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FROM MYTH TO REALITY: THE SEA DRAGON'S REBIRTH AS EARTH'S ZERO-DEBRIS  
LAUNCH TITAN

**Abstract**

Since 1962, the gigantic Sea Dragon has captivated the imagination of many, serving as a beacon of inspiration. Despite never being realized, the legacy of this concept endures, fueled by the innovation of pioneering companies like Ripple Aerospace. The Sea Dragon's foundational principles continue to hold relevance today. However, amidst the disappointment of unfulfilled promises by major industry players in space transportation and the strain on state budgets due to escalating costs linked to addressing the climate crisis, there is a pressing need to reevaluate and adapt this remarkable idea.

In this paper, we propose a rescaled version of the Sea Dragon concept as a solution to mitigate orbital pollution and propel deep space exploration forward. We argue that this concept remains the prime candidate for establishing Earth's inaugural zero-debris International Launch Vehicle. By exploring its potential to address contemporary challenges and align with Sustainable Development Goals (SDGs) and environmental safety standards, we aim to demonstrate the enduring relevance and adaptability of the Sea Dragon.

Our analysis will encompass the entire spectrum of the project, from its conceptualization to launch readiness. By integrating current environmental imperatives and sustainability considerations into the Sea Dragon concept, we envision a future where this innovative approach not only revolutionizes space transportation and planetary defence but also sets a new standard for responsible and forward-thinking aerospace endeavors.