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Master Thesis Defense**

Entitled

INVESTIGATING HEAVY METAL CONTAMINATION IN THE LIVER, GILLS, AND MUSCLES OF
SOLE AND HALIBUT IN THE TERRITORIAL WATERS OF FUJAIRAH

BY

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Abstract

The main focus of this thesis is on the measurement of trace metal concentrations in the liver, gills, and muscles of two benthic flatfish species, the halibut (*Hippoglossus hippoglossus*), and Dover sole (*Solea solea*). The primary objective of this thesis is to evaluate the status of the Fujairah fish market and the metal pollution status of the regional waters, and their effects on human consumption. Inductively Coupled Plasma Optical Emission spectroscopy was used to measure the following trace metals As, Ca, Cd, Co, Cr, Cu, Pb, Mg, Mn, Hg, Mo, Ni, K, P, Na, S, Sr, V, and Zn in a total of 129 prepared samples. The concentration of metals in the liver was higher than the other two organs followed by gills and then muscles. The Dover sole samples generally had higher metal concentrations than the halibut. This study offers knowledge and a basis for understanding the level of metal pollution present in the Fujairah fish market. Metal pollution in the Fujairah Emirate is not well-researched, and there is limited information available on the extent of fish and water pollution in the region.

Keywords: Heavy metal, Trace metal, Halibut, Sole, Benthic fish, Demersal fish, Flatfish, Water pollution, Fujairah, UAE, Gulf of Oman.