

Geospatial One-Stop  
***Introduction to Geospatial  
One-Stop (GOS)***

An overview of the Geospatial One-Stop e-government initiative and the geodata.gov geospatial data portal



vers. 20071116



After completing this lesson the participant will be able to:

- ▶ Explain the purpose of the Geospatial One-Stop (GOS) project
- ▶ Identify geodata.gov portal features that support GOS project goals
- ▶ Outline the relationship between Geospatial One-Stop, The National Map (TNM), Federal Geographic Data Committee (FGDC), and the National Spatial Data Infrastructure (NSDI)
- ▶ Identify the benefits of Geospatial One-Stop participation
- ▶ Perform basic geodata.gov operations
- ▶ Locate data using the geodata.gov 'Search' functions
- ▶ Locate and view metadata records available via the geodata.gov website
- ▶ Create a map using the geodata.gov Map Viewer
- ▶ Identify pertinent data acquisition plans



## What is Geospatial One-Stop ?

An intergovernmental project managed by the U.S. Geological Survey in support of the President's Initiative for E-Government to:

- ▶ Encourage collaboration and leveraging of geospatial resources and best practices
- ▶ Establish a geospatial data portal on the Internet
- ▶ Improve geospatial data access for all levels of government and the public
- ▶ Promote continued development of the National Spatial Data Infrastructure

- The president's Office of Management and Budget (OMB) oversees the E-Government Initiatives
- GOS is the geographic component of the President's Management Agenda
  - ▶The U.S Geological Survey serves as the Managing Partner for Geospatial One-Stop
  - ▶One of the ways the National Geospatial Programs Office (NGPO) brings increased visibility and implementation of the NSDI

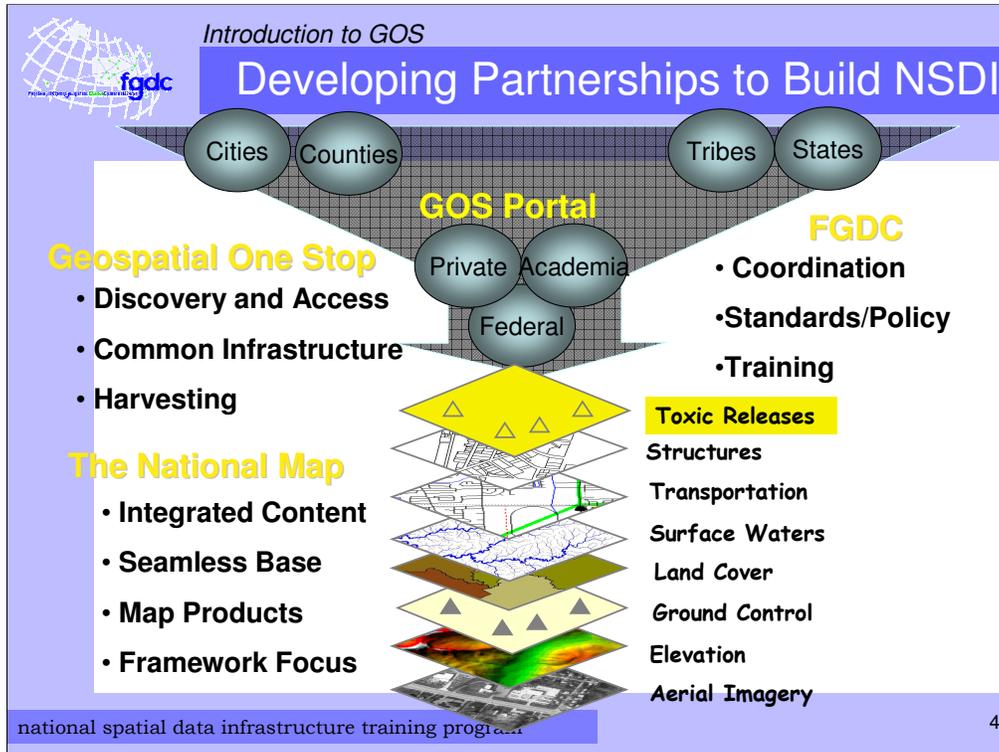


## Goals

- ▶ Easier data discovery across government
- ▶ Reduce duplicate spending
- ▶ Authoritative data sources and services
- ▶ Access to Federal, State and Local data
- ▶ Interoperability

## Portal Implementation

- Centralized Search
- Partnership Marketplace
- Featured in 'Communities'
- Data access controlled by provider and Portal/Portlet controls
- OGC Specification implemented



The National Map provides base map geospatial data layers

GOS provides tools for the discovery of geospatial data and for accessing the data

Geospatial data comes from a wide variety of sources

The FGDC sets standards so that geospatial data from all sources is compatible and can be seamlessly integrated

GOS, TNM, and FGDC are all part of the NSDI

Introduction to GOS

# Access and Discover Resources

**State/Regional Data Sets**

- Examples
  - North Carolina
  - San Francisco Bay Area (BARGC)

**Federal Data Sets**

- Examples
  - Census Bureau Boundaries
  - USGS Hydrography
  - NGS Geodetic Control
  - BLM PLSS
  - DoD Defense Installations (DISDI)

**Integrated National Data Sets**

- Examples
  - Transportation
  - Landmarks
  - Hydrography
  - Land Use

**National Metadata Catalog (GOS)**

**Scientific Knowledge**

- Examples
  - Reports
  - Models
  - Applications

**The GOS Portal (Website)**

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Geospatial data providers make their data discoverable through GOS by entering metadata records into the GOS catalog

End users search the GOS catalog to find the data they need



## Geospatial One-Stop User Benefits

- ▶ Government agencies reduce project costs by:
  - ▶ reusing existing data
  - ▶ identifying partners for spatial data acquisition projects
- ▶ Public and Private geospatial data providers expose their data and services to end users by publishing metadata to Geospatial One-Stop
- ▶ Geospatial data end users can locate available geospatial data resources and services

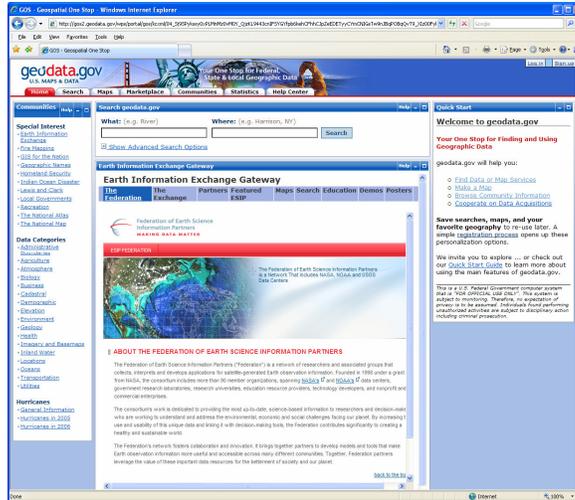


## Introduction to GOS

# The GOS Portal – [www.geodata.gov](http://www.geodata.gov)

### The Geospatial One-Stop Website ([www.geodata.gov](http://www.geodata.gov))

- ▶ Requires only an Internet Browser for access
- ▶ No Special Software needed



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[www.geodata.gov](http://www.geodata.gov) is the web site (portal) for the Geospatial One-Stop  
The GOS website ([www.geodata.gov](http://www.geodata.gov)) is accessed using a Web Browser. No special software is needed.

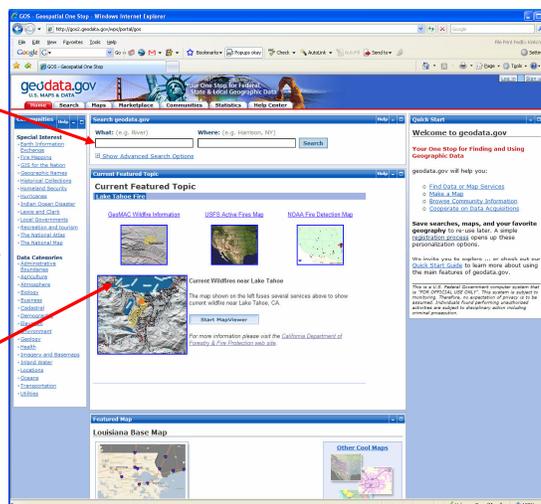


# Functional Areas in the Portal

**Search** – enables users to find geospatial data

**Communities** – highlight authoritative data sources

**Featured Resources** – highlight maps, applications and websites of current interest



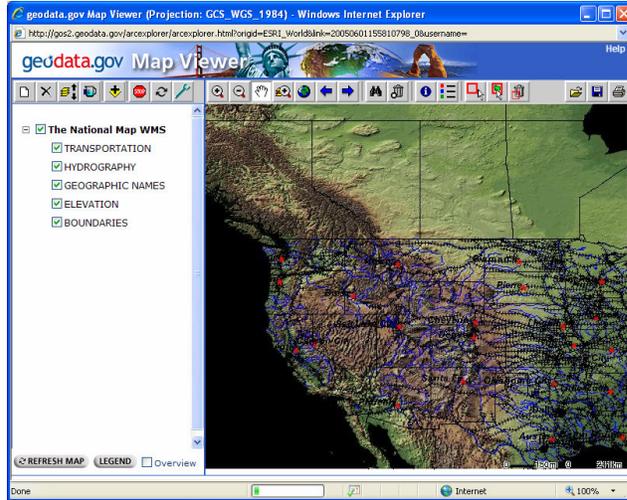
The GOS Portal has several functional areas including:

- A search portlet that lets users search for, find and obtain geospatial data
- A Communities list where a user can browse for key geospatial resources by topic
- A featured topic area where current events or topics are emphasized



# The Geodata.gov Map Viewer

- ▶ Geospatial data can be previewed in the Map Viewer
- ▶ Data from different data sources (Web Mapping Services) can be overlain



The GOS portal includes a Map Viewer where live data and maps (Web Mapping Services) can be added to a map



### Metadata Describes Data

- ▶ Publishing metadata to Geospatial One-Stop enables data to be discovered
- ▶ Geospatial One-Stop metadata provides links to data

*Data providers publish individual metadata records for each data set, map product, web mapping service, or other geospatial data resource.*



# Types of Information in a Metadata Record

- ▶ Title and Author
- ▶ Publication Date and Status
- ▶ Abstract, Summary, and Purpose
- ▶ Full Content Description
- ▶ Spatial Domain
- ▶ Keywords
- ▶ Access and Usage Information
- ▶ Other Reference Information per Metadata Standards

The screenshot shows a web browser window displaying a metadata record for the "National Atlas of the United States Clearinghouse". The record is structured as follows:

- Metadata contact:**
  - Individual's name: Jay Donnelly
  - Contact information:
    - Address:
    - e-mail address: jdonnelly@usgs.gov
    - Phone: 703.648.5395
    - Contact's role: point of contact
  - Last update: 20030627
- Distribution Information:**
  - Distributor:
    - Contact information:
      - Contact information:
      - Contact's role: distributor
    - Transfer options:
      - Online source:
      - Online location (URL): <http://nationalatlas.gov>
      - Description: Clearinghouses
    - Ordering process:
      - Terms and fees: Public Domain
- Identification Information:**
  - Resource's bounding rectangle:
    - West longitude: -122
    - East longitude: -96
    - North latitude: 72
    - South latitude: 18
  - Citation:
    - Title: National Atlas of the United States Clearinghouse
    - Party responsible for the resource:
      - Organization's name: National Atlas of the United States
      - Contact's role: publisher
    - Contact information:
      - Address:
        - Delivery point: Reston, Virginia
    - Party responsible for the resource:
      - Organization's name: National Atlas of the United States
      - Contact's role: originator
    - Presentation format: digital profile
    - Reference date:
      - Date: 20010701



## Metadata Format and Content Standards

Geospatial One-Stop requires metadata that is formatted as specified by the FGDC's *Content Standard for Digital Geospatial Metadata (CSDGM)*

For more information about geospatial metadata standards visit:

[www.fgdc.gov/metadata/geospatial-metadata-standards](http://www.fgdc.gov/metadata/geospatial-metadata-standards)



## Types of Information in Geospatial One-Stop

### ▶ Live Data and Maps

Streaming Web Mapping Services (WMS) that can be loaded into the Geospatial One-Stop Map Viewer

### ▶ Downloadable Data

Data sets that can be downloaded and used in your local GIS

### ▶ Offline Data

Data that is available but must be obtained by contacting the publisher identified in the metadata record

### ▶ Documents

Geographic information stored in text files, spreadsheets, or other documents



## Types of Information in Geospatial One-Stop

### ▶ Applications

An online application that includes a user interface and the geographic content needed to perform one or more tasks

### ▶ Clearinghouses

Web sites that contain descriptions and links to available geographic data

### ▶ Geographic Activities

Opportunities for data acquisition collaboration and cost sharing



## Basic Geodata.gov User Functions

- ▶ **Search for Data**
- ▶ **View Metadata Records**
- ▶ **Make a Map**
- ▶ **Obtain Data (conditional)**



- ▶ Enter a Keyword in the “What” field (Text Search)
- ▶ Enter a Location in the “Where” field (Geographic Search) to narrow your results

A screenshot of the geodata.gov search interface. The window title is "Search geodata.gov" with a "Help" button and a close icon. It features two input fields: "What: (e.g. River)" containing the text "water" and "Where: (e.g. Harrison, NY)" containing "Philadelphia, PA". A "Search" button is located to the right of the "Where" field. Below the fields is a link that says "Show Advanced Search Options" with a small icon to its left.

Introduction to GOS

# Conduct Advanced Search

The screenshot displays the geodata.gov search interface. At the top, there is a navigation bar with links for Home, Search, Maps, Marketplace, Communities, Statistics, and Help Center. The main search area includes fields for 'What' (e.g., River) and 'Where' (e.g., Harrison, NY), along with a 'Search' button and a 'Use My Geography' checkbox. Below these are 'Hide Advanced Search Options' and 'Show Advanced Search Options' links. The advanced search options include:
 

- Time Frame:** Radio buttons for 'Anytime', 'Time Period - From: [ ] To: [ ]', and 'Date Posted - After: [ ]'.
- Content Types:** A list of categories including 'Use Data & Maps', 'Downloadable Data', 'Offline Data', 'Documents', 'Applications', 'Geographic Services', 'Clearinghouses', and 'Geographic Activities'.
- Data Category:** A list of categories including 'Agriculture and Farming', 'Biology and Ecology', 'Administrative and Political Boundaries', 'Atmospheric and Climatic', 'Business and Economic', 'Elevation and Derived Products', 'Environment and Conservation', and 'Geological and Geophysical'.
- Spatial Frame:** Radio buttons for 'Data may partially overlap with the specified area' (selected) and 'Data must fall completely inside the specified area'.
- Sort results by:** A dropdown menu currently set to 'Relevance'.

 To the right of the search options is a map titled 'My Geography - Define Spatial Search Area' showing a map of the United States with a search area highlighted in yellow. The map includes labels for the Arctic Ocean, Pacific Ocean, and Atlantic Ocean, and a scale bar for 1000 miles.

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In the Search portlet or Search tab, click on the Show Advanced Search Options link to see more search criteria.

In addition to the What and Where values you can select data by timeframe, Content Type, and Data Category.

You can also use the My Geography map to define a spatial area for a search. The Spatial search can allow data to overlap the area of interest or lie within the area of interest for a more specific search.

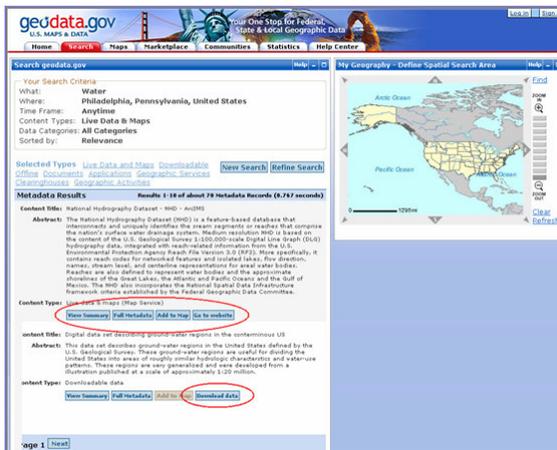
Results can be sorted by several criteria such as relevance, date, title and smallest or largest coverage area.

These features are covered in more detail in the next module.



Depending on the type of data found, you can:

- ▶ View a summary of the metadata
- ▶ View full metadata,
- ▶ Add data to a map (If it is available through a Web Mapping Service)
- ▶ Go to a Website where more information can be found or from which the data can be obtained
- ▶ Download the data







When the "Full Metadata" option is selected, the data publisher's complete metadata record is displayed

**Content Title:** National Hydrography Dataset - NHD - ArcIMS

**Abstract:** The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that comprise the nation's surface water drainage system. Medium resolution NHD is based on the content of the U.S. Geological Survey 1:100,000-scale Digital Line Graph (DLG) hydrography data, integrated with reach-related information from the U.S. Environmental Protection Agency Reach File Version 3.0 (RF3). More specifically, it contains reach codes for networked features and isolated lakes, flow direction, names, stream level, and contains representations for areal water bodies. Reaches are also defined to represent water bodies and the approximate shorelines of the Great Lakes, the Atlantic and Pacific Oceans and the Gulf of Mexico. The NHD also incorporates the National Spatial Data Infrastructure Framework criteria established by the Federal Geographic Data Committee.

**Content Type:** Live data & maps (Map Service)

[View Summary](#) [Full Metadata](#) [Add to Map](#) [Go to website](#)



**National Hydrography Dataset - NHD - ArcIMS**

**Metadata contact:**  
 Individual's name: Sandra P. Walters  
 Organization's name: U.S. Geological Survey  
**Contact information:**  
**Address:**  
 e-mail address: sp-walters@usgs.gov  
 Delivery point: Box 25246, MS 514, Denver Federal Center  
 City: Denver  
 Administrative area: CO  
 Postal code: 80225  
 Country: US  
**Phone:**  
 Voice: (303) 232-4449  
**Contact's role:** point of contact  
**Last update:** 20050902

**Distribution Information:**  
**Distributor:**  
**Contact information:**  
 Individual's name: Jeffrey G. Simley  
 Organization's name: U.S. Geological Survey  
**Contact information:**  
**Address:**  
 e-mail address: jsimley@usgs.gov  
 Delivery point: Box 25246, MS 507, Denver Federal Center  
 City: Denver  
 Administrative area: CO  
 Postal code: 80225  
 Country: USA  
**Phone:**  
 Voice: (303) 232-4321  
**Contact's role:** distributor

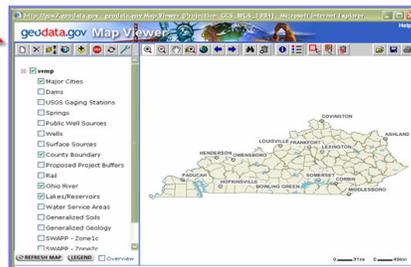
**Transfer options:**  
**Online name:**  
 Online location (URL): <http://nhd.usgs.gov>  
 Description: NHD  
**Available format:**  
 Format name: ESRI Shapefile

**Identification Information:**  
 Resource's bounding rectangle:



*If the Content Type in the metadata is “Live Data or Map Service,” you can view the cited mapped data in the Geospatial One-Stop Map Viewer by selecting the “Add to Map” option*

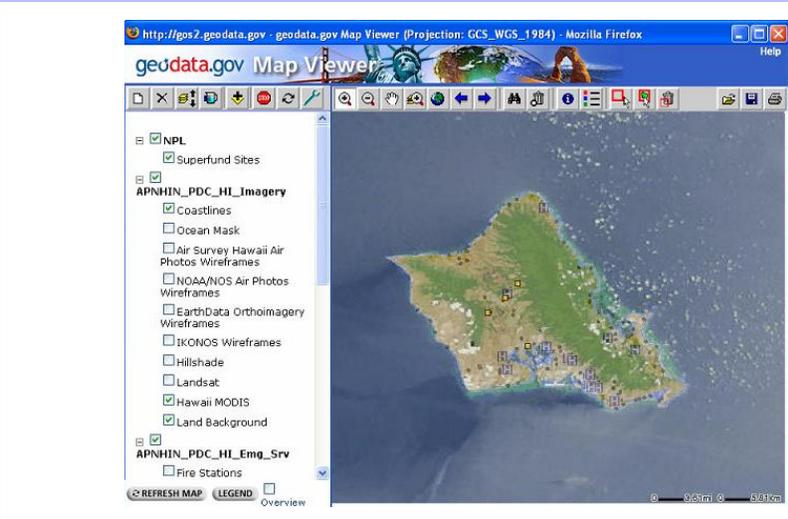
Content Title: Water Management Planning  
Abstract: This image service and the associated HTML Viewer application allow for access to information necessary for Water Management Planning in the Commonwealth of Kentucky.  
Content Type: Live data & maps (Map Service)  
[View Summary](#) [Full Metadata](#) [Add to Map](#) [Go to website](#)



Show and highlight elements of Add to Map page from the results page. Note that the “Add to Map” option is only enabled if the data item cited in the result is content type = Live Data and Map.”

 Introduction to GOS

# Make a Map Using the Map Viewer



The screenshot shows the geodata.gov Map Viewer interface. The browser address bar displays "http://goss2.geodata.gov - geodata.gov Map Viewer (Projection: GCS\_WGS\_1984) - Mozilla Firefox". The page title is "geodata.gov Map Viewer". The interface includes a toolbar with navigation and tool icons, a legend on the left, and a map area showing a satellite-style map of Hawaii with various data layers overlaid. The legend lists several data sets, many of which are checked:

- NPL
  - Superfund Sites
- APNHIN\_PDC\_HI\_Imagery
  - Coastlines
  - Ocean Mask
  - Air Survey Hawaii Air Photos Wireframes
  - NOAA/NOS Air Photos Wireframes
  - EarthData Orthoimagery Wireframes
  - IKONOS Wireframes
  - Hillshade
  - Landsat
  - Hawaii MODIS
  - Land Background
- APNHIN\_PDC\_HI\_Emg\_Srv
  - Fire Stations

Buttons for "REFRESH MAP", "LEGEND", and "Overview" are visible at the bottom of the legend. A scale bar at the bottom right of the map area shows 0, 0.05km, and 0.1km.

This is an example of a map created in the GOS Map Viewer by adding in several data sets from different sources.



# Access Metadata from the Map Viewer

The screenshot shows the geodata.gov Map Viewer interface. On the left, a table of contents lists two data sets. The first entry, "San Diego Satellite Imagery", is selected. A blue circle highlights an information icon (an 'i' in a circle) to the left of the data set name. A red arrow points from this icon to a pop-up window titled "San Diego Satellite Imagery". This window displays the following metadata:

**Content Title:** San Diego Satellite Imagery  
**Abstract:** This map service presents a series of satellite imagery of the San Diego area. The map service includes 180, 250, and 450m resolution satellite imagery of the San Diego area. Zoom in to the San Diego area to view the imagery.  
**Content Type:** Live data & maps (Map Service)  
[View Summary](#) [Full Metadata](#) [Add to Map](#) [Go](#)

**Content Title:** U.S. Pacific West Coast Internet Map Server  
**Abstract:** In 1984, the U.S. Geological Survey (USGS), began a program to map the areas of the United States. The mapping of the deepwater portion (depths greater than 200 meters) of the continental shelf and slope using the long-range sidescan sonar system GLORIA creates images that are a record of the acoustic backscatter from the ocean floor and developed specifically to map the morphology and texture of seafloor features in the ocean. The GLORIA imagery provides a broad-scale view of sea-floor features and the sedimentary processes that had been previously unknown.  
**Content Type:** Live data & maps (Map Service)  
[View Summary](#) [Full Metadata](#) [Add to Map](#) [Go to website](#)

The pop-up window also contains contact information:

**Metadata contact:**  
*Individual's name:* Deane Kensok  
*Organization's name:* ESRI Inc.  
**Contact information:**  
*Address:*  
*e-mail address:* jbarrett@spaceimaging.com  
*Phone:*  
*Voice:* 909-793-2853, x1159  
*Contact's role:* point of contact  
*Last update:* 2/10/2007 10:10:10 AM

A new feature in GOS allows you to get to the metadata from the Map Viewer.

Click on the information icon to the left of the data set name in the table of contents to open the metadata record.



*If the Metadata Record contains a link to the Website where the cited data is hosted, you can open a window to that Website by selecting the “Go to Website” option*

**Content Title:** National Hydrography Dataset - NHD - ANZMS

**Abstract:** The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that comprise the nation's surface water drainage system. Medium resolution NHD is based on the content of the U.S. Geological Survey 1:100,000-scale Digital Line Graph (DLG) hydrography data, integrated with reach-related information from the U.S. Environmental Protection Agency Reach File Version 3.0 (RF3). More specifically, it contains reach sides for networked features and isolated lakes, flow direction, names, stream level, and centerline representations for areal water bodies. Reaches are also defined to represent water bodies and the approximate shorelines of the Great Lakes, the Atlantic and Pacific Oceans, and the Gulf of Mexico. The NHD also incorporates the National Spatial Data Infrastructure Framework criteria established by the Federal Geographic Data Committee.

**Content Type:** Live data & maps (Map Service)

[View Summary](#) [Full Metadata](#) [Add to My Favorites](#) [Go to website](#)



**USGS** science for a changing world

**EPA** United States Environmental Protection Agency

# National Hydrography Dataset

- NHD Home
- Technical References
- Data
- Tools
- Applications
- Tutorial Series
- Technical Support
- Maintenance

The National Hydrography Dataset (NHD) is a comprehensive set of digital spatial data that contains information about surface water features such as lakes, ponds, streams, rivers, springs and wells. Within the NHD, surface water features are combined to form "reaches," which provide the framework for linking water-related data to the NHD surface water drainage network. These linkages enable the analysis and display of these water-related data in upstream and downstream order.

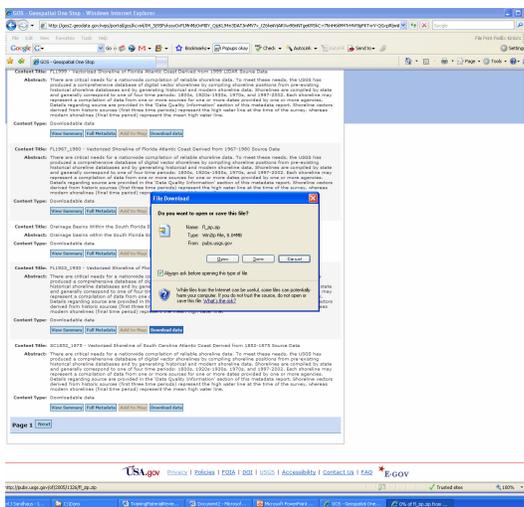
The NHD is based upon the content of USGS Digital Line Graph (DLG) hydrography data integrated with reach-related information from the EPA Reach File Version 3 (RF3). The NHD supersedes DLG and RF3 by incorporating them, not by replacing them. Users of DLG or RF3 will find the National Hydrography Dataset both familiar and greatly expanded and refined.

While initially based on 1:100,000-scale data, the NHD is designed to

**NHD News**  
**NHDinSEO**  
**Information**  
National NHD Responsibility  
Columbine, Denver, CO  
April 24 25 2007



- ▶ Some metadata records provide links that enable direct data download
- ▶ Click on the 'Download Data' link to save the data to your local machine for use in your GIS





# Search for Data Acquisition Plans

- ▶ Search for planned data acquisition projects for an area
- ▶ Find agencies for collaboration and cost sharing

The screenshot shows the geodata.gov search results page. The search criteria are set to 'California'. The results list several metadata records, including:

- California State Office:** Metadata for the California State Office, with a contact type of 'Geographic Activities'.
- National Agricultural Imagery Program (NAIP):** Metadata for the National Agricultural Imagery Program (NAIP), with a contact type of 'Geographic Activities'.
- National Agricultural Imagery Program (NAIP) - CA:** Metadata for the National Agricultural Imagery Program (NAIP) in California, with a contact type of 'Geographic Activities'.
- Central Flood Insurance Rate Map Database, Ventura County, CA:** Metadata for the Central Flood Insurance Rate Map Database in Ventura County, CA, with a contact type of 'Geographic Activities'.

The advanced search form on the right shows the search criteria: 'What: (e.g. River)', 'Where: (e.g. Harrison, NY)', 'Time Frame: (use YYYYMMDD format)', 'Data Posted - After', 'Data Posted - After', 'Content Types', 'Data Category', 'Spatial Frame', and 'Sort results by: Relevance'.

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You can search for data acquisition projects by selecting the “Geographic Activities” content type in the advanced search form.



Registered users can use more advanced geodata.gov features to:

- ▶ Save search results
- ▶ Save maps they have created
- ▶ Modify the Geospatial One-Stop portal to suit their needs and interests
- ▶ Publish, create and manage metadata
- ▶ Participate in Community discussions

More advanced features are available after logging in as a registered user



- ▶ Geospatial One-Stop is an integral part of the National Spatial Data Infrastructure
- ▶ Geospatial One-Stop enables *users* to discover and view or obtain geospatial information that others have created and made available.
- ▶ Geospatial One-Stop enables *producers* of geospatial information to make their information available for wide use.
- ▶ Geospatial One-Stop enables users to collaborate on data acquisition activities
- ▶ The heart of the Geospatial One-Stop is a Metadata Catalog that cites the geospatial information maintained elsewhere by its producers.
- ▶ Geospatial One-Stop is available to anyone with a Web Browser



## Contact Geospatial One-Stop

The Geospatial One-Stop is administered and maintained by:

Geospatial One-Stop  
U.S. Geological Survey, Mail Stop 510  
12201 Sunrise Valley Drive,  
Reston, VA 20192-0002 USA  
[geodata@usgs.gov](mailto:geodata@usgs.gov)



Geospatial One-Stop  
Discover and Access Geospatial Data  
Using [geodata.gov](http://geodata.gov) - Exercises