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Project Tangaroo - Potentially Polluting Wrecks in the Caribbean

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1. Summary

More than 8,500 shipwrecks worldwide – most caused by 20th century conflict – contain an estimated 2.5-20 million tons of pollutants. There is little precise information on the location and condition of the majority of these wrecks. While evidence points to a greatly heightened risk of a major spill, current arrangements for both spill prevention and spill response are inadequate. Potentially Polluting Wrecks (PPWs), a shipwreck containing a cargo of oil and/or its own fuel oil that has the potential to cause environmental damage and disrupt maritime systems, can be safety hazards and at the same time support local biodiversity. They can have significant heritage value and many still contain human remains. Some are considered as war graves. Project Tangaroo calls for policy solutions at regional, national and international levels that both address this complex reality and assure timely action.

Urgent action is needed to manage the threat posed by these PPWs.

2. Project Tangaroo

In 2023, Lloyd's Register Foundation (LRF) provided funding to The Ocean Foundation and Waves Group to convene an international community of experts to develop international standards and protocols for PPW assessment and intervention. This grant, and the resulting community of practice, became known as Project Tangaroo.

The principal aim was to accelerate a move away from costly and sub-optimal emergency response activity in dealing with PPWs towards a more proactive and strategic approach. The International Union for the Conservation of Nature (IUCN) and the International Committee for Underwater Cultural Heritage (ICUCH, a scientific committee of the International Council on Monuments and Sites – ICOMOS) were also partners in this work. A volume presenting a synthesis of current knowledge on PPW management efforts was published by Springer in 2024.¹

Taking this resource as a baseline, a series of international workshops were convened, engaging a wide range of stakeholders from industry, Government and the research community to initiate action in the following areas:

- Development of international standards and protocols.
- Identification of options for strategic assessment programmes.
- Production of a technology roadmap to support optimised assessments and interventions.
- Development of a supporting data and archive strategy.

The insights produced directly contributed to the formulation of the Malta Manifesto², launched on 13 June 2025 at UNOC3, Nice. Shortly before that, IUCN and ICUCH published a joint statement, addressed to UNEP, on the need for action.³ In August 2025, LRF published an *Insight Report* presenting a more detailed set of recommendations flowing from Project Tangaroo.⁴

3. Potentially Polluting Wrecks (PPWs)

Many PPWs are casualties of the First and Second World Wars and, as war wrecks, pose particular challenges that need to be addressed. Most are sunken state vessels. The flag states of these wrecks, such as the United States of America (USA), Germany, Japan and the United Kingdom (UK), have stated that their sunken crafts are presumed to remain owned by them, unless expressly abandoned. As such, they are subject to sovereign immunity to avoid the legal enforcement that is generally available against privately owned wrecks.

Different countries take different approaches - the UK Ministry of Defence, for example, is unusual in that it accepts responsibility for management of the pollution risk presented by wrecks and cargos which belonged to them when they sank, wherever they sank. While sovereign immunity can also help protect PPWs against illegal salvage the general effect is that there is little certainty about how the costs of PPW management and remediation will be met – this can be especially problematic when emergency response operations are required.

Most current arrangements for oil spill management have been designed to provide emergency response to contemporary incidents that involve privately owned and operated vessels (for example the IOPC Funds) - a scenario that is fundamentally different to the challenge posed by PPWs. As matters stand, a large-scale spill from a PPW is likely to occur with no prepositioned equipment or funding agreements in place. The risk of a severe pollution event is therefore greatly increased. Even if equipment resources were available, pre-agreed arrangements would have to be in place to allow their rapid deployment, and training of a local workforce would be required to assure occupational safety, maintenance and rehabilitation.

4. PPWs - a global challenge

Since a widely cited PPW study in 2005⁵, it has been generally accepted that there are more than 8,500 PPWs globally which are either tankers larger than 150 gross tons or non-tanker vessels larger than 400 gross tons. However, the study authors themselves note, because they did not include smaller vessels, the actual scale of the environmental hazard may be much greater, particularly at the local level.

Some of the densest concentrations of PPWs are a result of well documented naval battles around the Pacific Islands. Other major theatres of war are also clearly reflected in PPW distribution. A few wrecks have received considerable attention, but the majority have not been accurately located, and those that have are often not adequately monitored. Work in the Arctic has highlighted the losses associated with Second World War convoys and PPW management in this region poses new challenges. For example, tracking oil in iced waters is more complex than in other environments and geopolitical tensions mean that relatively little is known about the condition of PPWs in Russian waters.

There is also increasing recognition of the particular set of technical and economic problems posed by deepwater PPWs, a number of which are known in the South Atlantic and Caribbean, while remoteness, whether in the Arctic or Pacific, creates profound operational and logistical challenges.

5. PPWs and the Caribbean

Regions such as the Caribbean and the South Atlantic, while not the focus of sustained, intense conflict, nonetheless contain numerous PPWs as a result of wartime blockades. The Caribbean's strategic importance for the transport of oil, combined with limited Allied defences, meant that a large number of tankers were lost there, many fully laden with oil. Research by The Log Book Project⁶ revealed 33 fuelled tankers sunk in the Caribbean with a combined cargo of over 90 million gallons of oil and refined petroleum. To date, no comprehensive, publicly-accessible survey has been conducted to evaluate the risk posed by these shipwrecks, which are among over 300 ships sunk in the Caribbean during the Second World War.

PPWs are a global threat that defies simple categorisation. The complexity and scale of the problem, spanning many aspects of maritime and marine systems, must be acknowledged. It can seem overwhelming. However, analysis on a regional and local scale can enable practical management options.

6. We are entering a period of greatly heightened risk

PPWs from the World Wars have experienced decades of corrosion – that alone would be enough to raise concerns about the integrity of their hull structures and the risk of catastrophic oil release. However, this deterioration is being accelerated by warming water temperatures, acidification and increasingly powerful hurricanes, typhoons and storm surges only add to the threat of structural collapse and catastrophic release. Other reasons for concern include observations on how leaks are currently occurring – not through single impacts or a major disturbance event but through a generalised weakening of seams and fastenings that point to decreasing integrity of the hull structure. We have limited detailed information on the condition of the vast majority of PPWs. This in itself is a major problem. However, modern survey methods and advanced digital modelling have been applied to a growing number of wrecks, providing an unprecedented level of detail about the structures and rates of change. The evidence from such surveys is consistent and concerning. Indeed, it is entirely possible that some of the mystery oil spills detected in the Caribbean are from PPWs that are already leaking.

We know how to manage the risk posed by these wrecks. We need urgently to marshal the resources and the collective will to put that knowledge to use – at scale.

7. Recommendations

There is mounting evidence that major incidents around the world are inevitable if no action is taken on PPWs. In addition to the risk of environmental harm, regions such as the Caribbean have economies largely based on fishing and tourism, that are hyper-sensitive to even small amounts of oil, yet readiness levels to respond to PPW spills remain relatively low. Consequently, it is recommended that:

- Contracting Parties request the Cartagena Convention Secretariat in collaboration with RAC REMPEITC Caribe to enter into discussions with Project Tangaroa to better understand, and identify opportunities for addressing, the threat of PPWs in the Wider Caribbean Region.

- Existing regional planning in support of the objectives of the Oil Spills Protocol and through the RAC REMPEITC should include operational provisions for emergency spill response to PPW-sourced pollution. Longer-term management and workforce development plans should be implemented to minimise or prevent disasters from PPWs.
- PPW management should be integrated by Contracting Parties into broader ocean stewardship, coastal management and marine spatial planning frameworks, risk assessments and related policy development associated with the Cartagena Convention and its Protocols.
- PPWs should be recognised and assessed as a risk-factor by Contracting Parties potentially requiring mitigation in connection with matters such as blue investments, habitat restoration projects and planning and management of marine protected areas.

Project Tangaroa is ready to assist Contracting Parties, the Cartagena Convention Secretariat and RAC REMPEITC Caribe in the implementation of these recommendations.

¹ Threats to Our Ocean Heritage: Potentially Polluting Wrecks: <https://doi.org/10.1007/978-3-031-57960-8>

² <https://www.lrfoundation.org.uk/sites/default/files/2025-06/lrf-malta-manifesto-final.pdf>

³ Published on 11 June 2025 at www.icomos.org/actualite/icomos-and-iucn-statement-on-potentially-polluting-wrecks

⁴ <https://www.lrfoundation.org.uk/publications/potentially-polluting-wrecks-protecting-people-and-planet>

⁵ Michel, J., Etkin, D.S., Gilbert, T., Urban, R., Waldron, W. & Blocksidge, C.T. (2006). Potentially polluting wrecks in marine waters. A summary of a paper presented at 2005 International Oil Spill Conference. https://www.interspill.org/downloads/archive/marine_polluting_doc.pdf

⁶ <https://thelogbookproject.com>