



Heavy Metal Status of Nearshore Fisheries Impacted by Old Military Dumpsites on the Eastern Side of Saipan, CNMI



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Although wartime dumpsites are scattered all over Saipan, the great majority are located in watersheds and on the eastern side of the island. Inventories of materials disposed of at these old dumpsites show that unexploded ordnances, munitions and demolition materials are among the most obvious wastes present. What little chemical data there are indicate that heavy metals, chlorinated hydrocarbons, petroleum and polycyclic aromatic hydrocarbons are the most commonly encountered contaminants. No data exist regarding the movement of any these dumped chemicals into other quarters of the environment via drainage pathways leading to the coast. Of particular importance in this regard are the more recalcitrant, lipophilic compounds like heavy metals, pesticides and PCBs. These contaminants readily accumulate in living organisms and can be concentrated to levels several orders of magnitude above ambient. Their stormwater induced mobilization from dumpsites on Saipan could therefore impart undesirable characteristics to aquatic resources harvested for food at down-gradient locations, rendering them unfit for human consumption.

In an attempt to bridge this information gap, we recently examined a suit of heavy metals in soils/sediments taken in the vicinity of several land-based dumpsites on the eastern side of Saipan. Where applicable, samples were also taken from surface water drainage pathways leading to the coast. Of thirty two sites examined, soil from seven exceeded Saipan's currently adopted soil screening levels for one or more metals. When weighed against USEPA's more conservative ecological screening levels, samples from all sites yielded heavy metal exceedences for at least one element. Currently we are attempting to delineate the magnitude of metal contamination in nearshore waters associated with these dumpsites using established aquatic bioindicators (algae and limpets). These

organisms were collected from surface water discharge points along the eastern seaboard in areas known or suspected to be impacted by land-based dumpsites. Preliminary data from the bioindicator survey indicate that metal enrichment of biotic components has occurred at some of these locations.

Based on the above findings, it is proposed here to extend the heavy metal monitoring program to fisheries resources along the eastern seaboard with emphasis on dominant representatives harvested for food. Sample collection points will focus on habitats influenced by metal enriched coastal discharges or impacted by metallic wastes bulldozed into the ocean at the end of WWII. The study addresses critical concerns voiced by CNMI stakeholders at our 2012 Advisory Council meeting regarding the impact of *Formerly Used Defense Sites* (FUDS) on Saipan's aquatic resources. Potential health risks associated with the long-term, unrestricted consumption of fish taken from any contaminated waters will be identified as will any need to impose future cleanup activities, or fishing restrictions in such areas. The study will additionally provide the necessary foundations for any future monitoring program conducted in these waters and compliment the overall chemical database currently available for aquatic resources on the other side of the island.