

Wetland Names Working Group

March 28, 2012

Jane Awl

Join WNWG

If you are interested in joining the Wetland Names Working Group (WNWG) or being notified of our future activities, please send an email to wetlandmappingconsortium@gmail.com with the subject line "Join WNWG".

If you are not already a member of the Wetland Mapping Consortium (WMC) please register first (for registration information see http://clic.cses.vt.edu/WMC/WMC_Organizers.htm).

WNWG Members as of 03-28-2012

ORGANIZERS:

Jane Awl

John Galbraith

SUPPORTING:

Barbara Scott

Robb Macleod

Denise Clearwater

Megan Lang

Laura Burchill

JOINED:

Marianne Giolitto

Angela Loudbear

Greg Hellyer

Aissa Feldman

Richard Emerson

Carol Murphy

Nick Murray

Robert Gilmore

Ken Edwardson

PROJECT:
DRAFT Technical Guidance
on Developing a National System of
Site Names and Codes
for Use in
Mapping and Monitoring Wetlands

NSDI CAP 2011 Project Description

Technical Guidance on Unique Identifiers for Wetland Mapping Standard Implementation, Outreach and Training Materials <http://www.fgdc.gov/grants/2011CAP/projects/G11AC20060>

The screenshot shows a web browser window displaying the FGDC website. The address bar shows the URL: <http://www.fgdc.gov/grants/2011CAP/projects/G11AC20060>. The browser window has a single tab titled "Wetland Mapping Standar...". The website header includes the FGDC logo (Federal Geographic Data Committee) and navigation links for "Site Map", "Accessibility", and "Contact". A search bar is present with the text "Search Site" and a "Search" button, with a checkbox for "only in current section". A blue navigation bar contains links for "Home", "Library", "Calendar", and "Contact Us". A left sidebar menu lists various categories: "Participants", "Data & Services", "Standards", "Metadata", "Framework", "Policy & Planning", "Training", "Grants", "International", and "Geospatial LoB". The main content area shows a breadcrumb trail: "you are here: home → grants → 2011 nsdi cap → 2011 nsdi cap projects → wetland mapping standard implementation, outreach and training materials". The page title is "Wetland Mapping Standard Implementation, Outreach and Training Materials" with a "log in" link and icons for email and print. Below the title is the award information: "Award Number G11AC20060, Category 2: FGDC-endorsed Standards Implementation Training and Outreach". The main text describes the project's purpose: "The purpose of this project is to facilitate implementation of an FGDC-endorsed standard in user communities by 1) developing technical guidance for carrying out key recommendations included within the FGDC Wetland Mapping Standard for handling and tracking wetland unique identifiers, and in the Implementation Plan to track polygon lineage and change, and 2) producing implementation recommendations and resulting training materials. Virginia Tech's".

Partner Organizations

- FGDC Wetlands Subcommittee including:
 - U.S. Fish and Wildlife Service
 - U.S. Environmental Protection Agency
 - U.S. Army Corps of Engineers
 - U.S. Geological Survey
- National Wetlands Monitoring and Assessment Working Group (NWMAWG)
- Association of State Wetland Managers (ASWM)
- Wetlands Mapping Consortium (WMC)
- Ducks Unlimited (DU)
- Kentucky Division of Water

Wetland Names Working Group (WNWG)

WMC Scholar Group set-up in progress

Future WNWG Conference Calls are scheduled on Wednesdays at 3:00pmET/2:00pmCT/1:00pmMT/NoonPT on the following 2012 dates:

- April 11 and 25,
- May 9 and 23,
- June 13 and 27.

Next Steps

2012

- Wetland Names Working Group (WNWG) conference calls and document reviews (ongoing)
- National Water Quality Monitoring Council Meeting, April 30 – May 4, Portland, Oregon
- INTECOL/SWS combined Meeting, June 3-8, Orlando, FL
- Draft Review, July 2012
- Technical Report distribution, September 2012

Problem to be Addressed

Currently there are no nationally-accepted standards, conventions, protocols, or tools for creating wetland site names and other stable (not likely to change within a defined set) unique identifiers to allow individual wetland sites and corresponding geographic features (e.g., points, polygons) to be effectively tracked, monitored and reported on over time, and to enhance system interoperability between federal agencies, states, tribes, and contracted partners, to facilitate data sharing at a national scale.

Outcomes

- The development of nationally-applicable technical guidance on stable unique identifiers for wetlands may enhance capabilities for associating wetland mapping data with other data sets (such as water quality and monitoring data) expanding the possibilities for analysis.
- Increased availability of such wetland information could better aid in identifying solutions for management, conservation and protection issues for wetlands and other water resources.

Types of Existing Wetland Names

- Historic
 - Mapper/Surveyor (e.g., Everglades, Great Dismal Swamp)
 - Associated People and Stories (e.g., Tate's Hell, Purgatory Swamp)
 - Native (e.g., Okefenokee from Okefenoka, meaning "Land of the Trembling Earth", Congaree, Cheyenne Bottoms & Quivira)
 - Landowner Names (e.g., Gowing's Swamp) – they change over time.
- Natural Features
 - Hydrologic Features (e.g., Great Kankakee Swamp for the Kankakee River, Beaver Creek Marsh)
 - Landscape features (e.g., Cheyenne Bottoms, Prairie Potholes)
 - Biologic features (e.g., Cranberry Glades)
- Landmarks
 - Geo-Political (e.g., Boundary Waters Canoe Area, Arcata Marsh for the City Arcata, CA)

Options

Unique (Non-Repeated) Site Names

- Feature Extent? (resolution, lumping vs. splitting)
 - Minimum size ?(Wetland Mapping Standard uses 0.5 acre)
 - Whole or Continuous wetland
 - NWI polygons
 - Monitoring Sites
 - Monitoring Points
 - Other?
- Site Name Type?
 - Common (e.g., Historic, Tract, Owner, Geographic Features)--prevention of redundancy?
 - Scientific/Taxonomic--avoid including information that may change over time like community type? (e.g. “Latin Names”)
 - Systematic

Options - Codes

TYPE?

- **Stable Sequential** [10000001, 10000002...] (currently polygon identifiers are Dynamic —not stable, they are regenerated and change with data versions)
 - Management to prevent duplication?
 - Fixed Length? Or Variable Length as more polygons are added/updated?
- **Hierarchical (Levels? Key to generate code?)**
 - Fixed Length? Or Variable Length to reflect changes over time (parent-child relation of polygons)?
- **Information-rich Political Boundaries (State, County, Local)**
 - Hydrologic Unit Codes (HUC) -length/digits?
 - NHD/Streams
 - Grid
 - Geographic Coordinates (Of what point? Centroid? Consider variation in polygon extent and shape?)
 - Other

Implementation

for Stable Wetland Unique Identifiers

HOW?

- Database Modification (e.g. add fields, relational tables, etc.)
 - NSDI, State, Project, other?
 - Why not just put it in the existing NWI database? – Too Much Information!
- New Database –who will manage, maintain and update?
 - NSDI, NWI, State, or by Project?
- Generation of code on the fly (by applications or tools)
 - Who will develop, manage and maintain?
- Other?

DU added 11 attributes to the NWI attributes.

- The NWI Key is a unique number for each wetland.
- The Parent Key keeps track of wetlands that changes over time.
- The Status attribute allow us to query active wetlands from inactive (converted) wetlands.
- Conversion type allow us to identify how it was converted (urban, Ag, etc.). Partial identifies wetlands that were only partially converted (part of the wetlands is still active).

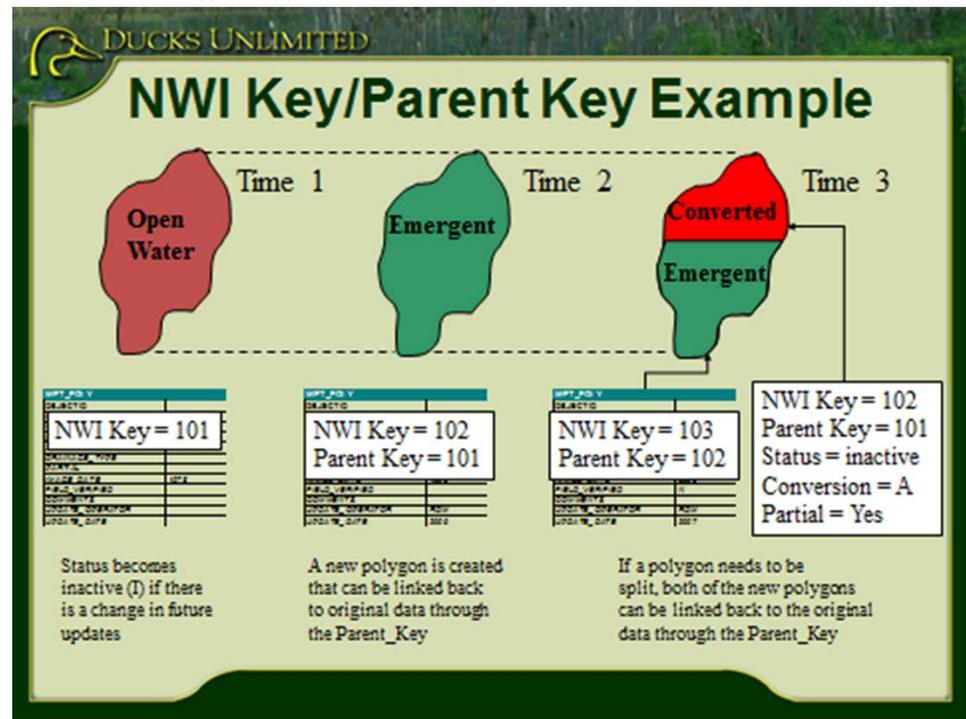
 DUCKS UNLIMITED

Database Keys and Attributes

Wetlands will be tracked through a NWI Key and Parent Key. This will allow us to go back to the original wetland shape and attribute.

WET_POLY	
OBJECTID	OID (4)
ATTRIBUTE	STRING (20)
HGM_CODE	STRING (10)
QAQC_CODE	STRING (9)
WETLAND_TYPE	STRING (50)
ACRES	DOUBLE (8)
DECODE	STRING (40)
NWI_KEY	LONG INTEGER
PARENT_KEY	LONG INTEGER
STATUS	SHORT INTEGER
CONVERSION_TYPE	STRING (1)
PARTIAL	STRING (1)
IMAGE_DATE	STRING (15)
INACTIVE_DATE	STRING (15)
FIELD_VERIFIED	STRING (1)
COMMENTS	STRING (255)
UPDATE_OPERATOR	STRING (50)
UPDATE_DATE	DATE

Time 1 is the original wetland with a unique ID (NWI Key = 101). In Time 2, the wetland changed from open water to emergent, so the wetland polygon is copied and pasted (now have two overlapping polygons). The original wetland (polygon) is inactivated and the new wetland polygon has a new NWI Key (unique ID) and Parent Key that equals the NWI key of the original. This allows us to summarize the changes in class and links the original with the changed wetland.



In the case where part of the original wetland is converted, the original wetland is copied and pasted, the new polygon is reshaped. The original polygon is inactivated with a conversion type (A – Agriculture) and the partial attribute is Yes. The new polygon has a new NWI Key and Parent Key that equals the NWI Key of the original.

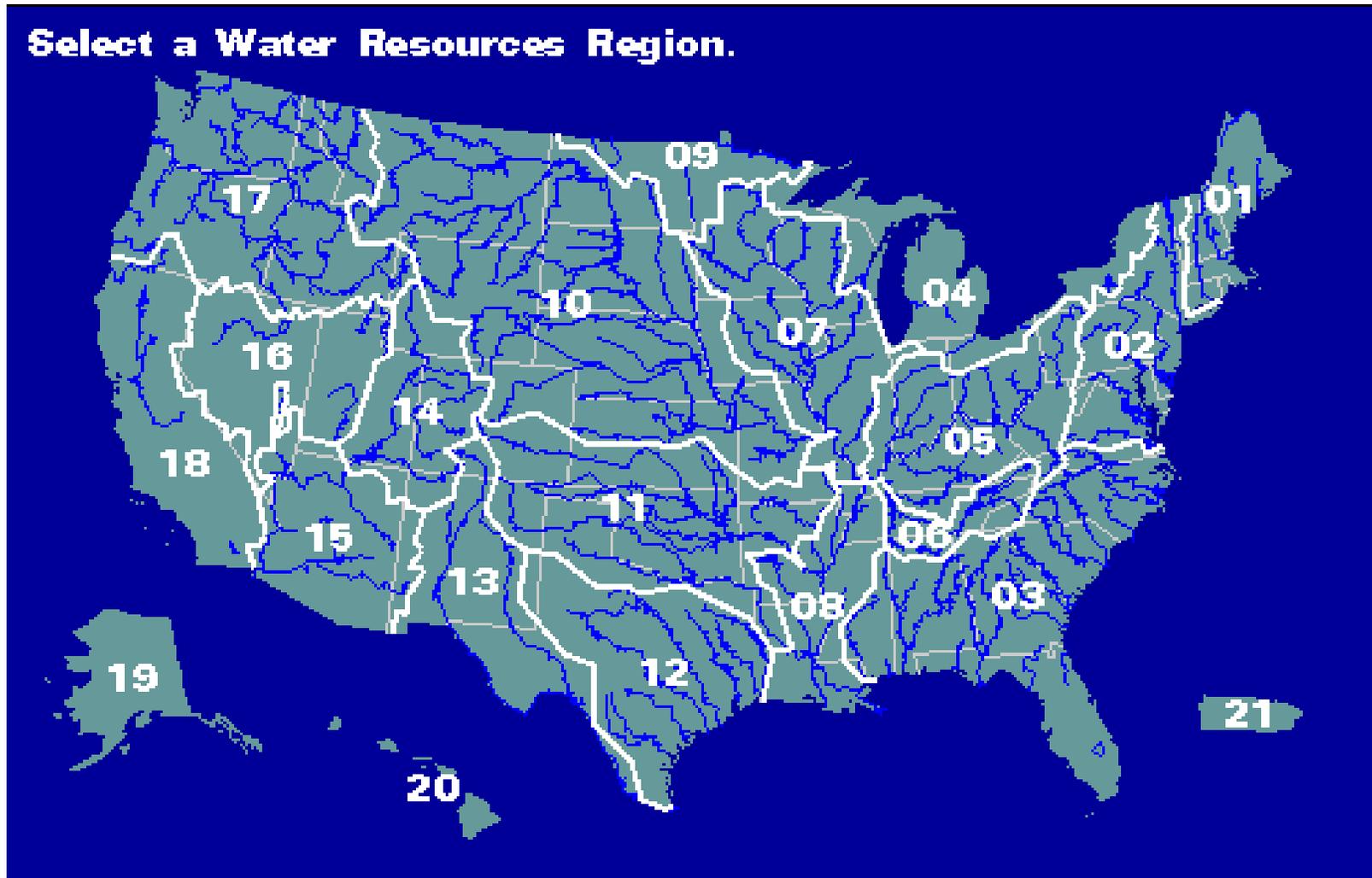
Other
Project Examples?
Case Studies?

Types of Stable Unique Codes

- **Information-based** – watershed/HUC, NHD/streams, geographic coordinates, grid, temporal stamp, etc.)
- **Hierarchical** -- Systematic
- **Assigned** – Sequential, Random, Systematic.
- **Combination – Maintain in separate fields and merge to create the Unique Identifier code at different scales**
 - Area Code (e.g., 11 or 12 digit HUC)
 - Local Code (e.g., NHD/streams, grid, geographic coordinates, etc.)
 - Site Code (assigned sequential or systematic)
 - Time Stamp (e.g., for product versions and updates, parent/child polygon relations and tracking)

Hydrologic Unit Codes (HUC)

8-digit, 10-digit, and 12-digit Codes



Key Issues

- Codes need to reflect **wetland site dynamics** over time (fragmentation, expansion/contraction, disappearance/reappearance, hydrologic connection/disconnection) and parent-child relationships.
- Rules must be developed to deal with wetlands which **cross HUC boundaries**, or cover more than one HUC.
- Codes must function within a **relational database context** to support robust analysis. The national level is a missing link to putting state and regional databases together for analysis.
- Will there be a target mapping unit (**TMU**) [minimum and/or maximum wetland size for coding]? The National Wetland Mapping Standard specifies a minimum TMU of 0.5 acres. Some smaller wetlands have significant biological functions which there may be need to monitor.
- Length of code may become unwieldy.
 - Alpha-numeric code packs more info in field space.
 - Multiple fields may be required to store components of code and to aid in analysis.

DRAFT Recommendations:

- Use of only these codes and names would not be mandated, states and others would still be free to use their own systems. The intent is to build methods that will solve fundamental problems and be so useful that everybody will want to use it as a complement to their data set.
- Utilize multiple approaches and relational tables for robust usage possibilities. Code(s) should be robust enough to allow for multiple levels of aggregation and splitting.
- The names and codes should remain separate from any wetland/upland determination (even currently drained wetlands or planned/future wetlands could be issued national wetland names and identifier codes.
- Develop a new NSDI standard and National Coverage for Wetland Names and Stable Unique Identifier Codes (work towards grants and funding to develop)
- Stable Unique Identifier Code assignment by online web-based tool and database lookup.
- Develop a regional pilot project.

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CMI - Wetland Site Names and Stable Unique Identifier Codes

For more information please contact:

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