California MLPA Master Plan Science Advisory Team, Key and Unique Habitats Work Group
Draft Key and Unique Habitats in the MLPA South Coast Study Region
November 6, 2008

The *California Marine Life Protection Act Master Plan for Marine Protected Areas* (January 2008) calls for guidance from the MLPA Master Plan Science Advisory Team (SAT) regarding the key and unique habitats that should be represented within marine protected areas (MPAs) for each MLPA study region. Key habitat types provide particular benefits by harboring a different set of species or life stages, having special physical characteristics, or being used in ways that differ from the use of other habitats. Additionally, unique marine life habitats, or those that are rare in California, should be targeted for consideration. Potentially rare and unique natural habitats in the MLPA South Coast Study Region for discussion by the SAT include surfgrass, eelgrass, oil seeps and shallow hydrothermal vents, and *Pelagophycus porra* beds.

Habitat Types Identified by the MLPA Master Plan

Rocky reefs, intertidal zones, sandy or soft ocean bottoms, underwater pinnacles, kelp forest, submarine canyons, and sea grass beds are identified in the master plan. Additionally, five depth zones have been identified: intertidal, intertidal to 30 m (0-16 fm), 30 to 100 m (16 to 55 fm), 100 to 200 m (55 to 109 fm), and 200 m and deeper.

Key Habitats Identified by the MLPA Master Plan

Sand beach, rocky intertidal, estuary, shallow sand, deep sand, shallow rock, deep rock, kelp, shallow canyon, and deep canyon are identified in the master plan.

Draft List of Unique Natural Habitats in the MLPA South Coast Study Region

The key and unique habitats work group has identified four unique habitats in the MLPA South Coast Study Region. While estuary and underwater pinnacle habitats are included in the master plan, the work group has suggested Farnsworth Bank as a unique underwater pinnacle which is located near Catalina Island and San Diego Bay as a unique bay/estuary complex in the study region. Additionally, the work group suggests Point Conception, as it is probably the most significant upwelling area in the study region due to the confluence of the California Current and Southern California Countercurent, which results in a synergy of trophic interactions.

Surfgrass Habitat

The most common type of seagrass along the open coast is surfgrass (Phyllospadix spp.), which forms beds that fringe rocky coastline areas at the zero tide level down to several meters below the zero tide level. The distribution of surfgrass along the south coast study region has been mapped by the U.S. Minerals Management Service (1982) as linear segments that total 57.9 mi or 5.6% of the shoreline, located off the Channel Islands as well as off Point Conception, and along the San Diego county coast. Surfgrass occurs along the remainder of the southern California bight but has not been mapped. Surfgrass serves as an important

habitat for a variety of fish and invertebrates, including the California spiny lobster (Engle 1979), as well as algae (Stewart and Myers 1980).

Eelgrass Habitat

The most common type of seagrass in estuaries and sheltered coastal bays in California is eelgrass (*Zostera marina)* (Abbott and Hollenberg 1976). Eelgrass beds provide a variety of important functions. The long leaves and dense, matted root system of eelgrass beds helps prevent erosion and maintain stability in nearshore areas by slowing down water flow that consequently enhances sediment accumulation and faunal recruitment. Eelgrass beds also provide refuge, foraging, breeding, or nursery areas for invertebrates, fish, and birds (Hoffman, 1986). A second variety of eelgrass occurs along the open coast in southern California, *Zostera pacifica*, which has wider blades than *Z. marina*. Eelgrass beds are not well mapped, but they are known to be located in estuaries (e.g. Mugu Lagoon, San Diego Bay) and along the coast (e.g. on the Santa Barbara coast, Malibu, off Santa Cruz islands) throughout the study region. Mapped eelgrass beds total 18.1 square miles, or 0.8% of the study region area.

Oil Seeps and Shallow Hydrothermal Vents

Natural oil seeps, which are found in the intertidal and offshore areas in the Southern California Bight (SCB) from Point Conception to Huntington Beach are unique to California (Pete Raimondi pers comm) but not rare in the Southern California Bight. The largest concentration of oil seeps are in the Santa Barbara Channel area (Wilkinson 1971). Major oil seeps occur at Point Conception, Coal Oil Point, Santa Barbara Point, Rincon Point (Santa Barbara County), and Santa Monica Bay (Los Angeles). While most shallow hydrothermal vents in the Southern California Bight co-occur with oil seeps, hydrogen sulfide vents located primarily at Whites Point in Palos Verdes (there is also a seep at Palos Verdes Point) are not associated with oil seeps; these vents occur from the intertidal to shallow subtidal zones (0-10m depth).

Benthic communities and environmental conditions around oil seeps and shallow hydrothermal vents differ from surrounding areas with some communities supported by hydrogen sulfide-oxidizing bacterial mats with localized different water chemistry and temperature (Dailey 1993). Further, old tar mounds surveyed by a remotely operated vehicle off Point Conception were found to be heavily colonized by invertebrates and resembled reef communities found on submarine rock outcrops (Lorenson et al. 2007). In the area of Coal Oil Point, seepage has been estimated to occur at a rate of 50 to 70 barrels of oil per day (Wilkinson 1971). These oil seeps are a source of natural marine pollution that can accumulate in large slicks and/or tar balls on beaches, which can negatively affect marine life, birds, and human activities.

Pelagophycus Porra (Elk Kelp) Beds

Pelagophycus porra has a narrow depth distribution (20 to 50+ meters) and is primarily found off Santa Catalina, San Clemente, Santa Barbara, and Santa Cruz Islands, and along the mainland coast of southern California from San Diego to Baja California, Mexico. While common at some of the Channel Islands, it is a rare biogenic habitat along the mainland of southern California. *Pelagophycus porra* grows on soft sediment habitats of the lee ward side

of Santa Catalina and San Clemente Islands where it is protected from storm surges; this trait makes it a fairly unique in this region. *Pelagophycus porra* also grows on rocky habitats along the windward side of San Clemente, Santa Cruz, and Santa Barbara islands (Miller et al. 2000).

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