

Digitizing Sovereignty, Guarding the Ocean

Knee-deep in seawater, Tuvalu's foreign minister, Simon Kofe, [addressed](#) the UN COP-26 climate summit to show that his Pacific Nation was sinking. Local seas in the region [rise](#) five millimeters a year—roughly 1.5 times the global average—and have risen nearly 15 centimeters since the early 1990s.

Tuvalu risks losing not only its 26 km² of land but also the much larger ocean territory that surrounds it. After all, sea rights are afforded to a nation only while some of its shoreline stays above water. The country's exclusive economic zone (EEZ)—an area the size of France that is rich in tuna and polymetallic nodules, and hosts a planned fiber-optic cable route—would thus revert to high-seas commons the moment the Tuvalu coast slips below low tide. Any fishing fleet or mining company could then move in and claim the resources.

The prospect of losing those resources has driven Tuvalu to embrace digital sovereignty: turning the state into data and challenging the world to recognize a nation whose territory has slipped beneath the sea.

Uploading Sovereignty

Rather than watch its ocean estate become a free-for-all, Tuvalu is moving the nation itself to the cloud. Light Detection and Ranging (LiDAR) teams are [laser-scanning](#) every aspect of the island in high-resolution detail; citizens are [digitizing](#) heirlooms and ancestral stories; officials are [designing](#) blockchain-based passports to ensure elections and treaty signatures can outlive the land. By digitizing sovereignty, Tuvalu aims to keep functioning under customary law and thereby [retain](#) its EEZ—an insurance policy against the zone defaulting to high-seas commons beyond any single state's control.

Tuvalu may be paving the way, but it is not alone in its efforts to digitalize its sovereignty and secure maritime rights. Neighboring islands are following suit. The [Maldives](#) has approved a National Sovereign Cloud to safeguard all state data; [Kiribati](#) launched a World-Bank-financed Digital Government Project in 2023 to deploy e-ID and a national services portal; and the [Marshall Islands](#) has amended its legislation to allow blockchain entities to host citizenship and company registries. Each move shows continuous state activity aimed at protecting its maritime zone.

Yet uploading states to digitize sovereignty clashes with international law— which [measures](#) sovereignty in meters of land, not in megabytes of data. The UN Convention on the Law of the Sea (UNCLOS) tethers every maritime right to dry ground, with Article 5 [fixing](#) an EEZ's “normal baseline” at the low-water line. If that shoreline sinks, the zone—along with its tuna,

minerals, and cable routes—becomes open for claiming by whichever fleet or mining company arrives first, no matter how many servers keep the national flag online.

A Sinking Coast Becomes a Strategic Prize

The possibility that Pacific EEZs could lose their legal existence gives bigger powers a [chance to grab new maritime entitlements](#). Even while still holding formal titles, the islands' waters have already become a geopolitical marketplace. China is financing a Kiribati-flag tuna fleet with an Exim-Bank loan—insurance package of about [US\\$100 million](#), and the European Union (EU) has [struck](#) a new five-year fisheries protocol deal with the island nation that grants EU purse-seiners—fishing vessels equipped with expansive fishing nets—access to some of the richest tuna grounds in the world. In addition, the Chinese state firm China Minmetals [holds](#) a 15-year International Seabed Authority (ISA) license for polymetallic-nodule blocks just outside Tuvalu's frontier. For Tuvalu, if the normal baseline finally sinks, what now requires Tuvalu's consent could slip overnight into an unregulated high-seas scramble.

Amid sinking coasts worldwide, however, Pacific islands take the first hit. Fishing-day licenses currently [supply](#) almost half of Tuvalu's recurrent revenue, and officials warn of "[future illegal fishing](#)" and lost income if the EEZ disappears. If the shoreline sinks and the world refuses to recognize Pacific states' cloud-based governments, the seabed that was once inside the EEZs legally becomes part of the shared commons under UNCLOS. At that point, the ISA—not the states—would issue any mining licenses without owing any royalties to the displaced states.

The stakes are global too, with potentially dire consequences. Foreign purse-seiners that now buy Tuvaluan fishing day licenses would answer only to regional fisheries management organizations; [studies](#) indicate that roughly two-thirds of the high-seas stocks these organizations oversee are now depleted or overfished. Even the data pipes are vulnerable: once the EEZ becomes high seas, UNCLOS's [freedom-to-lay-submarine-cables principle](#) lets any company trench a new route across the former EEZ without submitting an environmental study or allowing a security review by the island state's partners. In short, a drowned baseline would trade one island's licensing regime for a legal vacuum—jeopardizing global fish supplies and stripping away ecological oversight.

Rewiring the Law of the Sea

Regarding the law of the sea, the status quo falls drastically short of meeting modern realities fueled by climate change and environmental degradation. UNCLOS, [completed in 1982](#), was written when coastlines were assumed to remain stable. That premise no longer holds, and—unless the treaty is updated—rising seas will erase EEZs on paper just as the water climbs over their shores.

An amendment to the law of the sea could “freeze” today’s baselines and recognize governments that survive in digital forms. In fact, Pacific leaders have already declared that their maritime limits “[shall continue to apply](#), without reduction, notwithstanding any physical changes” caused by sea-level rise. That position won support from more than 120 UN member-states [co-sponsoring](#) the 2023 General Assembly. Momentum for reform grew in May 2024, when the International Tribunal for the Law of the Sea (ITLOS) ruled that greenhouse-gas emissions qualify as “[marine pollution](#)”—which showed that UNCLOS can be stretched to meet new climate threats. The same legal flexibility could freeze today’s baselines and recognize cloud-based governments.

Yet locked baselines alone cannot keep governments solvent. Accordingly, revenues from tuna licenses, cable-landing fees, and seabed-mining royalties should flow into a UN-run fund, modeled on the new [Loss and Damage Fund](#) approved at COP 28. Holding ocean revenues in this shared trust would prevent wealthier states or corporations from pocketing the income or dictating extraction terms as a baseline slips underwater.

Taken together, locking today’s sea boundaries in place and channeling royalties into a shared UN trust would close the loophole that lets disappearing land erase sovereign rights. These measures would also stop the global commons from sliding into a first-come, best-armed estate sale—thus recognizing that digital sovereignty ensures that ocean resources are managed for the benefit of communities.

Conclusion

Sea-level rise is erasing coastlines faster than treaties can adapt. While Pacific states’ dive into digital nationhood shows what is technically possible, legal recognition and a fair revenue system must follow. Freezing current baselines and routing licence income through a shared UN trust would keep a functioning authority in place; avert a free-for-all over fish, minerals, and data links; and prove that ocean resources can remain responsibly governed even when the land beneath a flag disappears.