

Resource potential and environmental conservation of CA seamounts, an initial review

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Mining of marine minerals within the U.S. Exclusive Economic Zone (EEZ) must wait until Federal regulators establish a legal framework and environmental regulations that will balance the economics of mining with the preservation of regional fisheries, marine national monuments, and interests of other stakeholders.

Elements of economic interest in ferromanganese crusts within the EEZ along the central and southern California (CA) margin will be compared to those from the Pacific Prime Crust Zone (PCZ) [1]. Rare earth elements in CA margin crusts are comparable to those in crusts from the PCZ. Metals of economic interest: Mo, Ni, Cu, Co, Nb, W, and Te have lower concentrations in CA margin samples with platinum group elements significantly lower.

The CA margin is a region of high primary productivity that hosts large commercial fisheries and marine mammal migration routes. Seamounts create obstructional upwelling leading to high primary productivity and development of an oxygen minimum zone. It has been determined that seamounts are not island habitats with highly endemic faunas that comprise unique communities distinct in species composition from other deep-sea habitats, as once thought [2], which is also true for seamounts surveyed off CA [3]. The potential environmental impacts associated with exploitation of crusts along the CA margin are of concern. Scientific assessment of the resource potential of CA margin crusts and environmental costs of extraction are needed for informed decisions and development of federal regulations.

[1] Hein & Koschinsky (2013). *Treatise on Geochem* (2nd Edition), 13.11, 273-291 [2] Rowden *et al* (2010) *Mar Ecol* **31**:226-241 [3] Lundsten *et al* (2009) *Mar Ecol Progr Ser* **389**:223-232