



Impact of Multiple Mercury Sources on Edible Quality of Fish from American Memorial Park Nearshore Waters, Saipan, CNMI



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The massive clean-up of Saipan at the end of WWII gave rise to unprecedented waste disposal problems that linger on the island to this day. The disposal of munitions, for example, was largely solved by dumping and often involved detonation attempts by fire in natural gulleys and shallow pits dug in the ground. This disposal practice was not particularly effective and, for the most part, only added to the environmental mercury problem created earlier by the heavy shelling that accompanied the US invasion. The first hint of potentially wide-spread mercury contamination on Saipan emerged in 2007 when an independent research team reported frequent and occasionally high mercury detections in stormwater discharged into the southern half of the lagoon (Environ Inc. 2007). These findings were especially noteworthy because mercury is rarely encountered in urban runoff (USEPA 1983). Shortly afterwards, WERI researchers noted unusual mercury distribution patterns in sediments from the same region of the lagoon and suggested that inputs washed in from land-based sources were superimposed upon a scattering of mercury contamination emanating from within the lagoon itself (Denton *et al.* in 2014). Since mercury was used extensively in WWII (as mercury switches in projectiles and rockets, and as the primary explosive, mercury fulminate, in primers and detonators of artillery shells and percussion caps of bullets) it was postulated that pockets of mercury contamination associated with exploding WWII ordnance and lost ammunition had been created along the coastal belt and in the lagoon. More recent evidence supports this contention. Studies are underway to determine the full

impact of this contamination on fisheries in the southern half of Saipan Lagoon where the fighting between US and Japanese troops was particularly fierce.

The project described herein proposes to extend this fish monitoring program to nearshore water adjacent to the American Memorial Park (AMME). The primary objectives of the study are to: a) identify and delineate hitherto unknown sources of mercury contamination within the study area; b) determine the collective impact these sources on the edible quality of fish; c) evaluate potential health risks associated with unrestricted consumption of fish from impacted areas; d) provide additional data to assist with the identification and delineation of areas of contaminant enrichment within Saipan Lagoon, and e) enhance ongoing marine monitoring, management and mitigation strategies for Saipan's coastal waters.



Local fisherman using traditional fishing practices.