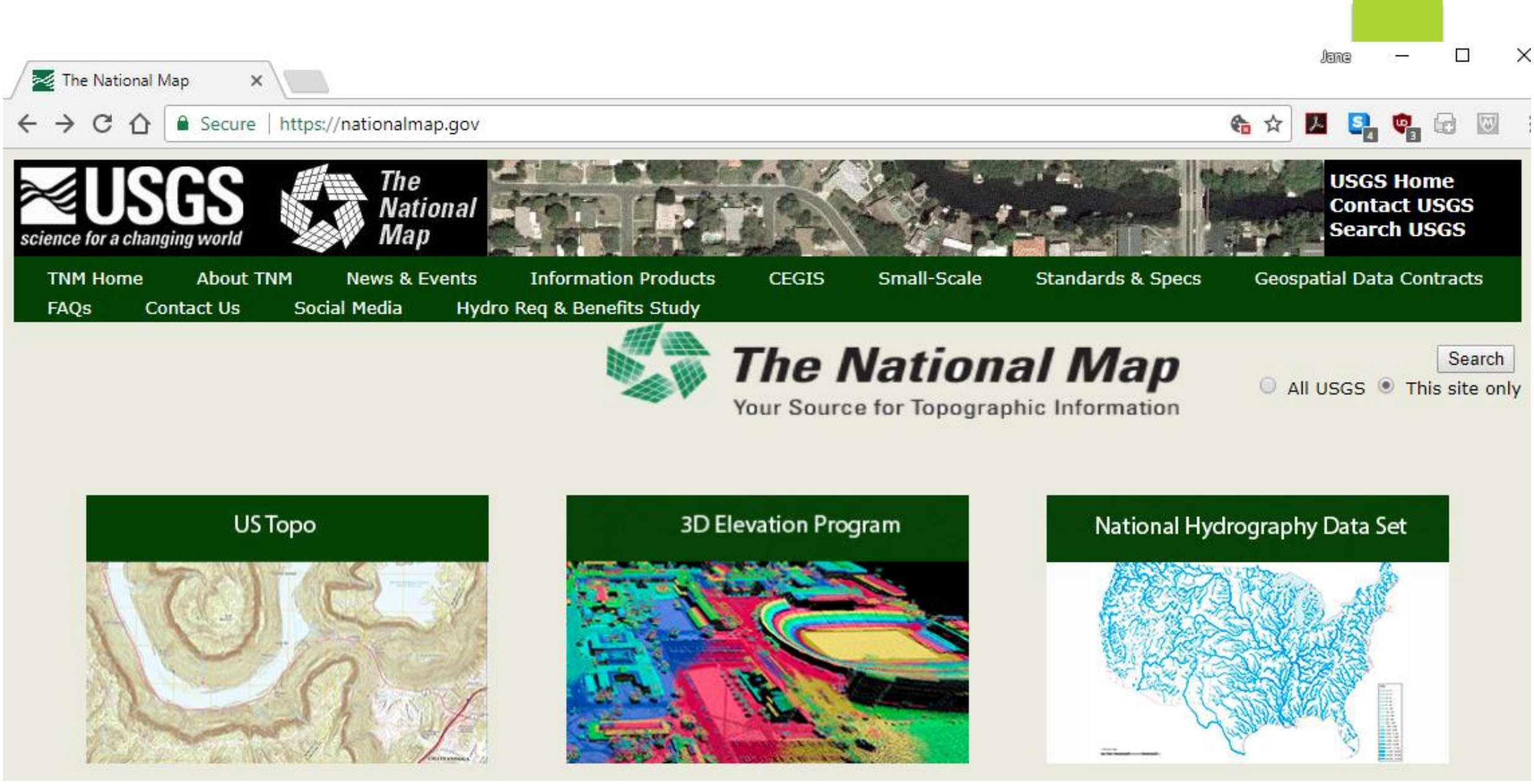
California Stewardship of the National Hydrography Dataset

CALIFORNIA WATER QUALITY MONITORING WORKGROUP

FEBRUARY 23, 2018

PRESENTED BY JANE SCHAFER-KRAMER, RESEARCH PROGRAM SPECIALIST I (GEOGRAPHIC INFORMATION SYSTEMS), INTEGRATED DATA & ANALYSIS BRANCH, DEPARTMENT OF WATER RESOURCES



https://nationalmap.gov/

National Hydrography Dataset (NHD)

NHDFlowline

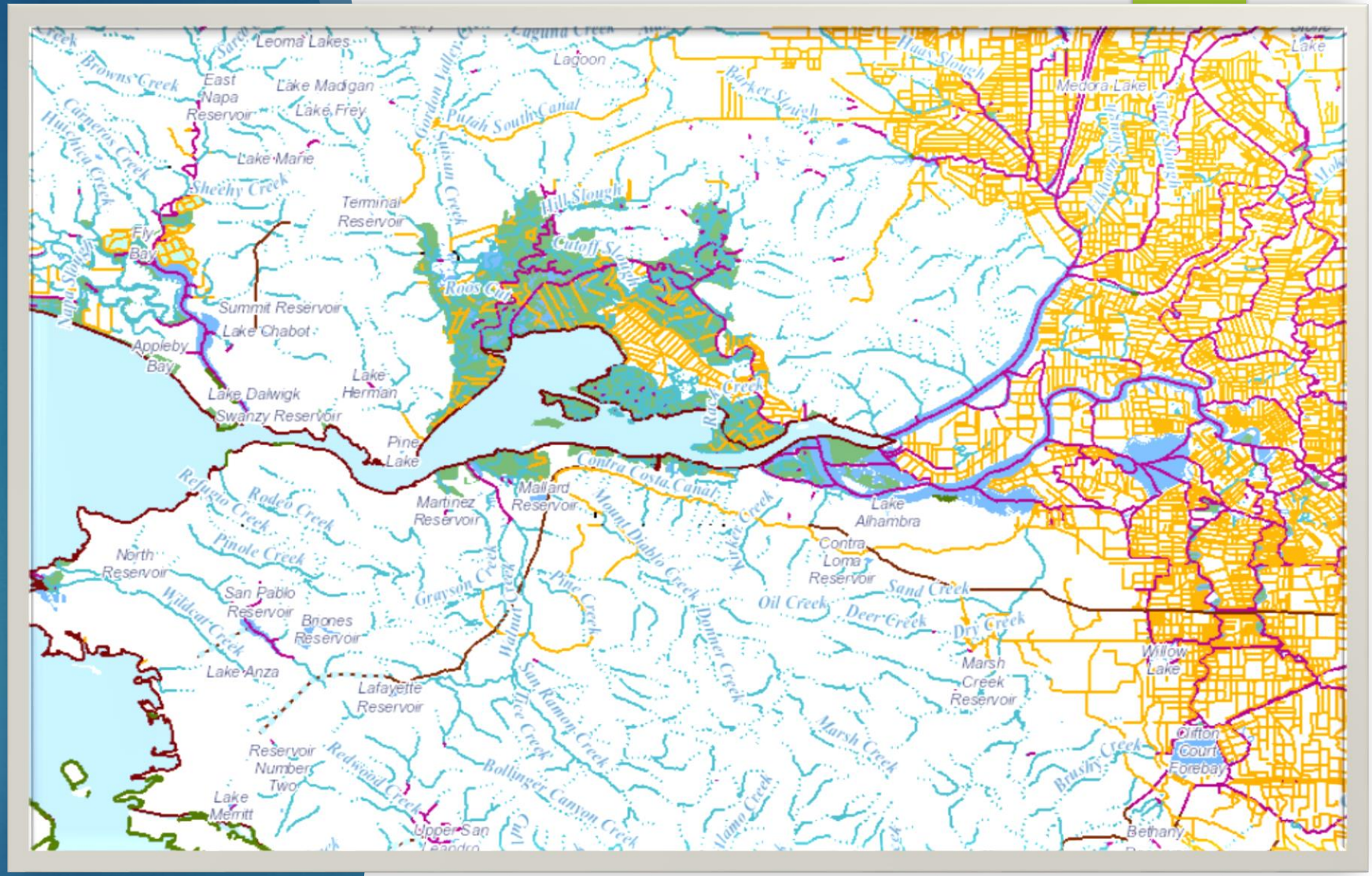
NHDWaterbody

NHDArea

NHDLine

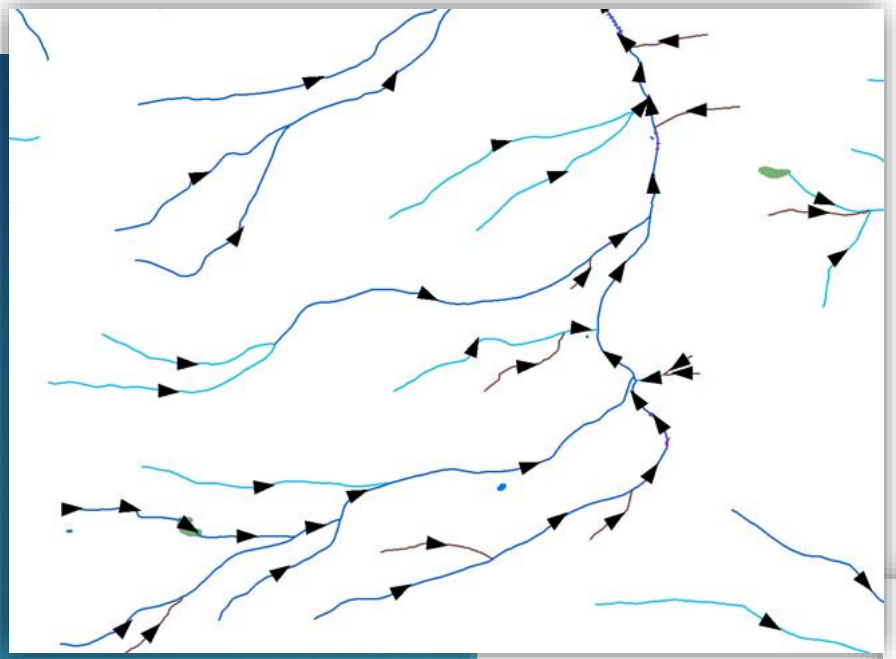
NHDPoint

+ related tables

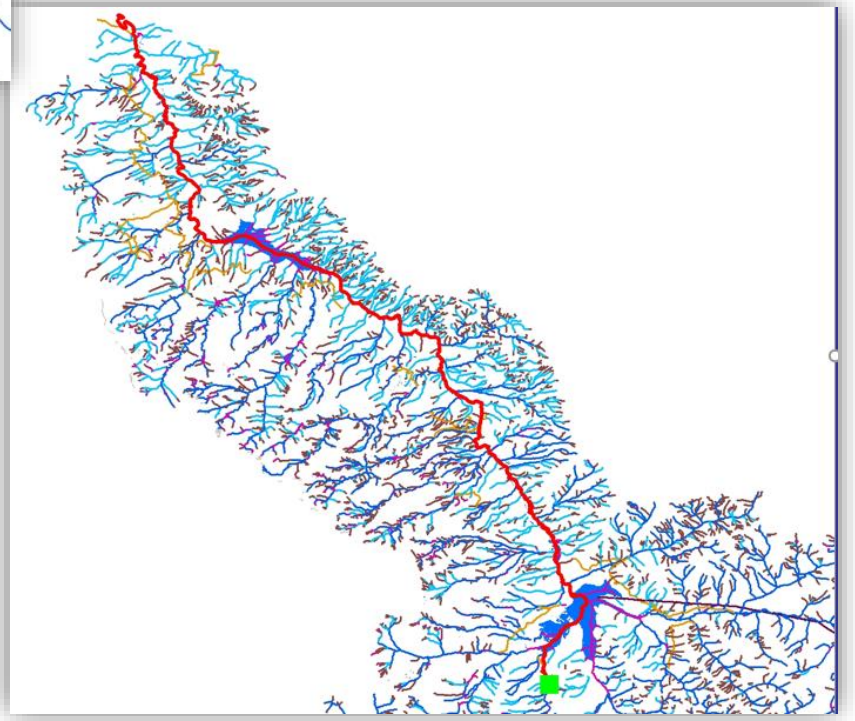


https://nhd.usgs.gov/

National Hydrography Dataset (NHD)



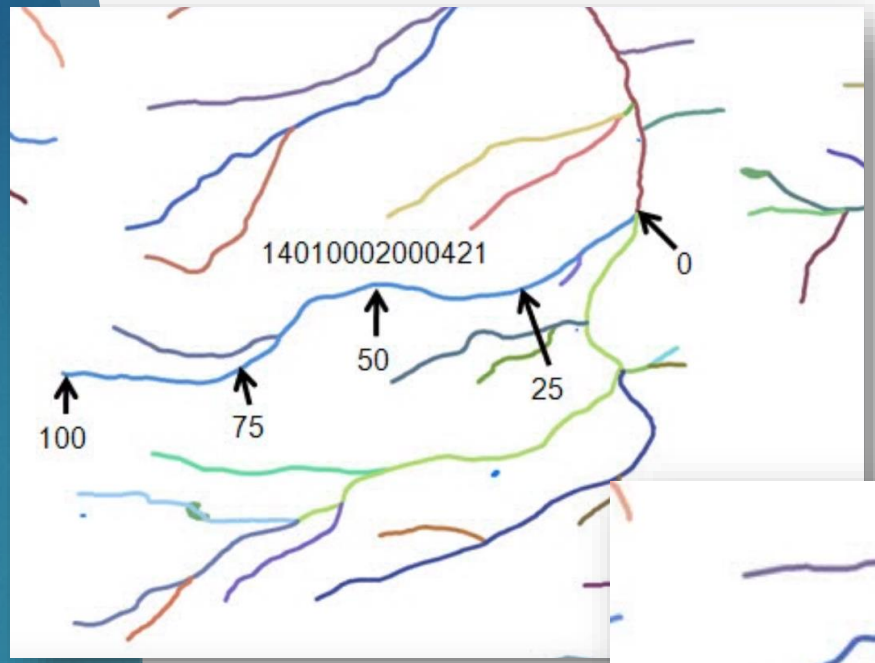
- Geometric Network (works in ArcGIS software)
- Flow Direction and Connectivity
- Allows for Flow Tracing, Navigation

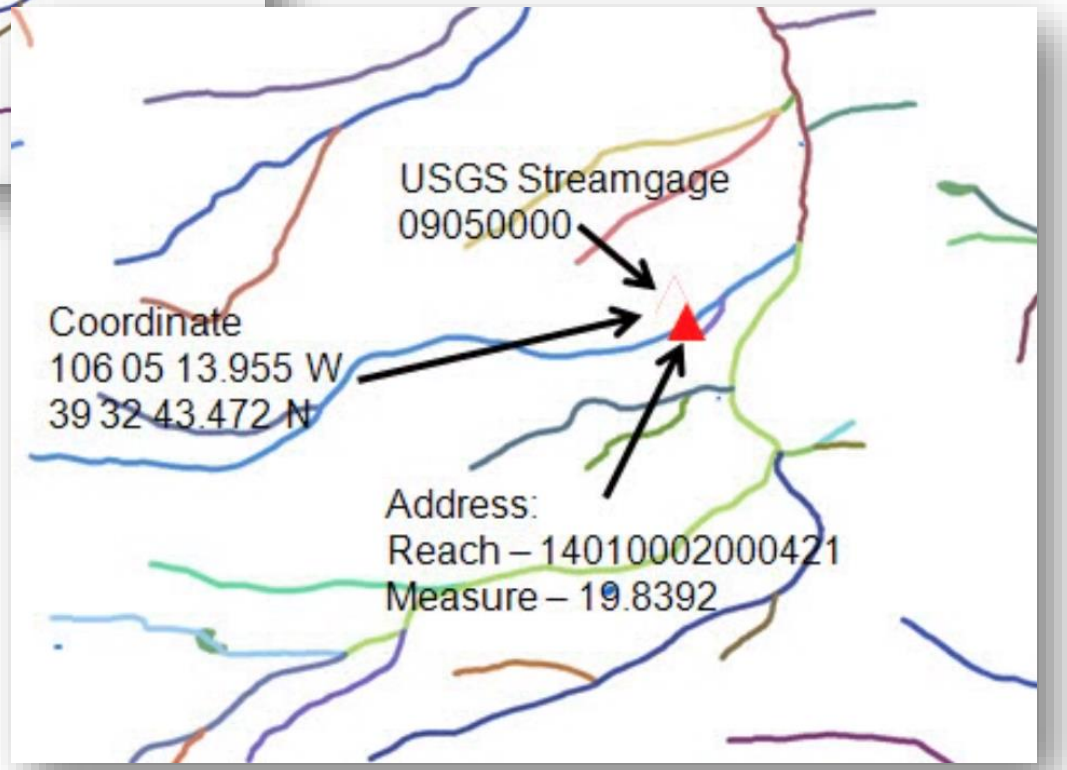


NHD
Linear Referencing

Reach codes on the flowlines and Measures (M Values) allow for addressing of point features, such as a Streamgage.

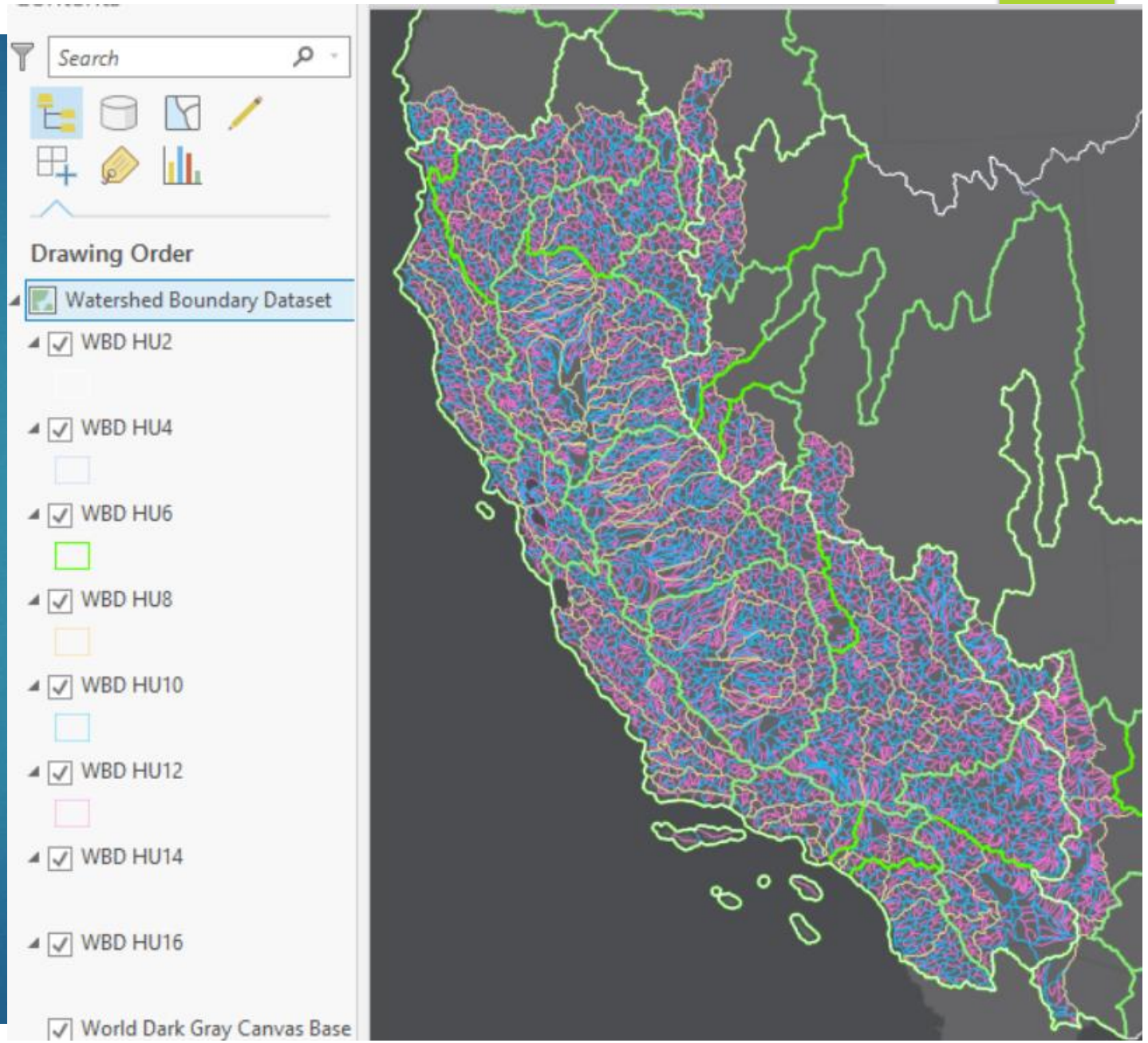
Allows end users a way to spatially connect their own data to the NHD.





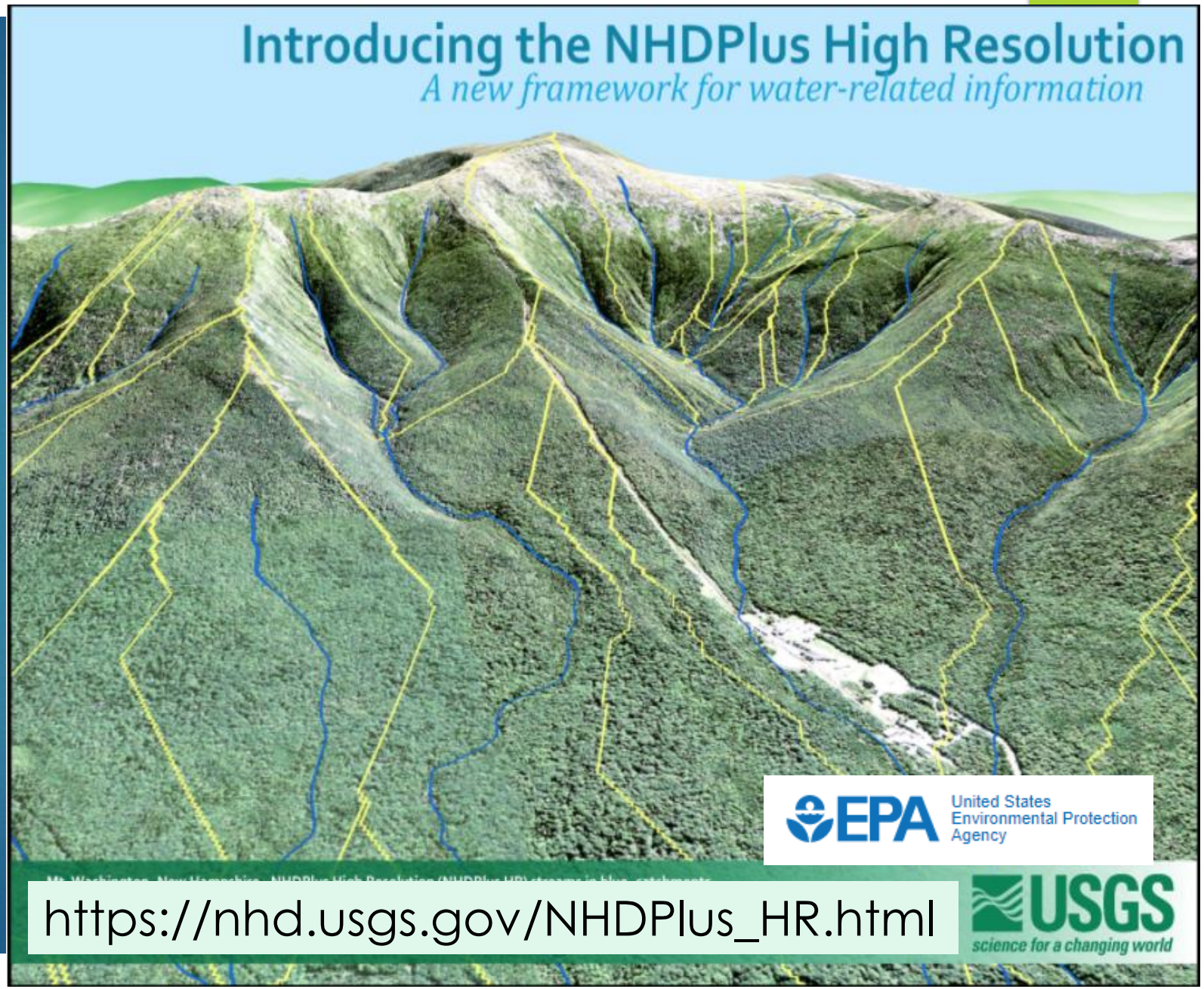
Watershed Boundary Dataset (WBD)

- Included with NHD
- Certification Process
- HU = Hydrologic Unit
- Region, Subregion, Basin, Subbasin, Watershed, Subwatershed
- HU14 and HU16 – placeholders for future development

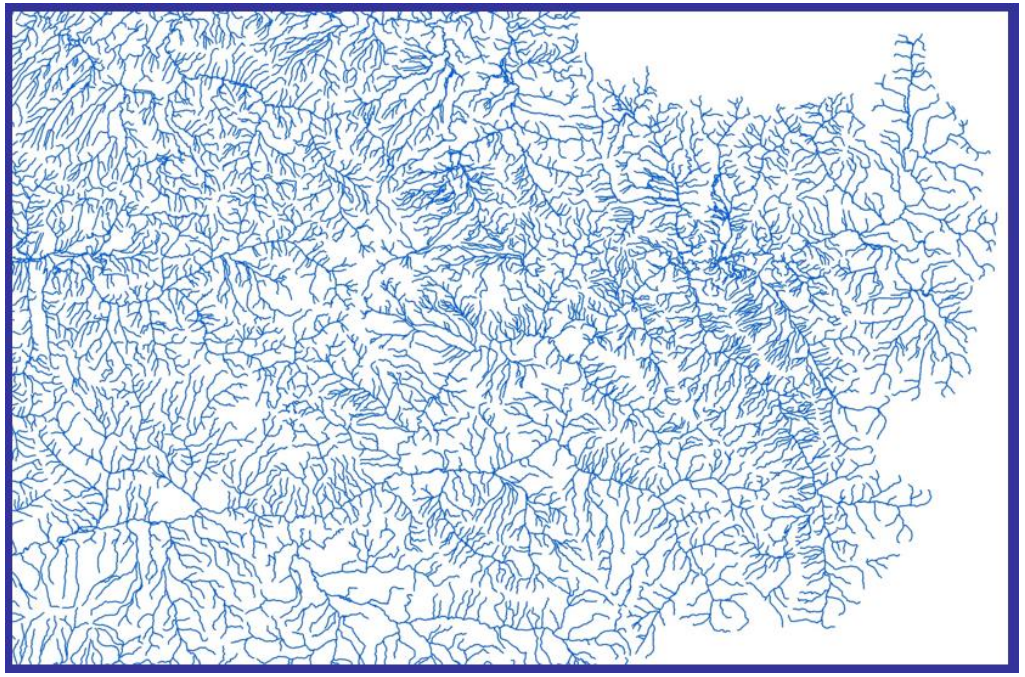


NHD Plus

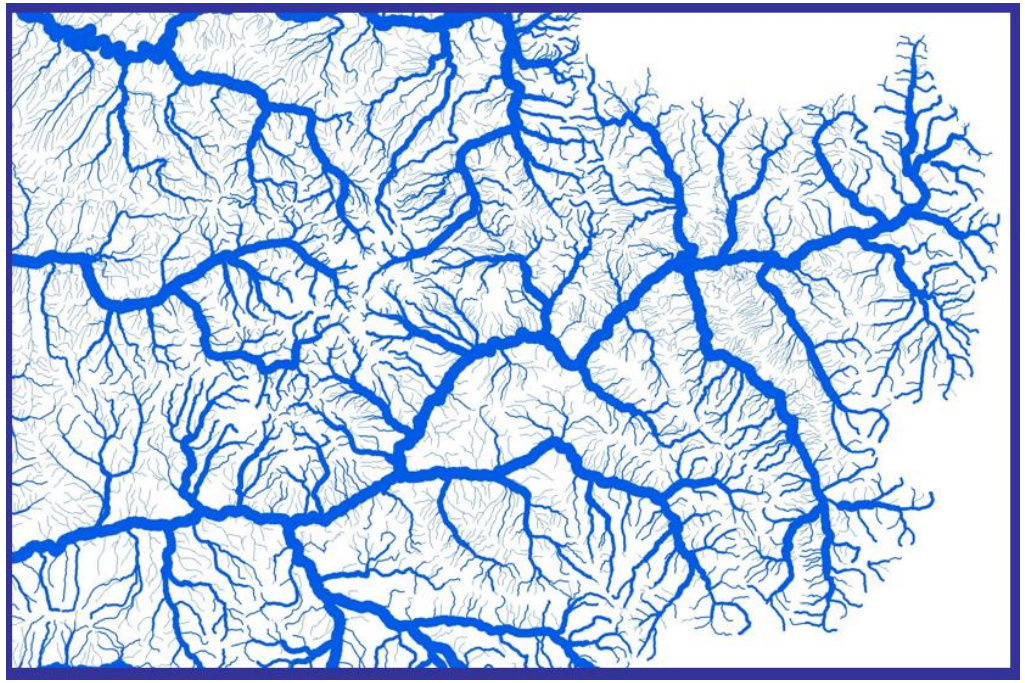
- NHD + WBD + Elevation
- Water Information Framework
- Value-Added Attributes
- 1:100,000 scale for CA
- 1:24,000 scale for CA in 2019



NHD compared with NHD Plus



NHD shows us where the water is.



NHD Plus can show how much water is in the streams.

Why do we need NHD Stewardship?

USGS, US EPA, and NCRS gave it a good start

Data needs to be updated: correct errors and improve resolution

The expert knowledge is local

Keeping hydrography current and correct makes other work easier and more accurate

Data needs to be impartial and authoritative

Someone has to lead and coordinate

How it happened in California…

- 2005, 2006, 2007, 2008, 2012, 2015 USGS presented NHD workshops around CA
- 2007 - USGS offers funds to DWR for Business Case Study (published 2010)
- 2009 - first of **7 annual** Budget Change Proposals by DWR Statewide Data Management Branch (Greg Smith)
- 2012 – A "White Tent Revival" and Edit Tool Training to promote NHD Stewardship (USGS & DWR)

How it happened in California…

- 2013-14 – SWRCB fixes errors in NHD for water quality assessment database for the California 303(d)/305(b) Integrated Report
- 2014 – USGS funds NHD Pilot Project with CSU-N and CSU-C
- **2014 – CA Water Action Plan includes NHD Stewardship**
- 2015 - DWR Budget Change Proposal - **accepted** for FY 2016-17!

  Received funding, but **0 positions**
- 2015 - DWR and DFW initiate contracts with CSUs for NHD update work

How it happened in California…

- **FY 2016 – NHD Stewardship Program in DWR begins**
- 2016 – DWR sponsors NHD Edit Tool and CA Business Rules Training for prospective editors
- 2017 – DWR contracts with CSU-N and CSU-C for NHD update work and technical assistance
- 2017 – Oroville incident redirects our efforts temporarily
- 2017 – Memorandum of Understanding between DWR and USGS drafted, approved internally in DWR, in USGS internal review
- 2017 – Program Manager Greg Smith retires from State service

Ongoing Work

- Overall Priority – Improve NHD Geometry and Attribution @1:24,000
- Additional QC to prepare for NHD Plus Update
- Coordinate with partners:
- U.S. Forest Service (Increase density, update attribution, add wetlands)
- Los Angeles County Public Works (urban stormwater drainage)
- Marin County - Local Resolution NHD and WBD updates from LiDAR
- Improve our technical expertise
- Outreach via California GIS Council, other GIS groups and gatherings

Looking Ahead

- Finalize the MOU
- Complete NHD Updates to all CA Subbasins @1:24,000 scale
- Update Watershed Boundary Dataset @1:24,000 scale
- Develop additional in-house technical expertise
- Local Resolution NHD and WBD

What about the Wetlands?

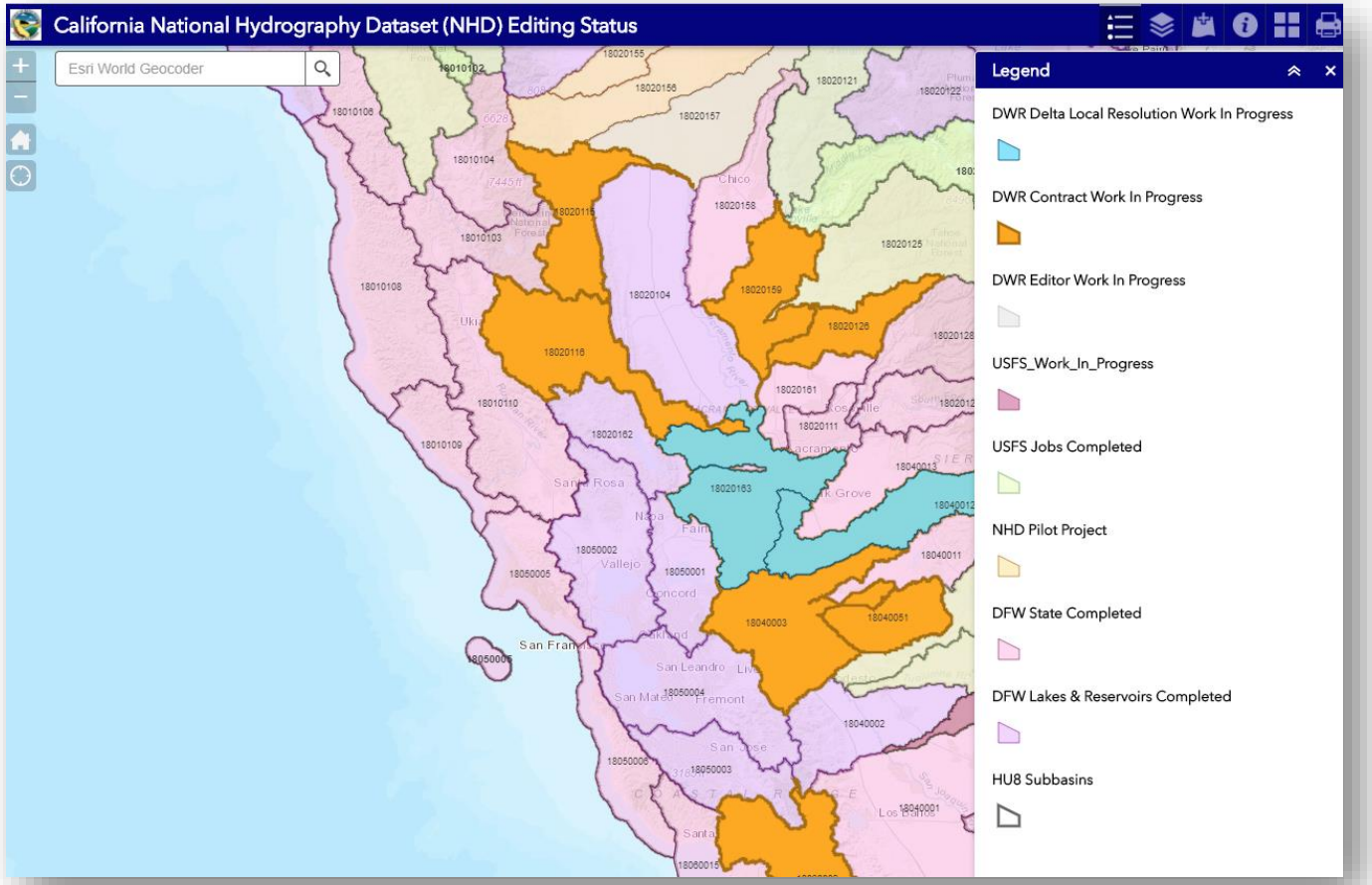
NHD wetlands are simply attributed as "SwampMarsh" in NHDWaterbody.

National Wetlands Inventory has a completely different data model.

California Aquatic Resources Inventory has a completely different data model.

DWR's NHD Stewardship Website

- http://www.water.ca.gov/waterdatalibrary/NHD/index.cfm
- Interactive status map http://www.tinyurl.com/calnhd



Hydrography/NHD Workgroup of the California GIS Council

http://cgia.org/cagiscouncil/workgroups/hydrography/

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Hydrography / NHD Workgroup

California GIS Council > Workgroups > Hydrography / NHD Workgroup

The California Department of Water Resources now receives funding to act as stewards of the California portion of the **National Hydrography Dataset**, which includes the **Watershed Boundary Dataset**. For more information on that program please visit the website at http://water.ca.gov/waterdatalibrary/NHD/index.cfm

Here is the **Workgroup Charter** that was adopted at the September 2017 meeting: Charter for the NHD Workgroup of the California GIS ...

Here is the **Workgroup Report** for the December 2017 meeting: NHD Workgroup Report CA GIS Council December 2017

Here is the **Workgroup Report** for the September 2017 meeting: NHD Workgroup Report CA GIS Council September2017

Here is the **Workgroup Report** presented at the June 2017 meeting: NHD Workgroup Report to California GIS Council 20170608

Letter Regarding the California Watershed Boundaries Dataset_20170803 a.k.a. **CalWater**

This dataset was created under an MOU between many government agencies in 1998 and then updated in 2004 and version 2 of CalWater was released; responsibility for maintenance of Calwater was shifted to

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NHD Stewardship for California