

# Hydrography Information Requirements Survey

## Introduction

**OMB Control Number: 1028-NEW**

**Expiration Date: mm/dd/yyyy**

### ***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. Although you are not expected to spend a great deal of time researching the response for each question, you will have the option to exit the survey and return at a later time. If you have any comments about the survey, you may send them to the USGS Collections Officer at [gs-info\\_collections@usgs.gov](mailto: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. Responses 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, program, State, organization, etc.**

Last Name:

First Name:

Agency, state, 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**

# Hydrography Information Requirements Survey

Southwestern Power Administration  
(SWPA)

Western Area Power Administration  
(WAPA)

## Commission (IBWC)

International Joint Commission (IJC)

Nuclear Regulatory Commission (NRC)

## Department of Homeland Security (DHS)

Federal Emergency Management Agency  
(FEMA)

United States Coast Guard (USCG)

Department of State (DOS)

**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:*

- |                                   |                                      |                                       |
|-----------------------------------|--------------------------------------|---------------------------------------|
| <input type="radio"/> Alabama     | <input type="radio"/> Louisiana      | <input type="radio"/> Ohio            |
| <input type="radio"/> Alaska      | <input type="radio"/> Maine          | <input type="radio"/> Oklahoma        |
| <input type="radio"/> Arizona     | <input type="radio"/> Maryland       | <input type="radio"/> Oregon          |
| <input type="radio"/> Arkansas    | <input type="radio"/> Massachusetts  | <input type="radio"/> Pennsylvania    |
| <input type="radio"/> California  | <input type="radio"/> Michigan       | <input type="radio"/> Rhode Island    |
| <input type="radio"/> Colorado    | <input type="radio"/> Minnesota      | <input type="radio"/> South Carolina  |
| <input type="radio"/> Connecticut | <input type="radio"/> Mississippi    | <input type="radio"/> South Dakota    |
| <input type="radio"/> Delaware    | <input type="radio"/> Missouri       | <input type="radio"/> Tennessee       |
| <input type="radio"/> Florida     | <input type="radio"/> Montana        | <input type="radio"/> Texas           |
| <input type="radio"/> Georgia     | <input type="radio"/> Nebraska       | <input type="radio"/> Utah            |
| <input type="radio"/> Hawaii      | <input type="radio"/> Nevada         | <input type="radio"/> Vermont         |
| <input type="radio"/> Idaho       | <input type="radio"/> New Hampshire  | <input type="radio"/> Virginia        |
| <input type="radio"/> Illinois    | <input type="radio"/> New Jersey     | <input type="radio"/> Washington      |
| <input type="radio"/> Indiana     | <input type="radio"/> New Mexico     | <input type="radio"/> Washington D.C. |
| <input type="radio"/> Iowa        | <input type="radio"/> New York       | <input type="radio"/> West Virginia   |
| <input type="radio"/> Kansas      | <input type="radio"/> North Carolina | <input type="radio"/> Wisconsin       |
| <input type="radio"/> Kentucky    | <input type="radio"/> North Dakota   | <input type="radio"/> 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 your Tribal name?**

*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 Informatio...

**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 Informatio...

**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 Informatio...

**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.**

- |                                      |   |   |
|--------------------------------------|---|---|
| <input type="checkbox"/> Alabama     | <input type="checkbox"/> Maryland       | <input type="checkbox"/> Rhode Island             |
| <input type="checkbox"/> Alaska      | <input type="checkbox"/> Massachusetts  | <input type="checkbox"/> South Carolina           |
| <input type="checkbox"/> Arizona     | <input type="checkbox"/> Michigan       | <input type="checkbox"/> South Dakota             |
| <input type="checkbox"/> Arkansas    | <input type="checkbox"/> Minnesota      | <input type="checkbox"/> Tennessee                |
| <input type="checkbox"/> California  | <input type="checkbox"/> Mississippi    | <input type="checkbox"/> Texas                    |
| <input type="checkbox"/> Colorado    | <input type="checkbox"/> Missouri       | <input type="checkbox"/> Utah                     |
| <input type="checkbox"/> Connecticut | <input type="checkbox"/> Montana        | <input type="checkbox"/> Vermont                  |
| <input type="checkbox"/> Delaware    | <input type="checkbox"/> Nebraska       | <input type="checkbox"/> Virginia                 |
| <input type="checkbox"/> Florida     | <input type="checkbox"/> Nevada         | <input type="checkbox"/> Washington               |
| <input type="checkbox"/> Georgia     | <input type="checkbox"/> New Hampshire  | <input type="checkbox"/> Washington D.C.          |
| <input type="checkbox"/> Hawaii      | <input type="checkbox"/> New Jersey     | <input type="checkbox"/> West Virginia            |
| <input type="checkbox"/> Idaho       | <input type="checkbox"/> New Mexico     | <input type="checkbox"/> Wisconsin                |
| <input type="checkbox"/> Illinois    | <input type="checkbox"/> New York       | <input type="checkbox"/> Wyoming                  |
| <input type="checkbox"/> Indiana     | <input type="checkbox"/> North Carolina |   |
| <input type="checkbox"/> Iowa        | <input type="checkbox"/> North Dakota   | <b>Territories</b>                                |
| <input type="checkbox"/> Kansas      | <input type="checkbox"/> Ohio           | <input type="checkbox"/> American Samoa           |
| <input type="checkbox"/> Kentucky    | <input type="checkbox"/> Oklahoma       | <input type="checkbox"/> Guam                     |
| <input type="checkbox"/> Louisiana   | <input type="checkbox"/> Oregon         | <input type="checkbox"/> Northern Mariana Islands |
| <input type="checkbox"/> Maine       | <input type="checkbox"/> Pennsylvania   | <input type="checkbox"/> Puerto Rico              |
|                                      |   | <input type="checkbox"/> Virgin Islands           |

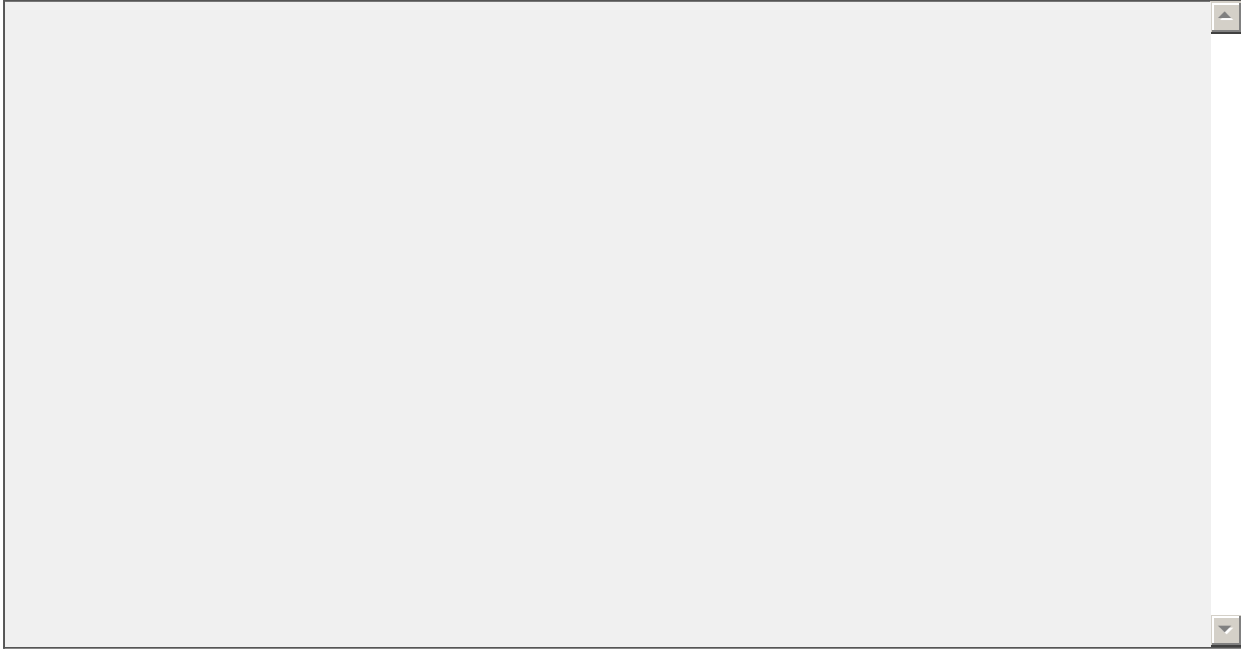
**16. Do you have any sub-regions (counties or cities) where hydrographic information is required?**

- Yes
- No

# Hydrography Information Requirements Survey

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

**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...

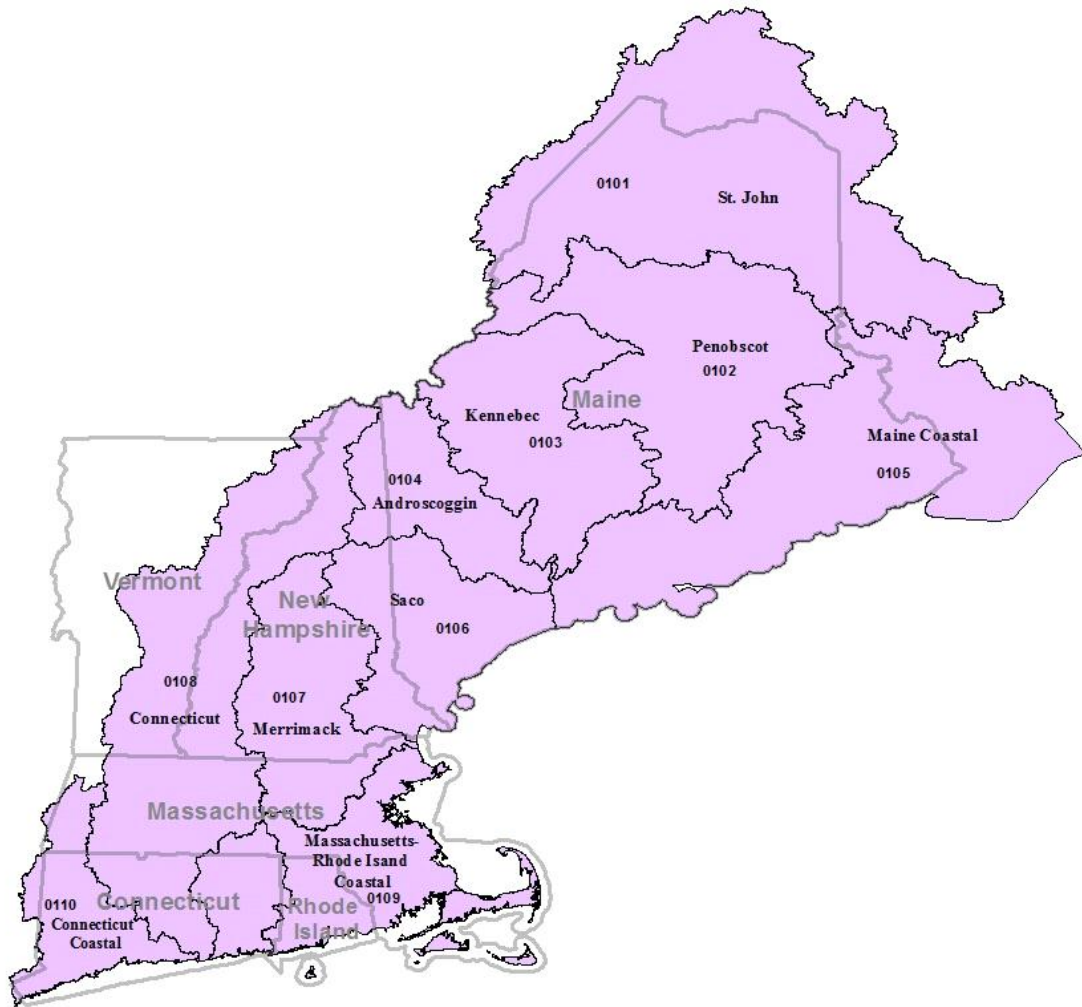
**18. If your geographic area requirements pertain to hydrologic units, please check the major basin area below. This will lead you to select individual HUC-4 codes for your specific hydrologic units.**

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

# Hydrography Information Requirements Survey

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

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



- |  |   |  |
|--|---|--|
| <input type="checkbox"/> 0101 - St. John     | <input type="checkbox"/> 0105 - Maine Coastal | <input type="checkbox"/> 0109 - Massachusetts-Rhode Island Coastal |
| <input type="checkbox"/> 0102 - Penobscot    | <input type="checkbox"/> 0106 - Saco          | <input type="checkbox"/> 0110 - Connecticut Coastal                |
| <input type="checkbox"/> 0103 - Kennebec     | <input type="checkbox"/> 0107 - Merrimack     | <input type="checkbox"/> All codes                                 |
| <input type="checkbox"/> 0104 - Androscoggin | <input type="checkbox"/> 0108 - Connecticut   |  |



# Hydrography Information Requirements Survey

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

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

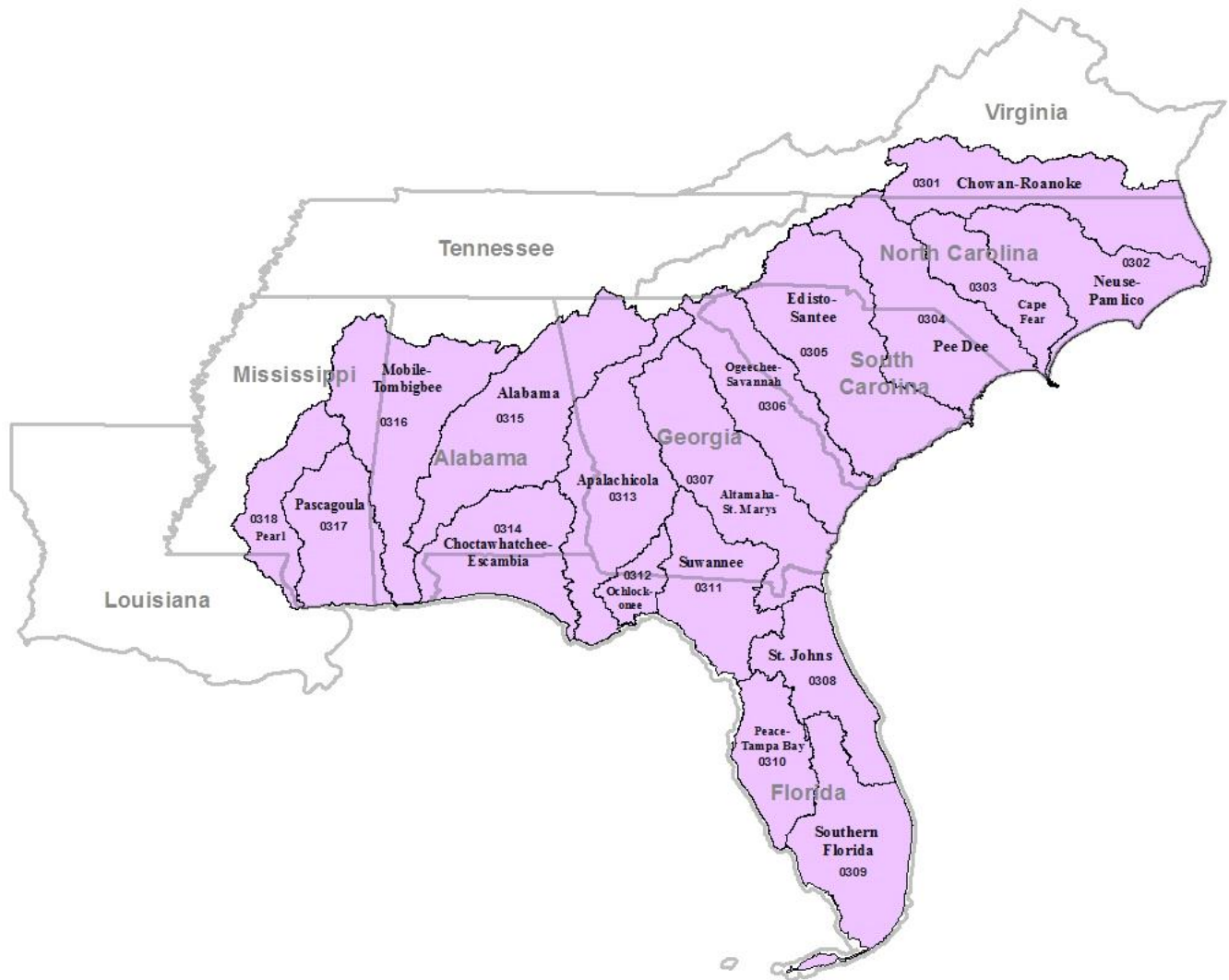


- |   |  |
|---|--|
| <input type="checkbox"/> 0202 - Upper Hudson                  | <input type="checkbox"/> 0206 - Upper Chesapeake |
| <input type="checkbox"/> 0203 - Lower Hudson-Long Island      | <input type="checkbox"/> 0207 - Potomac          |
| <input type="checkbox"/> 0204 - Delaware-Mid Atlantic Coastal | <input type="checkbox"/> 0208 - Lower Chesapeake |
| <input type="checkbox"/> 0205 - Susquehanna                   | <input type="checkbox"/> All codes               |

# Hydrography Information Requirements Survey

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

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



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

# Hydrography Information Requirements Survey

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

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



- |  |  |   |
|--|--|---|
| <input type="checkbox"/> 0401 - Western Lake Superior                    | <input type="checkbox"/> 0407 - Northwestern Lake Huron            | <input type="checkbox"/> 0413 - Southwestern Lake Ontario                           |
| <input type="checkbox"/> 0402 - Southern Lake Superior-Lake Superior     | <input type="checkbox"/> 0408 - Southwestern Lake Huron-Lake Huron | <input type="checkbox"/> 0414 - Southeastern Lake Ontario                           |
| <input type="checkbox"/> 0403 - Northwestern Lake Michigan               | <input type="checkbox"/> 0409 - St. Clair-Detroit                  | <input type="checkbox"/> 0415 - Northeastern Lake Ontario-Lake Ontario-St. Lawrence |
| <input type="checkbox"/> 0404 - Southwestern Lake Michigan               | <input type="checkbox"/> 0410 - Western Lake Erie                  | <input type="checkbox"/> All codes  |
| <input type="checkbox"/> 0405 - Southeastern Lake Michigan               | <input type="checkbox"/> 0411 - Southern Lake Erie                 |   |
| <input type="checkbox"/> 0406 - Northeastern Lake Michigan-Lake Michigan | <input type="checkbox"/> 0412 - Lake Erie                          |   |

# Hydrography Information Requirements Survey

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

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



- |   |  |  |
|---|--|--|
| <input type="checkbox"/> 0501 - Allegheny   | <input type="checkbox"/> 0506 - Scioto               | <input type="checkbox"/> 0511 - Green      |
| <input type="checkbox"/> 0502 - Monongahela | <input type="checkbox"/> 0507 - Big Sandy-Guyandotte | <input type="checkbox"/> 0512 - Wabash     |
| <input type="checkbox"/> 0503 - Upper Ohio  | <input type="checkbox"/> 0508 - Great Miami          | <input type="checkbox"/> 0513 - Cumberland |
| <input type="checkbox"/> 0504 - Muskingum   | <input type="checkbox"/> 0509 - Middle Ohio          | <input type="checkbox"/> 0514 - Lower Ohio |
| <input type="checkbox"/> 0505 - Kanawha     | <input type="checkbox"/> 0510 - Kentucky-Licking     | <input type="checkbox"/> All codes         |

# Hydrography Information Requirements Survey

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

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

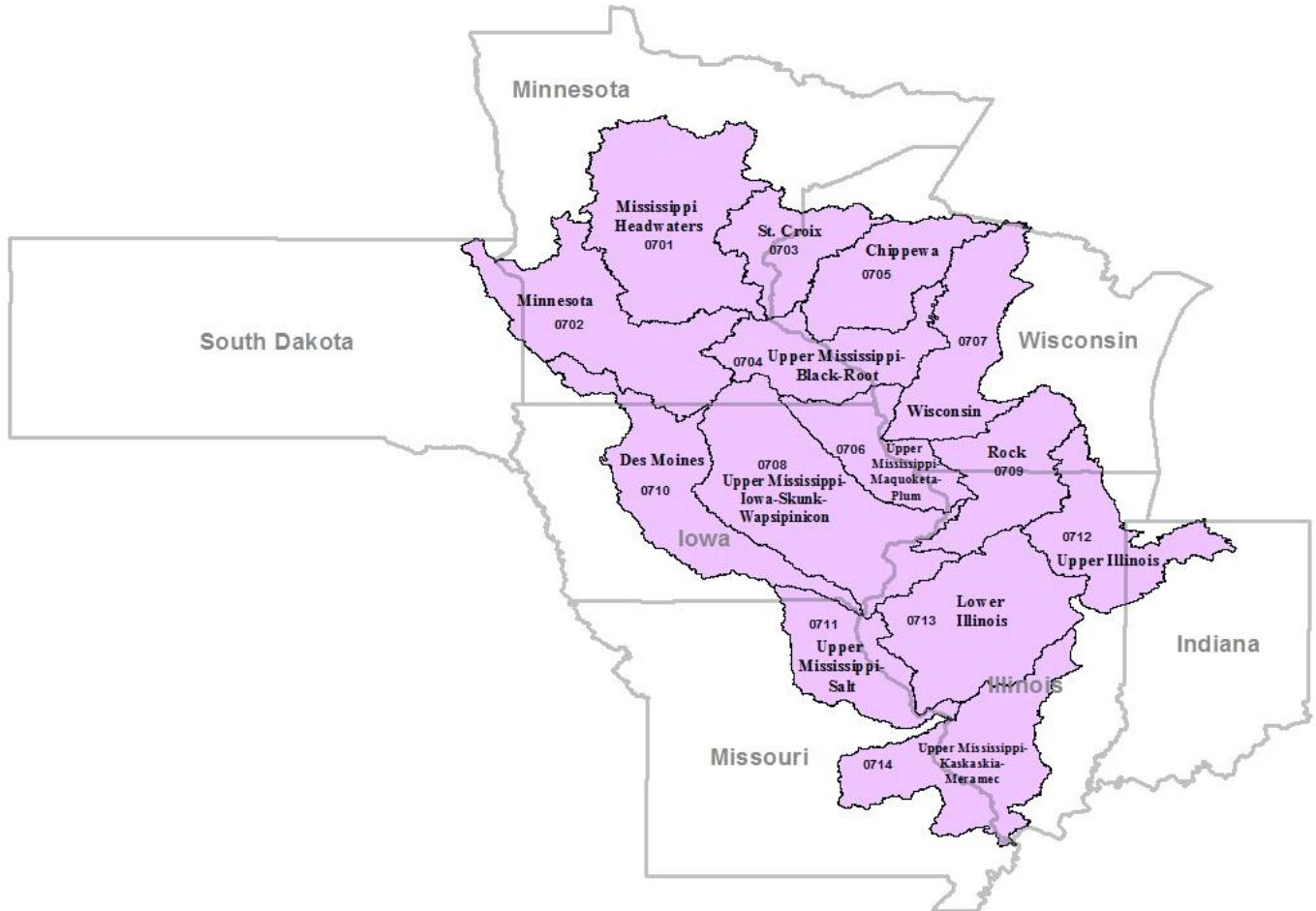


- 0601 - Upper Tennessee
- 0602 - Middle Tennessee-Hiwassee
- 0603 - Middle Tennessee-Elk
- 0604 - Lower Tennessee
- All codes

# Hydrography Information Requirements Survey

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

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

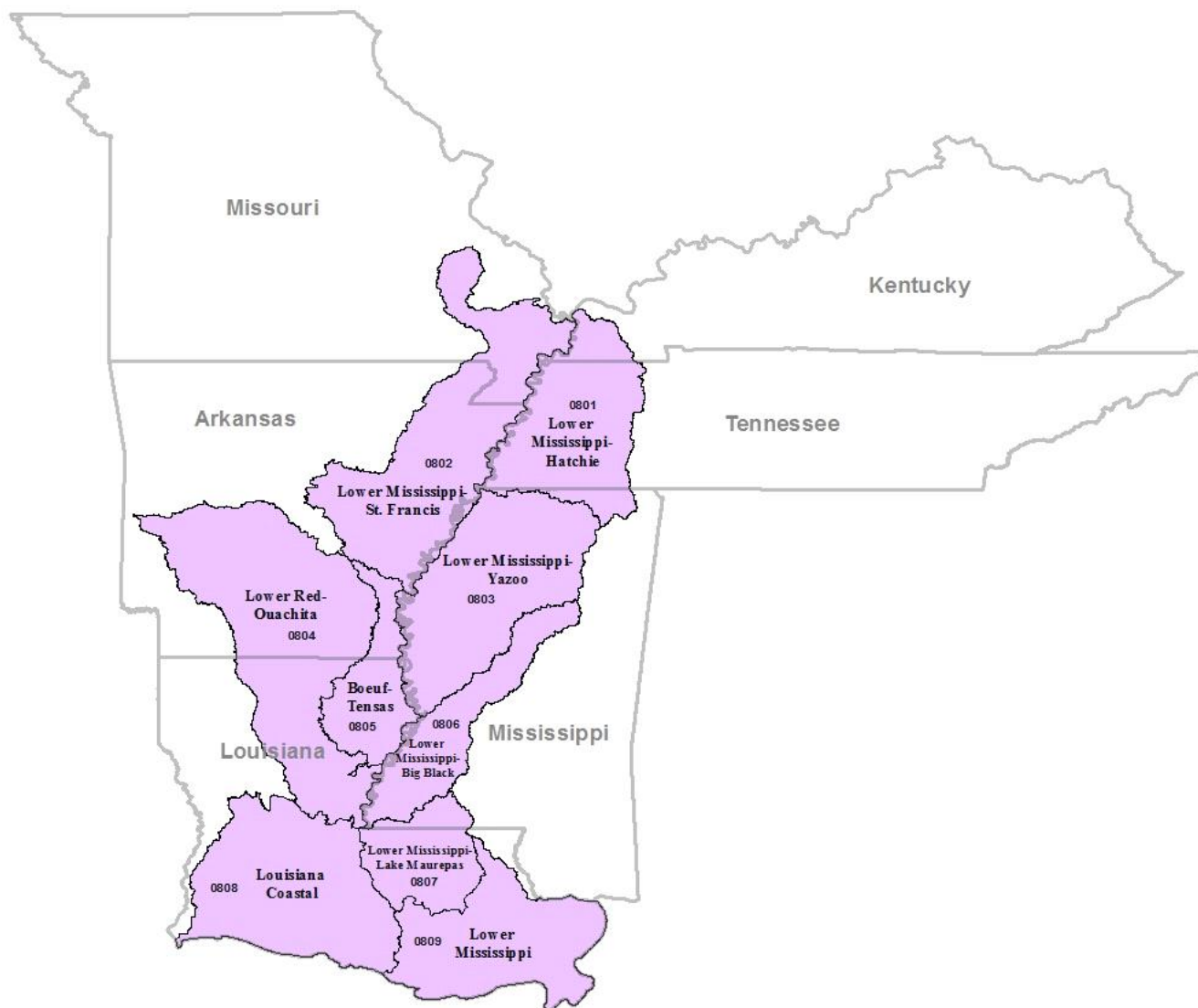


- |  |   |   |
|--|---|---|
| <input type="checkbox"/> 0701 - Mississippi Headwaters       | <input type="checkbox"/> 0706 - Upper Mississippi-Maquoketa-Plum          | <input type="checkbox"/> 0711 - Upper Mississippi-Salt              |
| <input type="checkbox"/> 0702 - Minnesota                  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

# Hydrography Information Requirements Survey

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

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

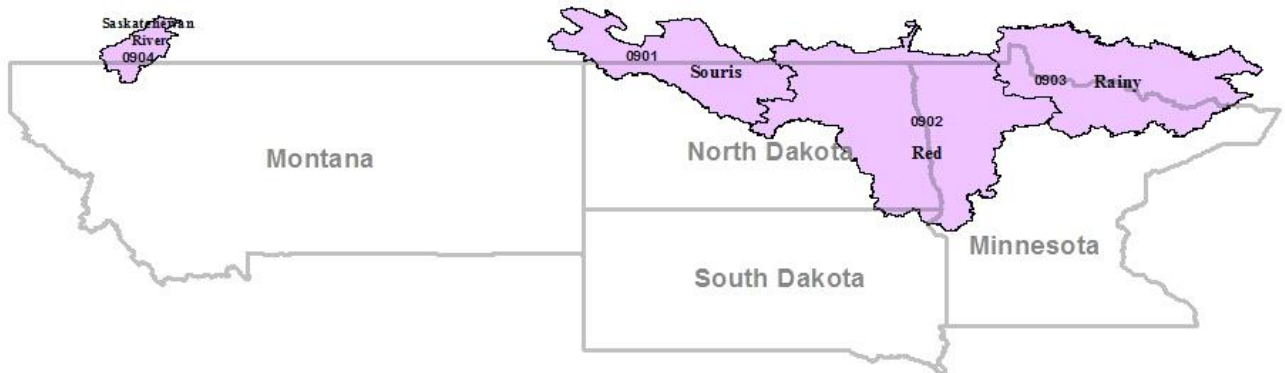


- |   |   |
|---|---|
| <input type="checkbox"/> 0801 - Lower Mississippi-Hatchie     | <input type="checkbox"/> 0806 - Lower Mississippi-Big Black     |
| <input type="checkbox"/> 0802 - Lower Mississippi-St. Francis | <input type="checkbox"/> 0807 - Lower Mississippi-Lake Maurepas |
| <input type="checkbox"/> 0803 - Lower Mississippi-Yazoo       | <input type="checkbox"/> 0808 - Louisiana Coastal               |
| <input type="checkbox"/> 0804 - Lower Red-Ouachita            | <input type="checkbox"/> 0809 - Lower Mississippi               |
| <input type="checkbox"/> 0805 - Boeuf-Tensas                  | <input type="checkbox"/> All codes                              |

# Hydrography Information Requirements Survey

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

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



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



# Hydrography Information Requirements Survey

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

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



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

# Hydrography Information Requirements Survey

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

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

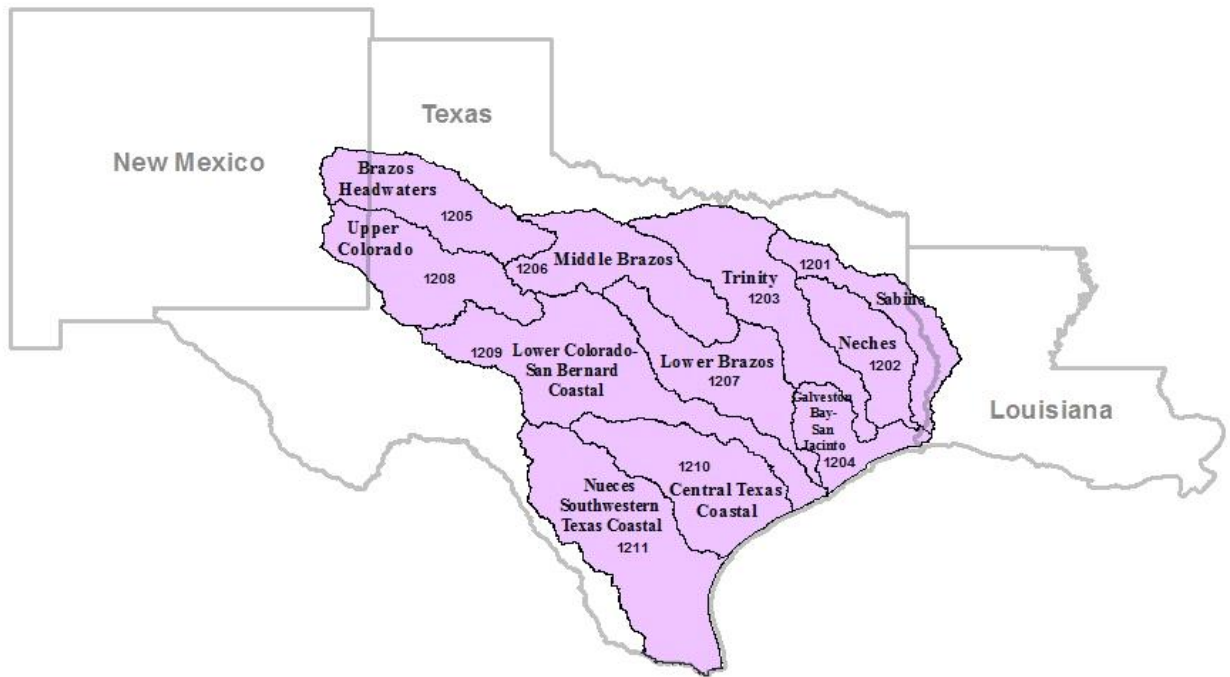


- |   |   |  |
|---|---|--|
| <input type="checkbox"/> 1101 - Upper White     | <input type="checkbox"/> 1106 - Arkansas-Keystone | <input type="checkbox"/> 1111 - Lower Arkansas |
| <input type="checkbox"/> 1102 - Upper Arkansas  | <input type="checkbox"/> 1107 - Neosho-Verdigris  | <input type="checkbox"/> 1112 - Red Headwaters |
| <input type="checkbox"/> 1103 - Middle Arkansas | <input type="checkbox"/> 1108 - Upper Canadian    | <input type="checkbox"/> 1113 - Red-Washita    |
| <input type="checkbox"/> 1104 - Upper Cimarron  | <input type="checkbox"/> 1109 - Lower Canadian    | <input type="checkbox"/> 1114 - Red-Sulphur    |
| <input type="checkbox"/> 1105 - Lower Cimarron  | <input type="checkbox"/> 1110 - North Canadian    | <input type="checkbox"/> All codes             |

# Hydrography Information Requirements Survey

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

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



- |   |  |
|---|--|
| <input type="checkbox"/> 1201 - Sabine                    | <input type="checkbox"/> 1207 - Lower Brazos                       |
| <input type="checkbox"/> 1202 - Neches                    | <input type="checkbox"/> 1208 - Upper Colorado                     |
| <input type="checkbox"/> 1203 - Trinity                   | <input type="checkbox"/> 1209 - Lower Colorado-San Bernard Coastal |
| <input type="checkbox"/> 1204 - Galveston Bay-San Jacinto | <input type="checkbox"/> 1210 - Central Texas Coastal              |
| <input type="checkbox"/> 1205 - Brazos Headwaters         | <input type="checkbox"/> 1211 - Nueces Southwestern Texas Coastal  |
| <input type="checkbox"/> 1206 - Middle Brazos             | <input type="checkbox"/> All codes                                 |

# Hydrography Information Requirements Survey

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

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



- |   |   |
|---|---|
| <input type="checkbox"/> 1301 - Rio Grande Headwaters     | <input type="checkbox"/> 1306 - Upper Pecos       |
| <input type="checkbox"/> 1302 - Rio Grande-Elephant Butte | <input type="checkbox"/> 1307 - Lower Pecos       |
| <input type="checkbox"/> 1303 - Rio Grande-Mimbres        | <input type="checkbox"/> 1308 - Rio Grande-Falcon |
| <input type="checkbox"/> 1304 - Rio Grande-Amistad        | <input type="checkbox"/> 1309 - Lower Rio Grande  |
| <input type="checkbox"/> 1305 - Rio Grande Closed Basins  | <input type="checkbox"/> All codes                |

# Hydrography Information Requirements Survey

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

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



1401 - Colorado Headwaters

1402 - Gunnison

1403 - Upper Colorado-Dolores

1404 - Great Divide-Upper Green

1405 - White-Yampa

1406 - Lower Green

1407 - Upper Colorado-Dirty Devil

1408 - San Juan

All codes

# Hydrography Information Requirements Survey

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

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



1501 - Lower Colorado-Lake Mead

1502 - Little Colorado

1503 - Lower Colorado

1504 - Upper Gila

1505 - Middle Gila

1506 - Salt

1507 - Lower Gila

1508 - Sonora

All codes

# Hydrography Information Requirements Survey

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

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

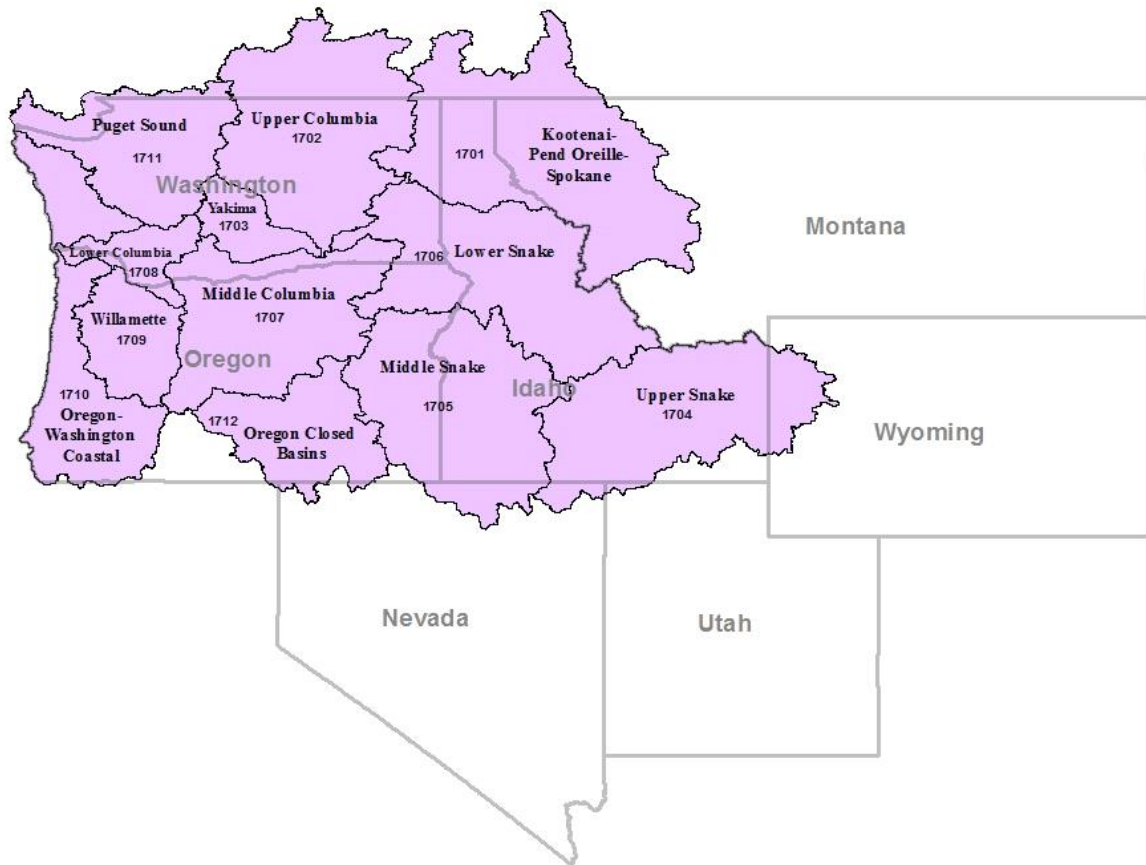


- 1601 - Bear
- 1602 - Great Salt Lake
- 1603 - Escalante Desert-Sevier Lake
- 1604 - Black Rock Desert-Humboldt
- 1605 - Central Lahontan
- 1606 - Central Nevada Desert Basins
- All codes

# Hydrography Information Requirements Survey

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

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



- |   |   |
|---|---|
| <input type="checkbox"/> 1701 - Kootenai-Pend Oreille-Spokane | <input type="checkbox"/> 1708 - Lower Columbia            |
| <input type="checkbox"/> 1702 - Upper Columbia                | <input type="checkbox"/> 1709 - Willamette                |
| <input type="checkbox"/> 1703 - Yakima                        | <input type="checkbox"/> 1710 - Oregon-Washington Coastal |
| <input type="checkbox"/> 1704 - Upper Snake                   | <input type="checkbox"/> 1711 - Puget Sound               |
| <input type="checkbox"/> 1705 - Middle Snake                  | <input type="checkbox"/> 1712 - Oregon Closed Basins      |
| <input type="checkbox"/> 1706 - Lower Snake                   | <input type="checkbox"/> All codes                        |
| <input type="checkbox"/> 1707 - Middle Columbia               |   |



# Hydrography Information Requirements Survey

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

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

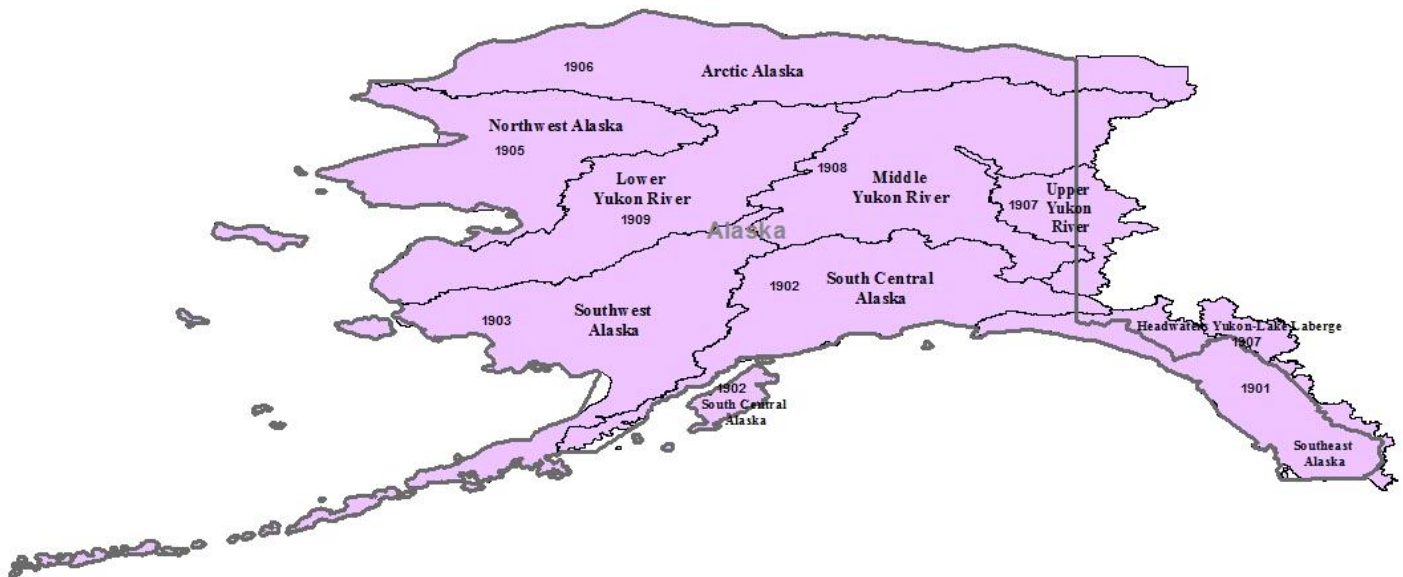


- |   |   |
|---|---|
| <input type="checkbox"/> 1801 - Klamath-Northern California Coastal | <input type="checkbox"/> 1807 - Southern California Coastal |
| <input type="checkbox"/> 1802 - Sacramento                          | <input type="checkbox"/> 1808 - North Lahontan              |
| <input type="checkbox"/> 1803 - Tulare-Buena Vista Lakes            | <input type="checkbox"/> 1809 - Northern Mojave-Mono Lake   |
| <input type="checkbox"/> 1804 - San Joaquin                         | <input type="checkbox"/> 1810 - Southern Mojave-Salton Sea  |
| <input type="checkbox"/> 1805 - San Francisco Bay                   | <input type="checkbox"/> All codes                          |
| <input type="checkbox"/> 1806 - Central California Coastal          |   |

# Hydrography Information Requirements Survey

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

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

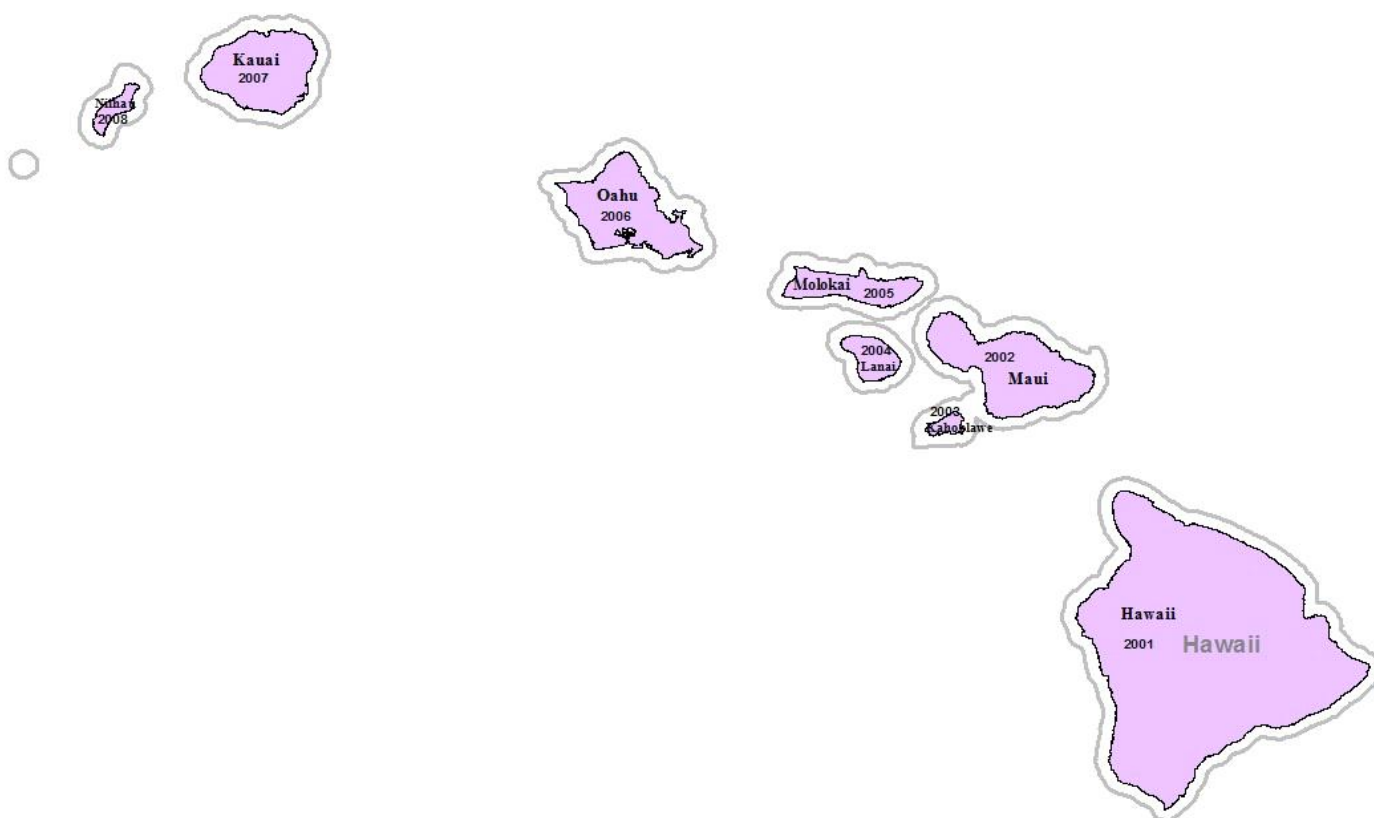


- |  |   |
|--|---|
| <input type="checkbox"/> 1901 - Southeast Alaska     | <input type="checkbox"/> 1906 - Arctic Alaska                                   |
| <input type="checkbox"/> 1902 - South Central Alaska | <input type="checkbox"/> 1907 - Upper Yukon River/Headwaters Yukon-Lake Laberge |
| <input type="checkbox"/> 1903 - Southwest Alaska     | <input type="checkbox"/> 1908 - Middle Yukon River                              |
| <input type="checkbox"/> 1905 - Northwest Alaska     | <input type="checkbox"/> 1909 - Lower Yukon River                               |
|  | <input type="checkbox"/> All codes  |

# Hydrography Information Requirements Survey

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

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



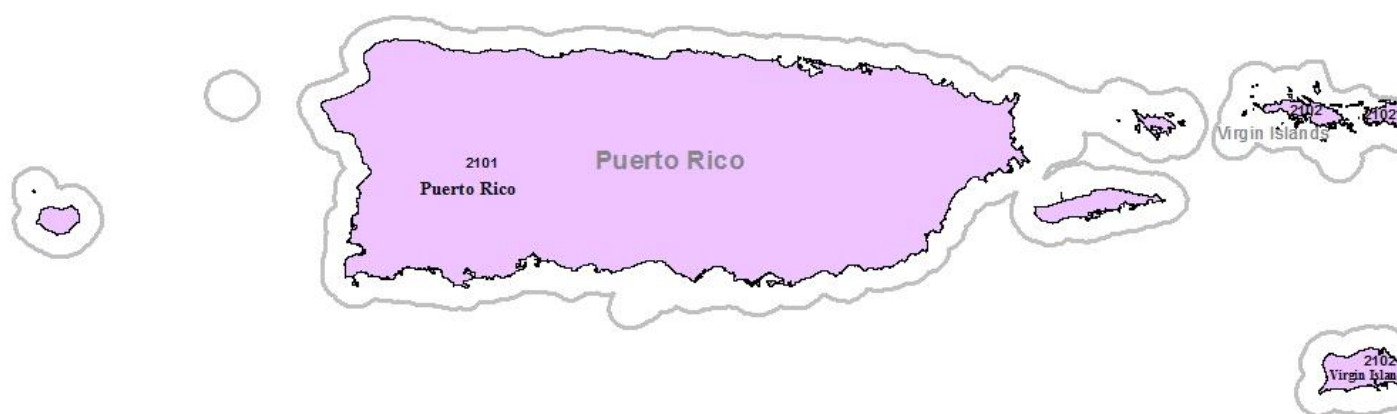
- 2001 - Hawaii
- 2002 - Maui
- 2003 - Kahoolawe
- 2004 - Lanai

- 2005 - Molokai
- 2006 - Oahu
- 2007 - Kauai
- 2008 - Niihau
- All codes

# Hydrography Information Requirements Survey

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

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

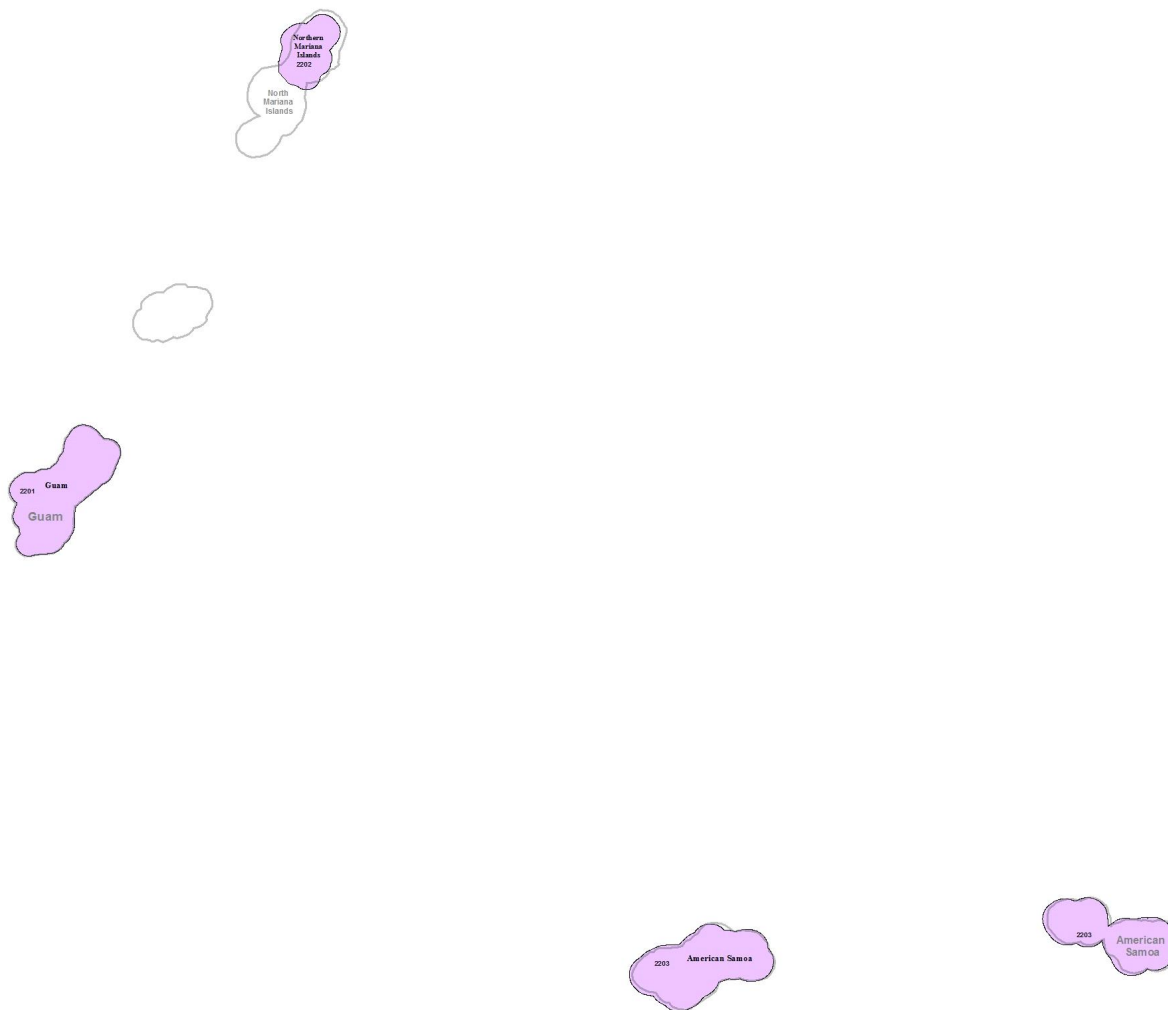


- 2101 - Puerto Rico
- 2102 - Virgin Islands
- All codes

# Hydrography Information Requirements Survey

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

**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 Informatio...

**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 Informatio...

**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 Informatio...

### 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 Informatio...

### 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 must be performed in order to meet your Mission Critical Activity requirements:

- [Network analysis](#) - Navigate up or downstream on network
- Network analysis – Calculate stream distance to any point on the network
- Network analysis – Calculate [time of travel](#) to another point on the network
- [Area analysis](#) – 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. [reach code](#)) 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 Informatio...

**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	<input type="text" value=""/>	<input type="text" value=""/>
Soils	<input type="text" value=""/>	<input type="text" value=""/>
Surficial Geology	<input type="text" value=""/>	<input type="text" value=""/>
<a href="#">Bathymetry</a>	<input type="text" value=""/>	<input type="text" value=""/>
Climate	<input type="text" value=""/>	<input type="text" value=""/>
Contaminant Sources	<input type="text" value=""/>	<input type="text" value=""/>
Elevation	<input type="text" value=""/>	<input type="text" value=""/>
Streamflow	<input type="text" value=""/>	<input type="text" value=""/>
Wetlands	<input type="text" value=""/>	<input type="text" value=""/>
Census (Population Statistics)	<input type="text" value=""/>	<input type="text" value=""/>
Aquifers	<input type="text" value=""/>	<input type="text" value=""/>
Point <a href="#">Discharges</a>	<input type="text" value=""/>	<input type="text" value=""/>
Water Use: <a href="#">Diversions</a>	<input type="text" value=""/>	<input type="text" value=""/>
EPA - National Pollutant Discharge Elimination System ( <a href="#">NPDES</a> )	<input type="text" value=""/>	<input type="text" value=""/>
EPA - STOrage and RETrieval Data Warehouse ( <a href="#">STORET</a> )	<input type="text" value=""/>	<input type="text" value=""/>
USACE - National Inventory of Dams ( <a href="#">NID</a> )	<input type="text" value=""/>	<input type="text" value=""/>
USDA - National Agriculture Statistics Service ( <a href="#">NASS</a> )	<input type="text" value=""/>	<input type="text" value=""/>

# Hydrography Information Requirements Survey

USFWS - National Wetlands Inventory

([NWI](#))

USGS National Water Information

System ([NWIS](#))

USGS National Water-Quality Assessment

Program ([NAWQA](#))

Other (please specify the importance and integration level):

**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 Informatio...

### *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 Informatio...

### *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 Informatio...

### Benefits of Hydrography Information

**55. What benefits relative to your program budget are you now realizing from currently available 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)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mission Compliance (Operational Benefits)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Products or Services (Customer Service Benefits)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Response or Timeliness (Customer Service Benefits)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customer Experience (Customer Service Benefits)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Education or Public Safety (Societal Benefits)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental Benefits (Societal Benefits)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human Lives Saved (Societal Benefits)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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 improved 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)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved Mission Compliance (Operational)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved Products or Services (Customer Service)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved Response or Timeliness (Customer Service)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved Customer Experience (Customer Service)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved Education or Public Safety (Societal Benefits)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental Benefits (Societal Benefits)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Human Lives Saved (Societal Benefits)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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 new 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).**

**This is one of your most important responses to this survey and will help build the business case for improving hydrographic data and information. Careful consideration should be given to identifying potential benefits.**

*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 [Hydrologic Units](#)
- 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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Services to download standard data products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Services to create and download customized data products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Services to dynamically use data with client-based software (like a browser, GIS, or to feed other services)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Services to visualize cartographically rendered and symbolized hydrography data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Services that allow combination of visualizations with other visualization services ( <a href="#">mash-ups</a> )	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Services to create generalized versions of hydrography (different scales and level of detail)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Services to support online analysis of hydrography information (such as <a href="#">StreamStats</a> )	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# 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)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Objects defined by elevation, such as a levees, are linked to a particular river in the hydrography dataset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hydrography and elevation data are packaged in a single product such as a <a href="#">TIN</a> or a 3-D dataset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hydrography data (streams, streamgages, dams, <a href="#">hydrologic units</a> ) along with elevation data (elevations, <a href="#">catchments</a> , levees, floodplains) coexist within a common data model	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Perform synthesis such that streamflow can be estimated from elevation-based drainage area and other factors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Produce data derivatives such that gradient can be calculated on a stream using elevation data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Manage hydrography and elevation data as a unified activity always keeping both datasets synchronized with one another	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ensure that hydrography and elevation data represent a similar point in time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Both hydrography and elevation data are delivered in unison rather than two separate operations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# 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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determine <u>feature</u> on the hydrographic network to which a point (with elevation value) is connected	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determine the actual <u>point location</u> (within a DEM cell) on the hydrographic network to which a point is connected	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

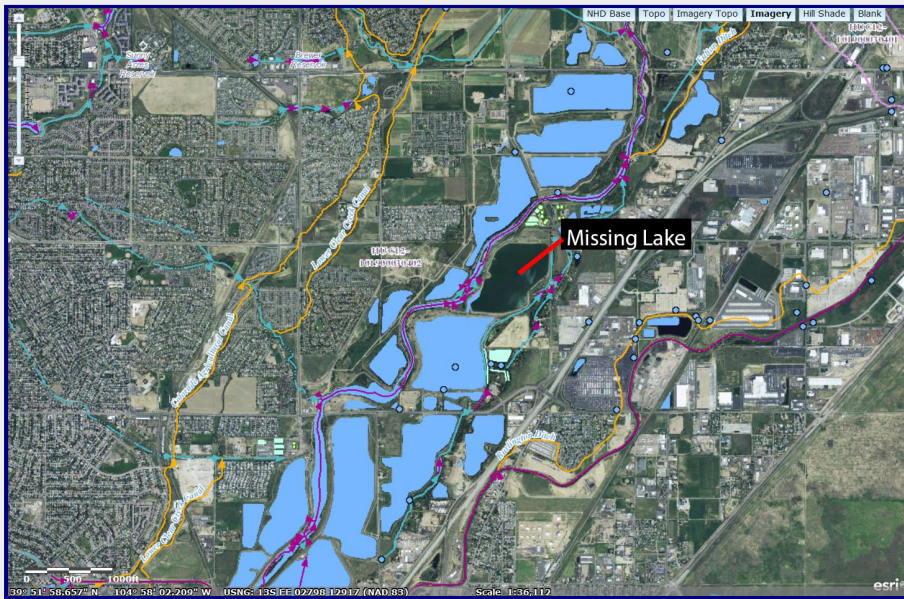


# Hydrography Information Requirements Survey

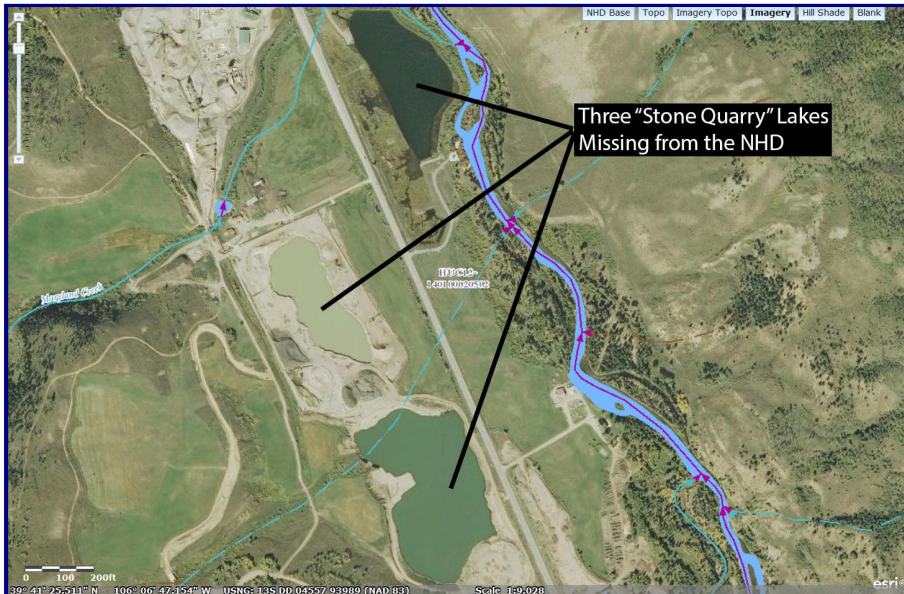
## Part 3: Required Hydrography Data/Information Access Methods

**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.**

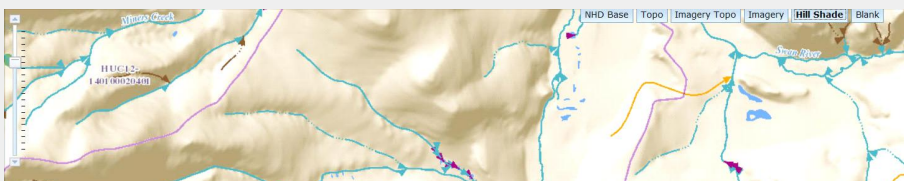
In a series of lakes formed at gravel pits, one lake is missing from the [NHD](#)



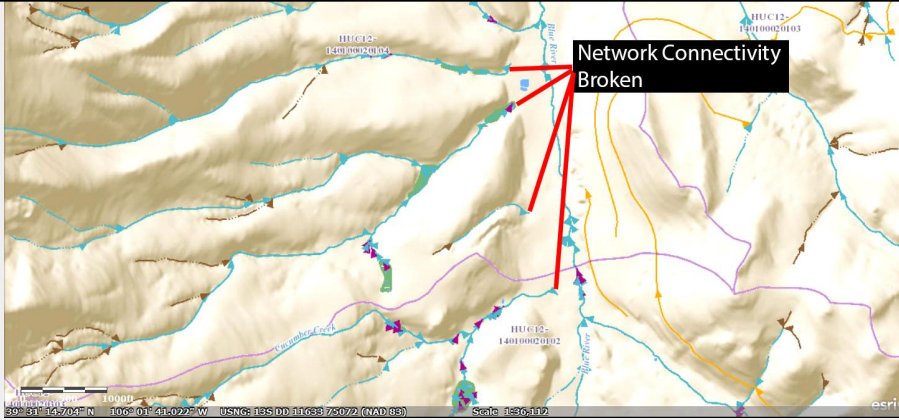
In a series of lakes formed at gravel pits, all lakes are missing from the [NHD](#)



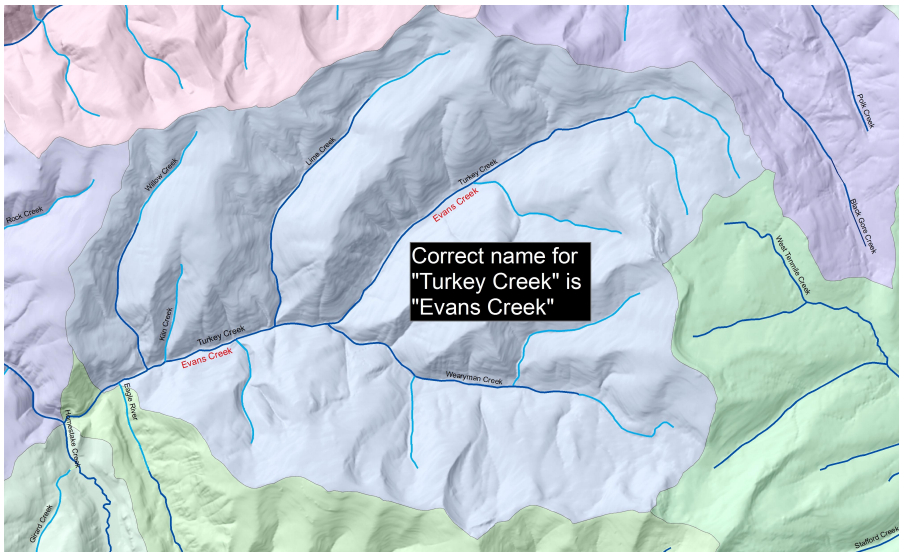
In a series of tributary streams, several streams do not connect with the main river



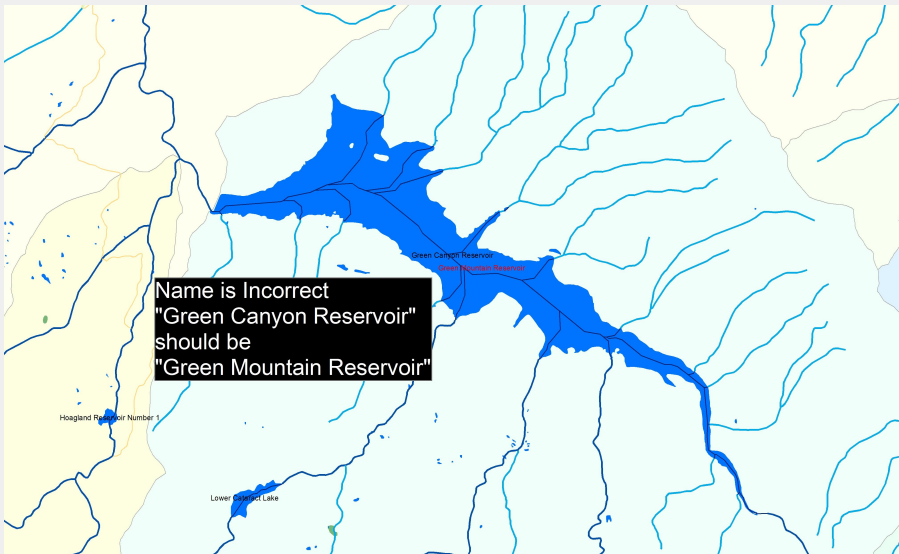
# Hydrography Information Requirements Survey



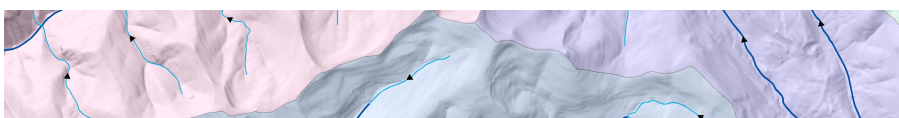
A perennial stream is misnamed



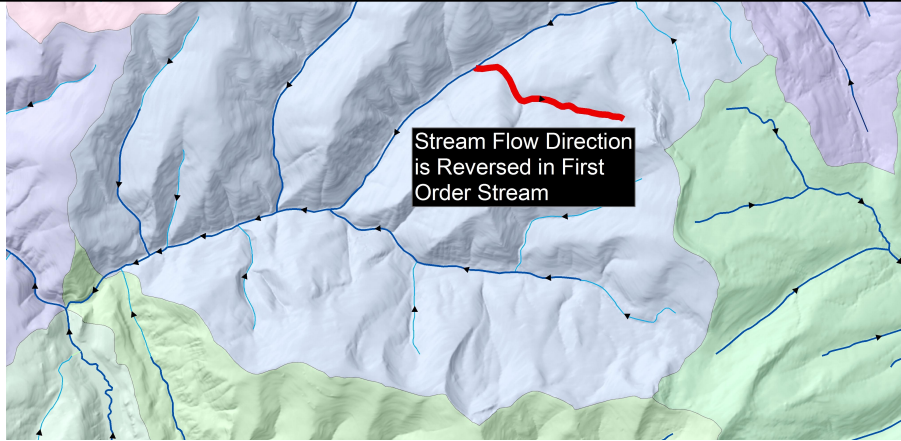
A large reservoir is misnamed



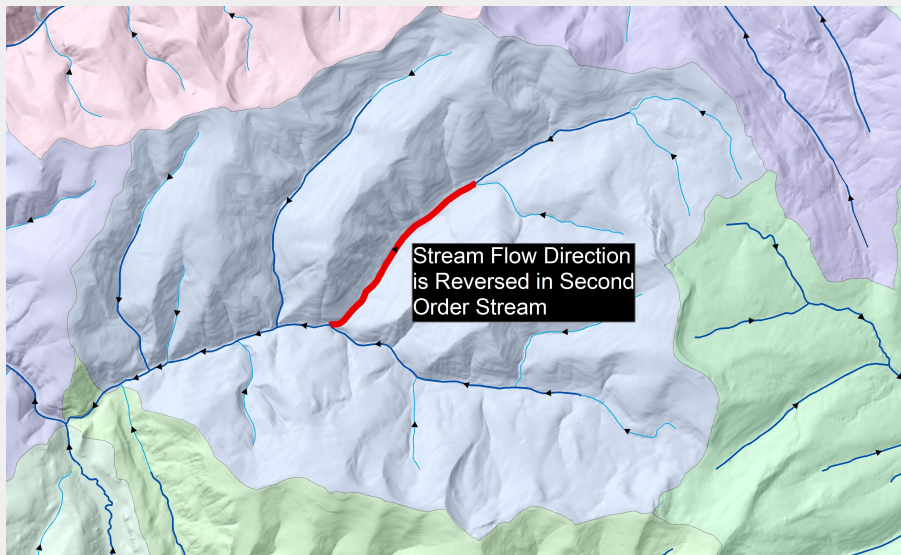
A first order stream flow direction is reversed



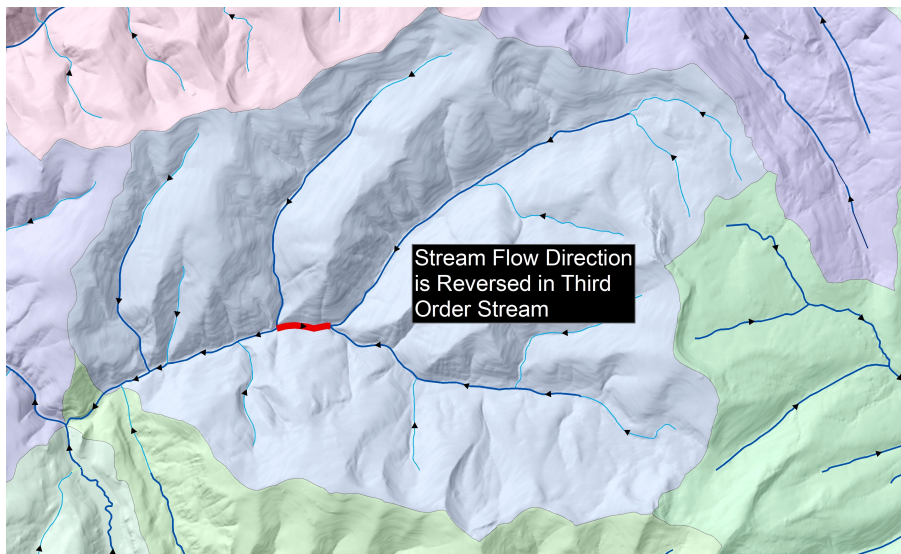
# Hydrography Information Requirements Survey



A second order stream flow direction is reversed



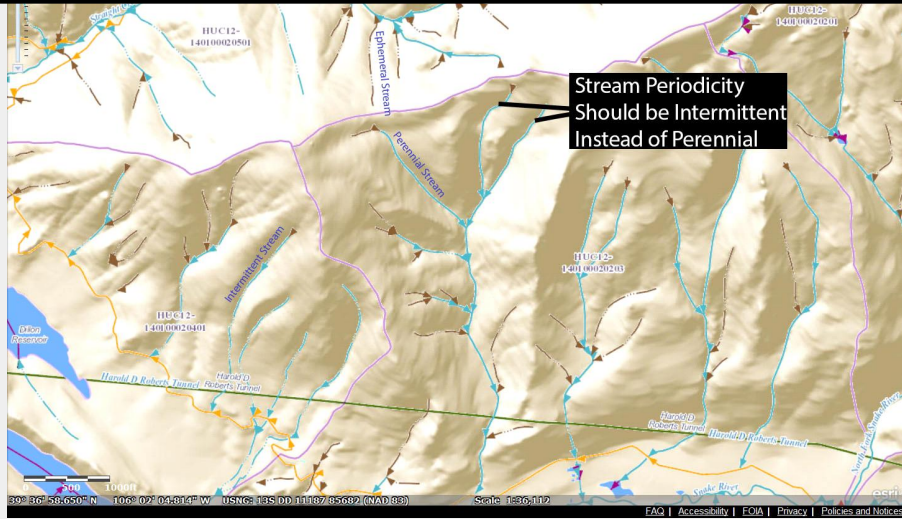
A third order stream flow direction is reversed



Two first order streams coded as perennial should be intermittent



# Hydrography Information Requirements Survey

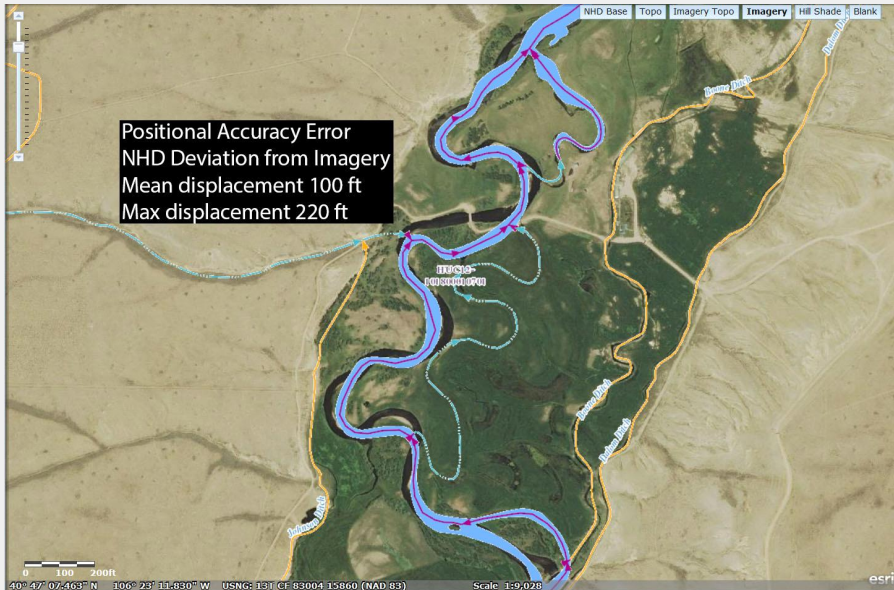


# Hydrography Information Requirements Survey

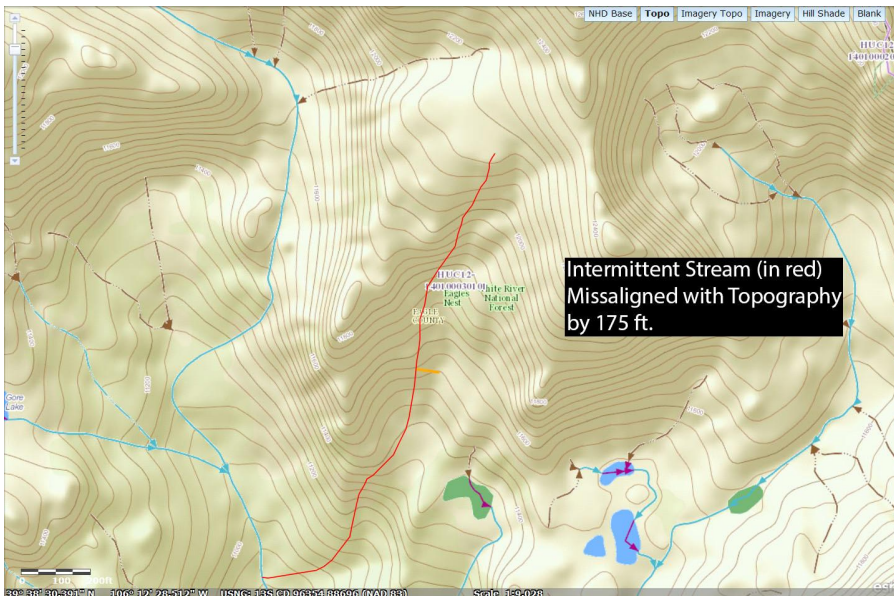
## Part 3: Required Hydrography Data/Information Access Methods

**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.



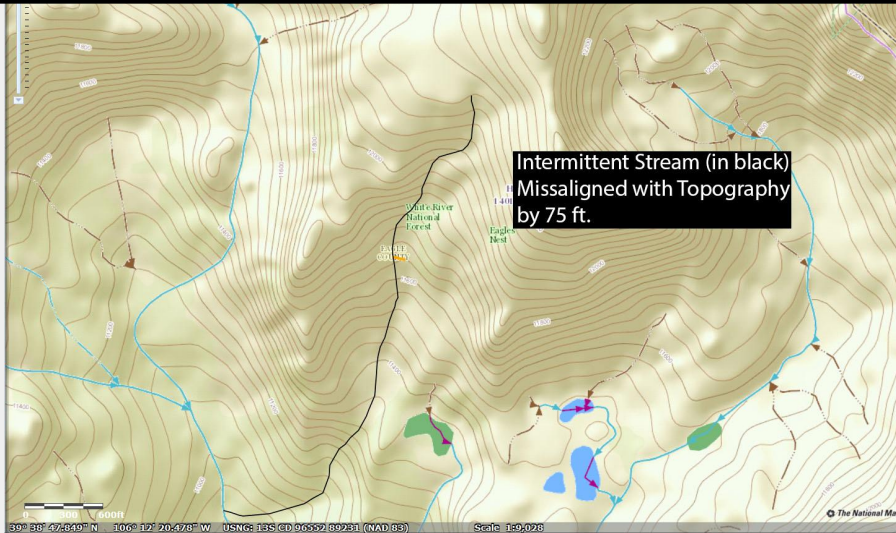
An intermittent stream represented in the [NHD](#) is portrayed along with contours and shaded terrain. The stream appears to be misaligned with the terrain by a mean of 175 feet.



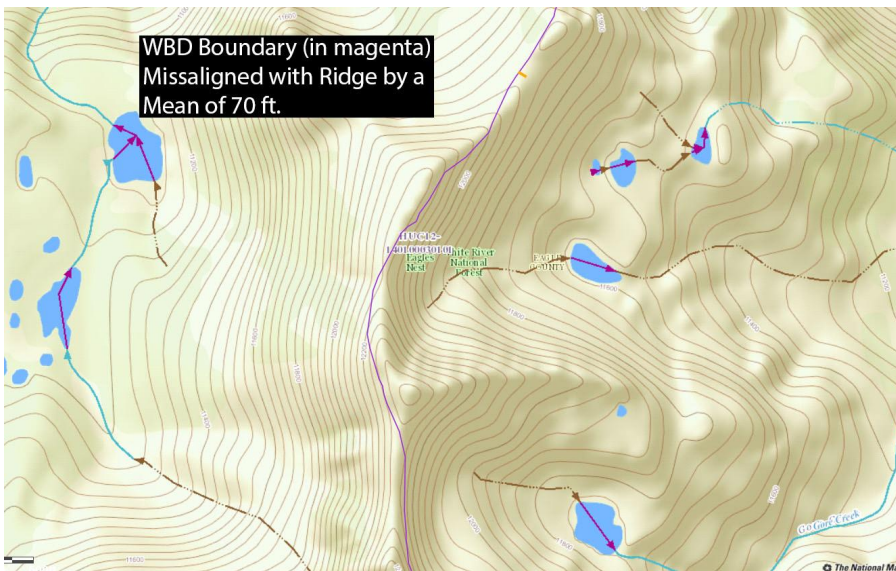
An intermittent stream represented in the [NHD](#) is portrayed along with contours and shaded terrain. The stream appears to be misaligned with the terrain by a mean of 75 feet.



# Hydrography Information Requirements Survey



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

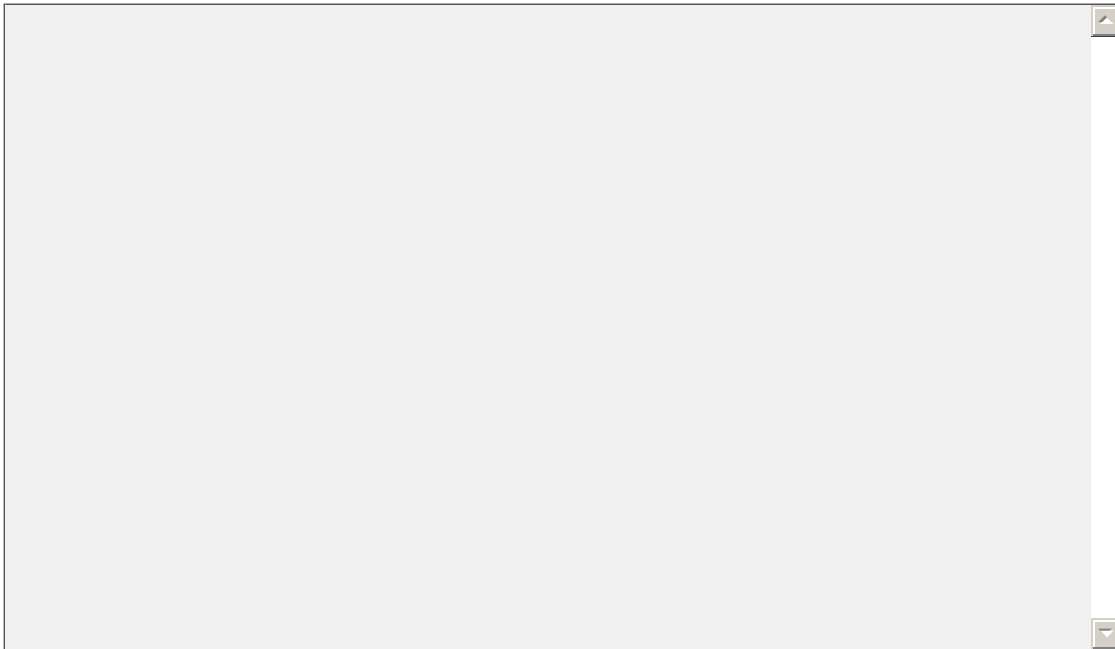
**71. If your program reported an error in the hydrographic data, how quickly would that error need to be resolved?**

*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.