



-MENDOCINO COUNTY COASTAL ELEMENT-



APPENDIX 8 -- CALIFORNIA COASTAL COMMISSION STATEWIDE INTERPRETIVE GUIDELINES (5-5-81)

APPENDIX D. TECHNICAL CRITERIA FOR IDENTIFYING AND MAPPING WETLANDS AND OTHER WET ENVIRONMENTALLY SENSITIVE HABITAT AREAS

The purpose of this discussion is to provide guidance in the practical application of the definition of "wetland" contained in the Coastal Act. The Coastal Act definition of "wetland" is set forth in Section 30121 of the Act which states:

SEC. 30121

"Wetland" means lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.

This is the definition upon which the Commission relies to identify "wetlands." The definition refers to lands "... which may be periodically or permanently covered with shallow water..." However, due to highly variable environmental conditions along the length of the California coast, wetlands may include a variety of different types of habitat areas. For this reason, some wetlands may not be readily identifiable by simple means. In such cases, the Commission will also rely on the presence of hydrophytes and/or the presence of hydric soils. The rationale for this in general is that wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. For this reason, the single feature that most wetlands share is soil or substrate that is at least periodically saturated with or covered by water, and this is the feature used to describe wetlands in the Coastal Act. The water creates severe physiological problems for all plants and animals except those that are adapted for life in water or in saturated soil, and therefore only plants adapted to these wet conditions (hydrophytes) could thrive in these wet (hydric) soils. Thus, the presence or absence of hydrophytes and hydric soils make excellent physical parameters upon which to judge the existence of wetland habitat areas for the purposes of the Coastal Act, but they are not the sole criteria. In some cases, proper identification of wetlands will require the skills of a qualified professional.

The United States Fish and Wildlife Service has officially adopted a wetland classification system^{[Footnote 1](#)} which defines and classifies wetland habitats in these terms. Contained in the classification system are specific biological criteria for identifying wetlands and establishing their upland limits. Since the wetland definition used in the classification system is based upon a feature identical to that contained in the Coastal Act definitions, i.e., soil or substrate that is at least periodically saturated or covered by water, the Commission will use the classification system as a guide in wetland identification. Applying the same set of biological criteria consistently should help avoid confusion and assure certainty in the regulatory process. This appendix discusses the adaptation of this classification system to the Coastal Act definition of



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"wetland" and other terms used in the Act, and will form the basis of the Commission's review of proposals to dike, fill or dredge wetlands, estuaries or other wet habitat areas.

I. U.S. Fish and Wildlife Classification System: Upland/Wetland/Deep-water Habitat Distinction

The United States Fish and Wildlife Service classification is hierarchical, progressing from systems and subsystems, at the most general levels, to classes, subclasses, and dominance types. The term "system" refers here to a complex of wetland and deep-water habitats that share the influence of one or more dominant hydrologic, geomorphologic, chemical, or biological factors.

The Service provides general definitions of wetland and deep-water habitat and designates the boundary between wetland and deep-water habitat and the upland limit of a wetland. The following are the Services' definitions of wetland and deep-water habitats:

A. Wetlands

"Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year.

Wetlands as defined here include lands that are identified under other categories in some land-use classifications. For example, wetlands and farmlands are not necessarily exclusive. Many areas that we define as wetlands are farmed during dry periods, but if they are not tilled or planted to crops, a practice that destroys the natural vegetation, they will support hydrophytes. [Footnote 2](#)

Drained hydric soils that are now incapable of supporting hydrophytes because of a change in water regime are not considered wetlands by our definition. These drained hydric soils furnish a valuable record of historic wetlands, as well as an indication of areas that may be suitable for restoration.

The upland limit of wetland is designated as (1) the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover; (2) the boundary between soil that is predominantly hydric and soil that is predominantly nonhydric; or (3) in the case of wetlands without vegetation or soil, the boundary between land that is flooded or saturated at some time each year and land that is not."



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Wetlands should be identified and mapped only after a site survey by a qualified botanist, ecologist, or a soil scientist (See section III. B. of the guideline for a list of required information) [Footnote 3](#).

B. Deepwater Habitats

"Deepwater habitats are permanently flooded lands lying below the deepwater boundary of wetlands. Deepwater habitats include environments where surface water is permanent and often deep, so that water, rather than air, is the principal medium within which the dominant organisms live, whether or not they are attached to the substrate. As in wetlands, the dominant plants are hydrophytes; however, the substrates are considered nonsoil because the water is too deep to support emergent vegetation (U. S. Soil Conservation Service, Soil Survey Staff 1975)."

"The boundary between wetland and deep-water habitat in the Marine and Estuarine Systems (i.e., areas subject to tidal influence) coincides with the elevation of the extreme low-water of spring tide (ELWS); permanently flooded areas are considered deep-water habitats in these systems. The boundary between wetland and deep-water habitat in the Riverine, Lacustrine and Palustrine Systems lies at a depth of 2m (6.6 ft.) below low-water; however, if emergents, shrubs or trees grow beyond this depth at any time, their deep-water edge is the boundary.'

II. Wetland/Estuary/Open Coastal Water Distinction

For the purposes of mapping "wetlands" under the Coastal Act's definition of wetlands, and of mapping the other wet environmentally sensitive habitat areas referred to in the Act, including "estuaries," streams," "riparian habitats," "lakes" and "open coastal water," certain adaptations of this classification system will be made. The following is a discussion of these adaptations.

"Wetland," as defined in Section 30121 of the Coastal Act, refers to land covered by "shallow water," and the examples given in this section include fresh, salt and brackish water marshes, mudflats and fens. A distinction between "wetland" and the other habitat areas in the Act, for example, "estuary," must be made because the Act's policies apply differently to these areas, and because the Act does not define some of these terms (such as "estuary"). A reasonable distinction can be made between "wetland" and "estuary" on the basis of an interpretation of the phrase "shallow water." Using the service's classification system, "shallow water" would be water that is above the boundary of deep-water habitat, which would be the line of extreme low-water of spring tide [Footnote 4](#) for areas subject to tidal influence and 2 meters for non-tidal areas. Therefore, wetland begins at extreme low-water of spring tide and "estuary" or "open coastal water" is anything deeper. The Coastal Act definition of "wetlands" would include the wetland areas of Estuarine, Palustrine, and Lacustrine ecological systems defined by the Fish and Wildlife classification system.



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For the purposes of the Coastal Act, an "estuary" is a coastal water body usually semi-enclosed by land, but which has open, partially obstructed, or intermittent exchange with the open ocean and in which ocean water is at least occasionally diluted by fresh water runoff from the land. The salinity may be periodically increased above that of the open ocean by evaporation.

"Open coastal water" or "coastal water" as used in the Act refers to the open ocean overlying the continental shelf and its associated coastline with extensive wave action. Salinities exceed 30 parts per thousand with little or no dilution except opposite mouths of estuaries.

III. Wetland/Riparian Area Distinction

For the purpose of interpreting Coastal Act policies, another important distinction is between "wetland" and "riparian habitat." While the Service's classification system includes riparian areas as a kind of wetland, the intent of the Coastal Act was to distinguish these two areas. "Riparian habitat" in the Coastal Act refers to riparian vegetation and the animal species that require or utilize these plants. The geographic extent of a riparian habitat would be the extent of the riparian vegetation. As used in the Coastal Act, "riparian habitat" would include the "wetland" areas associated with Palustrine ecological systems as defined by the Fish and Wildlife Service classification system.

Unfortunately, a complete and universally acceptable definition of riparian vegetation has not yet been developed, so determining the geographic extent of such vegetation is rather difficult. The special case of determining consistent boundaries of riparian vegetation along watercourses throughout California is particularly difficult. In Southern California these boundaries are usually obvious; the riparian vegetation grows immediately adjacent to watercourses and only extends a short distance away from the watercourse. In Northern California, however, the boundaries are much less distinct; vegetation that occurs alongside a stream may also be found on hillsides and far away from a watercourse.

For the purposes of this guideline, riparian vegetation is defined as that association of plant species which grows adjacent to freshwater watercourses, including perennial and intermittent streams, lakes, and other freshwater bodies. Riparian plant species and wetland plant species either require or tolerate a higher level of soil moisture than dryer upland vegetation, and are therefore generally considered hydrophytic. However, riparian vegetation may be distinguished from wetland vegetation by the different kinds of plant species. At the end of this appendix, lists are provided of some wetland hydrophytes and riparian hydrophytes. These lists are partial, but give a general indication of the representative plant species in these habitat areas and should be sufficient to generally distinguish between the two types of plant communities.



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The upland limit of a riparian habitat, as with the upland limit of vegetated wetlands, is determined by the extent of vegetative cover. The upland limit of riparian habitat is where riparian hydrophytes are no longer predominant.

As with wetlands, riparian habitats should be identified and mapped only after a site survey by a qualified botanist, freshwater ecologist, or soil scientist. [Footnote 5](#) (See pp. 6-9 of the guideline for a list of information which may be required of the applicant).

IV. Vernal Pools

Senate Bill No. 1699 (Wilson) was approved by the Governor on September 13, 1980 and the Bill added Section 30607.5 to the Public Resources Code to read:

30607.5. Within the City of San Diego, the commission shall not impose or adopt any requirements in conflict with the provisions of the plan for the protection of vernal pools approved and adopted by the City of San Diego on June 17, 1980, following consultation with state and federal agencies, and approved and adopted by the United States Army Corps of Engineers in coordination with the United States Fish and Wildlife Service.

The Commission shall adhere to Section 30607.5 of the Public Resources Code in all permit and planning matters involving vernal pools within the City of San Diego.

All vernal pools located within the City of San Diego in the coastal zone are depicted on a map attached as Exhibit 1 to a letter from Commission staff to Mr. James Gleason, City of San Diego (4/29/80). While "vernal pool" is a poorly defined regional term, all information available to the Commission suggests that all vernal pools in the coastal zone are located in the City of San Diego. It is important to point out, however, that vernal pools are distinct from vernal ponds and vernal lakes, which exist in other parts of the coastal zone (e.g. Oso Flaco Lakes in San Luis Obispo County). The Commission generally considers these habitat areas to be wetlands for the purposes of the Coastal Act, and therefore all applicable sections of the Coastal Act will be applied to these areas.

V. Representative Plant Species in Wetlands and Riparian Habitat Areas

This is a list of "representative" species that can be expected to be found in the various habitat areas indicated. Not all of them will be found in all areas of the State, and there are numerous others that could be included. However, this list should suffice to generally distinguish between these types of plant communities.

A. Salt Marsh

Pickleweed (Salicornia virginica)
Glasswort (S. subterminalis)
Saltgrass (Distichlis spicata)
Cordgrass (Spartina foliosa)



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Jaumea (Jaumea carnosa)
Saltwort (Batis maritima)
Alkali heath (Frankenia grandifolia)
Salt cedar (Monanthochloe littoralis)
Arrow grass (Triglochin maritimum)
Sea-blite (Suaeda californica var pubescens)
Marsh rosemary (Limonium californicum var mexicanum)
Gum plant (Grindelia stricta)
Salt Marsh fleabane (Pluchea purpurescens)

B. Freshwater Marsh

Cattails (Typha spp.)
Bulrushes (Scirpus spp.)
Sedges (Carex spp.)
Rushes (Juncus spp.)
Spikerush (Heleocharis palustris)
Pondweeds (Potamogeton spp.)
Smartweeds (Polygonum spp.)
Water lilies (Nuphar spp.)
Buttercup (Ranunculus aquatilis)
Water-cress (Nasturtium officinale)
Bur-reed (Sparganium eurycarpum)
Water parsley (Vernanthe sarmentosa)
Naiads (Najas spp.)

C. Brackish Marsh

Alkali bulrush (Scirpus robustus)
Rush (Juncus balticus)
Brass buttons (Cotula coronopifolia)
Fat-hen (Atriplex patula var hastata)
Olney's bulrush (Scirpus olneyi)
Common tule (Scirpus acutus)
Common reed (Phragmites communis)

D. Riparian

Willows (Salix spp.)
Cottonwoods (Populus spp.)
Red alder (Alnus rubra)
Box elder (Acer negundo)
Sycamore (Platanus racemosa)
Blackberry (Rubus vitifolia)
So. Black walnut (Juglans californica) (So. Calif.)
California Bay (Umbellularia californicum) (So. Calif.)



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Bracken fern (Pteris aguilinum) (Cen. Calif.)
Current (Ribes spp.)
Twinberry (Lonicera involucrata) (No. Calif.)
Lady fern (Athyrium, felix-femina)
Salmonberry (No. Calif.)
Bayberry (No. Calif.)

E. Vernal Pools

Downingia (Downingia sp.)
Meadow-foxtail (Alopecurus howellii)
Hair Grass (Deschampsia danthonioides)
Quillwort (Isoetes sp.)
Meadow-foam (Limnantes sp.)
Pogogyne (Pogogyne sp.)
Flowering Quillwort (Lilaea scilloides)
Cryptantha (Cryptantha sp.)
Loosestrife (Lythrum hyssopifolium)
Skunkweed (Navarretia sp.)
Button-celery (Eryngium sp.)
Orcutt-grass (Orcuttia sp.)
Water-starwort (Callitriche sp.)
Waterwort (Elatine sp.)
Woolly-heads (Psilocarpus sp.)
Brodiaea (Brodiaea sp.)
Tillaea (Crassula aquatica)

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1. "Classification of Wetlands and Deep-Water Habitats of the United States." By Lewis M. Cowardin, et. al. United States Department of the Interior, Fish and Wildlife Service, December 1979.
 2. For the purposes of identifying wetlands using the technical criteria contained in this guideline, one limited exception will be made. That is, drainage ditches as defined herein will not be considered wetlands under the Coastal Act. A drainage ditch shall be defined as a narrow (usually less than 5-feet wide), manmade nontidal ditch excavated from dry land.
 3. Further details regarding the standards and criteria for mapping wetlands using the Service's classification system may be found in the following, "Mapping conventions of the National Wetland inventory," (undated), published by the U.S.F.W.S. The document may be obtained from the U.S.F.W.S., Regional Wetland Coordinator, Region 1, Portland, Oregon.



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4. While the Service's classification system uses "extreme low-water of spring tide" as the datum to distinguish between "shallow-water" and "deep-water habitat," such datum is not readily available for the California coast. Therefore, the lowest historic tide recorded on the nearest available tidal bench mark established by the U. S. National Ocean Survey should be used as the datum.

Data for such bench marks are published separately for each station in loose-leaf form by the National Ocean Survey, Tideland Water Levels, Datum and Information Branch, (C23), Riverdale, MD 20840. These compilations include the description of all bench marks at each tide station (for ready identification on the ground), and their elevations above the basic hydrographic or chart datum for the area, which is mean lower low-water on the Pacific coast. The date and length of the tidal series on which the bench-mark elevations are based are also given.

5. Identification of riparian habitat areas in Northern California presents peculiar difficulties. While in Southern California riparian vegetation generally occurs in a narrow band along streams and rivers, along the major rivers in Northern California it may be found in broad floodplains, abandoned river channels and the bottoms adjacent to the channels. In forested areas, the overstory of riparian vegetation may remain similar to the adjacent forest but the understory may contain a variety of plant species adapted to moist or wet substrates. For example, salmonberry, bayberry, willow, twinberry and lady fern, may all be more common in the understory of riparian habitat areas than in other types of forest habitat areas.