

DRAFT V0.9 - FOR REVIEW

Environmental baseline and data gaps in the American Samoa EEZ

A science synthesis for the Task Force - draft for review

Summary

American Samoa's Exclusive Economic Zone spans abyssal plains and seamounts 1,400-6,000 m deep. This is where polymetallic nodules form and where a slow-growing, poorly catalogued deep-sea ecosystem lives. This draft summarizes what is known, and - more importantly - what is not.

What is on the seafloor

Polymetallic nodules are potato-sized mineral deposits that grow roughly one millimetre every million years around a nucleus such as a shark tooth. They are rich in manganese, nickel, cobalt, and copper - the metals targeted for batteries and electronics.

Key data gaps

- Species inventories: many deep-sea species in the area are undescribed; we cannot yet say what would be lost.
- Plume behaviour: how far sediment plumes travel and how they affect the water column and food web is a central unknown.
- Connectivity to fisheries: the link between the abyssal zone and surface tuna stocks is not quantified.
- Recovery rates: nodule fields removed do not regrow on any human timescale.

Recommendation

Adequate, independent, publicly available baseline science should be a precondition for any leasing decision, consistent with a precautionary approach supported by many scientists, territories, and nations.

Sources & further reading

NOAA Ocean Exploration 2026 mapping campaign; International Seabed Authority technical reports; peer-reviewed literature on Pacific abyssal nodule ecosystems.