

# Wetlands Subcommittee FY18 Report

*Megan Lang  
Chief Scientist*

*National Wetlands Inventory*

*October 9<sup>th</sup>, 2018*



# Introduction

---

The Mission/Purpose of the Wetlands Subcommittee is:

- 1) to promote standards of accuracy and consistency in spatial wetlands data financed in whole or in part by federal funds;
- 2) to exchange information on technological improvements for collecting spatial wetlands data;
- 3) to encourage the federal and non-federal communities to identify and adopt standards and specifications for spatial wetlands data; and
- 4) to collect and process the requirements of federal and non-federal organizations for spatial wetlands data.

# Introduction

---

## **Members organizations include – but are not limited to:**

- Department of Interior
- Department of Commerce
- Department of Defense
- Department of Energy
- Department of Agriculture
- Department of Homeland Security
- Department of Housing and Urban Development
- Department of Transportation
- Environmental Protection Agency
- National Capital Planning Commission
- Tennessee Valley Authority

# NGDA Data Themes and Data Sets

---

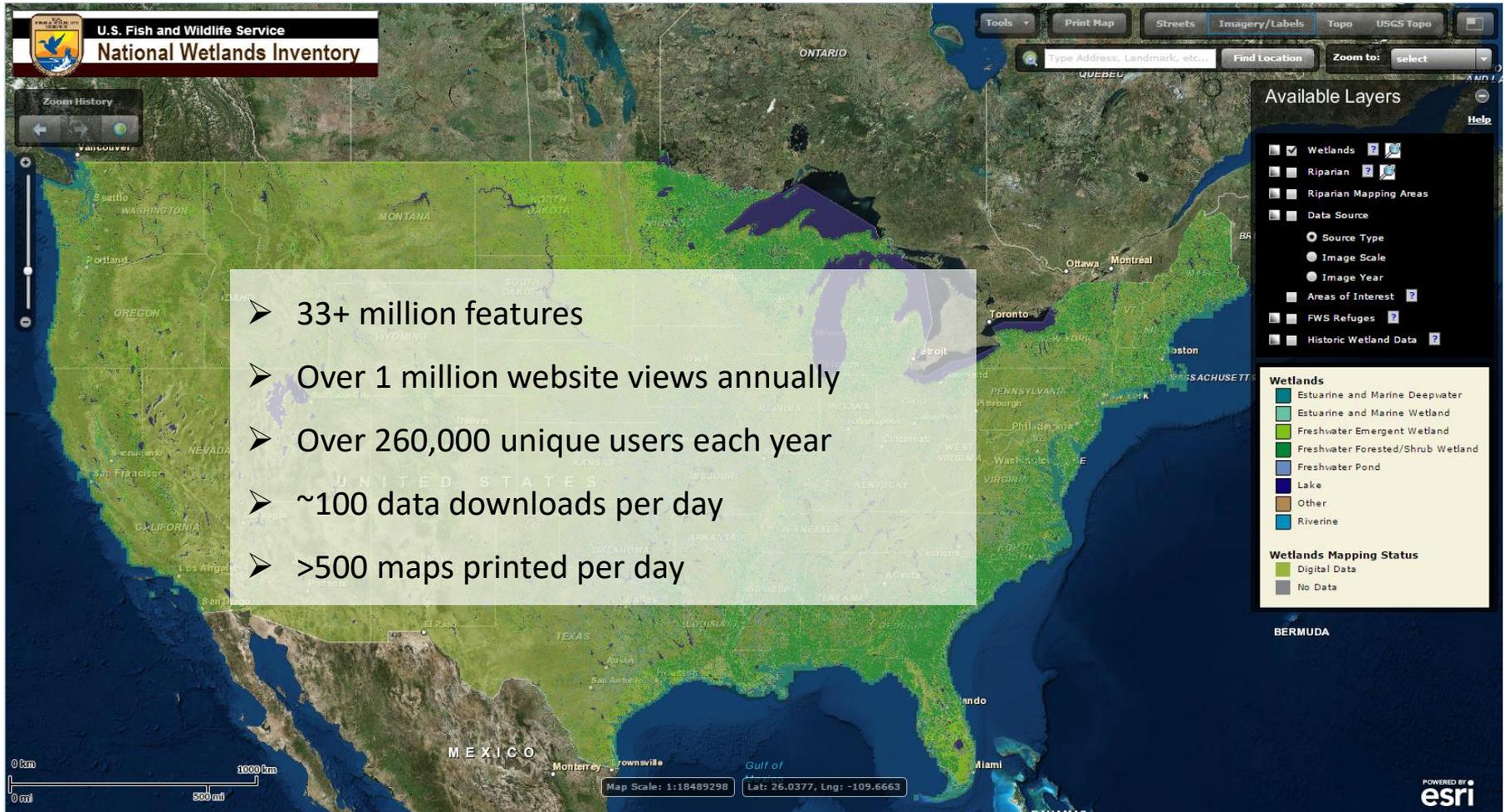
- The National Wetlands Inventory falls under the purview of the Wetlands Subcommittee.
  - Dataset Manager: Mitch Bergeson, USFWS
  
- The Wetlands Subcommittee is associated with the Water-Inland Theme.
  - Theme Co-Leads: Steve Aichele, USGS and Megan Lang, USFWS

# Recent Developments/Projects

---

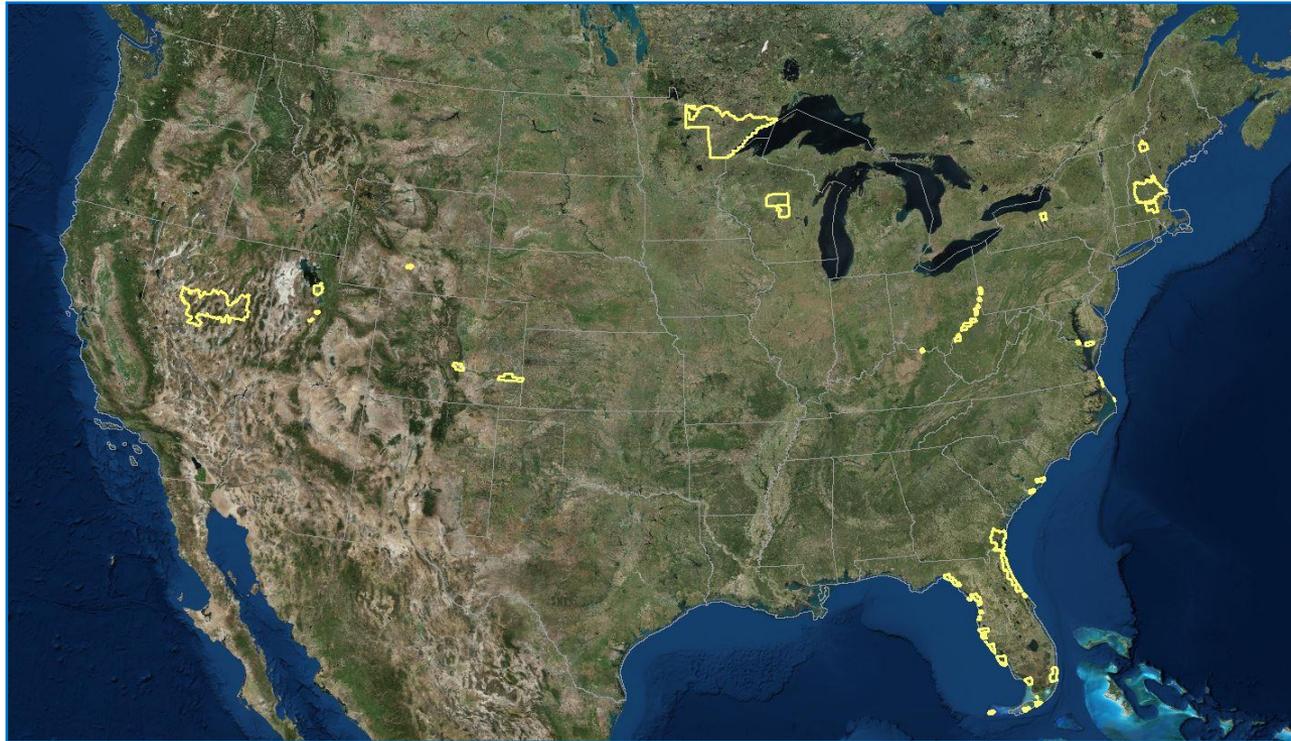
- Additions to the NSDI Wetlands Layer
- Enhanced outreach to stakeholders
- Improved distribution interface for the NSDI Wetlands Layer
- Interagency Wetland Mapping Workgroup
- Refinement of NSDI Wetlands Layer update approach
- Wetlands Status and Trends project

# NSDI Wetlands Layer (NWI Geospatial Dataset)



- 33+ million features
- Over 1 million website views annually
- Over 260,000 unique users each year
- ~100 data downloads per day
- >500 maps printed per day

# NSDI Wetlands Layer

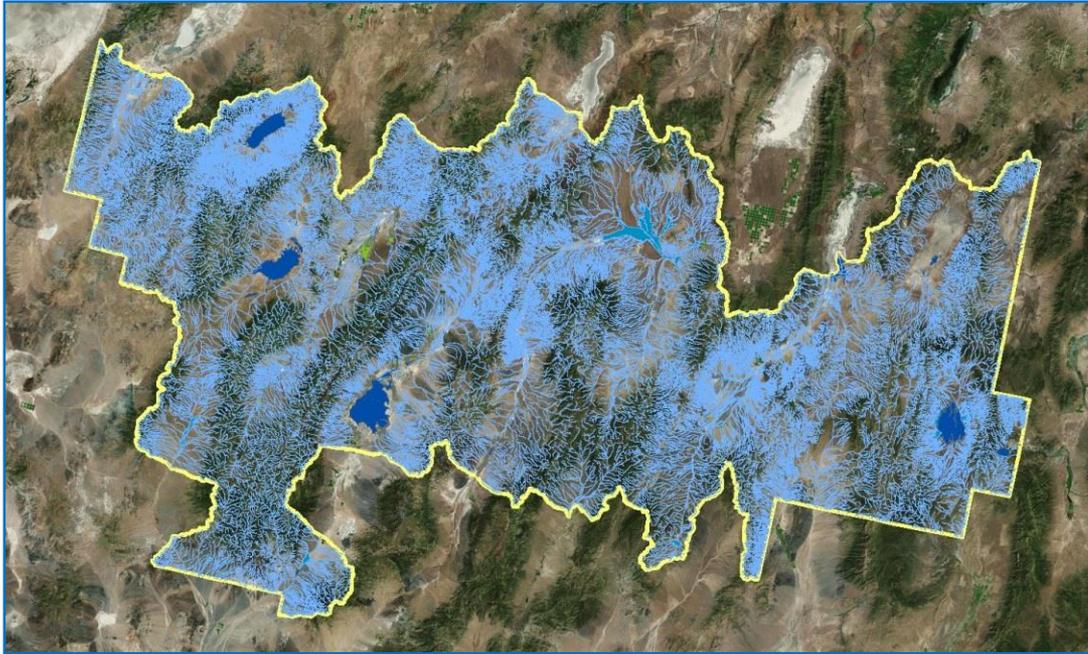


Update  
Locations in  
Contiguous  
United States

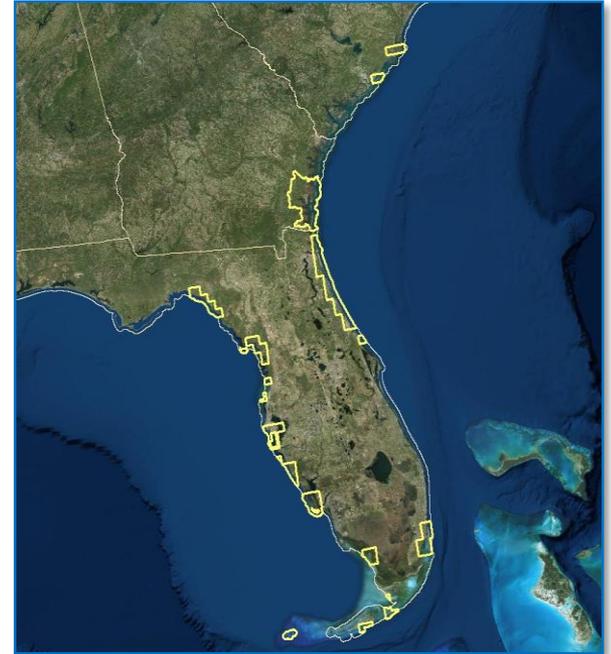
## FY18 Additions

- Over 25M acres contributed by 8 federal, state and local agencies
  - All data were subject to rigorous quality control and assurance protocols and met the FGDC National Wetlands Classification Standard

# NSDI Wetlands Layer



Over 7M acres in Nevada updated to support sage grouse conservation



~4M acres updated to support CBRS

## Support for natural resource management and policy

- Areas mapped targeted critical decision support needs, including those related to imperiled species, National Wildlife Refuges, and the Coastal Barrier Resources System

# Outreach

---

Multiple forms of outreach were supported in FY18, including redesign of the NSDI Wetlands Layer website and publication of popular interest stories.

- ❖ Goal of outreach was improved understanding, production and use of NSDI Wetlands Layer

# Nature's Good Neighbor Campaign



## Two people, one goal

Farmer, hunting enthusiast embrace conservation

By Chris Sebastian | May 16, 2018

Ann Arbor, Michigan and Lake Erie, Ohio

US Fish and Wildlife Service

Other Agencies

Non-Profit Partners

Local Newspapers



## Wetland wonder

Crops, wildlife flourish on Delaware farm

By Megan Lang | May 9, 2018

Felton, Delaware



# National Wetlands Inventory

Google NWI Website & Documents



NWI Home Wetlands Data Status & Trends Wetlands Mapping NWI Other Topics Contacts FAQs

Search



Credit: USFWS Madison Wetland Management District, South Dakota

NSDI Wetlands Layer

Contribute Data

Data Standards

Verification Tools

Wetland Codes

## Wetlands

Wetlands provide a multitude of ecological, economic and social benefits. They provide habitat for fish, wildlife and plants - many of which have a commercial or recreational value - recharge groundwater, reduce flooding, provide clean drinking water, offer food and fiber, and support cultural and recreational activities. Unfortunately, over half of America's wetlands have been lost since 1780, and wetland losses continue today. This highlights the urgent need for geospatial information on wetland extent, type, and change.



Horicon National Wildlife Refuge. Credit: USFWS.

## The National Wetlands Inventory

The US Fish and Wildlife Service (FWS) is the principal US Federal agency tasked with providing information to the public on the status and trends of our Nation's wetlands. The US FWS National Wetlands Inventory (NWI) is a publicly available resource that provides detailed information on the abundance, characteristics, and distribution of US wetlands. NWI data are used by natural resource managers, within the US FWS and throughout the Nation, to promote the understanding, conservation and restoration of wetlands.

### Wetlands Mapper

The Wetlands Mapper delivers an easy-to-use map-like view of America's wetland resources. It spatially integrates NWI data with additional natural resource information and political boundaries to produce a robust decision support tool.



### Status and Trends

Status and Trends reports provide estimates of US wetland extent, type, and change specific to different time periods, ranging from the 1700's to 2009. Reports are currently being produced on a decadal basis. The reports educate policy-makers and the public on the status of the Nation's wetlands and potential causes of wetland change.





## National Spatial Data Infrastructure-Wetlands Layer

The [National Spatial Data Infrastructure \(NSDI\)](#) is defined as the technologies, policies, standards and human resources necessary to acquire, process, store, distribute, and improve utilization of geospatial data. The NSDI enhances the accessibility, communication, and use of geospatial data to support a wide variety of decisions at all levels of society, including government, the private and non-profit sectors, and the academic community.

The U.S. Fish and Wildlife Service (Service) is identified, by [OMB Circular A-16](#), as the principal federal agency that provides wetland information to the public as well as other agencies. The Service's National Wetlands Inventory (NWI) forms the Wetlands Layer of NSDI, and is designated as a [National Geospatial Data Asset \(NGDA\)](#). It is registered through [Data.gov](#) and [Geoplatform.gov](#) and is distributed on the [NWI Wetlands Mapper](#).

Quality and consistency of the Wetlands Layer is supported by federal wetlands mapping and classification [standards](#), which were developed under the oversight of the Federal Geographic Data Committee (FGDC) with input by the [FGDC Wetlands Subcommittee](#). This dataset is part of the FGDC [Water-Inland Theme](#) which is co-chaired by the Service and the U.S. Geological Survey.

More information on the Wetlands Layer of NSDI:

- [Interior Secretary Salazar Announces Endorsement of Wetlands Mapping Standard](#)
- [FGDC Wetlands Mapping and Classification Standards](#)
- [Wetlands Layer - National Spatial Data Infrastructure: A Phased Approach to Completion and Modernization \(PDF\)](#)
- [Office of Management and Budget: Circular No. A-16](#)
- [FGDC Wetlands Subcommittee](#)
- [FGDC Water-Inland Theme](#)

→ Links to FGDC Website

As stewards of the Wetlands Layer of the NSDI, NWI promotes partnership and collaboration with stakeholders, and integration of their standards compliant data into the Wetlands Layer. Over 160 organizations and agencies have contributed to this effort so far.

- [Contribute Your Wetlands Data](#)



- Last updated: June 25, 2018 -

Clearly identifies role of dataset within NSDI and promotes FGDC standards



## NWI Use Highlights

The U.S. Fish and Wildlife Services' National Wetlands Inventory (NWI) geospatial dataset is a publicly available resource that provides detailed information on the abundance, characteristics and distribution of America's wetlands. These data support a multitude of applications for users throughout the Nation. Whether it is wetland conservation or restoration, emergency response, species habitat assessment and population modeling, infrastructure and recreation planning, or other types of decision support, NWI data have been a trusted resource for over 40 years.

*NWI provides users with scientifically-based information on wetlands and deepwater habitats to promote the understanding and conservation of the Nation's wetland resources through research, education, resource management and policy development.*

## NWI Mapper Use Statistics

The [Wetlands Mapper](#) is the primary public interface to the NWI geospatial dataset and is designed to deliver easy-to-use, map like views of the Nation's wetland and deepwater resources. It provides an interactive environment for users to view, query and print wetlands data along with other resource information. The Wetlands Mapper is the Nation's go-to resource for wetlands information as supported by the statistics below.

Over 1,700 Mapper views each day

Over 36,000 datasets downloaded annually

Nearly 200,000 maps printed last year

Over 260,000 unique users each year

Assess data use to tailor data dissemination

## NWI Use Map Gallery

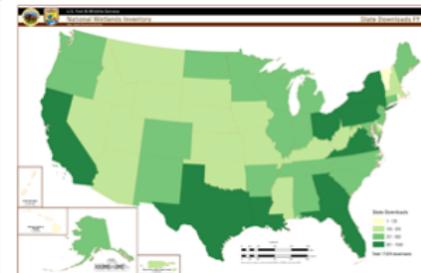
Click on the maps below to view a spatial representation of where users accessed NWI geospatial data throughout the U.S. and its territories in federal fiscal years 2016 and 2017.



2016 PDF Map Print Distribution



2016 Watershed Download Distribution



2016 State Download Distribution

Assess data use to target data production



## NWI Analysis Examples

- Home
- Habitat Assessment
- Watersheds and Water
- Species
- Climate and Sea Level
- Invasives
- Energy and Development
- Maps

The NWI program provides users with a robust and powerful dataset that is used to address questions and support decision-making in various fields of study. **Click on the topics (tabs) above** to access example applications that utilized NWI data.

## NWI Use Library Searches



**ServCat** is an online repository for USFWS documents, reports, management plans and data. [Explore more NWI data uses from within the USFWS.](#)



**WorldCat** is the world's largest network of library content containing collections from over 72,000 libraries worldwide. [Explore NWI data uses nationwide.](#)

## NWI Use in Web Applications

NWI geospatial data can be displayed on other web applications through our online [mapping services](#). Here are some examples of federal and state agencies that consume NWI geospatial data to enhance their own map viewers.



The National Map



EPA-NEPA



ECOS-IPaC



NY Mapper



NOAA-ERMA



GeoMine

Supports application of data by providing examples of appropriate use and methods

Encourages access of data through new dissemination points

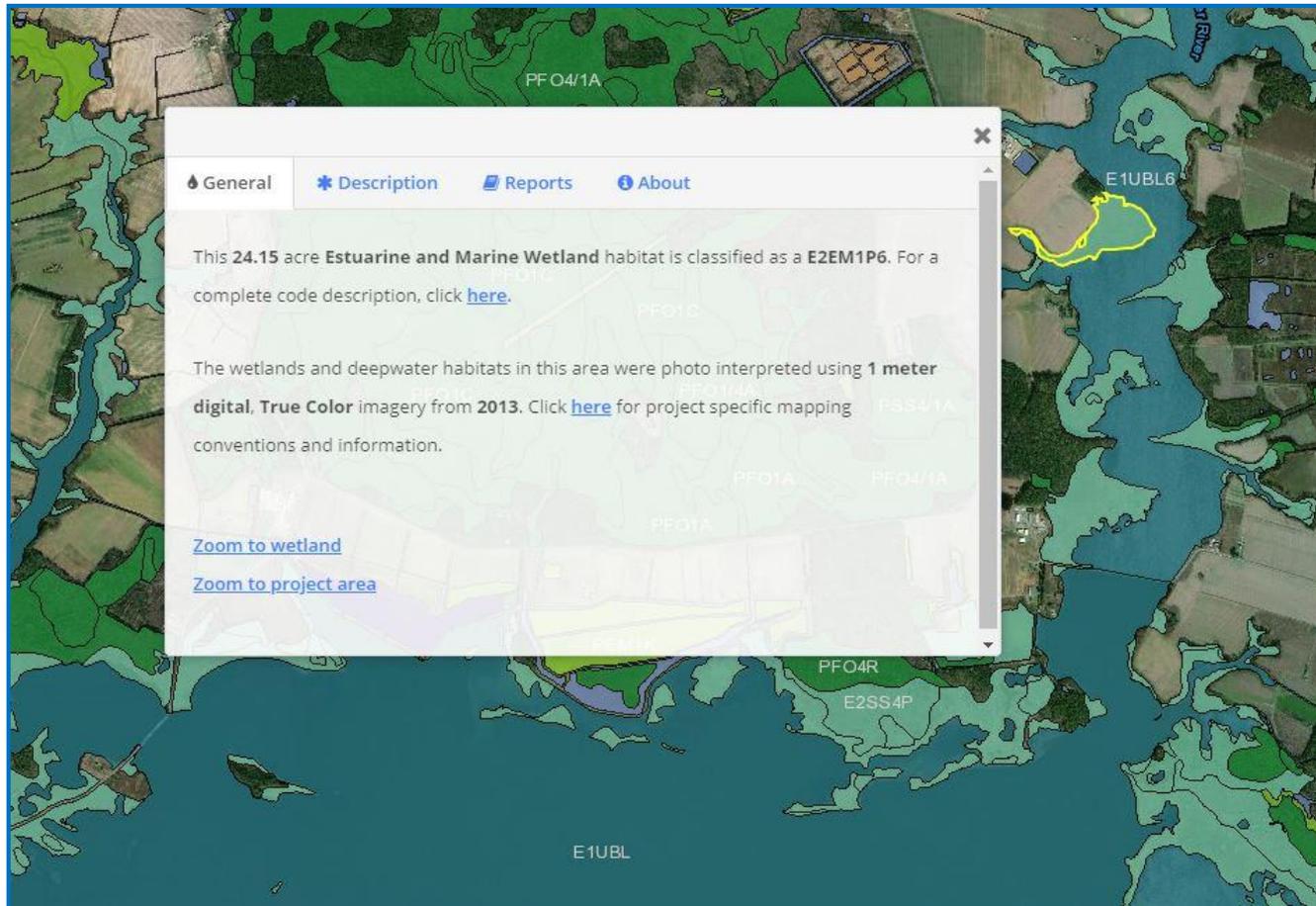
# Updated Wetlands Layer Interface

---

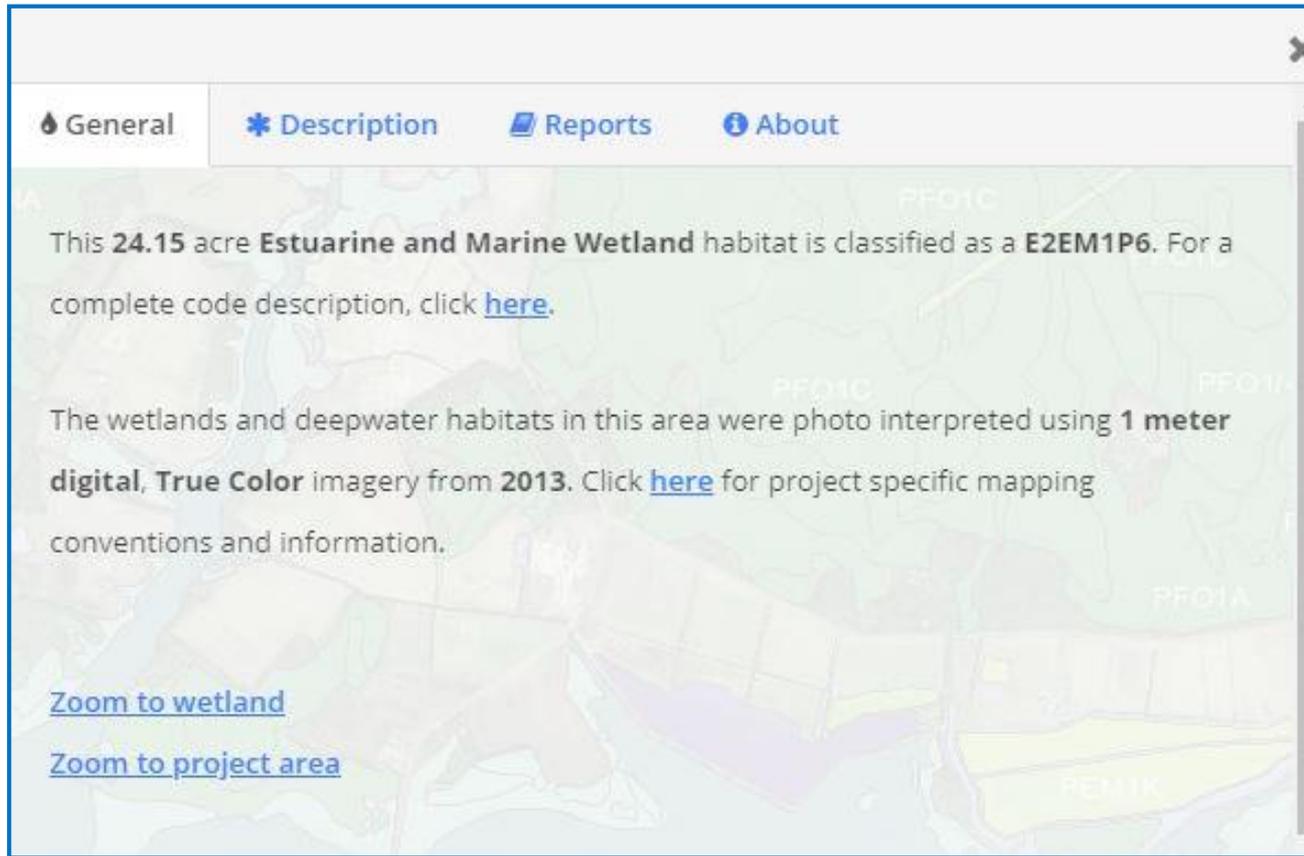
The user interface of the US Fish and Wildlife Service Wetlands Mapper, the primary distribution point for the NSDI Wetlands Layer, was updated in May 2018 to improve clarity and functionality.

- ❖ Goal was improved understanding and enhanced use of NSDI Wetlands Layer

# Updated Wetlands Layer Interface



# Updated Wetlands Layer Interface



The screenshot displays a web interface for a wetlands layer. At the top, there are four tabs: "General", "Description", "Reports", and "About". The "Description" tab is active. The main content area features a map of a wetland area with various colored regions and labels like "PFO1C" and "PFO1A". Overlaid on the map is the following text:

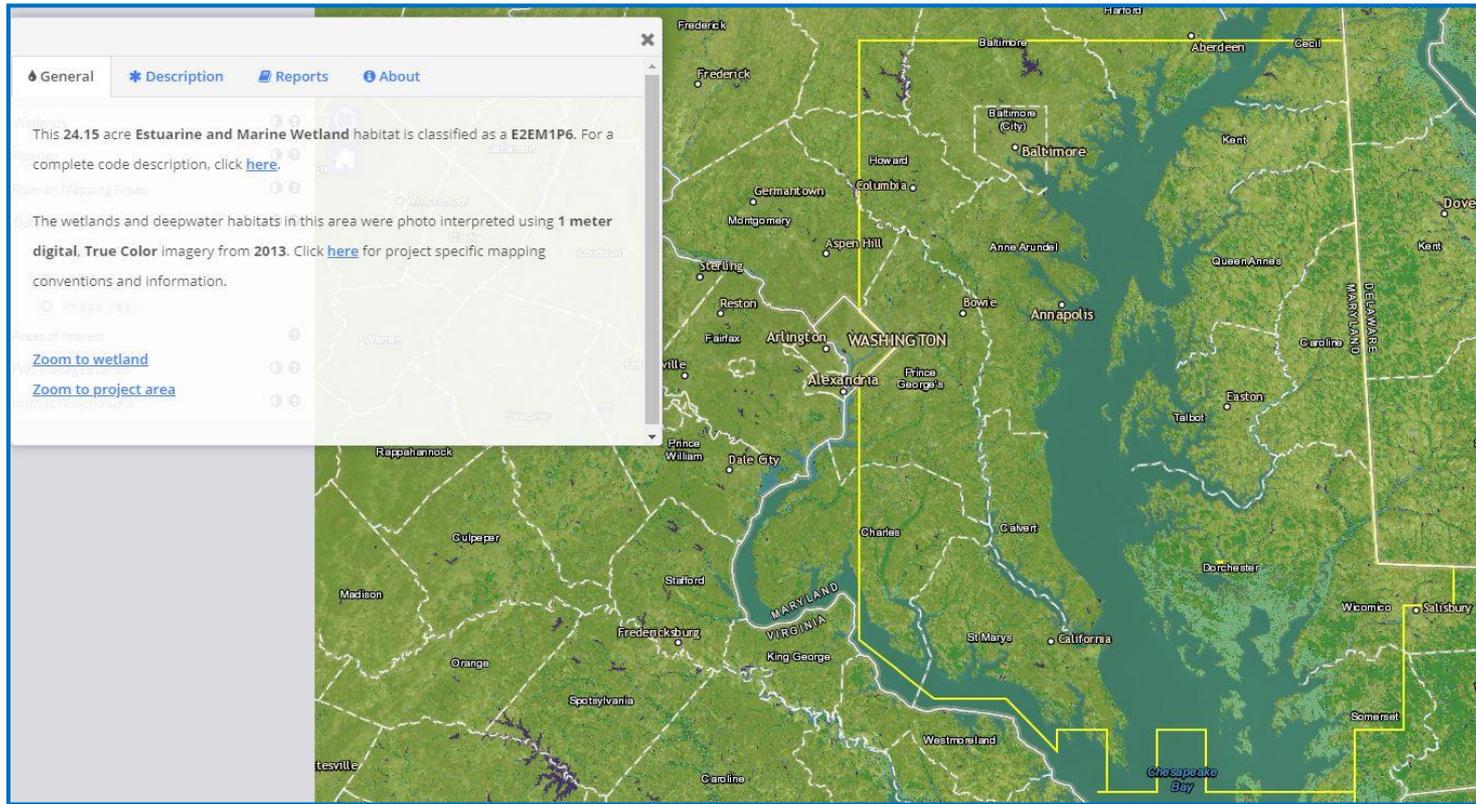
This **24.15** acre **Estuarine and Marine Wetland** habitat is classified as a **E2EM1P6**. For a complete code description, click [here](#).

The wetlands and deepwater habitats in this area were photo interpreted using **1 meter digital, True Color** imagery from **2013**. Click [here](#) for project specific mapping conventions and information.

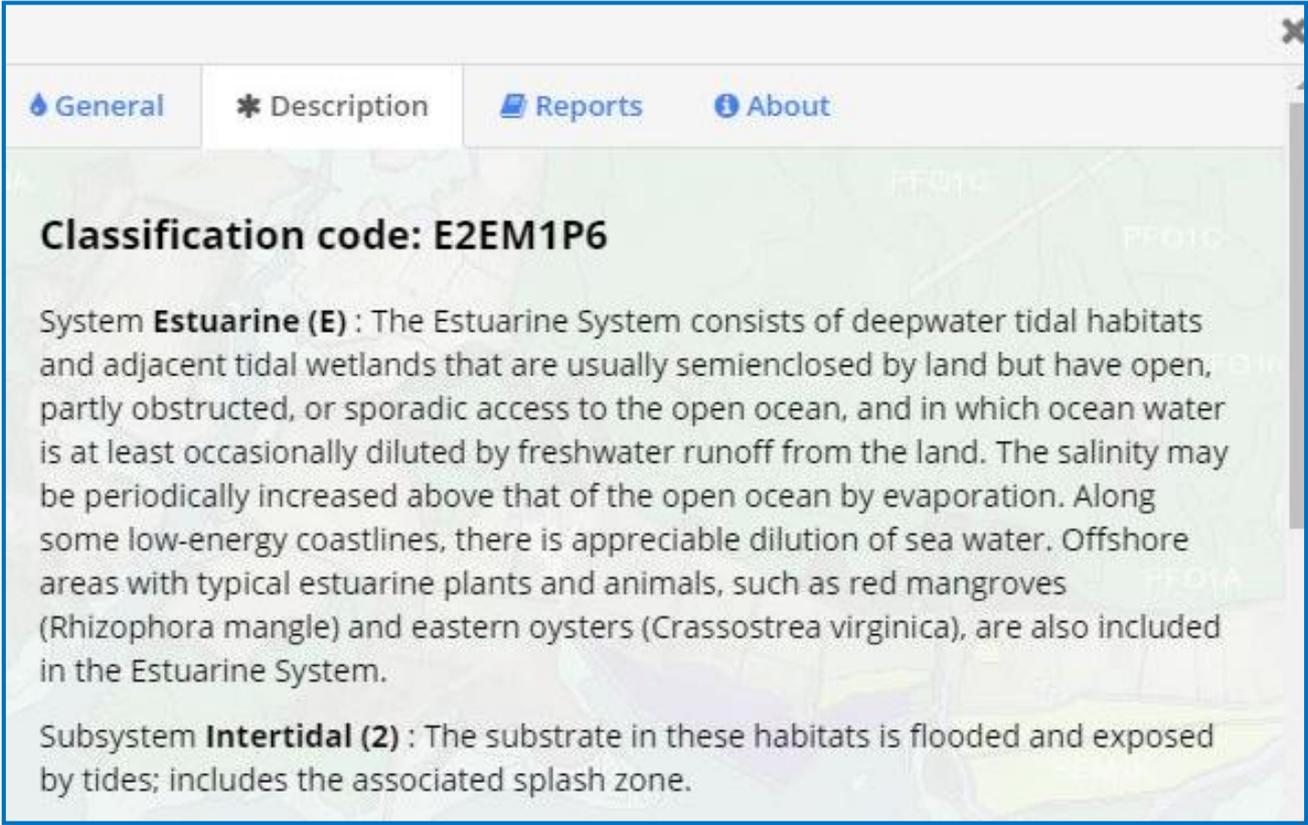
[Zoom to wetland](#)

[Zoom to project area](#)

# Updated Wetlands Layer Interface



# Updated Wetlands Layer Interface



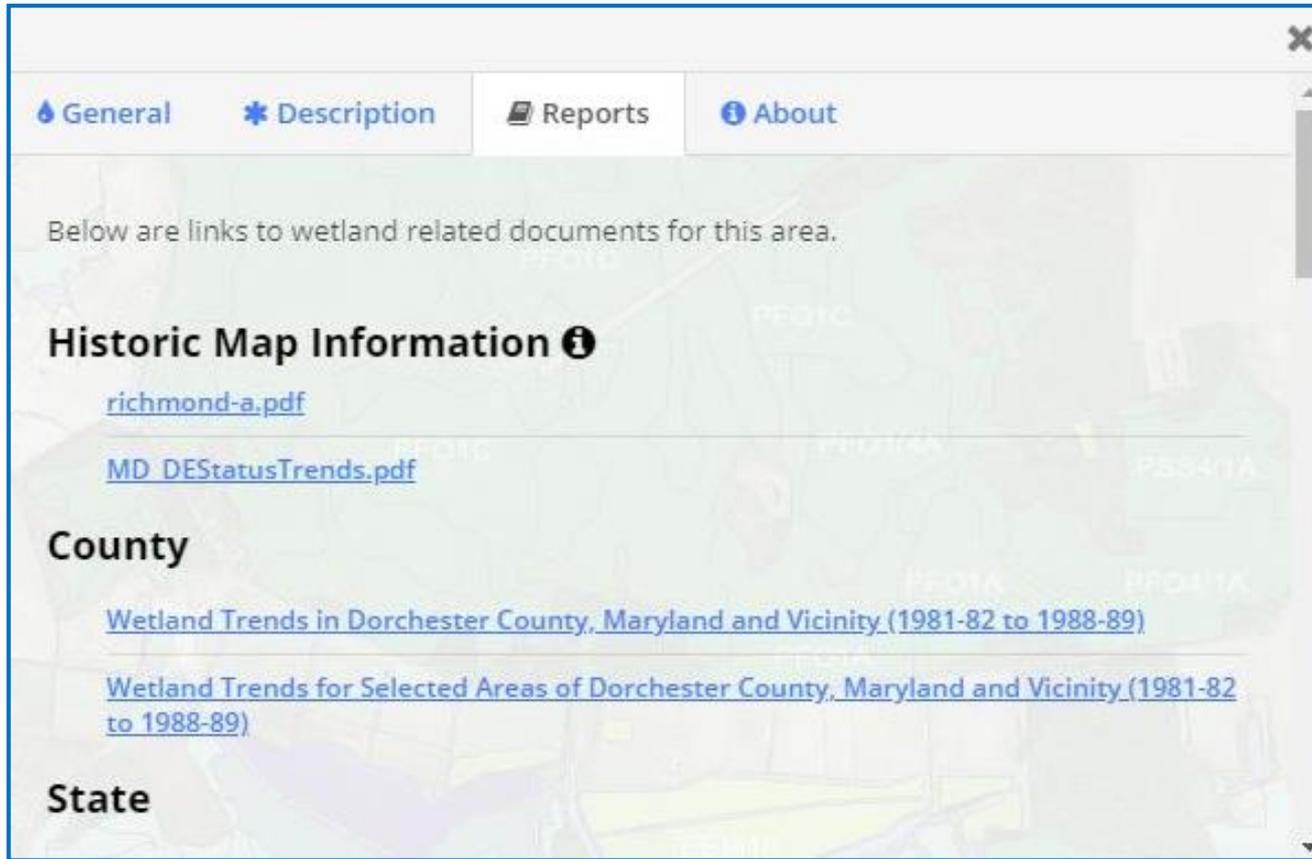
The screenshot displays a web interface with four tabs: General, Description (selected), Reports, and About. The Description tab is active, showing the following text:

**Classification code: E2EM1P6**

System **Estuarine (E)** : The Estuarine System consists of deepwater tidal habitats and adjacent tidal wetlands that are usually semienclosed by land but have open, partly obstructed, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation. Along some low-energy coastlines, there is appreciable dilution of sea water. Offshore areas with typical estuarine plants and animals, such as red mangroves (*Rhizophora mangle*) and eastern oysters (*Crassostrea virginica*), are also included in the Estuarine System.

Subsystem **Intertidal (2)** : The substrate in these habitats is flooded and exposed by tides; includes the associated splash zone.

# Updated Wetlands Layer Interface



The screenshot shows a web interface with a navigation bar at the top containing four tabs: "General", "Description", "Reports", and "About". Below the navigation bar, there is a text prompt: "Below are links to wetland related documents for this area." The interface is divided into three sections: "Historic Map Information", "County", and "State". Each section contains one or more blue hyperlinks to PDF documents. The "Historic Map Information" section includes links to "richmond-a.pdf" and "MD\_DEStatusTrends.pdf". The "County" section includes links to "Wetland Trends in Dorchester County, Maryland and Vicinity (1981-82 to 1988-89)" and "Wetland Trends for Selected Areas of Dorchester County, Maryland and Vicinity (1981-82 to 1988-89)". The "State" section is currently empty. The background of the interface is a faint map showing wetland boundaries and various codes like PFO1C, PFO1A, and PBO41A.

General Description Reports About

Below are links to wetland related documents for this area.

**Historic Map Information**

[richmond-a.pdf](#)

[MD\\_DEStatusTrends.pdf](#)

**County**

[Wetland Trends in Dorchester County, Maryland and Vicinity \(1981-82 to 1988-89\)](#)

[Wetland Trends for Selected Areas of Dorchester County, Maryland and Vicinity \(1981-82 to 1988-89\)](#)

**State**

To explore these new features, please visit the [Wetlands Mapper](#).

# Interagency Wetland Mapping Workgroup

---

## Introduction

- Formed in 2016 with members from NOAA, USGS, and USFWS – including managers of research and operational datasets that directly support wetland mapping
  - Open exchange of data and techniques across federal agencies to best support the development of the Wetlands layer of the NSDI.
- ❖ FY18: Workgroup officially incorporated under the Wetlands Subcommittee, and produced draft publication that highlights synergies between wetland maps and related land cover datasets
  - Goal: support enhanced and appropriate use of wetland and wetland related datasets.

# NWI Wetlands Status and Trends (S&T) Report

---

## Monitoring component of the National Wetlands Inventory

- Augments NSDI Wetlands Layer to provide improved decision support
- Survey based dataset produced on a decadal time-step
  - Wetland and deepwater habitat area and change

## ❖ 2019 S&T Report

- Data collection initiated in FY18
  - 7 contractors/cooperators
  - ~1,036 of 5,048 plots analyzed
- Report expected FY22
  - Data will be used, in part, to further target updates to the NSDI wetlands layer.

# Example of Coastal Wetland Change



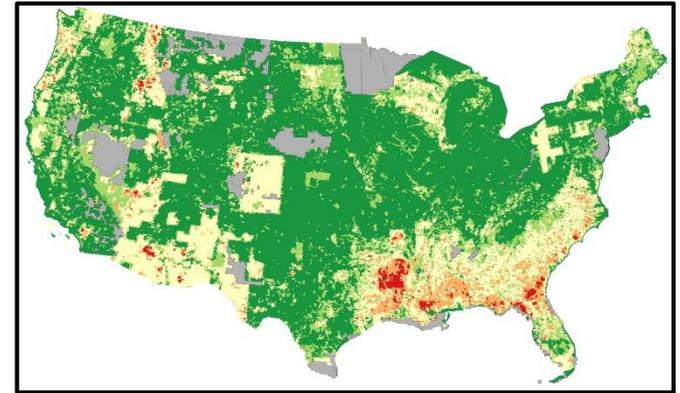
T1 Line-work Overlaid on T2 Imagery



# Reviewed Wetlands Layer Update Approach

---

The Wetland Mapping Targeting Tool was used to help initiate development of a forward-looking plan to guide the investment of limited resources to update the Layer.



- ❖ The plan will leverage the WMTT with an enhanced dataset update process to best meet the needs of diverse stakeholder communities.

# Next Steps

---

- ❖ In the coming year, the Wetlands Subcommittee hopes to:
  - Support development of the Wetlands Layer
  - Continue communications with other federal agencies regarding data and techniques that could be used to enhance development of the Wetlands Layer
  - Develop a formal outreach plan
  - Support production of outreach publications and tools

# Questions?

---

Megan Lang, USFWS

(703) 358-2103

Megan\_Lang@fws.gov