

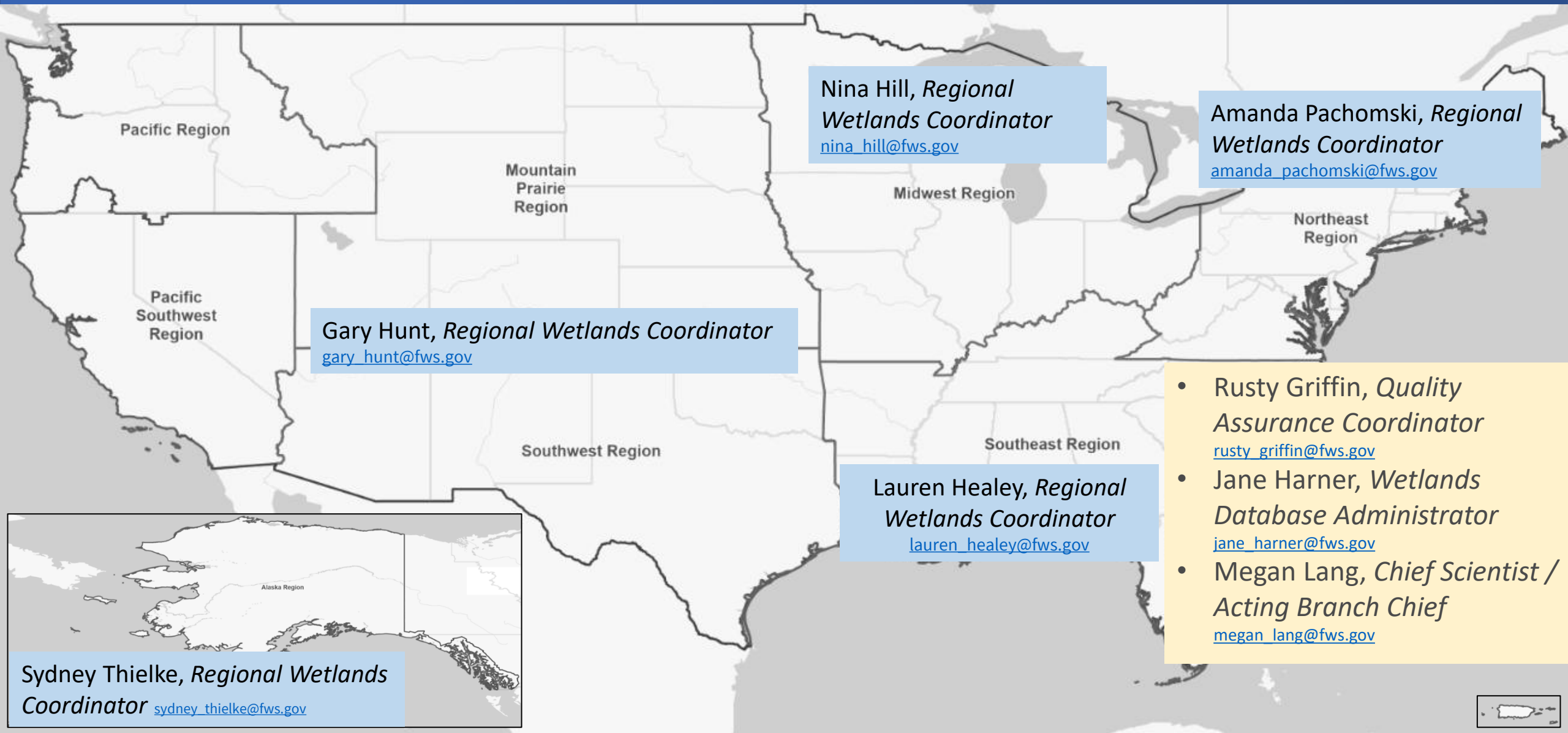


Overview of the National Wetlands Inventory

Amanda Pachomski, Acting Lead Regional Wetlands Coordinator, USFWS



NWI Staff



Pacific Region

Pacific
Southwest
Region

Mountain
Prairie
Region

Southwest Region

Midwest Region

Southeast Region

Northeast
Region

Alaska Region

Nina Hill, *Regional
Wetlands Coordinator*
nina_hill@fws.gov

Amanda Pachomski, *Regional
Wetlands Coordinator*
amanda_pachomski@fws.gov

Gary Hunt, *Regional Wetlands Coordinator*
gary_hunt@fws.gov

Lauren Healey, *Regional
Wetlands Coordinator*
lauren_healey@fws.gov

- Rusty Griffin, *Quality Assurance Coordinator*
rusty_griffin@fws.gov
- Jane Harner, *Wetlands Database Administrator*
jane_harner@fws.gov
- Megan Lang, *Chief Scientist / Acting Branch Chief*
megan_lang@fws.gov

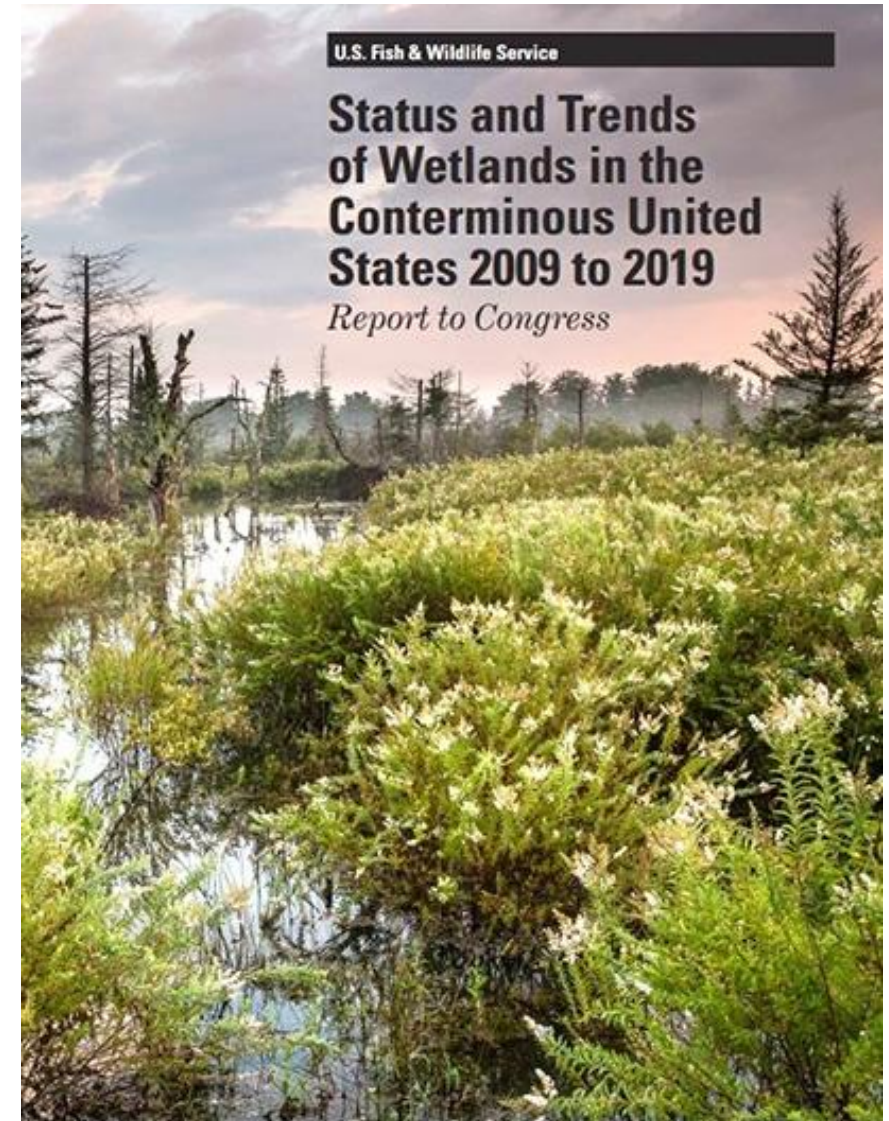
Sydney Thielke, *Regional Wetlands
Coordinator* sydney_thielke@fws.gov





The National Wetlands Inventory (NWI) Program

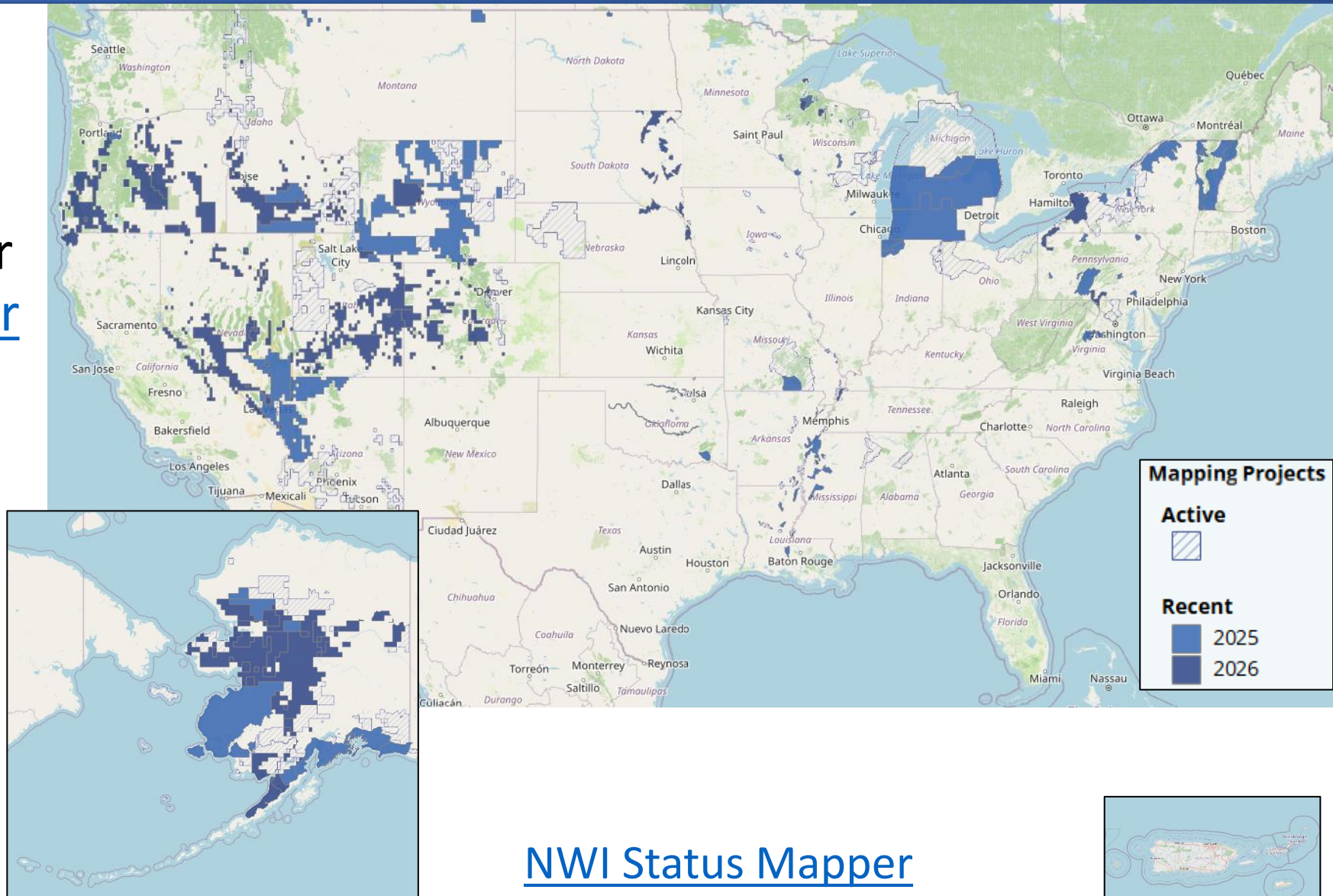
- USFWS is the principal U.S. federal agency tasked with providing information to the American public on extent and trends of U.S. wetlands
- Emergency Wetlands Resources Act of 1986
 - Directed USFWS to map the location and type of wetlands across the country
 - And, provide 10-year reports on the status and trends of the Nation's wetlands
- OMB Circular A-16 identifies the NWI dataset as the Wetlands Layer of the National Spatial Data Infrastructure (NSDI), maintained by USFWS
- The Federal Geographic Data Committee (FGDC) oversees this National Geospatial Data Asset (NGDA)





NWI Wetlands Dataset

- Seamless dataset of wetland and deepwater habitats
- Publicly available via our online [Wetlands Mapper](#) and web services
- Updated twice per year
- Standardized data production allows for consistent analyses
- **NOT** a Jurisdictional Wetland Map but data are very important for passive avoidance





Funding for Wetland Mapping

Current data production is mostly funded by external cooperators, such as state agencies, Tribes, and other federal agencies:

- Wetland Program Development Grants (EPA)
- Great Lakes Restoration Initiative (USFWS)
- BLM interagency agreement
- Natural Resources Conservation Service
- U.S. Army Corps of Engineers

We're immensely grateful for their support!

NWI's primary challenge is to support a contemporary dataset with a historically flat budget.

- After accounting for inflation, NWI's current budget is 1/6th of its 1986 budget (the year NWI mapping was mandated).

All federally funded wetland inventory mapping projects must comply with the FGDC [Wetland Mapping](#) and [Classification Standards!](#)



FGDC Wetland Mapping Standard

- Established in 2009
- Creates minimum requirements for data quality
 - Projection and schema
 - Spatial resolution of imagery
 - Target Mapping Unit
 - Horizontal Accuracy
 - 5 m wetlands
 - 15 m for deepwater
 - Feature and Attribute Accuracy
 - Metadata

FGDC Document Number FGDC-STD-015-2009



Wetlands Mapping Standard

FGDC Wetlands Subcommittee

July 2009

Federal Mapping Standard:

<https://www.fws.gov/media/federal-wetland-mapping-standard>

Additional Guidance (Oct. 2024):

<https://www.fws.gov/media/mapping-standard-compliant-data-supplement-version-2>

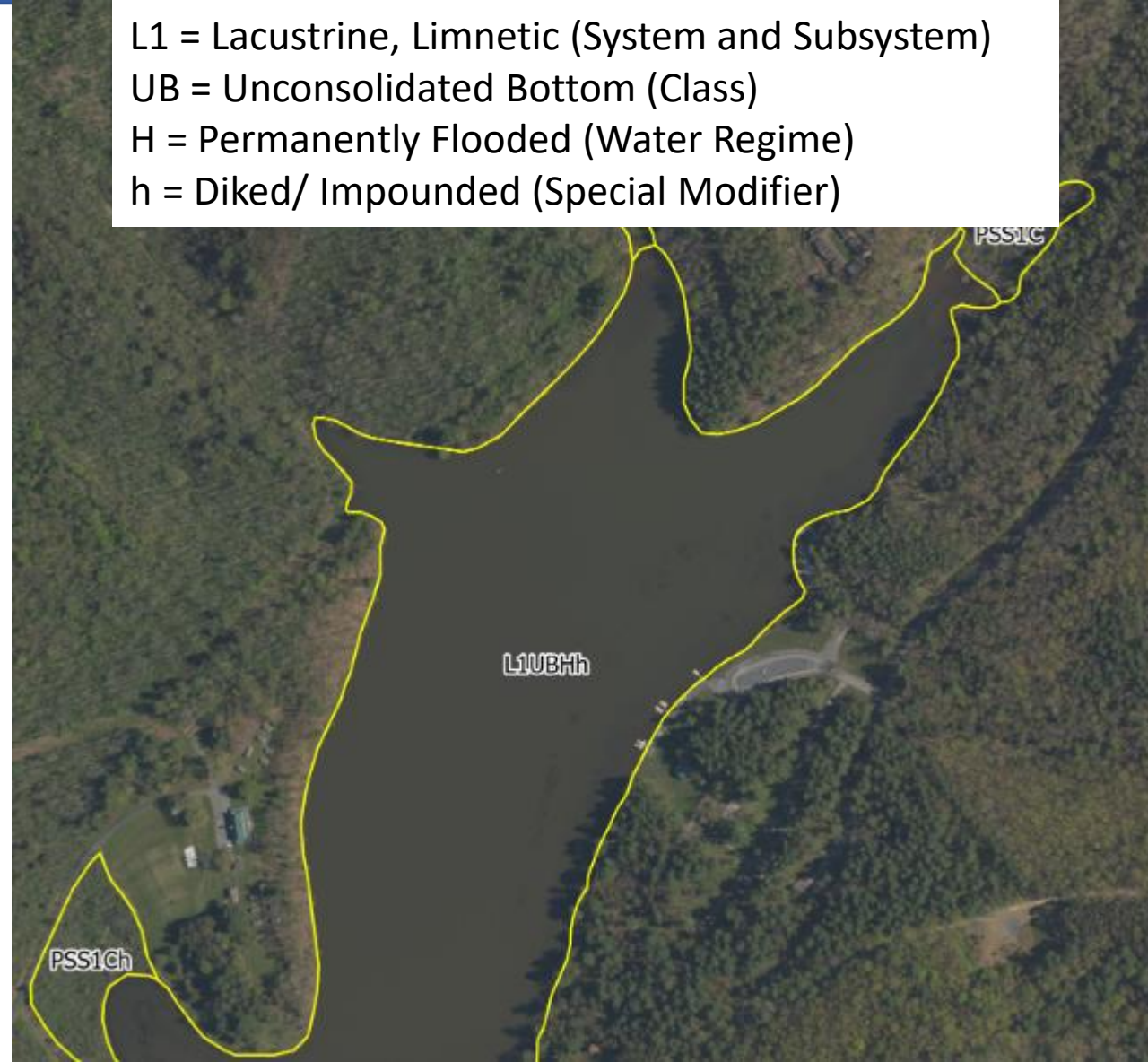


Classification Standard

- Original document:
 - Classification of Wetlands and Deepwater Habitats of the United States
 - Cowardin, et al 1979
- Revised document (2013):
 - Added water regimes: saturated (B) split out into B, E (beyond Northeast) and D
 - Added Q (regularly flooded freshwater tidal)
 - Added the “managed” special modifier
 - Clarified wetland definition

<https://www.fws.gov/media/classification-wetlands-and-deepwater-habitats-united-states>

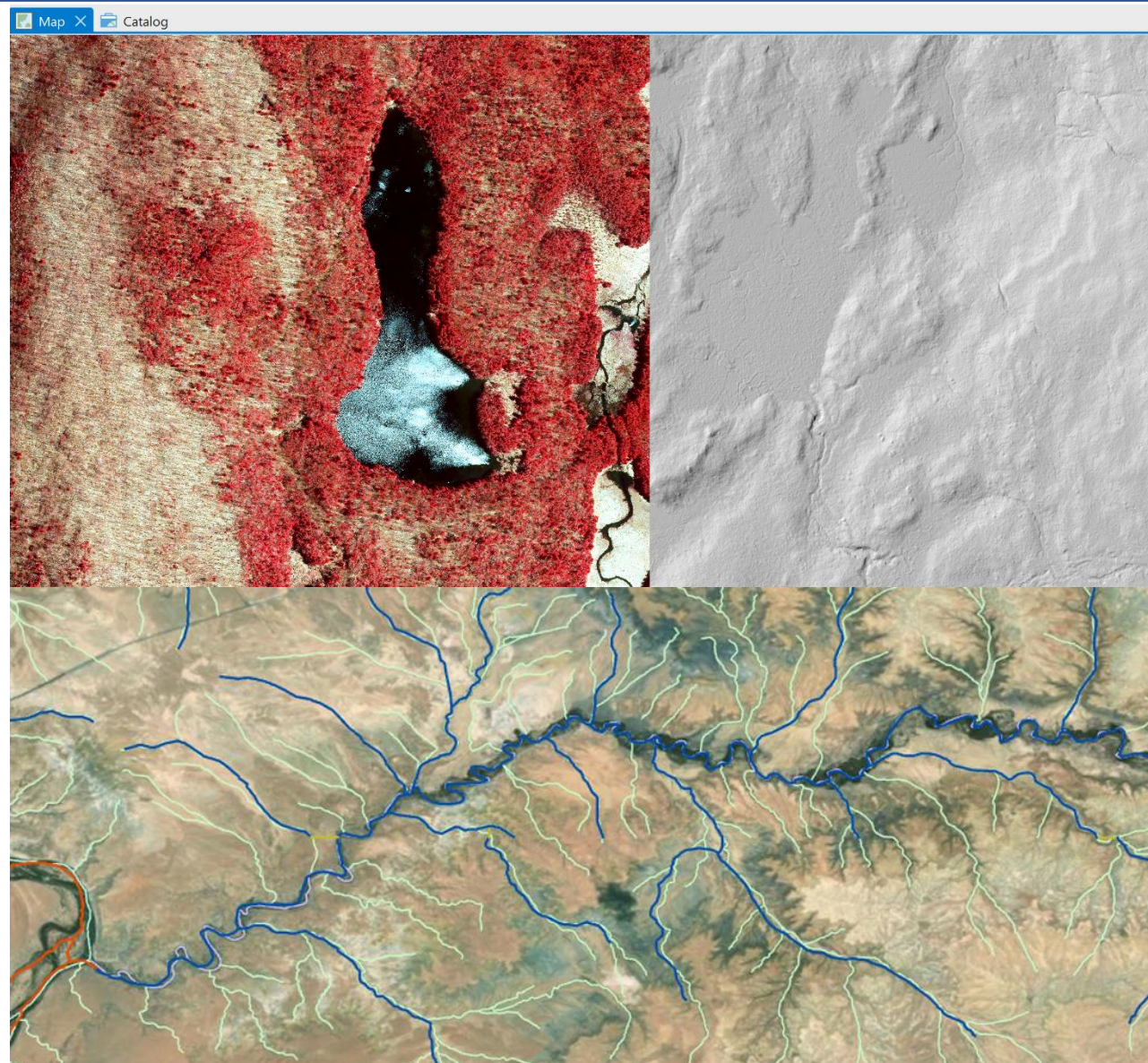
L1 = Lacustrine, Limnetic (System and Subsystem)
UB = Unconsolidated Bottom (Class)
H = Permanently Flooded (Water Regime)
h = Diked/ Impounded (Special Modifier)





NWI Standard Compliant Data Production

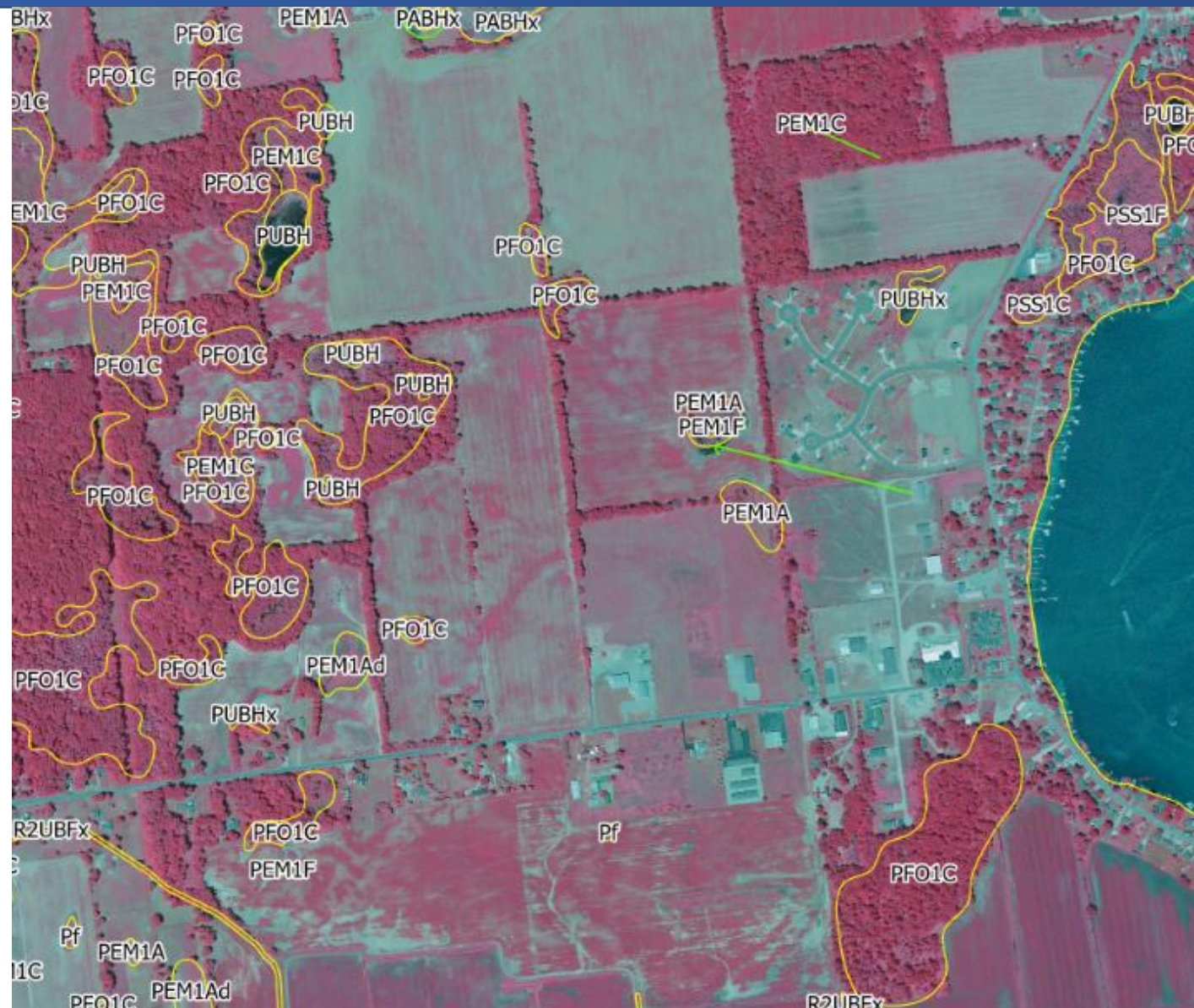
- Photo interpretation of base imagery (snapshot in time)
- Ancillary datasets inform mapping & classification
 - 3DHP, SSURGO, lidar derivatives
 - Multi-temporal aerial photography
- Riverine feature inclusion is guided by NWI's Hydrologic Reference Data Set
- NWI staff provide iterative QA/QC as well as back-end data storage, distribution, and maintenance





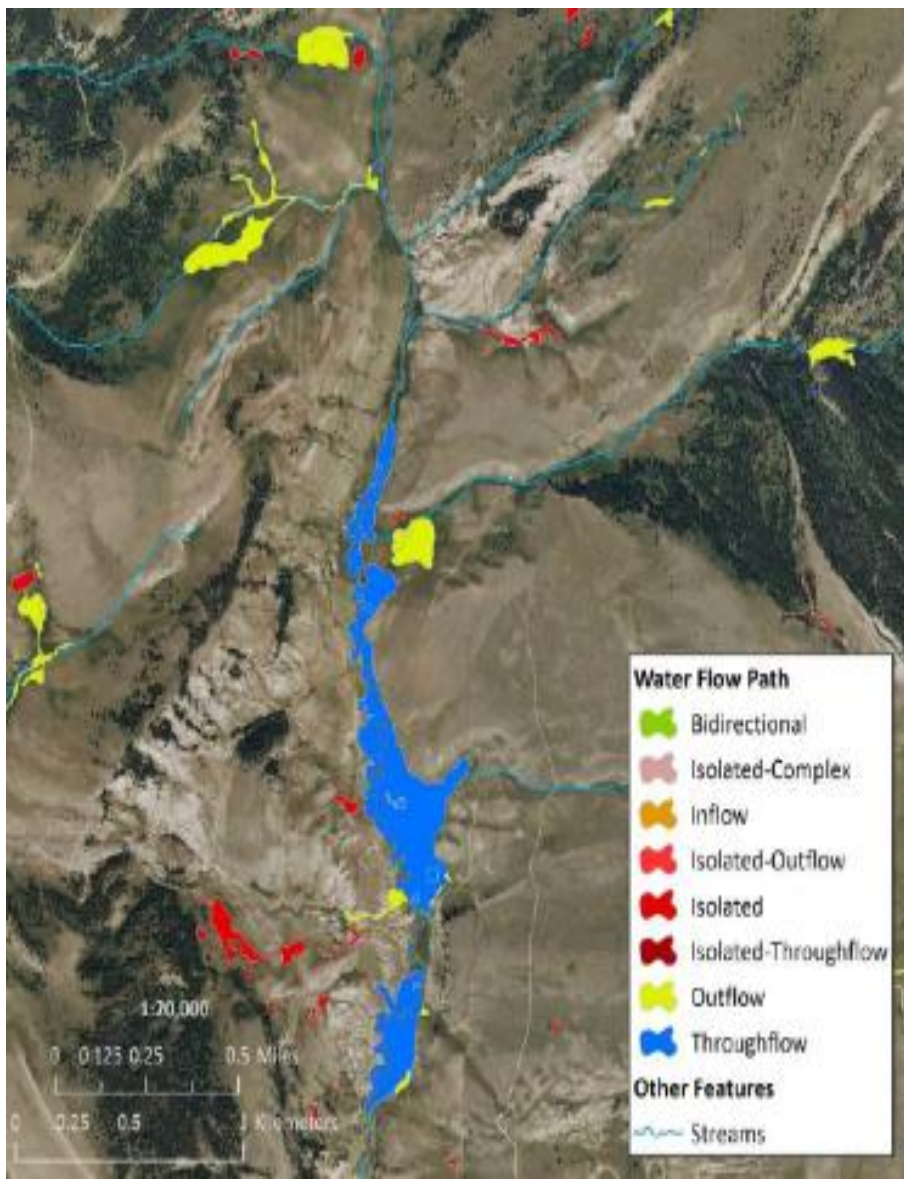
NWI Quality Control and Assurance

- Field verification of a small subset of representative features
- Iterative Quality Control review of 20%+ of the project area
- Visual review at respective scale
 - Horizontal accuracy
 - Incorrect classification
 - Upland inclusions
 - Sufficiently detailed line work
 - Omitted wetlands
 - Consistently mapped at TMU
- Quality Assurance (10%)





Landscape, Landform, Waterbody, Water Flow Path Data for Functional Assessments



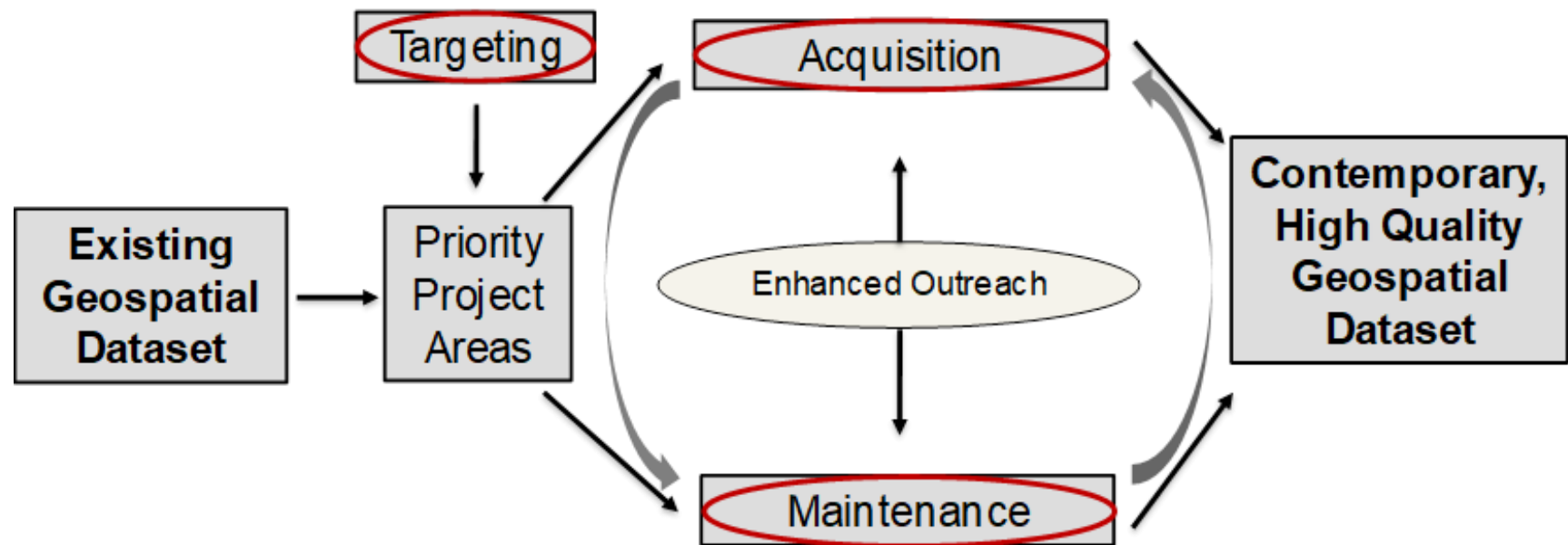
NWI+ LLWW assesses 11 potential functions:

- Carbon sequestration
- Bank and shoreline stabilization
- Coastal storm surge detention
- Fish and aquatic invertebrate habitat
- Waterfowl and waterbird habitat
- Other wildlife habitat
- Unique, uncommon, regionally significant or highly diverse plant communities
- Nutrient cycling & transformation
- Streamflow maintenance
- Sediment and other particulate retention
- Surface water detention



Leveraging New Mapping Technologies

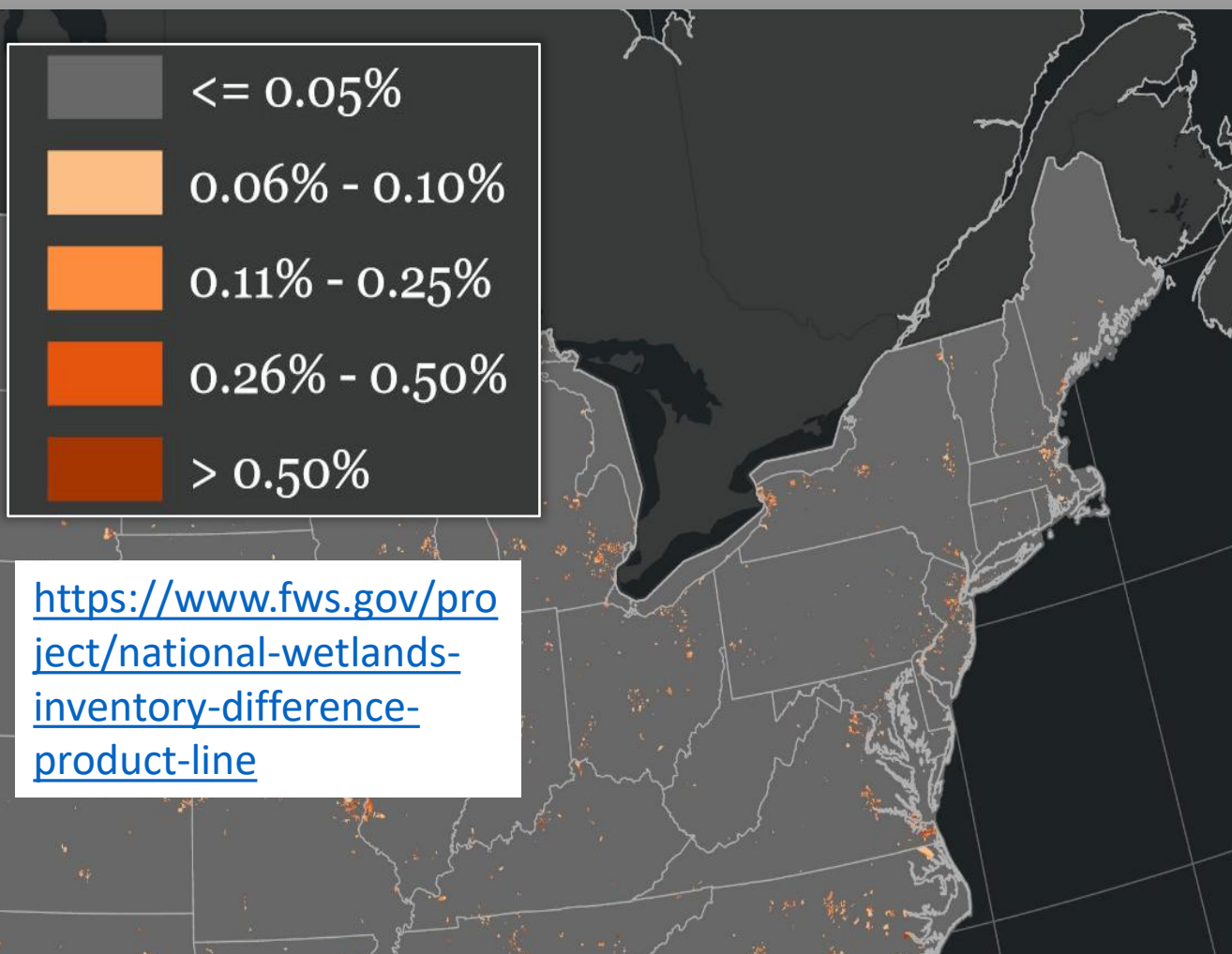
- Most data producers use semi-automated work flows
- Machine learning tools for feature recognition and image classification
- Hot-spot analysis, change detection



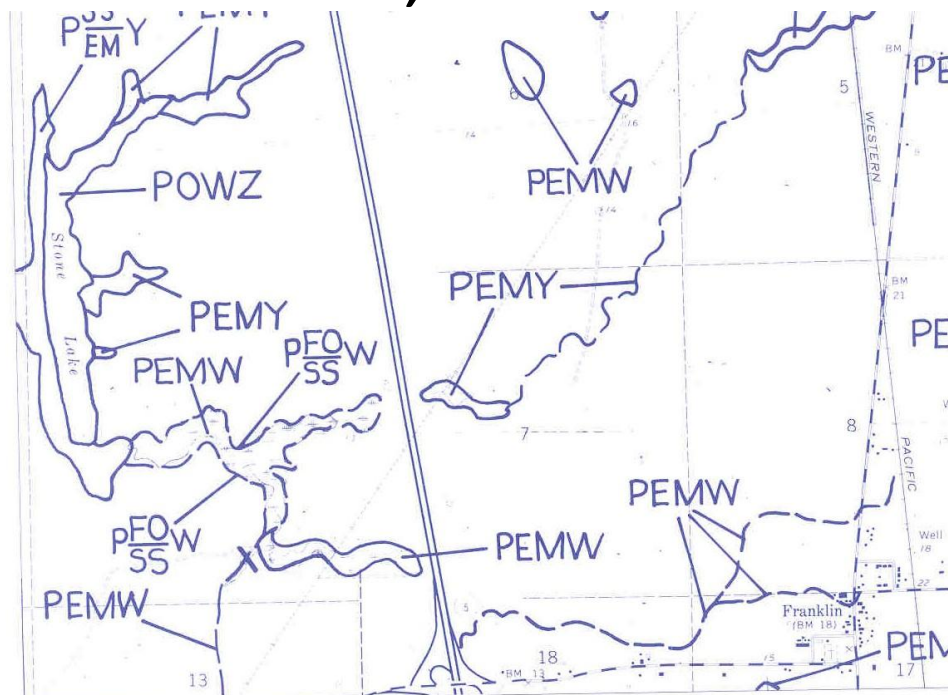


Importance of Maintaining Contemporary Data

- Loss of wetlands to development

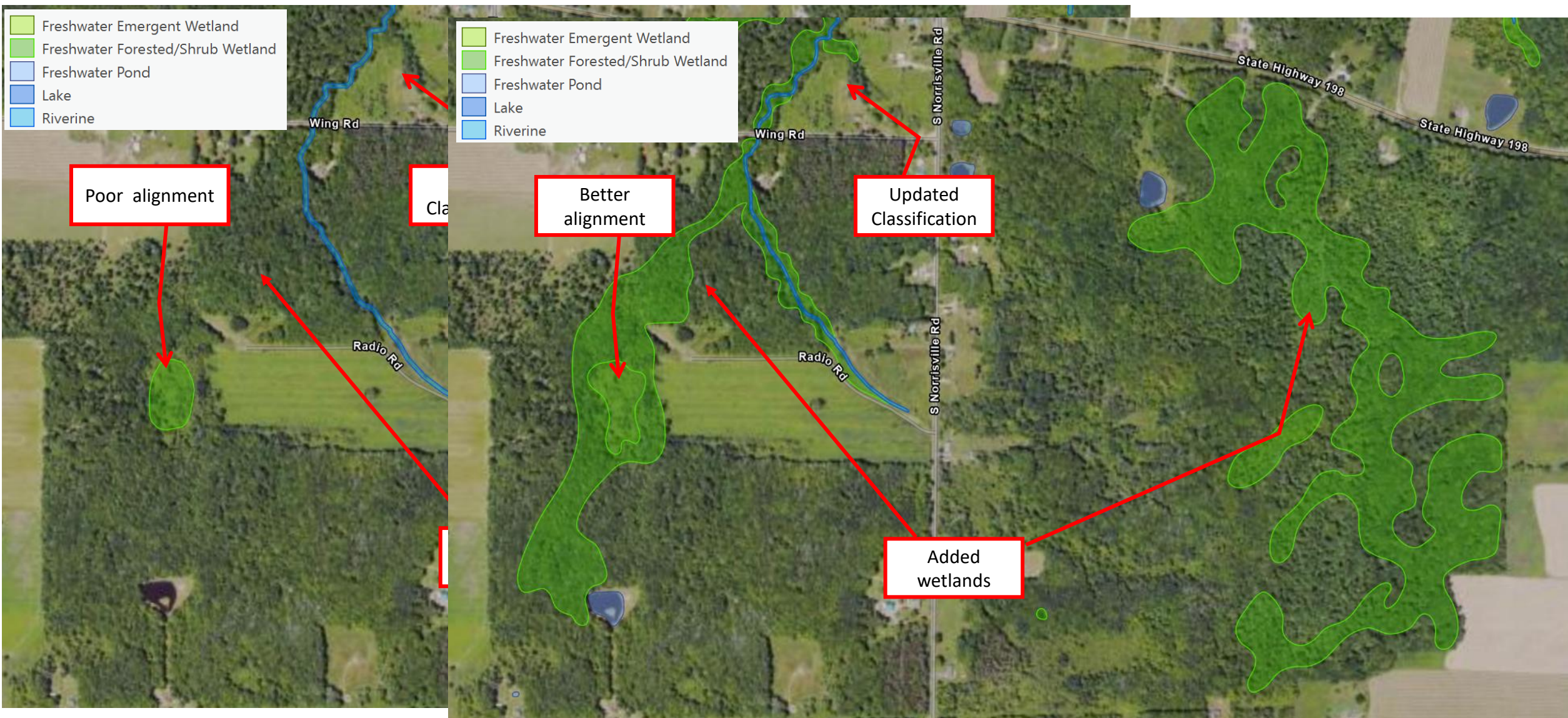


- Pre-2000s, wetlands were drawn using stereoscopes
- Coarse scale base imagery
- 1970s: 1:80,000 B&W
- 1980s: 1:58,000 CIR





Data Comparison: 1979 vs 2022





How NWI Supports Wetland Mapping Projects

Data Production

- Guidance Documents
- Project Coordination
- Data Quality Control
- Error Check Tools
- In-field Guidance

Contact: Amanda Pachomski, *Acting Lead Regional Wetland Coordinator*,
amanda_pachomski@fws.gov

Database Administration & Technical Assistance

- Data Quality Assurance
- Back-end Database Management, Integration, and Distribution
- Data Analysis

Contact: Jane Harner, *Project Lead and Database Administrator*,
jane_harner@fws.gov



Thank you for your time!

