)

BU 15 -Flood Risk Management
(Example: Flood risk analysis and floodplain mapping, emergency management, levee safety, flood forecasts, hydrologic and hydraulic modeling)

BU 16 - Sea Level Rise and Subsidence
(Example: Mapping and modeling and forecasting the effects of sea level rise, population and economic vulnerability assessments)

BU 17 - Wildfire Management, Planning and Response
(Example: Understanding, modeling and predicting fire behavior, protection of terrestrial ecosystems, fire-fighting estimations)

BU 18 - Homeland Security, Law Enforcement, and Disaster Response
(Example: Infrastructure and border protection, coastal search and rescue, population dynamics, drinking water protection)

BU 19 - Marine and Riverine Navigation and Safety
(Example: Coastal and bathymetric mapping, identification of hazards to navigation, sediment management at coastal navigation projects)

BU 20 - Infrastructure and Construction Management
(Example: Design and placement of water supply and wastewater treatment facilities, storm water management, bridge design)

BU 21 - Urban and Regional Planning
(Example: Land development and zoning, municipal mapping of building footprints and impervious surfaces, parks and transportation planning)

BU 22 - Health and Human Services
(Example: Health emergency response, habitat modeling and disease prevention, drinking water protection, public health and safety, prevention of waterborne diseases)

BU 23 - Real Estate, Banking, Mortgage, and Insurance
(Example: Assessment of risk for natural hazards to inform insurance policy rates and the determination of mandatory insurance)

Hydrography Information Requirements Survey

BU 11 - Geologic Resource Assessment and Hazard Mitigation

(Example: Detailed hydrologic modeling to understand and mitigate landslide)

BU 12 - Resource Mining

(Example: Regulation and permitting of coal mining activities, reclamation of coal mining areas, monitoring of post-mining conditions)

BU 13 - Renewable Energy Resources

(Example: Hydropower, offshore wind power, tidal)

BU 24 - Education K–12 and Beyond

(Example: Understanding and continental-scale climate change impacts, land cover monitoring, development of military training simulators)

BU 25 - Recreation

(Example: Development of recreational facilities such as rafting, trails and fishing areas, location-based products and services)

13. In this section, please identify your geographic area requirements for the Mission Critical Activity described above. We need to understand geographic area requirements for each Mission Critical Activity.

Survey Respondents are encouraged to describe their geographic (area of coverage) requirements using the provided administrative and watershed boundary pick lists. Alternatively, shapefiles for your geographic areas of interest may be provided. My geographic area requirements are:

- Nationwide
- One or more states, territories, counties, or cities
- One or more Watersheds
- Federally-owned lands nationwide or select large land-holding agencies
- Other geographic area; I will provide my own shapefile or geodatabase

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

14. If your geographic area requirements for hydrographic information for your Mission Critical Activity are nationwide, please check the items below that best represent your nationwide requirements.

Please select all that apply:

- 48 Conterminous States
- Alaska
- Hawaii
- American Samoa
- Guam
- Northern Marianas
- Puerto Rico
- Virgin Islands

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

15. If your geographic area requirements for hydrographic information for your Mission Critical Activity are for one or more states, territories, or counties, please check the state(s) or territories below that are required. After you select the state(s) or territories, you will be allowed to identify sub-regions (counties or cities) where hydrographic information is required.

- Alabama
- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- Florida
- Georgia
- Hawaii
- Idaho
- Illinois
- Indiana
- Iowa
- Kansas
- Kentucky
- Louisiana
- Maine
- Maryland
- Massachusetts
- Michigan
- Minnesota
- Mississippi
- Missouri
- Montana
- Nebraska
- Nevada
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- Pennsylvania
- Rhode Island
- South Carolina
- South Dakota
- Tennessee
- Texas
- Utah
- Vermont
- Virginia
- Washington
- Washington D.C.
- West Virginia
- Wisconsin
- Wyoming

Territories

- American Samoa
- Guam
- Northern Mariana Islands
- Puerto Rico
- Virgin Islands

16. Do you have any sub-regions (counties or cities) where hydrographic information is required?

- Yes
- No

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information

17. Please list the sub-regions (counties or cities) where hydrographic information is required. Enter sub-region (county or city) first and then state (example: Fairfax County, VA or Chicago, IL)

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Informatio...

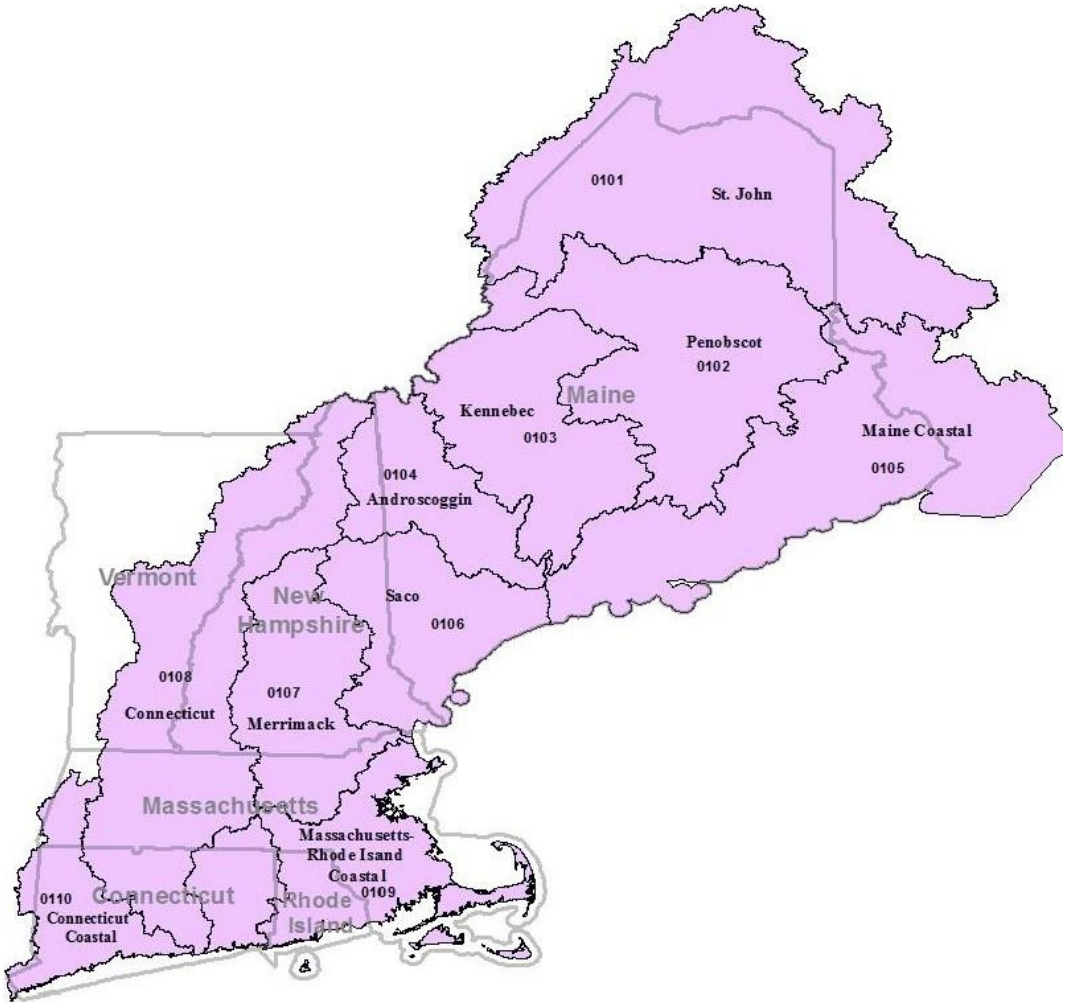
18. If your geographic area requirements pertain to hydrologicunits, please check the Major basin area below. This will lead you to select individual HUC-4 codes for your specific hydrologic units.

- 01 New England
- 02 Mid Atlantic
- 03 South Atlantic-Gulf
- 04 Great Lakes
- 05 Ohio
- 06 Tennessee
- 07 Upper Mississippi
- 08 Lower Mississippi
- 09 Souris-Red-Rainy
- 10 Missouri
- 11 Arkansas-White-Red
- 12 Texas - Gulf
- 13 Rio Grande
- 14 Upper Colorado
- 15 Lower Colorado
- 16 Great Basin
- 17 Pacific Northwest
- 18 California
- 19 Alaska
- 20 Hawaii
- 21 Caribbean
- 22 Pacific Islands

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

19. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.



- r 0101 -St. John
- r 0102 -Penobscot
- r 0103 -Kennebec
- r 0104 -Androscoggin
- r 0105 -Maine Coastal
- r 0106-Saco
- r 0107 -Merrimack
- r 0108 -Connecticut
- r 0109 - Massachusetts-Rhode Island Coastal
- r 0110 -Connecticut Coastal
- r All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

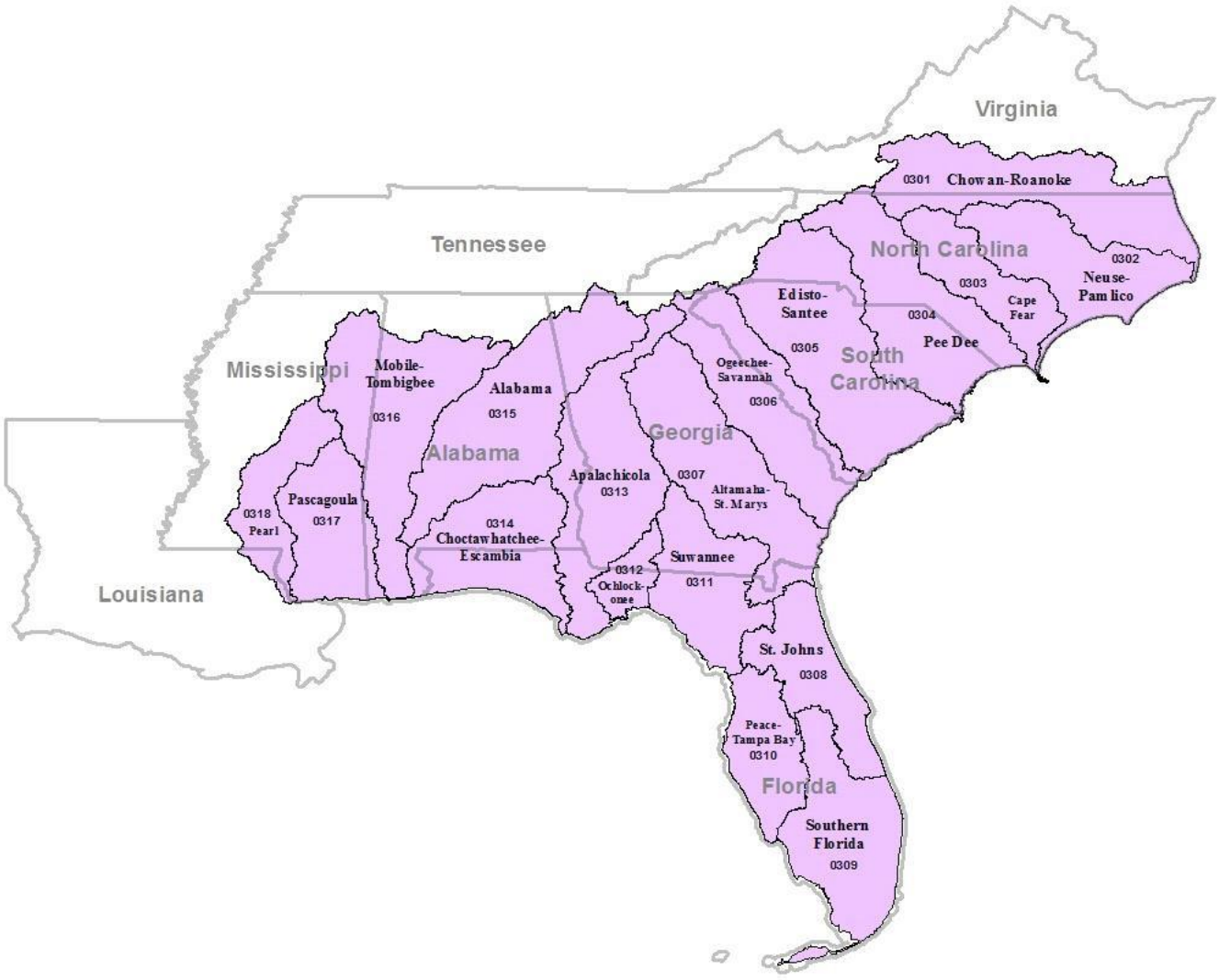
20. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

- r 0202 -Upper Hudson
- r 0203 -Lower Hudson-Long Island
- r 0204 -Delaware-Mid Atlantic Coastal
- r 0205 -Susquehanna
- r 0206 -Upper Chesapeake
- r 0207 -Potomac
- r 0208 - Lower Chesapeake
- r All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

21. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.



- 0301 - Chowan-Roanoke
- 0302 - Neuse-Pamlico
- 0303 - Cape Fear
- 0304 - Pee Dee
- 0305 - Edisto-Santee
- 0306 - Ogeechee-Savannah
- 0307 - Altamaha-St. Marys
- 0308 - St. Johns
- 0309 - Southern Florida
- 0310 - Peace-Tampa Bay
- 0311 - Suwannee
- 0312 - Ochlockonee
- 0313 - Apalachicola
- 0314 - Choctawhatchee-Escambia
- 0315 - Alabama
- 0316 - Mobile-Tombigbee
- 0317 - Pascagoula
- 0318 - Pearl
- All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

22. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

- 0401 - Western Lake Superior
- 0402 - Southern Lake Superior-Lake Superior
- 0403 - Northwestern Lake Michigan
- 0404 - Southwestern Lake Michigan
- 0405 - Southeastern Lake Michigan
- 0406 - Northeastern Lake Michigan-Lake Michigan
- 0407 - Northwestern Lake Huron
- 0408 - Southwestern Lake Huron-Lake Huron
- 0409 - St. Clair-Detroit
- 0410 - Western Lake Erie
- 0411 - Southern Lake Erie
- 0412 - Lake Erie
- 0413 - Southwestern Lake Ontario
- 0414 - Southeastern Lake Ontario
- 0415 - Northeastern Lake Ontario-Lake Ontario-St. Lawrence
- All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

23. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

- r 0501 -Allegheny
- r 0502- Monongahela
- r 0503- Upper Ohio
- r 0504 - Muskingum
- r 0505- Kanawha
- r 0506- Scioto
- r 0507 - Big Sandy-Guyandotte
- r 0508- Great Miami
- r 0509- Middle Ohio
- r 0510 - Kentucky-Licking
- r 0511- Green
- r 0512- Wabash
- r 0513- Cumberland
- r 0514- Lower Ohio
- r All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

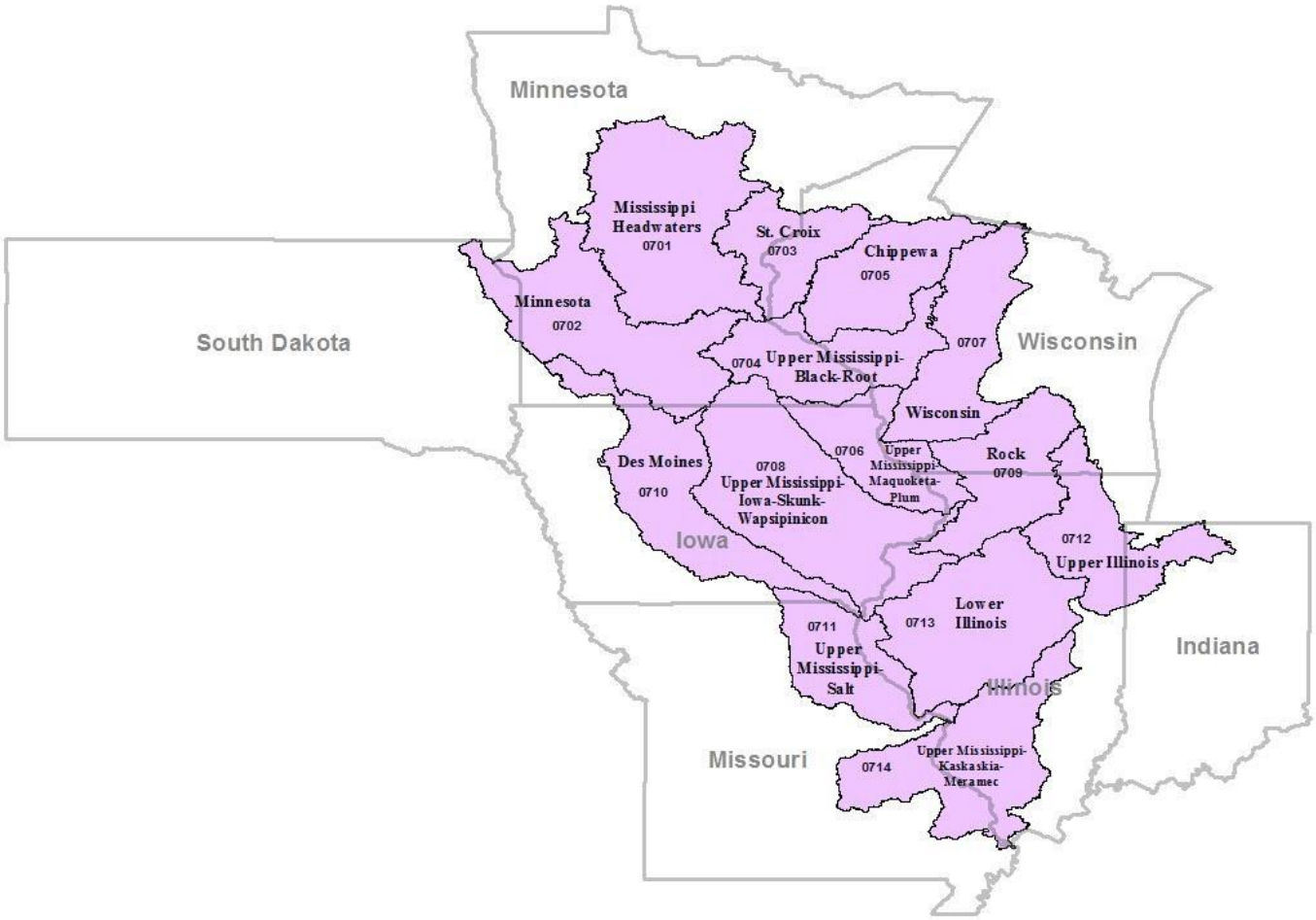
24. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

- r 0601 -Upper Tennessee
- r 0602- Middle Tennessee-Hiwassee
- r 0603- Middle Tennessee-Elk
- r 0604- Lower Tennessee
- r All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

25. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

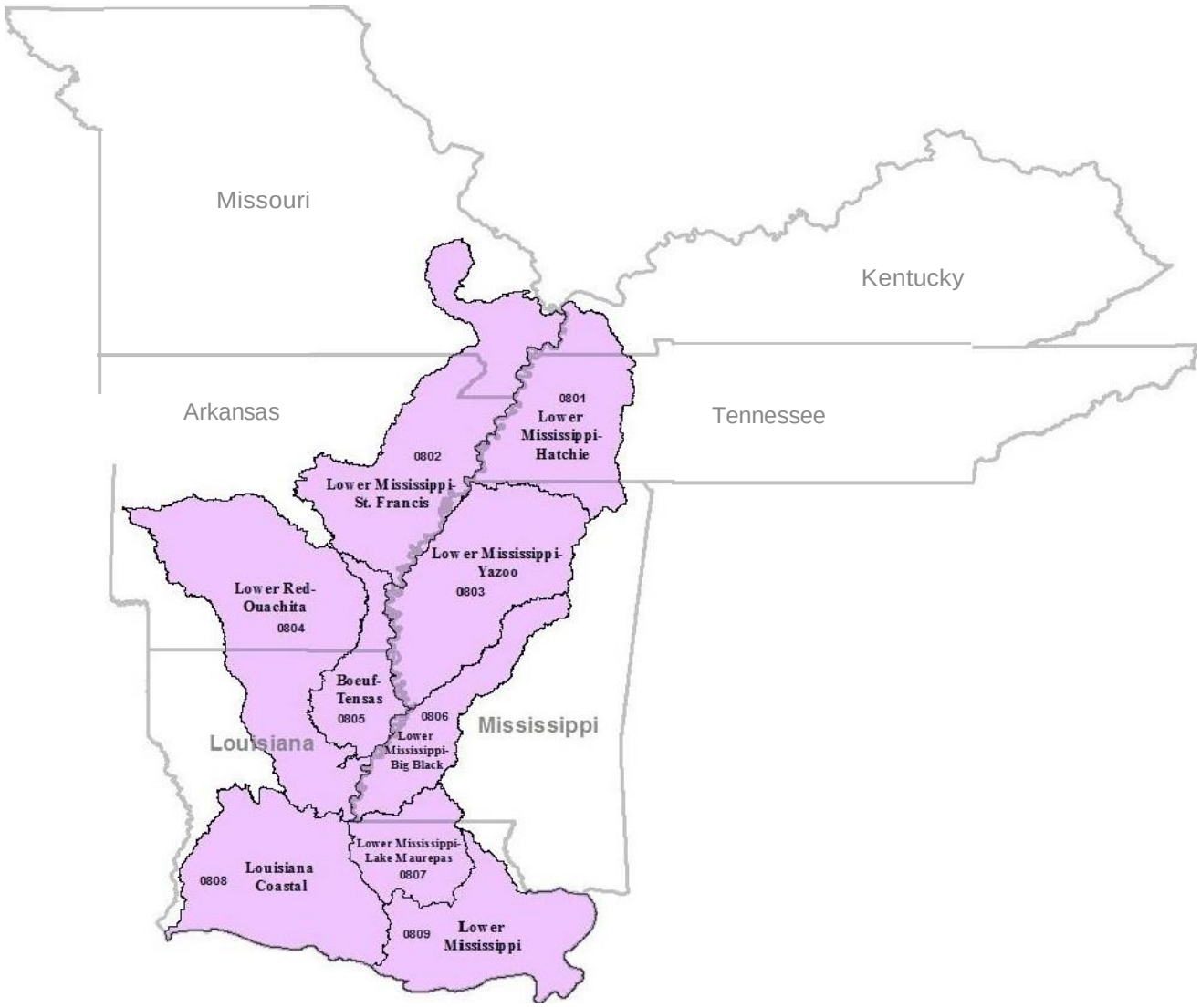


- 0701 - Mississippi Headwaters
- 0702 - Minnesota
- 0703 - St. Croix
- 0704 - Upper Mississippi-Black-Root
- 0705 - Chippewa
- 0706 - Upper Mississippi-Maquoketa-Plum
- 0707 - Wisconsin
- 0708 - Upper Mississippi-Iowa-Skunk-Wapsipinicon
- 0709 - Rock
- 0710 - Des Moines
- 0711 - Upper Mississippi-Salt
- 0712 - Upper Illinois
- 0713 - Lower Illinois
- 0714 - Upper Mississippi-Kaskaskia-Meramec
- All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

26. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

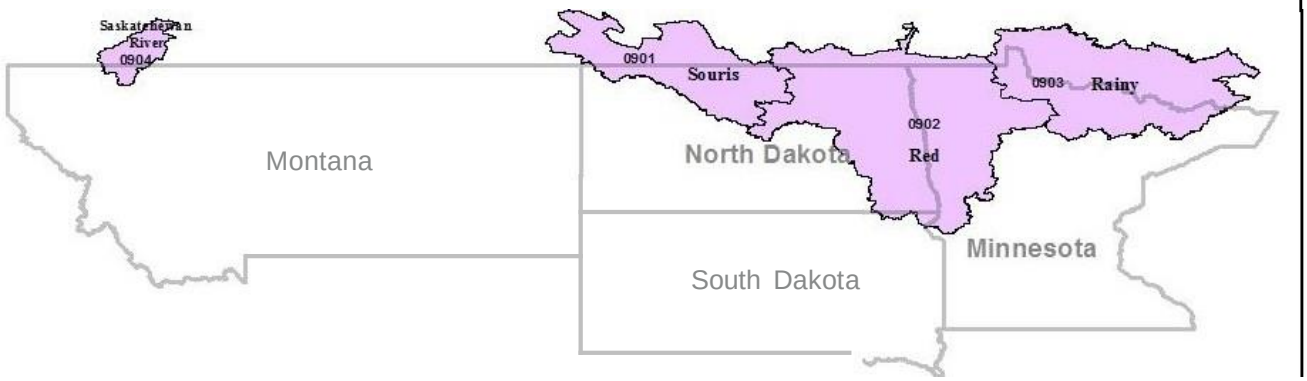


- r 0801 - Lower Mississippi-Hatchie
- r 0802 - Lower Mississippi-St Francis
- r 0803 -Lower Mississippi-Yazoo
- r 0804 -Lower Red-Ouachita
- r 0805- Boeuf-Tensas
- r 0806 - Lower Mississippi-Big Black
- r 0807 - Lower Mississippi-Lake Maurepas
- r 0808 -Louisiana Coastal
- r 0809 - Lower Mississippi
- r All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

27. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

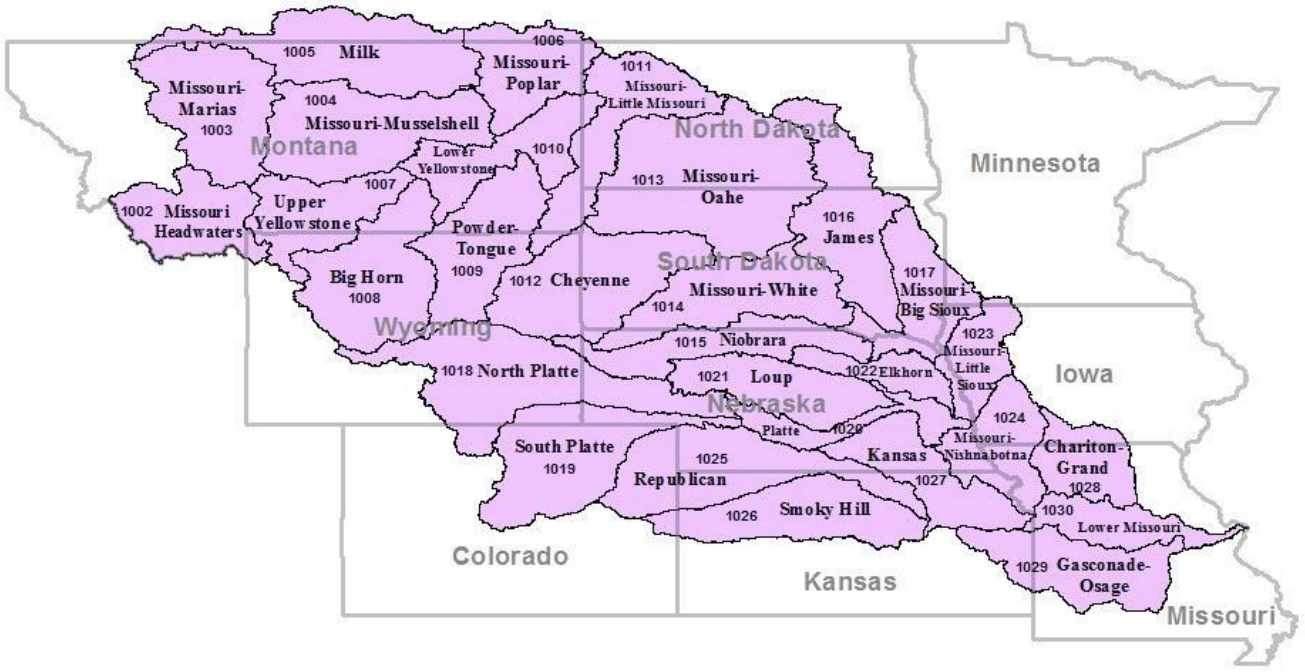


- r 0901 - Souris
- r 0902- Red
- r 0903- Rainy
- r 0904 - Saskatchewan River
- r All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

28. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.



- 1002 - Missouri Headwaters
- 1003 - Missouri-Marias
- 1004 - Missouri-Musselshell
- 1005 - Milk
- 1006 - Missouri-Poplar
- 1007 - Upper Yellowstone
- 1008 - Big Horn
- 1009 - Powder-Tongue
- 1010 - Lower Yellowstone
- 1011 - Missouri-Little Missouri
- 1012 - Cheyenne
- 1013 - Missouri-Oahe
- 1014 - Missouri-White
- 1015 - Niobrara
- 1016 - James
- 1017 - Missouri-Big Sioux
- 1018 - North Platte
- 1019 - South Platte
- 1020 - Platte
- 1021 - Loup
- 1022 - Elkhorn
- 1023 - Missouri-Little Sioux
- 1024 - Missouri-Nishnabotna
- 1025 - Republican
- 1026 - Smoky Hill
- 1027 - Kansas
- 1028 - Chariton-Grand
- 1029 - Gasconade-Osage
- 1030 - Lower Missouri
- All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

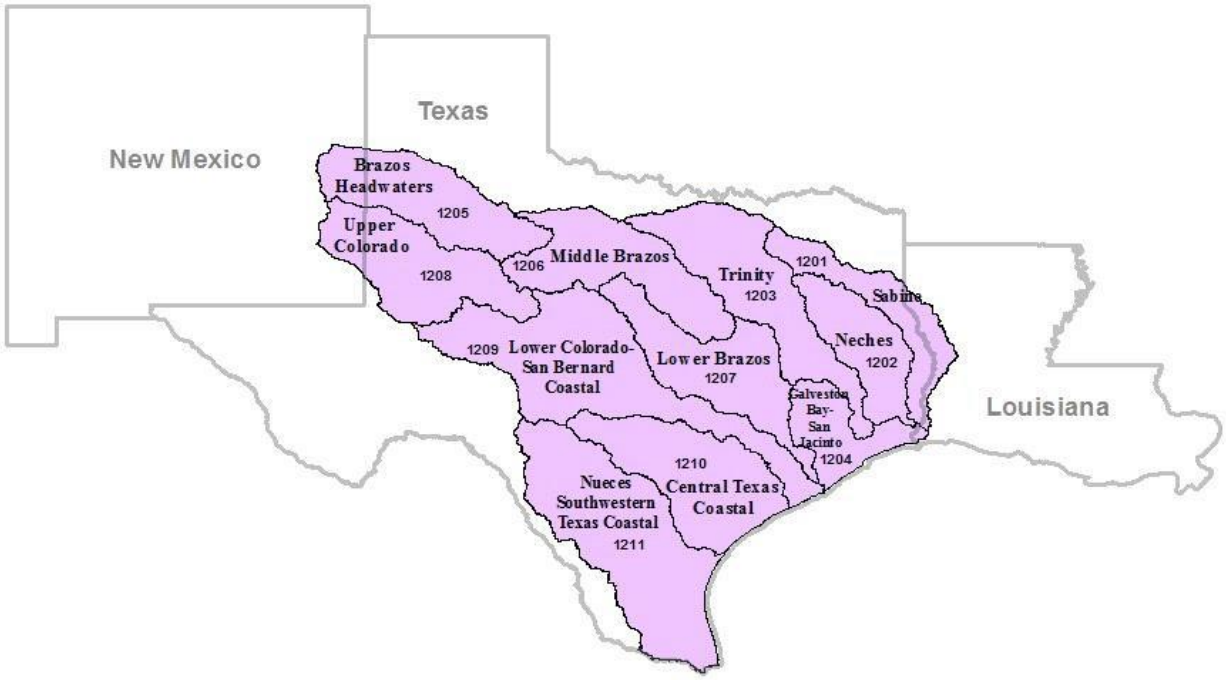
29. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

- ☐ 1101 - Upper White
- ☐ 1102 - upper Arkansas
- ☐ 1103 - Middle Arkansas
- ☐ 1104 - Upper Cimarron
- ☐ 1105 - Lower Cimarron
- ☐ 1106 - Arkansas-Keystone
- ☐ 1107- Neosho-Verdigris
- ☐ 1108- Upper Canadian
- ☐ 1109- Lower Canadian
- ☐ 1110- North Canadian
- ☐ 1111 - Lower Arkansas
- ☐ 1112- Red Headwaters
- ☐ 1113- Red-Washita
- ☐ 1114 -Red-Sulphur
- ☐ All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

30. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.



- 1201 - Sabine
- 1202 - Neches
- 1203 - Trinity
- 1204 - Galveston Bay-San Jacinto
- 1205 - Brazos Headwaters
- 1206 - Middle Brazos
- 1207 - Lower Brazos
- 1208 - Upper Colorado
- 1209 - Lower Colorado-San Bernard Coastal
- 1210 - Central Texas Coastal
- 1211 - Nueces Southwestern Texas Coastal
- All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

31. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

- r 1301 -Rio Grande Headwaters
- r 1302 -Rio Grande-Elephant Butte
- r 1303 -Rio Grande-Mimbres
- r 1304 -Rio Grande-Amistad
- r 1305 -Rio Grande Closed Basins
- r 1306 -Upper Pecos
- r 1307 -Lower Pecos
- r 1308 -Rio Grande-Falcon
- r 1309 -Lower Rio Grande
- r All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

32. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

- r 1401 -Colorado Headwaters
- r 1402 -Gunnison
- r 1403 -Upper Colorado-Dolores
- r 1404 -Great Divide-Upper Green
- r 1405- White-Yampa
- r 1406 -Lower Green
- r 1407 -Upper Colorado-Dirty Devil
- r 1408 -San Juan
- r All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

33. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

- r 1501 - Lower Colorado-Lake Mead
- r 1502- Little Colorado
- r 1503 - Lower Colorado
- r 1504 -upper Gila
- r 1505- Middle Gila
- r 1506- Salt
- r 1507- Lower Gila
- r 1508- Sonora
- r All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

34. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

- 1601 - Bear
- 1602 - Great Salt Lake
- 1603 - Escalante Desert-Sevier Lake
- 1604 - Black Rock Desert-Humboldt
- 1605 - Central Lahontan
- 1606 - Central Nevada Desert Basins
- All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

35. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

- 1701 - Kootenai-Pend Oreille-Spokane
- 1702 - Upper Columbia
- 1703 - Yakima
- 1704 - Upper Snake
- 1705 - Middle Snake
- 1706 - Lower Snake
- 1707 - Middle Columbia
- 1708 - Lower Columbia
- 1709 - Willamette
- 1710 - Oregon-Washington Coastal
- 1711 - Puget Sound
- 1712 - Oregon Closed Basins
- All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

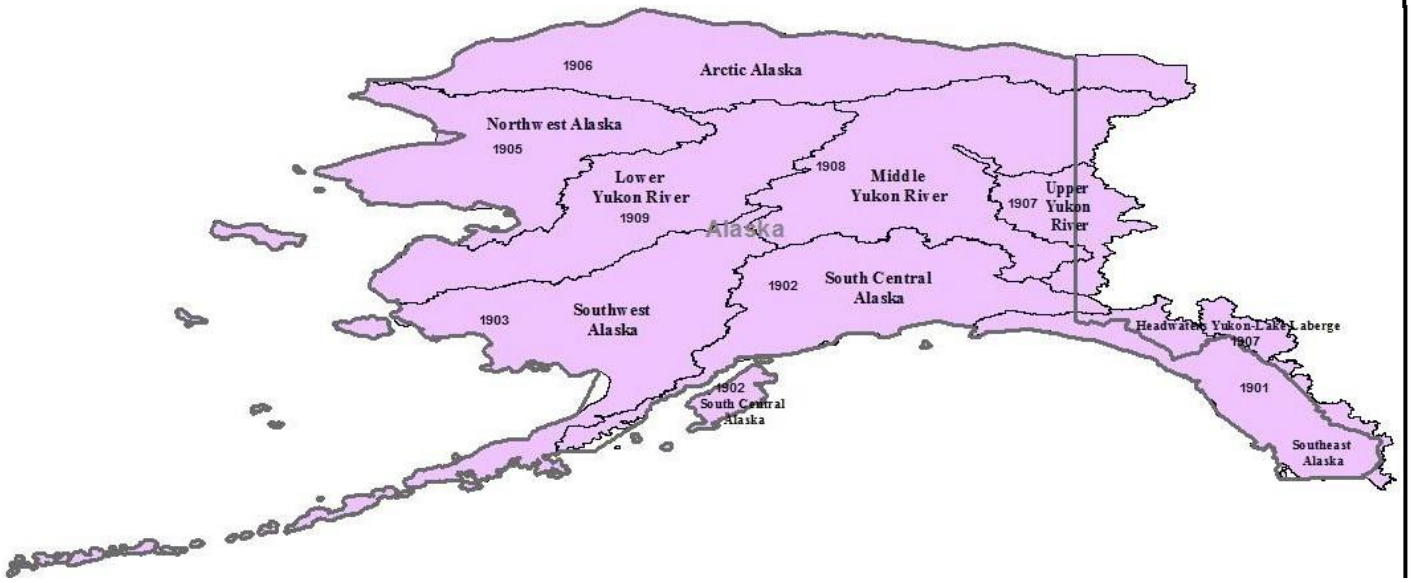
36. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

- 1801 - Klamath-Northern California Coastal
- 1802 - Sacramento
- 1803 - Tulare-Buena Vista Lakes
- 1804 - San Joaquin
- 1805 - San Francisco Bay
- 1806 - Central California Coastal
- 1807 - Southern California Coastal
- 1808 - North Lahontan
- 1809 - Northern Mojave-Mono Lake
- 1810 - Southern Mojave-Salton Sea
- All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

37. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.



- r 1901 -Southeast Alaska
- r 1902 -South Central Alaska
- r 1903 - Southwest Alaska
- r 1905 -Northwest Alaska
- r 1906 -Arctic Alaska
- r 1907 - Upper Yukon River/Headwaters Yukon-Lake Laberge
- r 1908 -Middle Yukon River
- r 1909- Lower Yukon River
- r All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

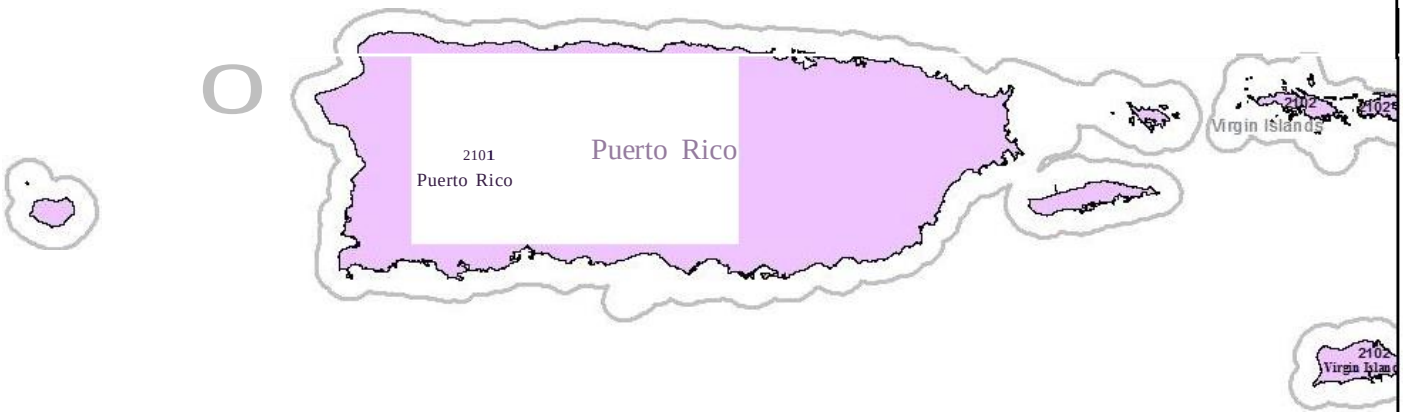
38. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.

- r 2001 -Hawaii
- r 2002- Maui
- r 2003 - Kahoolawe
- r 2004- Lanai
- r 2005 - Molokai
- r 2006- Oahu
- r 2007- Kauai
- r 2008 - Niihau
- r All codes

Hydrography Information Requirements Survey

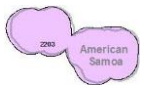
Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

39. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.



- r 2101 -Puerto Rico
- r 2102- Virgin Islands
- r All codes

40. Please select individual HUC-4 codes for your specific hydrologic units at the bottom of the page.



- 2201- Guam
- 2202 -Northern Mariana Islands
- 2203 - American Samoa
- All codes

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

41. If your geographic area requirements pertain to select Federally-owned lands, please designate below.

Please select all that are required:

- All Federally Owned Lands
- Department of Defense (DOD)
- U.S. Forest Service (USFS)
- Bureau of Land Management (BLM)
- Bureau of Reclamation
- National Park Service (NPS)
- U.S. Fish and Wildlife Service (USFWS)
- Tennessee Valley Authority (TVA)

Other (enter name and/or description):

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

42. ***If applicable*****, please submit your geographic area requirements by posting your shapefile(s) or geodatabase to the project site at ftp.dewberry.com and provide a unique filename that includes your name and organization, or abbreviations thereof. The projection and datum (.prj file) information must be included.**

In Internet Explorer 8, go to "Page" in the tool bar, and then click "Open FTP Site in Windows Explorer."

If prompted, then enter the following credentials:
user - gisfiles
password - WY8VY1 (case sensitive)

If you are not prompted for credentials, then right click and select "Login As..." then enter the same credentials.

Please enter the filename below:

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

43. Which hydrography datasets are you currently using to address the water information needs of the Mission Critical Activity?

Please select all that apply:

- National Hydrography Dataset (NHD)
- National Hydrographic Dataset Plus (NHDPlus)
- Watershed Boundary Dataset (WBD)
- No hydrography data are currently being used
- Other dataset (please provide name and brief description):

44. For the Mission Critical Activity that you specified, how frequently does the hydrographic information need to be updated to satisfy requirements?

Please select the response that best describes your need:

- Annually
- 2-3 years
- 4-5 years
- 6-10 years
- >10 years

45. For the Mission Critical Activity that you specified, how important is it to update the hydrographic information immediately following major events such as a hurricane or flood?

Please select the response that best describes your need:

- Required
- Highly Desirable
- Nice To Have
- Not Required

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

46. For the Mission Critical Activity that you specified, which of the following characteristics or features are **required**?

Please select all that must be part of the hydrography dataset in order to meet your Mission Critical Activity requirements:

- Linkages to observations associated with streamgages
- Linkages to cross-sectional geometry of hydrographic feature (i.e. elevation-profile)
- Left and right bank delineation (geometry that shows two banks instead of a centerline)
- Velocity estimates and/or time of travel
- Leakage/seepage along natural lines (for example, sandy-bottomed streams)
- Leakage/seepage at natural points (sinks, springs)
- Bankfull and/or flood stage
- Floodplain boundary
- Flow periodicity (perennial, ephemeral, intermittent)
- Lake and channel bathymetry
- Coastlines
- Coastal bathymetry
- Estuaries
- Built diversion points (gates)
- Bridges and culverts
- Built diversion lines (pipelines, canals, channels, conveyances)
- Deltas
- Wetlands
- Badlands/deserts
- Other (please specify):

Hydrography Information Requirements Survey

47. For the Mission Critical Activity that you specified, which analytical functions are required?

Please select all analytical functions that mustbeperformed in order to meet your Mission Critical Activity requirements:

- Networkanalysis - Navigate up or downstream on network
- Network analysis – Calculate stream distance to any point on the network
- Network analysis – Calculate timeoftravel to another point on the network
- Areaanalysis – Find feature upstream or downstream within defined areas (i.e. watershed)
- Area analysis – Determine drainage area upstream from a point
- Area analysis – Determine area and boundary on the network of a catchment
- Area analysis – Determine downstream flood inundation area
- Area analysis – Accumulate upstream or downstream features or attributes
- On-network discovery – Find upstream or downstream points
- On-network discovery – Calculate distance between points or other attributes on network
- On-network discovery – Find features, events or addresses (i.e. reachcode) on network
- Visualization – View preset symbolization for network lines and other features
- Visualization – View user defined symbolization for network lines and other features
- Visualization – View online hydrography service with my own service (mash-ups)
- Animations – Render and view time-series information

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

48. Please describe the level of hydrographic data integration with other datasets required for your Mission Critical Activity. For each data type, identify how important the analysis is and the highest level of analysis required.

Importance Rating:

1. Required

2. Highly Desirable

3. Nice To Have

4. Not Required

Highest Level of Analysis Required:

1. Perform geospatial analysis (overlay, area calculation, buffers, etc.)

2. Associate selected data type to hydrographic features with unique code(s)

3. Visual inspection or graphic display

4. None

	Importance	Highest Level of Analysis Required
Land Cover		
Soils		
Surficial Geology		
Bathymetry		
Climate		
Contaminant Sources		
Elevation		
Streamflow		
Wetlands		
Census (Population Statistics)		
Aquifers		
Point Discharges		
Water Use: Diversions		
EPA - National Pollutant Discharge Elimination System (NPDES)		
EPA - STOrage and RETrieval Data Warehouse (STORET)		
USACE - National Inventory of Dams (NID)		
USDA - National Agriculture Statistics Service (NASS)		

Hydrography Information Requirements Survey

USFWS - National Wetlands Inventory (NWI)	6	6
USGS National Water Information System (NWIS)	6	6
USGS National Water-Quality Assessment Program (NAWQA)	6	6

Other (please specify the importance and integration level):

5
6

49. For the Mission Critical Activity that you selected, what positional accuracy is required for geographic features in the hydrography data?

Please select one of the following:

- +/- 3 feet, 90% (1:1,200-scale)
- +/- 7 feet, 90% (1:2,400-scale)
- +/- 33 feet, 90% (1:12,000-scale)
- +/- 40 feet, 90% (1:24,000-scale)
- +/- 170 feet, 90% (1:100,000-scale)
- +/- 420 feet, 90% (1:250,000-scale)

50. For the Mission Critical Activity that you selected, we need to understand the level of detail (stream density) that is required in the hydrographic data. Note that the equivalent mapping scale is shown in parenthesis. The number of stream miles per square mile is based on national averages for different mapping scales.

Please select one of the following options:

- 1.0 mile of surface water channel per square mile (1:100,000-scale)
- 2.5 miles of surface water channel per square mile (1:24,000-scale)
- 5.0 miles of channel per square mile (1:5,000-scale mapping)
- I don't know

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Informatio...

51. For the Mission Critical Activity that you have identified, what is the smallest contributing area (watershed) for which a watercourse would need to be delineated?

- 6 acres
- 60 acres
- 1 square mile (640 acres)
- 10 square miles (6,400 acres)
- 100 square miles (64,000 acres)
- 1000 square miles (640,000 acres)
- I don't know

52. For the Mission Critical Activity what is the smallest mapped waterbody needed?

Please select one from the following list:

- Less than an acre
- 1 acre
- 2 acres
- 5 acres
- 10 acres
- 20 acres
- Other (please specify)

53. For the selected Mission Critical Activity is it more important for hydrographic data to have the “best available” level of detail or is it more important to have a consistent level of detail?

Please select the one which best describes the requirement:

- The "best available" geospatial detail is required (quality and detail may vary)
- Consistent level of geospatial detail is required (quality and detail will be the same, but better data for some areas may be available from other sources)

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

Benefits of Hydrography Information

The following questions will be used to collect information concerning the technical uses and programmatic benefits for hydrographic information. This information is needed to identify products used and benefits received in three major benefit categories.

Please refer to the benefits tutorial for examples of the kinds of benefits one might receive from improved hydrography information and methods for estimating financial benefits.

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

Benefits of Hydrography Information

54. This question is about your program budget and the benefits that would be realized if your identified hydrographic data requirements could be met.

A *program* is a major component of your organization that has a well defined mission and goals and which is supported by one or more Mission Critical Activities. The *program budget* includes all annual operating expenses to include staff, equipment, travel, materials, overhead, etc.

What is the total annual program budget supported by this Mission Critical Activity?

Enter whole number without dollar sign.
If your number is greater than 999,999, please include the units for example, 1 million or 2.3 billion:

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Information.

Benefits of Hydrography Information

55. What benefits relative to your program budget are you now realizing from <u>currently available</u> hydrographic information for the selected Mission Critical Activity?

Select the option that most closely describes the benefits for each benefit type:

	Major	Moderate	Minor	Don't Know	Not Applicable
Time or Cost Savings (Operational Benefits)					
Mission Compliance (Operational Benefits)					
Products or Services (Customer Service Benefits)					
Response or Timeliness (Customer Service Benefits)					
Customer Experience (Customer Service Benefits)					
Education or Public Safety (Societal Benefits)					
Environmental Benefits (Societal Benefits)					
Human Lives Saved (Societal Benefits)					

Other (please specify benefit and its relative value):

56. What annual operational benefits, in dollars, do you receive from USGS hydrographic information that you use for this Mission Critical Activity? Please consider quantifiable cost savings, mission compliance, products and service improvements, and customer experience benefits when responding to this question. Do not include dollar benefits for societal benefits (improved education and safety, environmental benefits, human lives saved).

Enter whole number without dollar sign.
If your number is greater than 999,999, please include the units for example, 1 million or 2.3 billion:

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Informatio...

Benefits of Hydrography Information

57. What benefits relative to your program budget would you likely receive from <u>improved</u> hydrographic information if all of your requirements could be met for the selected Mission Critical Activity?

Select the option that most closely describes the benefits for each benefit type:

	Major	Moderate	Minor	Don't Know	Not Applicable
Time or Cost Savings (Operational)					
Improved Mission Compliance (Operational)					
Improved Products or Services (Customer Service)					
Improved Response or Timeliness (Customer Service)					
Improved Customer Experience (Customer Service)					
Improved Education or Public Safety (Societal Benefits)					
Environmental Benefits (Societal Benefits)					
Human Lives Saved (Societal Benefits)					

Other (please specify benefit and its relative value):

58. Briefly describe the major new benefits from the prior question.

Enter text below (100 word limit):

Hydrography Information Requirements Survey

Part 2.1: Mission Critical Activity Requirements for Hydrography Informatio...

Benefits of Hydrography Information

59. What <u>new</u> operational benefits, in dollars, would your program likely receive if all of your hydrographic information requirements were met for the selected Mission Critical Activity? Please consider quantifiable cost savings, mission compliance, products and service improvements and customer experience benefits when responding to this question. Do not include dollar benefits for societal benefits (improved education and safety, environmental benefits, human lives saved).

<u>This is one of yourmost important responses to this survey and will help build the Business case for improving hydrographic dataand information. Careful consideration</u> <u>should be given to identifying potential benefits.</u>

Enter whole number without dollar sign.
If your number is greater than 999,999, please include the units for example, 1 million or 2.3 billion:

60. Do you have additional Mission Critical Activities requiring Hydrographic information?

- Yes
- No

Hydrography Information Requirements Survey

Part 3: Required Hydrography Data/Information Access Methods

As information technology evolves, the USGS has worked to keep pace with the most appropriate ways for provisioning hydrography data and related information. This last series of questions apply to your program in general and not to the individual Mission Critical Activities.

Hydrography Information Requirements Survey

Part 3: Required Hydrography Data/Information Access Methods

61. For your program (all identified Mission Critical Activities), what geographic extents would best address your hydrographic data access requirements?

Please select all that are required:

- 12-digit HydrologicUnits
- 8-digit Hydrologic Units
- 6-digit Hydrologic Units
- 4-digit Hydrologic Units
- 2-digit Hydrologic Units
- NHDPlus Catchments
- State or Territory
- Conterminous United States
- Nationwide including Alaska and Hawaii
- User defined map extent
- User defined irregular area (polygon)
- I don't know
- *Other (please specify):*

Hydrography Information Requirements Survey

62. For your program (all identified Mission Critical Activities), please identify required data types (formats).

Check all that are required:

- Point, line, polygon - Open Geospatial Consortium (OGC) conformant (for example, WaterML, GeoJSON)
- Point, line, polygon – Esri shapefiles
- Point, line, polygon – Esri file geodatabase
- Raster – NetCDF
- Raster – GeoTIFF
- Raster – NITF
- Raster – Esri Grid
- *Other format (please specify):*

Hydrography Information Requirements Survey

Part 3: Required Hydrography Data/Information Access Methods

63. For your program, please rate the importance of each data or service access method.

	Required	Highly Desirable	Nice To Have	Not Required
Services to discover standard data products				
Services to download standard data products				
Services to create and download customized data products				
Services to dynamically use data with client-based software (like a browser, GIS, or to feed other services)				
Services to visualize cartographically rendered and symbolized hydrography data				
Services that allow combination of visualizations with other visualization services (mash-ups)				
Services to create generalized versions of hydrography (different scales and level of detail)				
Services to support online analysis of hydrography information (such as StreamStats)				

Hydrography Information Requirements Survey

Part 3: Required Hydrography Data/Information Access Methods

64. For your program the level of hydrographic data integration with elevation data may be important. Please rate each type of elevation-hydrography integration as it relates to your program requirements.

	Required	Highly Desirable	Nice To Have	Not Required
Rivers and streams in the hydrography dataset align with channels as defined from the elevation data at 1:12,000-scale or larger (3 meter DEM)				
Objects defined by elevation, such as a levees, are linked to a particular river in the hydrography dataset				
Hydrography and elevation data are packaged in a single product such as a TIN or a 3-D dataset				
Hydrography data (streams, streamgages, dams, hydrologicunits) along with elevation data (elevations, catchments, levees, floodplains) coexist within a common data model				
Perform synthesis such that streamflow can be estimated from elevation-based drainage area and other factors				
Produce data derivatives such that gradient can be calculated on a stream using elevation data				
Manage hydrography and elevation data as a unified activity always keeping both datasets synchronized with one another				
Ensure that hydrography and elevation data represent a similar point in time				
Both hydrography and elevation data are delivered in unison rather than two separate operations				

Hydrography Information Requirements Survey

Part 3: Required Hydrography Data/Information Access Methods

65. Elevation data is considered an important theme when working with hydrographic data. Specify the level of integration for raster elevation and hydrography data necessary for your work.

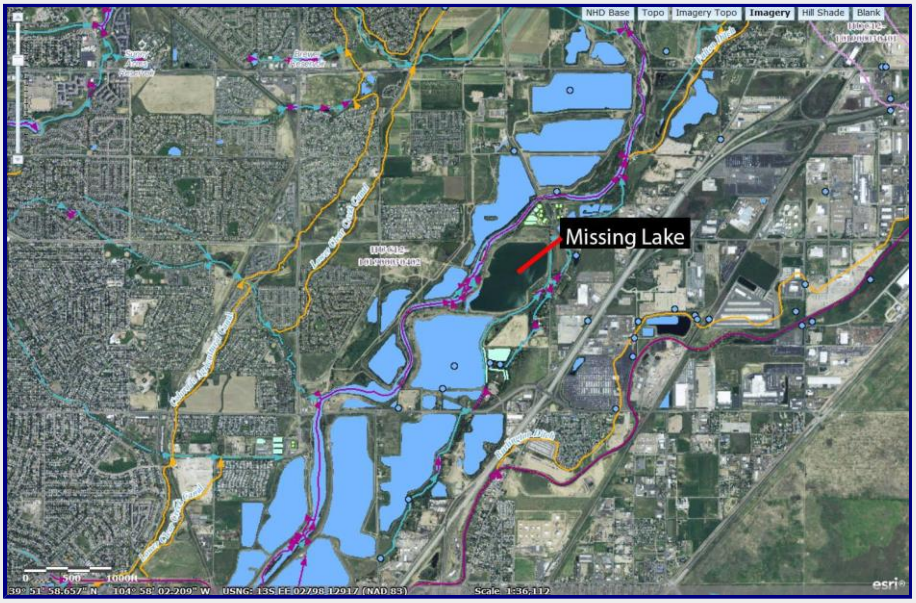
	Required	Highly Desirable	Nice To Have	Not Required
Determine new flow paths across the land surface into existing stream channels				
Determine feature on the hydrographic network to which a point (with elevation value) is connected				
Determine the actual pointlocation (within a DEM cell) on the hydrographic network to which a point is connected				

Hydrography Information Requirements Survey

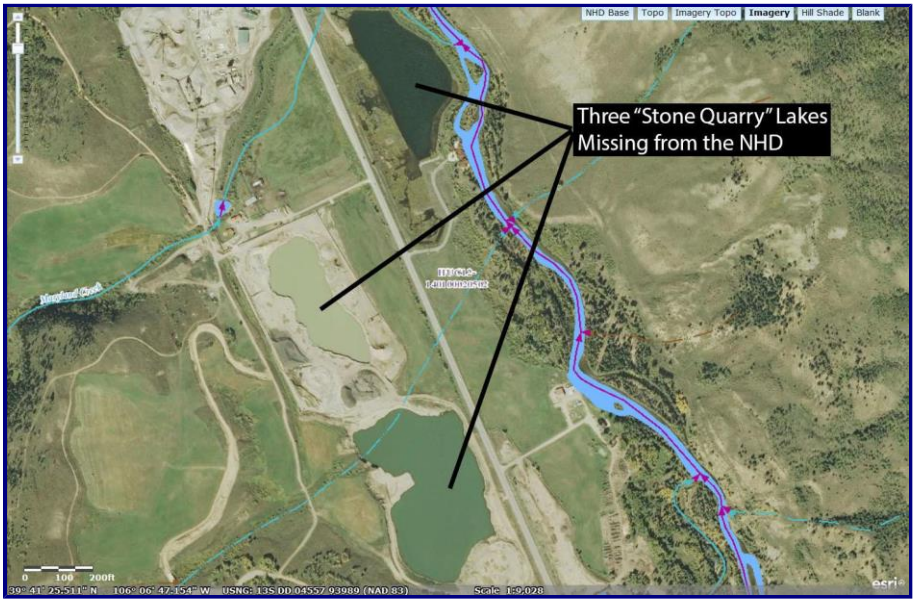
Part 3: Required Hydrography Data/Information Access Methods

66. The map examples in this question illustrate common errors found in hydrographic datasets. For each map example listed below, please select a response that most closely represents the impact to your organization.

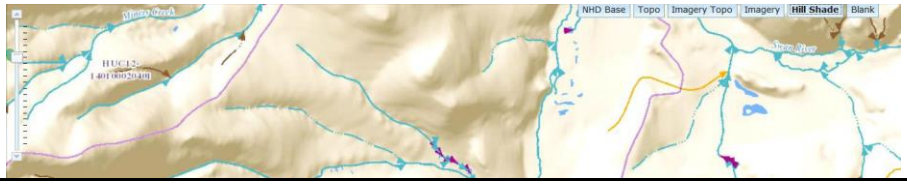
In a series of lakes formed at gravel pits, one lake is missing from the NHD

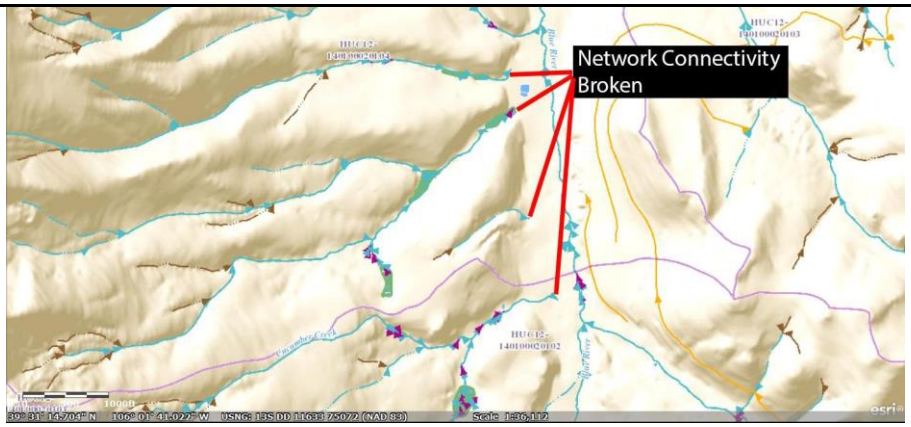


In a series of lakes formed at gravel pits, all lakes are missing from the NHD

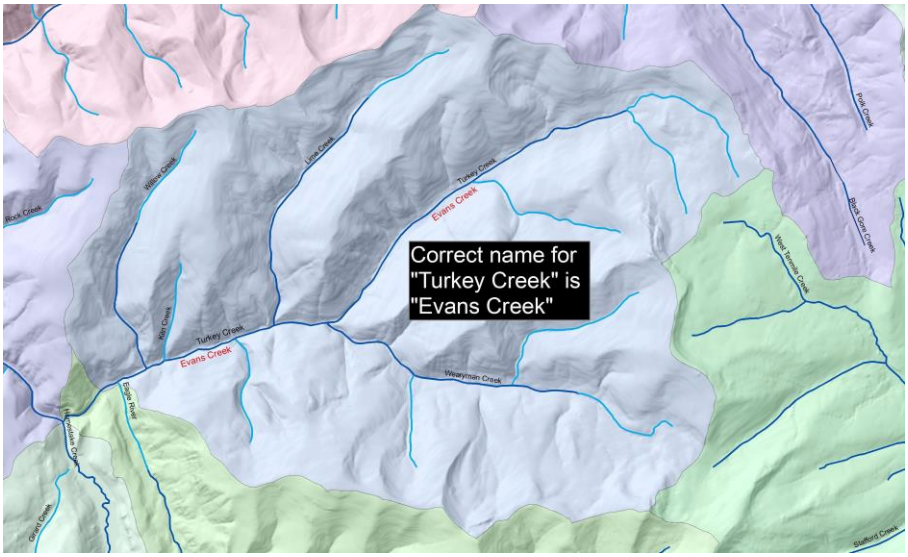


In a series of tributary streams, several streams do not connect with the main river

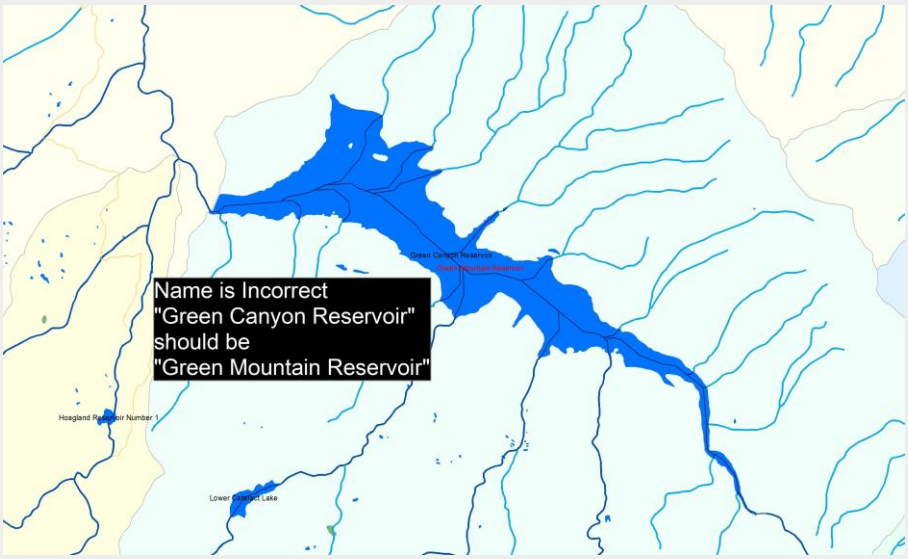




A perennial stream is misnamed

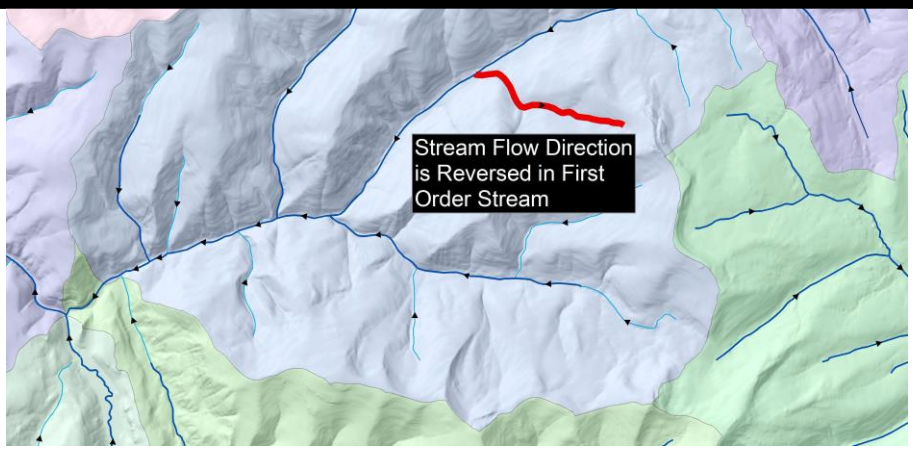


A large reservoir is misnamed

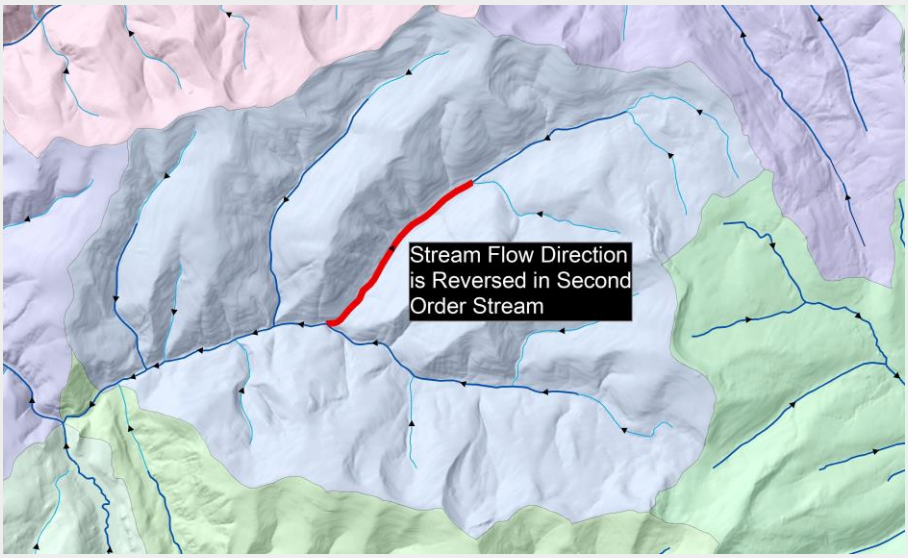


A first order stream flow direction is reversed

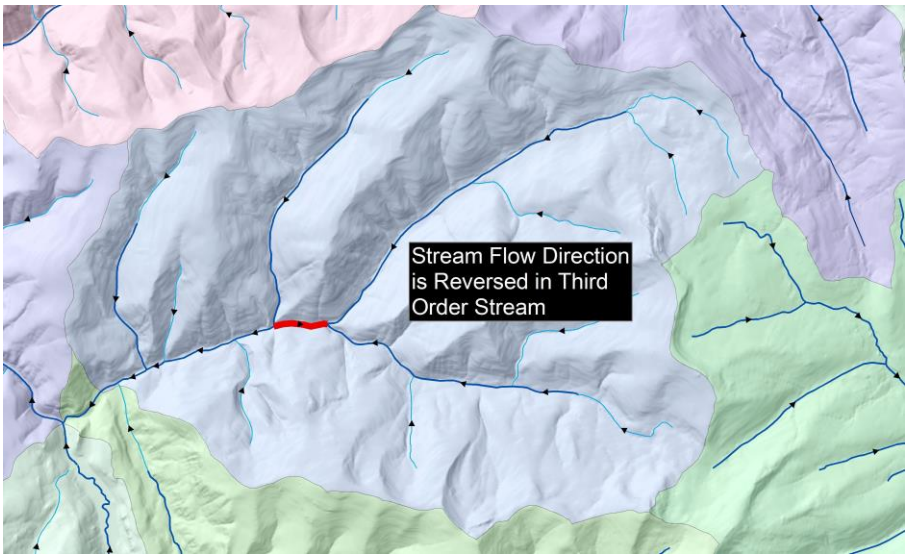
Hydrography Information Requirements Survey



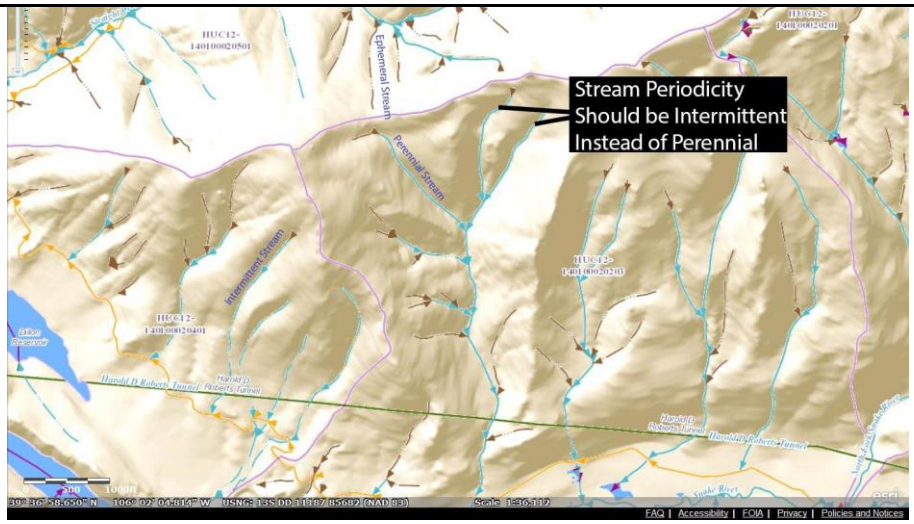
A second order stream flow direction is reversed



A third order stream flow direction is reversed



Two first order streams coded as perennial should be intermittent

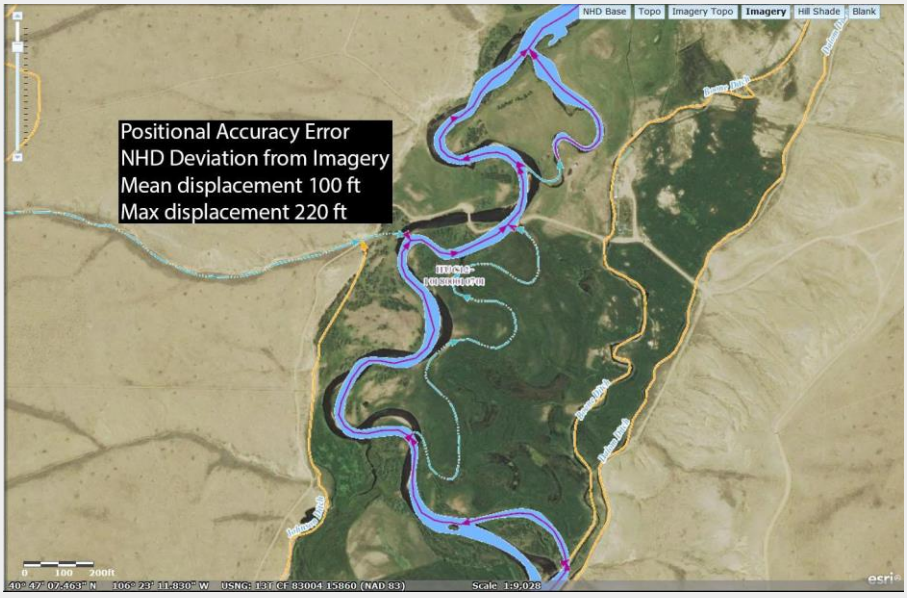

Stream Periodicity
Should be Intermittent
Instead of Perennial
Ephemeral Stream
Perennial Stream
Intermittent Stream
HUC12-
14010002050I
HUC12-
14010002040I
HUC12-
14010002020I
HUC12-
14010002030
FAQ | Accessibility | FOIA | Privacy | Policies and Notices

Hydrography Information Requirements Survey

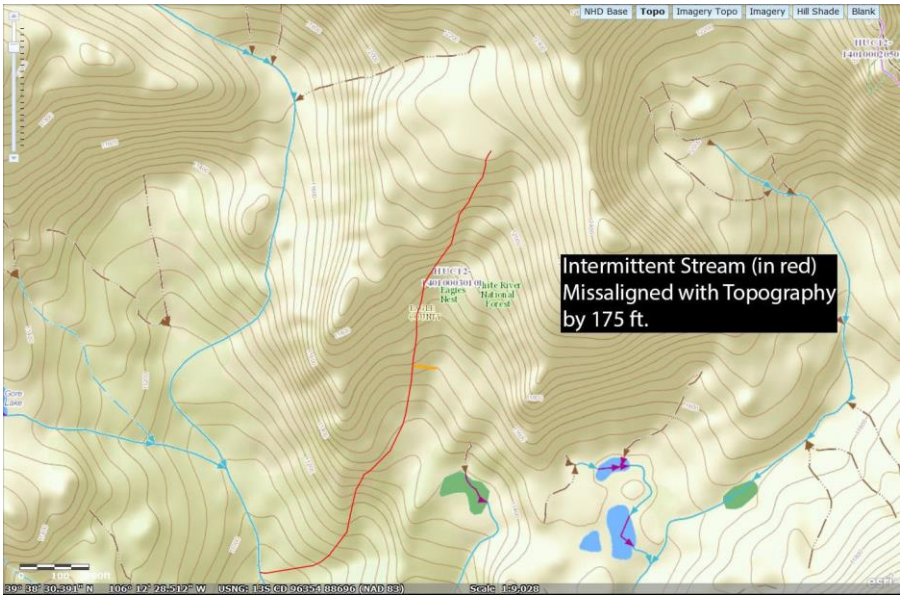
Part 3: Required Hydrography Data/Information Access Methods

67. The map examples in this question illustrate common positional accuracy errors found in hydrographic datasets. For each map example listed below, please select a response that most closely represents the impact to your organization.

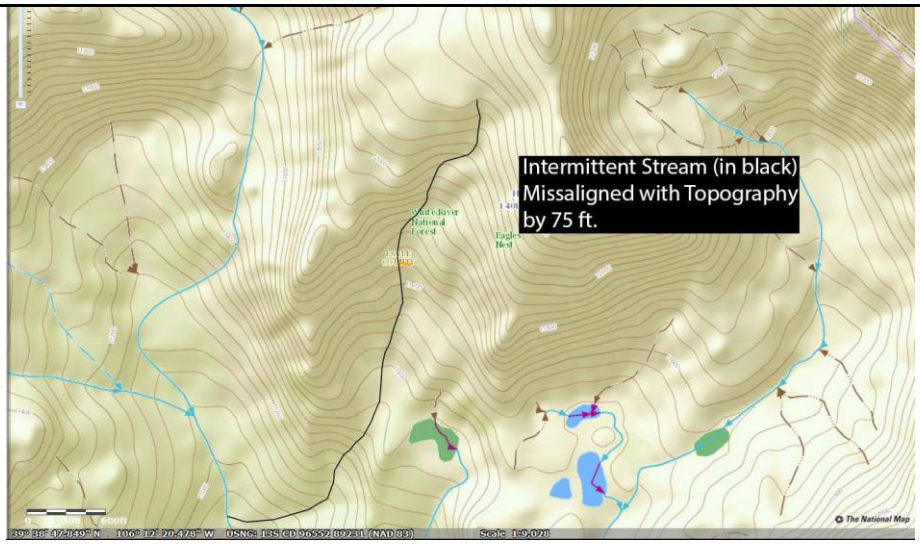
A meandering river represented in the NHD is overlaid over a contemporary image of the river. The position of the meanders has deviated over time with a mean error of 100 feet and a maximum error of 200 feet.



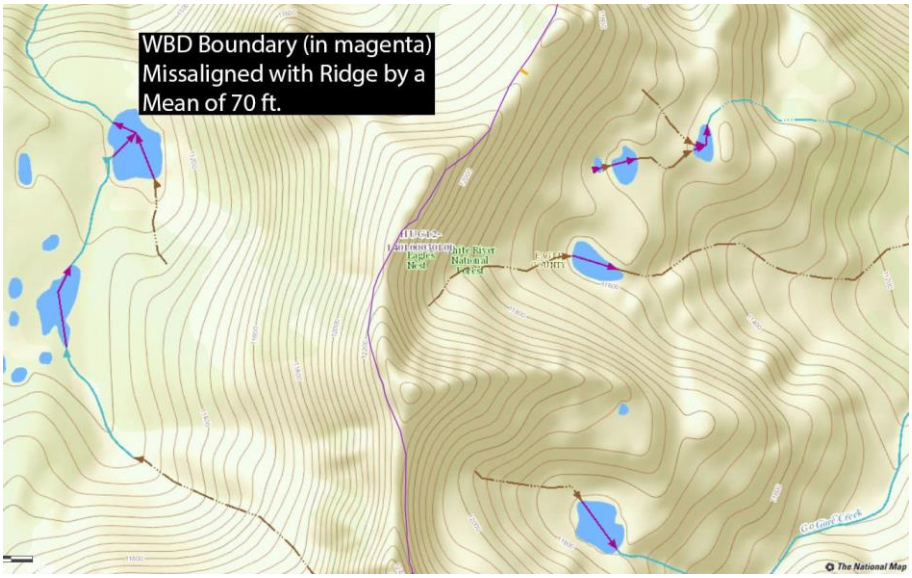
An intermittent stream represented in the NHD is portrayed along with contours and shaded terrain. The stream appears to be misaligned with the terrain by a mean of 175 feet.



An intermittent stream represented in the NHD is portrayed along with contours and shaded terrain. The stream appears to be misaligned with the terrain by a mean of 75 feet.



A ridge line in the WBD is portrayed along with contours and shaded terrain. The ridge line appears to be misaligned with the terrain by a mean of 70 feet.



Hydrography Information Requirements Survey

Part 3: Required Hydrography Data/Information Access Methods

68. How accurate does the area of elevation-derived catchments need to be, relative to their true ground position (reality)?

- Within 1% of actual area
- Within 5% of actual area
- Within 10% of actual area

69. Differences in the way the WBD Hydrologic Units and NHDPlus catchments are defined lead to the situation that one cannot simply aggregate whole NHDPlus catchments to create replicas of the hydrologic units. How much of a problem does this situation pose to your program (all specified Mission Critical Activities)?

- Major problem – data can not be used for Mission Critical Activity
- Significant problem, but we have workarounds
- Minor problem, requires some intervention
- No problem at all

70. Would your program use a simple web map tool to highlight and report errors in the spatial hydrographic data?

Please select the response that best fits your program:

- Yes
- Probably
- Maybe
- No

Hydrography Information Requirements Survey

71. If your program reported an error in the hydrographic data, how quickly would that error need to be resolved?

Please select the longest acceptable resolution time for your program:

- Within 1 day
- Within 2-30 days
- Within 1-2 months
- Within 3-6 months
- Within 1 year

72. Please provide any final comments that you wish to make that were not covered in the questions asked above:

(200 word limit)

Thank you for responding to this hydrographic information requirements survey. The information that you have provided will be summarized for the Federal Agency, Commission, State, Territory, Tribal, or Non-government organization that you represent. The Point of Contact for your organization will then have an opportunity to review and edit the summary requirements that will feed into the full hydrographic information requirements document. The final study report will be the primary source of information used to develop recommendations for improved national hydrographic data and related products.