Appendix 1-B

Proposed Revisions to the Identification of Beneficial Uses for the Elk River Watershed

Introduction

The Basin Plan is designed to provide a definitive program of actions to preserve and enhance water quality and protect beneficial uses of waters of the state within the North Coast Region and forms the basis for the Regional Water Board's regulatory programs. The Basin Plan also must be consistent with state policies and plans.

Specifically, the Basin Plan 1) identifies beneficial uses for surface waters and groundwaters, 2) sets narrative and numeric water quality objectives that must be attained or maintained to protect beneficial uses, 3) includes implementation programs that include specific prohibitions, action plans, and policies to achieve water quality objectives, and 4) describes surveillance and monitoring activities.

Proposed Identification of Existing Beneficial Uses in Elk River

Beneficial uses of water are those uses that must be protected from water quality degradation. Beneficial uses of surface waters include, but are not limited to, domestic and municipal drinking water supplies, agricultural supply, industrial supply, power generation, recreation, aesthetic enjoyment, navigation, preservation and enhancement of fish, wildlife and other aquatic resources or preserves.[1] The beneficial use categories are generally ones established by the State Water Resources Control Board (State Water Board) and identified for individual waterbodies by the Regional Water Board. In 2003, the North Coast Regional Water Board adopted a set of three new wetland-related beneficial use categories, including: wetland habitat (WET), water quality enhancement (WQE), and flood peak attenuation/flood water storage (FLD). But, there were insufficient staff resources available to identify them in individual waterbodies, at that time.

[1] CWC § 13050 (f).

Table 1. Wetland-related beneficial uses adopted by the Regional Water Board in 2003

Wetland Habitat (WET)	Uses of water that support natural and man-made wetland ecosystems, including, but not limited to, preservation or enhancement of unique wetland functions, vegetation, fish, shellfish, invertebrates, insects, and wildlife habitat.
Water Quality Enhancement (WQE)	Uses of waters, including wetlands and other waterbodies, that support natural enhancement or improvement of water quality in or downstream of a waterbody including, but not limited to, erosion control, filtration and purification of naturally occurring water pollutants, streambank stabilization, maintenance of channel integrity, and siltation control.
Flood Peak Attenuation/Flood Water Storage (FLD)	Uses of riparian wetlands in flood plain areas and other wetlands that receive natural surface drainage and buffer its passage to receiving waters.

Beneficial Uses of water in the Elk River Watershed

Table 2-1 of the Basin Plan identifies the following existing and potential beneficial uses of water for the Elk River subunit of the Eureka Plain (Hydrologic Unit 110.00).

Municipal Water Supply (MUN)
Agricultural Supply (AGR)
Industrial Service Supply (IND)
Industrial Process Supply (PRO)
Groundwater Recharge (GWR)
Freshwater Replenishment (FRSH)
Navigation (NAV)
Hydropower Generation (POW)
Water Contact Recreation (REC-1)
Non-Contact Water Recreation (REC-2)
Commercial or Sport Fishing (COMM)
Estuarine Habitat (EST) (applies only to estuarine portion of the watershed)

As part of the TMDL, staff has reviewed data, reports, maps and other information regarding the Elk River watershed and confirmed the presence of the three wetland beneficial uses of water (WET, WQE, and FLD) as existing within the watershed.

The evidence to support the existence of these wetland beneficial uses in Elk River is described below. Staff proposes that Table 2-1 of the Basin Plan be updated to identify WET, WQE, and FLD as existing beneficial uses in the Elk River subunit of the Eureka Plain.

It is important to note that the Elk River sediment TMDL and associated implementation plan are being developed to achieve protection and restoration of *all* existing and potential beneficial uses of water. State and federal antidegradation laws requires that all existing beneficial uses of water be protected regardless of whether or not the use is formally identified in the Basin Plan.

Definition of a Wetland

Waters of the State of California, are defined by the Porter-Cologne Act as "any water, surface or underground, including saline waters, within the boundaries of the State" (California Water Code §13050[e]). All wetlands within the boundaries of the State are waters of the State, including, but not limited to, those that are considered waters of the United States.

Wetlands that are waters of the United States are defined in 40 CFR 122.2 as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

Wetlands frequently include areas commonly referred to as saltwater marshes, freshwater marshes, open or closed brackish water marshes, mudflats, sandflats, unvegetated seasonally ponded areas, vegetated shallows, sloughs, wet meadows, playa lakes, natural ponds, vernal pools, diked baylands, seasonal wetlands, floodplains, and riparian woodlands.

Identifying wetlands may be complicated by such factors as the seasonality of rainfall in the Region. Therefore, in identifying wetlands considered waters of the United States and/or waters of the State, the Regional Water Board considers such indicators as hydrology, hydrophytic plants, and/or hydric soils for the purpose of mapping and inventorying wetlands. The Regional Water Board, in general, relies on the federal manuals for wetland delineation in the Region when issuing Clean Water Act Section 401 water quality certifications (U.S. Army Corps of Engineers (Corps) "Wetlands Delineation Manual", dated January 1987; "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)" dated September 2008; and "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)" dated May 2010). In the rare cases where the U.S. EPA and Corps guidelines disagree on the boundaries for federal jurisdictional wetlands, the Regional Water Board will rely on the wetlands delineation made by the U.S. EPA or the California Department of Fish and Game (CDFG).

For the purpose of mapping and inventorying wetlands, the Regional Water Board relies on the protocols and naming conventions of the National Wetlands Inventory (NWI) prepared by the U.S. Fish and Wildlife Service (USFWS). The National Wetlands Inventory uses the Cowardian system of wetland classification which includes 5 classes: marine, estuarine, riverine, lacustrine, and palustrine wetlands. Of interest in the Elk River watershed are estuarine, riverine, and palustrine wetlands. Marine wetlands fall outside of the watershed boundaries.

Ecological Functions of Wetlands

Wetlands are enormously productive ecological units. They are the permanent habitat of a wide range of invertebrate and vertebrate species, as well as the temporary habitat of numerous migratory species. A large variety of threatened and endangered species rely on wetland habitat for at least some portion of their life cycle, including such aquatic species as: coho, Chinook, coastal cutthroat trout, and steelhead. Additionally, wetlands are relied upon by invertebrates and other vertebrates, including mammal and avian species. By the simple virtue of their existence, wetlands can be identified as providing the wetland habitat beneficial use (WET), even if substantially impaired.

But in addition to habitat value, wetlands provide major hydrologic and water-quality functions, as well. As described in USGS Water Supply Paper 2425, these include: 1) flood storage and stormflow modification, 2) ground-water recharge and discharge, 3) alterations of precipitation and evaporation, 4) maintenance of water quality, 5) maintenance of estuarine water balance, and 6) erosion reduction.

For example, wetlands associated with lakes and streams store floodwaters by spreading water out over a large flat area. This temporary storage of water decreases runoff velocity, reduces flood peaks, and distributes stormflows over longer time periods, causing tributary and main channels to peak at different times. Wetlands with available storage capacity or those located in depressions with narrow outlets may store and release water over an extended period of time. (USGS 2425)

A strong correlation exists between the size of flood peaks and basin storage (percentage of basin area occupied by lakes and wetlands) in many drainage basins throughout the United States (Tice, 1968; Hains, 1973; Novitzki, 1979, 1989; Leibowitz and others, 1992). Novitzki (1979, 1989) found that basins with 30 percent or more areal coverage by lakes and wetlands have flood peaks that are 60 to 80 percent lower than the peaks in basins with no lake or wetland area. Wetlands can provide cost-effective flood control, and in some instances their protection has been recognized as less costly than flood-control measures such as reservoirs or dikes (Carter and others, 1979). Loss of wetlands can result in severe and costly flood damage in low-lying areas of a basin. (USGS 2425)

Further, ground water and surface water transport sediments, nutrients, trace metals, and organic materials. Wetlands can trap, precipitate, transform, recycle, and export many of these waterborne constituents, and water leaving the wetland can differ markedly from that entering (Mitsch and Gosselink, 1993; Elder, 1987). Wetlands can maintain good quality water and improve degraded water. (USGS 2425)

Wetlands filter out or transform natural and anthropogenic constituents through a variety of biological and chemical processes. Wetlands act as sinks (where material

is trapped and held) for some materials and sources (from which material is removed) of others. For example, wetlands are a major sink for heavy metals and for sulfur, which combines with metals to form relatively insoluble compounds. Some wetland mineral deposits (bog iron, manganese) are or have been important metal reserves in the past. (USGS 2425)

Many individual wetlands provide multiple benefits depending on the wetland type and location. There are many potential beneficial uses of wetlands, including Wildlife Habitat (WILD); Preservation of Rare and Endangered Species (RARE); Shellfish Harvesting (SHELL); Water Contact Recreation (REC1); Noncontact Water Recreation (REC2); Ocean, Commercial, and Sport Fishing (COMM); Marine Habitat (MAR); Fish Migration (MIGR); Fish Spawning (SPWN); Estuarine Habitat (EST), Flood Peak Attenuation/Flood Water Storage (FLD), and Water Quality Enhancement (WQE). Some of these general beneficial uses can be further described in terms of their component wetland function. For example, many wetlands that provide groundwater recharge (GWR) also provide flood water storage (FLD), pollution and erosion control (WQE), and stream baseflow.

Presence of Wetlands in the Elk River Watershed

Wetland habitats surrounding Humboldt Bay were described and mapped as of 1978 by Shapiro and Associates (1980) in the report *Humboldt Bay Wetlands Review and Baylands Analysis* including wetland habitat in Elk River at locations identified on Figure 4.1 of this Staff Report. These locations include the mouth of Elk River (Location 12, the Elk River bottoms) and Spruce Point (Location 33). The habitat maps were digitized for use as a resource planning tool by the Humboldt Bay Harbor District and other cooperating agencies and are available at: http://www.humboldtbay.org/gis/interactivemap.html (2012).

In addition, the National Wetland Inventory (available at http://107.20.228.18/Wetlands/WetlandsMapper.html) identifies wetlands in the Elk River watershed. The National Wetland Inventory webpage reports that "these maps, produced from the analysis of high altitude imagery, collateral data sources and field work, represent reconnaissance level information on the location, type, and size of wetland habitats. Published wetland maps, at the nominal scale of 1:24,000 comply with National Map Accuracy Standards. Due to the margin of error inherent in the use of imagery, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis." Figure 2 (to be developed) depicts wetlands in the Elk River watershed as identified in the National Wetland Inventory.

The mapped wetlands include estuarine, palustrine, and riverine wetlands. They are located in the Lower Elk River subwatershed, downstream of the confluence of the North Fork Elk and South Fork Elk rivers. Table 1 (to be developed) lists the wetland types mapped and the number of acres they each represent. percent of the

Lower Elk River subwatershed is in mapped as wetland habitat. These locations are minimum areas of existing wetland habitat in Elk River.

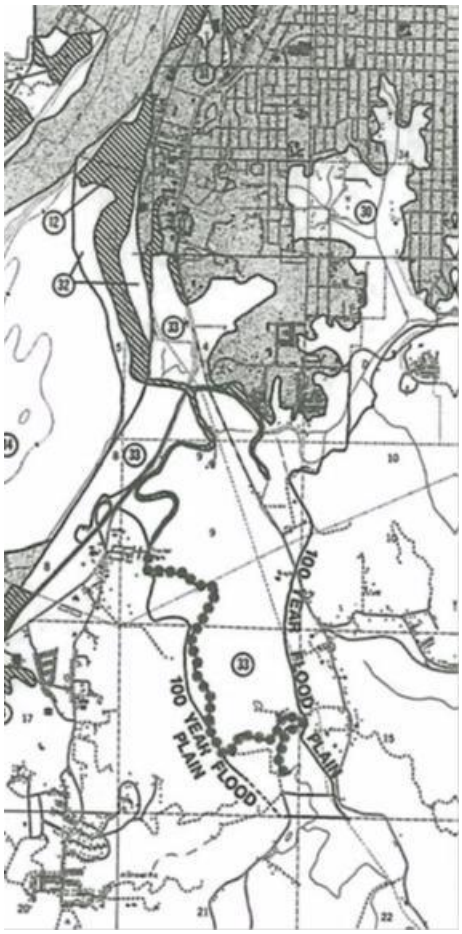

Figure 1. Locations in the vicinity of Elk River confluence with Humboldt Bay of habitat evaluations as identified in Shapiro and Associates (1980). Figure is a portion of "Plate 2 South" as presented in Shapiro and Associates (1980).

Figure 2. (To be developed)

Table 1. (To be developed)

Staff Recommendation:

On the basis of available mapping, Regional Water Board staff proposes the identification of existing (E) beneficial uses for wetland habitat (WET) in the Lower Elk River subwatershed. Staff also recommends the identification of existing (E) beneficial uses for water quality enhancement (WQE) and flood peak attenuation (FLD) as uses derived from the presence of wetlands in the Lower Elk River subwatershed.