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### Effects of dietary Selenomethionine on larval rainbow trout (*Oncorhynchus mykiss*)

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#### ABSTRACT

Increased selenium (Se) concentrations in water (>10 µg/L) have been measured in San Diego Creek, a tributary of the Upper Newport Bay in Orange County, California. The objective of this study was to develop tissue and dietary thresholds for Se in resident fish species in San Diego Creek. A 90-day dietary experiment was conducted to determine the effects of seleno-L-methionine (SeMe) on growth, survival, and whole-body accumulation in larval (24-day-old) rainbow trout. Decreased and oxidized glutathione (GSH-to-GSSG ratio) and thiobarbituric acid-reactive substances (TBARS) were also measured in livers of exposed animals to assess oxidative damage caused by Se. Fish food was spiked with SeMe to contain 4.6, 12, and 18 µg/g (dry weight) of Se. Fish exposed to SeMe for 90 days exhibited a significant decrease in body weight and fork length in the 4.6 and 12 µg/g Se treatments compared with controls. Whole body total Se concentrations increased significantly in fish fed 12 and 18 µg/g SeMe after 90 days compared with controls. Lipid peroxidation (TBARS) and GSH to GSSG ratios were not changed by SeMe treatment. Based on decreased growth after 90 days, a dietary Se lowest observed-effect concentration (LOEC) value of 4.6 µg/g and a Se body burden LOEC of 1.20 µg/g (wet weight) were estimated.

#### Full Text

[ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2005\\_06AnnualReport/AR0506\\_173-180.pdf](ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2005_06AnnualReport/AR0506_173-180.pdf)