Proposed approach to the Preliminary Determination of Potentially Jurisdictional Waters of the United States, including Wetlands for the Bay Delta Conservation Plan

Introduction

The California Department of Water Resources (DWR) proposes the following approach to a preliminary determination of wetlands and other waters potentially under the jurisdiction of the U.S. Army Corps of Engineers (USACE) that may be affected by conveyance options proposed for the Bay Delta Conservation Plan (BDCP). This preliminary jurisdictional determination is the first step that DWR will use to develop an Alternatives Analysis as described in the Environmental Protection Agency (EPA) guidelines for implementation of Section 404(b)(1) of the Clean Water Act. We will subsequently propose, in a separate document, a method for evaluating the condition of these jurisdictional wetlands and other waters. Together with other environmental analyses, these evaluations will contribute to the identification of the Least Environmentally Damaging Practicable Alternative (LEDPA) for the conveyance component of the BDCP.

DRAFT

Preliminary Jurisdictional Identification Methodology

Our proposed method for mapping and quantifying potential Waters of the U.S. is based on analysis of electronic geographic data using a Geographic Information System (GIS). Field data will be collected at a limited number of accessible sites in support of this GIS-based determination.

When the LEDPA is identified and permits are sought for the project, further investigation may be conducted in the field to refine this Preliminary Jurisdictional Determination following the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE, 2008) and the EPA and USACE guidance memorandum (Grumbles and Woodley 2008).

ED_000733_DD_NSF_00080912-00001

The GIS analysis will use five primary data sources to identify areas within the footprints of the BDCP conveyance alternatives that may constitute Waters of the U.S.:

- California Department of Fish and Game (DFG) GIS dataset showing vegetation and land use for the Sacramento-San Joaquin Delta ("DFG Vegetation GIS") (Hickson and Keeler-Wolf 2007)
- Soil data from the Natural Resources Conservation Service (NRCS 2010)
- DWR GIS dataset (2010) showing the study area and footprints of the different BDCP Conveyance Alignment options
- 1-foot resolution true-color digital aerial photographs (Department of Water Resources 2006)
- 1-meter resolution true-color digital aerial photographs from the National Agriculture Imagery Program (NAIP 2010)

Vegetation

The DFG Vegetation GIS was created in 2005-2006 for use in conjunction with Delta Regional Ecosystem Restoration Implementation Plan of the CALFED Ecosystem Restoration Program, and covers the Legal Delta. The BDCP Conveyance Planning Area includes small areas outside the Legal Delta that are not included in the DFG Vegetation GIS. The vegetation types in those areas were mapped using methods similar to those used by DFG and were added to the DFG Vegetation GIS.

The DFG Vegetation GIS data layer delineates polygons that indicate the vegetation or land use of the underlying areas. The vegetation polygons are classified into 129 mapping units (mapping categories), which are based on a floristic classification system.

The vegetation categories include numerous aquatic habitats, including wetland types, mudflats, and open water. However, the floristic classification system (based on vegetation only) does not distinguish between tidal and non-tidal hydrologic regimes. Because tidal and non-tidal waters differ greatly in their habitat functions, further analysis will be undertaken to distinguish tidal and non-tidal habitat types.

Aerial photo interpretation will be used to refine some features that were included in broad categories or are at a scale below the detection limits of the vegetation mapping. For example, ditches that were included within an "Agriculture" vegetation type will be delineated, and roads or other non-riparian areas that were included within riparian vegetation polygons will be removed from those polygons. Polygon attributes may also be changed to reflect land use changes since the vegetation mapping was conducted.

NRCS Soils

NRCS soil maps of Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties are based on soil survey data. The map units associated with hydric soils will be selected from the county maps and a separate GIS layer will be created to show the location of hydric soils in the area.

BDCP Conveyance Alignments

Some of the BDCP alternatives contain multiple conveyance alignment options. The features of the proposed alignment options include canals, tunnels, intakes, forebays, pumping plants, staging areas, and borrow and spoil areas and are considered to have either permanent or temporary impacts. These features are stored in a geographic feature class within a geodatabase and will be used to determine the surface and subsurface footprint for each alignment option.

Land cover types

Because nearly all of the project area is mapped by NRCS as having hydric soils, we will use DFG's discrete vegetation mapping units and aerial photograph interpretation to create general land cover types to identify potential wetlands and other waters. A preliminary classification includes potentially jurisdictional wetland types shown in Table 1 and upland types in Table 2. Each table includes the corresponding type from the Cowardin classification. This table will be refined during the mapping process.

Table 1. BDCP Land cover types that are potential Waters of the US, including Wetlands

BDCP Potential Wetland Land Cover Type	

ED_000733_DD_NSF_00080912-00003

Ditches	

Table 2. BDCP Land cover types that are not Waters of the US

BDCP Upland Land Cover Type	

Potentially Jurisdictional Wetlands and Other Waters

A GIS data layer of potential wetlands and other waters will be created from the vegetation layer by selecting all non-upland land cover polygons in the Study Area. This map will include all potentially jurisdictional Waters, including those Waters that may be later determined by the USACE to be isolated or otherwise non-jurisdictional. The GIS data layer of potential jurisdictional Waters of the United States will be intersected with the surface footprints for each proposed alignment option. The resulting maps will identify only the areas of potential jurisdictional Waters that fall inside the project features. Maps will also be made for locations where "navigable waters" intersect project subsurface footprints.

Documentation

The final products will include:

- project area maps
- a series of 1:4,800 maps showing each potential Water of the U.S. within the study area and within the surface and subsurface project footprints for each alignment option
- a table of acreages of each type of potential Water of the U.S. within each alignment option

- a crosswalk table showing the relationship between the each mapped potential wetland type, the Cowardin classification

Products will be provided in both electronic and hard copy formats.

DRAFT

ED_000733_DD_NSF_00080912-00005

References

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. FWS/OBS-79/31. U.S. Department of the Interior. Washington, D.C.

Department of Water Resources. 2006. True color, 1-foot resolution digital aerial photography. Airphoto USA, May 2006.

Grumbles, B.H. and J.P. Woodley, Jr. 2008. Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States. Memorandum issued December 2, 2008. U.S. Environmental Protection Agency and U.S. Army Corps of Engineers. Washington, D.C.

Hickson, D. and T. Keeler-Wolf. 2007. Vegetation and Land Use Classification and Map of the Sacramento-San Joaquin River Delta. Prepared by Vegetation Classification and Mapping Program, California Department of Fish and Game. Sacramento, CA.

NAIP. 2010. National Agriculture Imagery Program. US Department of Agriculture, Farm Service Agency. Digital ortho photography.

Natural Resources Conservation Service, United States Department of Agriculture. Soil survey of Alameda, San Joaquin, Sacramento, Contra Costa, Solano, and Yolo Counties, California [Online WWW]. Available URL: http://soildatamart.nrcs.usda.gov/Survey.aspx?State=CA [Accessed 4 August 2010].

USACE. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). ERDC/EL TR-08-28. US Army Corps of Engineers, U.S. Army Engineer Research and Development Center, Vicksburg, Miss.

ED_000733_DD_NSF_00080912-00006