



Fact Sheet

Environmental and Economic Impact from Sea Mines and underwater unexploded ordnance (UXO) in the Black Sea, and Policy Imperatives

Overview

Russia's full-scale invasion of Ukraine in 2022 has resulted in one of the most severe maritime underwater explosive materials contamination crises since World War II. A conservative estimate based on publicly available information suggests that **over 26,000 km² of Ukraine's maritime and internal waterways areas may necessitate sea-mine clearance and/or technical surveys.** Sea mines and unexploded ordnance (UXO) in the Black Sea and internal waterways pose significant threats to trade, food security, marine ecosystems, and recovery efforts.

Prior to the war, **40% of Ukraine's gross domestic product (GDP)** was tied to maritime trade, making it a crucial lifeline for the nation. However, this lifeline has been severely disrupted since the invasion. The National Mine Action Authority (NMAA), Ukraine's existing mine action institution, is primarily **land-focused** and lacks the mandate, expertise, and resources necessary for maritime or aquatic demining.

Economic Impact

Pre-war, Ukrainian Black Sea ports, including Odesa, Chornomorsk, Pivdennyi, and Mykolaiv, handled over **70% of national foreign trade.** Maritime exports encompassed a diverse range of commodities, including grain, sunflower oil (the world's largest exporter), steel, and fertilizers.

- Since the outbreak of the war in 2022, maritime exports have experienced a staggering decline of over **50%.** Additionally, major ports have been forced to close due to the presence of sea mines and naval strikes. Furthermore, insurance premiums have surged, leading shipping companies to reroute or abandon their operations.

Furthermore, there is a lack of a national system that certifies waters as "mine-free," which deters investors from investing in port reconstruction and logistics corridors.

Environmental Impact

- Explosives such as TNT, RDX, and HMX have released toxins into marine ecosystems, as evidenced by the Baltic Sea. In Ukraine's Black Sea Exclusive Economic Zone (EEZ), the risks posed by these explosives include the contamination of fish spawning grounds and estuaries, the potential for explosive shocks that could kill marine mammals, fish, and benthic life, and the loss of livelihoods for fishing communities due to seafood safety concerns.
- Regrettably, the response to ecological disasters has been hindered by the presence of mine threats. For instance, the *MV Helt* sank after colliding with a mine in March 2022, resulting in a delayed recovery process that spanned over a year. Additionally, oil slicks from Volgoneft tankers reached Ukrainian shores between 2024 and 2025, posing challenges in their containment near minefields.

Without Urgent Clearance, Ukraine Faces a Long-Term Marine Contamination Crisis

Ukraine faces a **long-term marine contamination crisis** that poses significant risks to regional food security and biodiversity. This crisis is exacerbated by the fact that Ukraine lacks the necessary capabilities to address it effectively.

Why Maritime/Aquatic Demining Is Different

- On land: once cleared, areas are considered safe unless new contamination occurs.
- At sea: **currents, tides, and sediment shift** constantly move or re-expose mines. Cleared zones can quickly become dangerous again.
- Continuous **surveillance, sonar mapping, and anomaly detection** are required—capabilities Ukraine does not currently possess.

Institutional Gaps

Ukraine's institutional framework is inadequate to address this crisis effectively. The National Mine Action Center (NMAC) is **primarily focused on** land-based hazards and lacks the authority to oversee underwater clearance operations. Additionally, **there is no** legally defined jurisdictional boundary or area of responsibility (AOR) between relevant institutions.

Environmental agencies provide statutory oversight, but they lack the access and authority to effectively clear mines. Furthermore, Ukraine has relied on **project-based assistance from international partners** such as the UNDP, NATO, and OSCE, while these partnerships have primarily focused on capacity building rather than providing permanent solutions.

Summary

Ukraine's waters are among the most underwater UXO-contaminated globally. The consequences are **economic paralysis, ecological degradation, and humanitarian risk.**

A dedicated responsible agency such as **National Maritime Mine Action Center**, backed by legal reform and international donor support, is essential to restore trade, protect the environment, and ensure long-term recovery.