

Addendum to Data Collection Requirements and Procedures for Mapping Wetland, Deepwater and Related Habitats of the United States

Establishing Thematic Accuracy Goals – Wetlands Mapping

Background:

In 2009, the Federal Geographic Data Committee, operating through the Wetlands Subcommittee, produced Federal Standards for Wetlands Mapping (FGDC 2009). These criteria set the minimum level for data accuracy for all Federal or federally-funded wetlands inventory mapping including those activities conducted by Federal agencies, states, and federally-recognized tribal entities, non-governmental organizations, universities, and others. Specifically, if Federal funding is used in support of wetlands inventory mapping activities, then use of this standard was mandatory. Additionally, all wetlands inventory mapping as a subset, any new, updated or revised wetland mapping should conform to this standard.

The Standard established classification accuracy for completeness of the wetland classification as: ecological system, subsystem (with the exception of Palustrine), class, subclass (only required for forested, scrub-shrub, and emergent classes), water regime, and special modifiers (only required where applicable). The targeted mapping unit was established at 0.5 acres with feature classification accuracy of 98 percent for wetlands in the lower 48 states. Horizontal accuracy for mapped features was established at 5 meters commensurate with the base imagery/map scale available for a given area.

To date there have been a number of wetlands mapping projects submitted to the FWS that do not meet the FGDC standards for accuracy¹. While the goal is not to dismiss the FGDC standard, it has become clear that additional guidance is needed to articulate accuracy goals within existing technical and financial constraints.

Establishing Thematic Accuracy Goals for Wetlands Mapping:

Currently, there are three distinct types of data are being assimilated to for the Wetlands Layer of the National Spatial Data Infrastructure. These include: Scalable map products, Revisions or Updates to existing National Wetlands Inventory (NWI) maps and new mapping (or completely remapped areas). Because the techniques used to produce each of these map products are somewhat different, there are varying map accuracy goals established for each.

Scalable map products - The Fish and Wildlife Service (FWS) prepared a Nationwide Data Theme Population Plan (USFWS 2007) to provide information on the development, content, and availability of the wetlands data layer. The plan describes the concept of “scalable mapping” as a means to provide scalable wetland map products to complete the lower 48 States. Scalable maps are considered interim product and may include map information at different scales,

¹ Assessment of recently completed wetlands mapping had horizontal errors ranging from 19.5 m to 2.9 m (RMSE).

classification level(s), or resolution, capable of being easily expanded or upgraded on demand or as funding becomes available. In some instances, these products can be extremely useful for filling data gaps particularly in portions of the nation where there may be little demand for more detailed wetland mapping or where there is insufficient funding to provide more detailed data. Candidate areas for the nation were identified pending further review of resource priority needs, interagency interest, and available funding.

Because these mapped areas are considered preliminary or interim products they do not comply with the FGDC Standards. The spatial accuracy goal for scalable products has been established at 40 meters with 90 percent accuracy for ecological classification to the Cowardin subsystem level for mapping completed in the lower 48 States, Hawaii and the Caribbean Islands.

Revisions or Updates to Existing NWI Maps – These products make use of existing wetland geospatial data either the available NWI map information or similar wetland inventory data produced by other government agencies. To do this using GIS technology, all “mapped wetlands” from the existing data are reviewed on more current imagery to detect: 1) substantial changes in boundaries, 2) wetlands not mapped previously, 3) lost wetlands or portions of wetlands, 4) changes in type, and 5) commission errors (areas initially mapped as wetlands that do not appear as wetlands today). The updated data are a hybrid of existing data and new data derived from an examination of more current imagery. These updated data may contain minor positional errors in wetland locations or boundaries when viewed on current imagery and at scales of 1:12,000 or greater. Where substantial displacement of the wetland polygons on the newer imagery are observed or significant changes in the configuration of boundaries detected, the updated data should incorporate those changes to reflect current conditions. Therefore the effective date of the updated data is the date of the imagery used to produce the current version.

These data should comply with the specifications in the FWS Wetland Mapping Standard (USFWS 2004), but may not comply with the FGDC Standards. At a minimum, the spatial accuracy goal for updated wetland maps is 10 meters (horizontal accuracy with 90 percent accuracy for ecological classification to the Cowardin class level).

New maps or refined detail maps - These maps are produced by performing image analysis of all wetlands and deepwater habitats as specified by the FGDC standard. New maps or geospatial data are produced where no existing wetland data are available or where such data are beyond the point that they can be readily updated through a review-edit-enhancement process (i.e. a complete re-mapping effort is required). These products should incorporate the latest imagery and technical processes for mapping wetlands and as such should make every effort to comply with the FGDC Wetland Mapping Standards. However, there may be exceptions for specific features such as single lane roads (width not exceeding 10 meters). Consequently, FGDC Standards while desirable as a goal should be viewed in conjunction with these accuracy guidelines: Horizontal accuracy of 10 meters minimum and 90 percent accuracy for ecological classification to the Cowardin sub-class level where applicable.

References

Federal Geographic Data Committee. 2009. Wetlands Mapping Standard (FGDC-STD-014). Reston, VA. 35 p.

U.S. Fish and Wildlife Service. 2004. National Standards and Quality Components for Wetlands, Deepwater and Related Habitat Mapping. Fish and Wildlife Service, Division of Habitat and Resource Conservation, Arlington, VA. 18 pp.

U. S. Fish and Wildlife Service. 2007. Wetlands Layer -National Spatial Data Infrastructure: A Phased Approach to Completion and Modernization. Fish and Wildlife Service, Washington, D.C. 9 p.