

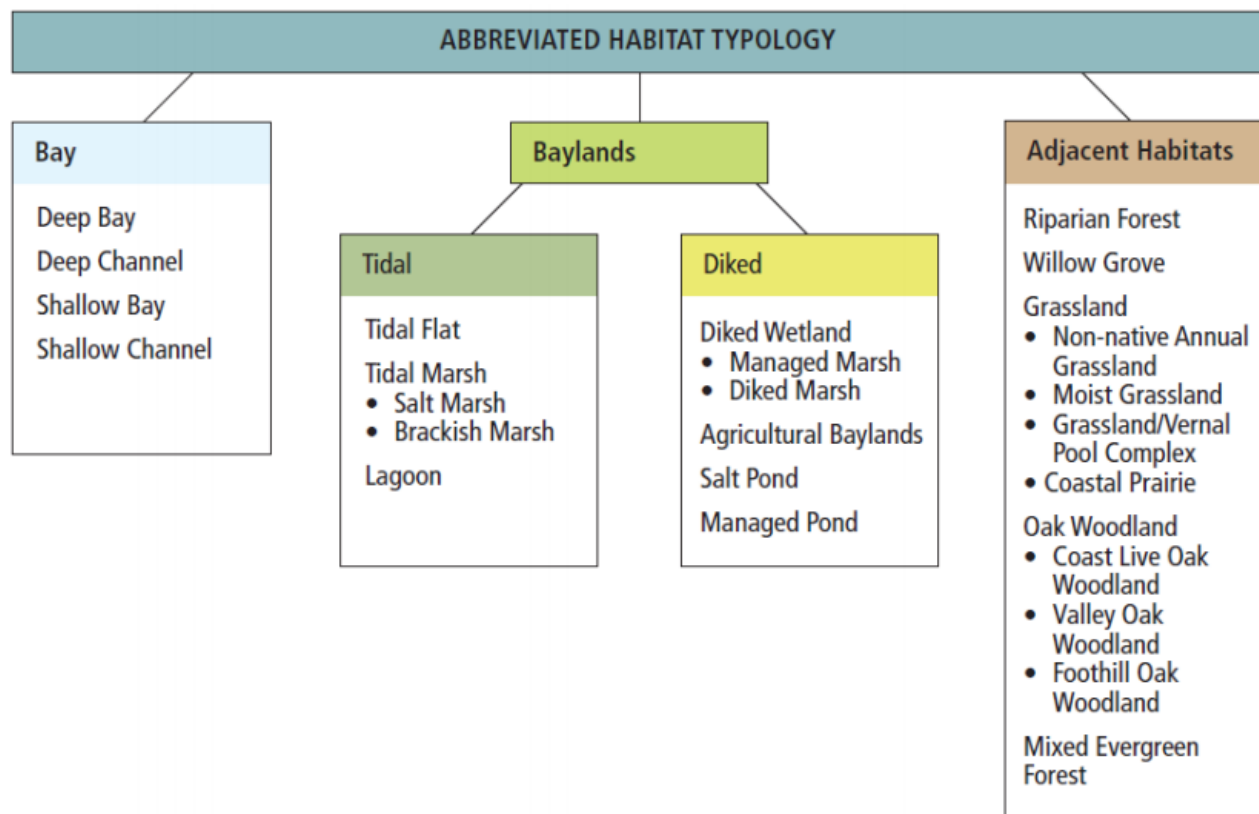
New Understanding: The Baylands and Climate Change

Appendix E: Habitat Types

HABITAT TYPES

The Baylands and adjacent habitat types are summarized in a hierarchical typography (**figure below**) that acknowledges their connection to adjacent habitats both landward and bayward. The habitat types comprise a diverse assemblage of open water, intertidal, diked managed lands, transitional and upland habitats. More detail on the Baylands habitat types as well as descriptions of the adjacent terrestrial and Bay habitat types are available in full in the Baylands Goals (Chp. 4, Goals Project 1999) and

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ing Species and Community Profiles (Goals Project 1999b). Abbreviated descriptions of Bayland habitats are provided below. The maps in this report do not distinguish between the different sub-categories of adjacent bay and upland habitats. The typology below differs slightly from the Goals Report in the addition of “managed ponds” as a habitat category. The managed pond category includes most of the

habitats that were previously considered lagoons, all storage and treatment ponds, and a new category of diked wetlands characterized by open water and managed primarily for wildlife support.

Tidal Baylands

Tidal Flat

Tidal flat includes mudflats, sandflats, and shellflats. It occurs from below MLLW (at the elevation of the lowest tides) to Mean Tide Level (MTL) and supports less than 10 percent cover of vascular vegetation, other than eelgrass. Tidal flats include mudflats that support an extensive community of diatoms, other algae, worms, shellfish, and eelgrass, which is also found in shallow bay and channel habitat. Tidal flats and provides foraging habitat for many species of fishes, shorebirds, and waterfowl. Tidal flat tends to occur less in brackish or freshwater areas compared to more saline areas because, under fresher conditions, marsh vegetation grows lower in the intertidal zone.

Tidal Marsh

Tidal marsh is emergent vegetated wetland subject to tidal action. It occurs throughout much of the Bay from the lowest extent that vascular vegetation will grow down into the tidal frame to the top of the intertidal zone (at the maximum height of the tides). Tidal marsh also exists in the tidal reaches of local rivers and streams. In the fresher parts of the Estuary it occurs at lower elevations in the intertidal zone (see tidal flat discussion above). Tidal marsh plant communities correlate strongly to salinity patterns and to other factors, such as substrate, wave energy, marsh age, sedimentation, and erosion, and are often categorized into tidal salt and tidal brackish marsh.

Lagoon

A lagoon is an impoundment of water that is subject to at least occasional or sporadic connection to full or muted tidal action. Natural lagoons are often formed behind a barrier beach along an indented shoreline. While a few small natural lagoons existed historically no natural lagoons are present today. Habitats classified as artificial lagoons in the 1999 typology are now classified as managed ponds.

Diked Baylands

Diked Wetlands

Diked wetlands are areas of historical tidal marsh that have been isolated from tidal influence by dikes or levees, but which maintain primarily wetland features. In this report, diked wetlands are differentiated from diked agricultural baylands and managed ponds in that they typically support much more wetland vegetation and they produce no agricultural crops. The plant communities of diked wetlands vary greatly from site to site and can resemble those of local tidal salt marsh, tidal brackish marsh, non-tidal perennial freshwater marsh, or seasonally wet grasslands.

Some diked wetlands are managed marshes that are managed for wildlife, primarily waterfowl (i.e., duck clubs). Fresh to brackish tidal water taken from streams or sloughs is the primary water source for managed marshes; this water is delivered through tide gates and along artificial channels. Other diked

wetlands include diked marshes that occur in low areas adjacent to levees or dikes that have no or poor drainage. This kind of wetland is not typically actively managed for wildlife.

Agricultural Baylands

Agricultural baylands are diked, former tidal marshes that are intensively cultivated for agricultural production (primarily oat hay) or are grazed by cattle, sheep, or horses. This habitat type also includes ruderal areas where agricultural production ceased relatively recently. Most agricultural baylands support shallow, seasonally ponded wetlands and some upland plants, and would could support a more diverse array of wetland and upland plants if active agricultural management were to cease.

Managed Ponds

Managed ponds are diked Baylands physically separated from the tides by a berm or levee, with artificially controlled water levels and/or salinities through a weir, culvert, or flap gate. Most of the managed ponds in the Baylands are managed to enhance habitat value for wildlife, but this category also includes wastewater treatment ponds and impounded waters in urban and residential areas, like Lake Merritt and Bel Marin Keys.

Salt Ponds

Salt ponds today are diked Baylands that are managed to produce salt through solar evaporation. Historically, salt ponds also included the naturally occurring large persistent hypersaline ponds that occurred in the Baylands.

Transition Zone

Estuarine-terrestrial transition zone habitats within the Baylands refer to the areas of transition between tidal habitats and adjoining watersheds. This represents an area where the ecosystem services are predominantly controlled by measurable interactions between tidal, fluvial, and terrestrial processes or events. In contrast to the other habitat types previously described in the 1999 Goals Report (i.e., mudflats, tidal marshes, etc.), estuarine-terrestrial transition zone was not originally included as a separate habitat type. The need to restore and conserve transition zones and to preserve their variability and range of services has increased based on regional climate change and sea-level rise predictions, thereby necessitating the inclusion of transition zones as a specific habitat type. See Science Foundation Chapter 4 for the complete definition of estuarine-terrestrial transition zone.

Adjacent Habitats

The other habitat types, bay and adjacent terrestrial habitats, in the typology above (Figure 1) are described in the Goals Report (1999) and not repeated here.