

CASE STUDY 1

GHOST WRECKS OF THE ANTHROPOCENE: AN ENDURING TOXIC LEGACY OF THE PACIFIC WAR

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During the Second World War, over 3,800 ships containing as many as 1.5 billion gallons of petrochemicals, and hundreds of thousands of tons of explosive ordnance were sunk throughout the Asia-Pacific Region (Figure 1) (Michel et al., 2005). Over the last 77+ years, these potentially polluting wrecks (PPW) have deteriorated with the threat of oil spills increasing as their corrosion leads inexorably towards structural collapse (Macleod, Selman, & Selman, 2017). These wrecks and their cargoes can be seen as markers of the ‘Anthropocene’, the concept that through human-induced changes (including in the chemical composition of the atmosphere, oceans and soil), Earth has entered a new epoch in its geological history (Zalasiewicz et al., 2021). While the Anthropocene is a useful term for conceiving the magnitude of the impacts humans have had on the planet, today the toxic legacy of these wrecks is a very real threat to marine ecosystems, cultures and livelihoods across the Blue Pacific (SPREP, 2019).

Chuuk Lagoon of the Federated States of Micronesia (FSM), is the largest lagoon in Micronesia, and has the highest concentration of ‘high-environmental risk’ PPW in the Pacific Region with at least 50 WWII shipwrecks and numerous aircraft located there (Carter et al., 2021; Jeffery, 2004). Significantly, these potentially polluting wrecks form a tremendous wealth of underwater cultural heritage for Chuuk and also serve the Chuukese people who subsist on the marine resources from the lagoon and revere its species for their clan connections. The underwater cultural heritage and reef biodiversity of the lagoon attract many local and international visitors on an annual basis, including those from Japan who venerate the wrecks as the war graves of their countrymen (Figure 2). Significantly, however, both the cultural and natural resources of Chuuk Lagoon are under threat for a variety of reasons, including climate change, deterioration of the material culture, development and the ever-increasing risk of oil spills from the wrecks.

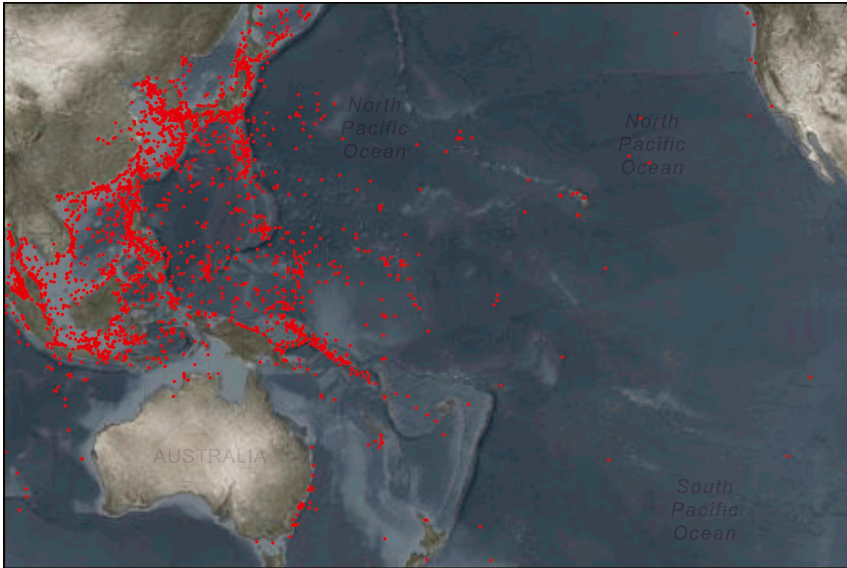


FIGURE 1 Map showing ships lost during WWII across the Asia Pacific Region. Attribution: © Paul Heersink, 2022.



FIGURE 2 The wrecks in Chuuk play an important role as cultural tourism assets, but also pose a threat to the marine environment central to Chuukese life.

War has left another legacy in Chuuk that is as toxic as the oil pollution from the shipwrecks. Many Pacific regions where WWII battles were fought are home to local people who were innocent bystanders in someone else's war. In Chuuk, they were bombed by US aircraft for nearly 18 months, during which time about 1,000 Chuukese were killed. Chuukese helped build the bunkers for Japanese to shelter from the bombing, but were not allowed to use them, they had to dig additional small caves for their own shelter (Aisek cited in Lindemann, 1982, p. 172). With the 18-month blockade of supplies into Chuuk, starvation, malnutrition, and disease spread throughout the 10,000 Chuukese and 40,000 Japanese. The bombing not only sank many ships, but it also destroyed hundreds of the Japanese land-based facilities, as well as many of Chuuk's traditional cultural heritage sites and made much of the usable land for farming unproductive. This legacy has had a lasting impact on Chuukese. They regard land-based sites as a reminder of the death and suffering of their parents/grandparents, in contrast to the shipwrecks, which are a legacy of when the war came to Chuuk, important in Chuukese history, but not seen as heritage sites with the same "sense of place" (Jeffery, 2007, p. 229).

Today the management of Chuuk Lagoon is primarily under the jurisdiction of Chuuk State and is of FSM National concern due to its large marine area and connection to the larger body of water that makes up the FSM. The interconnected and sometimes competing values of the shipwrecks in the Lagoon present authorities with management challenges that cross boundaries both between Departments, and the natural and cultural worlds.

As artificial reefs, the wrecks are home to corals and other marine organisms that provide habitat for organisms and fish taxa that are essential for the Chuukese indigenous way of life. It is estimated that there are more than 300 types of corals in the waters of the FSM and an unknown diversity of octocorals (soft corals and gorgonians) (Rowley et al., 2019). Research to identify and quantify coral species throughout this vulnerable marine environment, their health, and how they contribute to the biodiversity of the Chuuk Lagoon remains to be completed.

The wrecks in Chuuk Lagoon are also important economic resources for the burgeoning dive tourist industry. Prior to the Covid-19 pandemic, Chuuk received 2,768 visitors in 2016 (FSM Statistics Office). These visitors predominantly come from the US, Australia and Europe and have an interest in wreck diving, valuing these sites more for their associations with WWII, than for their nature. In contrast, the wrecks hold particular sensitivity for the smaller number of Japanese tourists who come to Chuuk as a pilgrimage to visit the wrecks as the war graves of their countrymen.

The FSM and Chuuk State Governments recognize that the wrecks in Chuuk Lagoon are of local, national, and international significance for both their natural and cultural values. Significantly, while a number of Chuuk State agencies as well as foreign governments and non-profits contribute to removing oil from the wrecks, the removal of these pollutants occurs slowly due to available human labor and limited resourcing despite recognition of the threat they pose to Chuukese cultural heritage, subsistence way of life and the natural environment.

The wrecks of Chuuk Lagoon present a range of conflicting values; from tourism assets and war graves, to legacies of colonialism and urgent environmental threats. These values present challenging dimensions to the management of these sites for international, national and state authorities. As markers of the Anthropocene these wrecks provide an ongoing case study of how the toxic legacies of the Second World War continue to impact the Blue Pacific.

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