

Contaminants in white croakers *Genyonemus Lineatus* (Ayres, 1855) from the southern California Bight: I. Trace metal detoxification/toxification

¹Kenneth D. Jenkins, ²David A. Brown, ²G. Patrick Hershelman, and ¹W. Craig Meyer

¹*Department of Biology California State University Long Beach, Long Beach, CA*

²*Southern California Coastal Water Research Project, Long Beach, CA*

ABSTRACT

A growing body of evidence suggests that fish make use of a specific intracellular mechanisms to sequester or detoxify a wide range of environmental contaminants. In the case of trace metals, fish, like other vertebrates, appear to utilize the metal-binding protein metallothionein (Noel-Lambot et al., 1978; Beattie and Pascoe, 1979; Overnell and Coombs, 1979). Metallothioneins are characterized by a low molecular weight (6,800 daltons), a high cysteine content (30%), an absence of aromatic amino acids, and a high affinity for metals including Ag, Au, Cd, Cu, Hg, and Zn (Kagi and Nordberg). Synthesis of metallothionein is induced by low levels of Zn, Cu, Cd, and Hg, thus allowing organisms to respond to increasing quantities of trace metals by synthesizing this specific metal-binding protein (Brady et al., 1979; Bremner and Davies, 1975; Richards and Cousins, 1975).

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