

The Fate of Marine Protected Areas in our Future Ocean

@UCRevelle

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Marine Protected Areas = Resiliency

- What are the effects of climate change?
 - Warmer, sour, breathless ocean
 - Sea-level rise
 - Human health
 - Economic implications



Our Home and a Destination

- 38 million people live in California
- 22 Million people live in Southern California
- Total direct travel spending in 2013 was \$109 Billion
 - 3% increase from 2012
- Beach usage in California higher than other 49 states combined

Benefits of Coastal Ecosystems

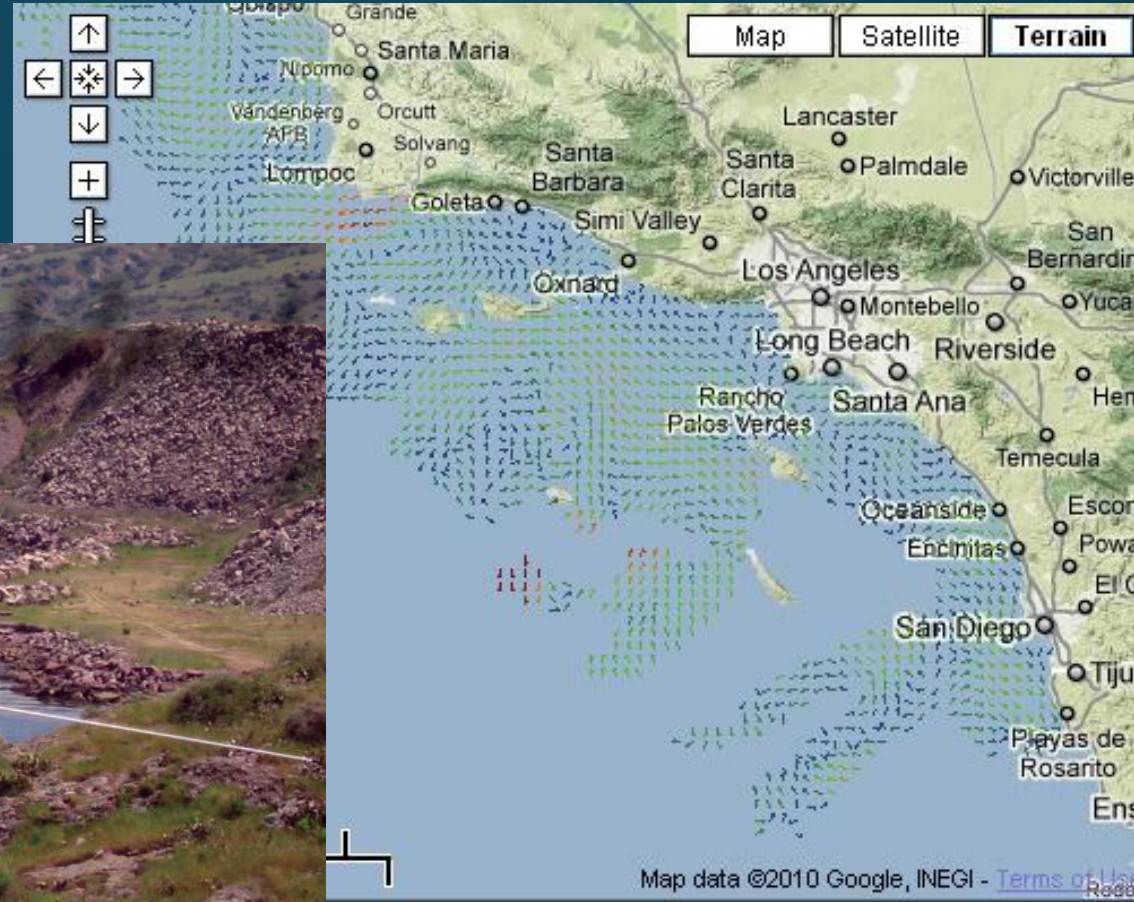
- Provide coastal protection
- Nursery habitats for many important fisheries and aquaculture
- Carbon sequestration
- Home and future of the Blue Economy

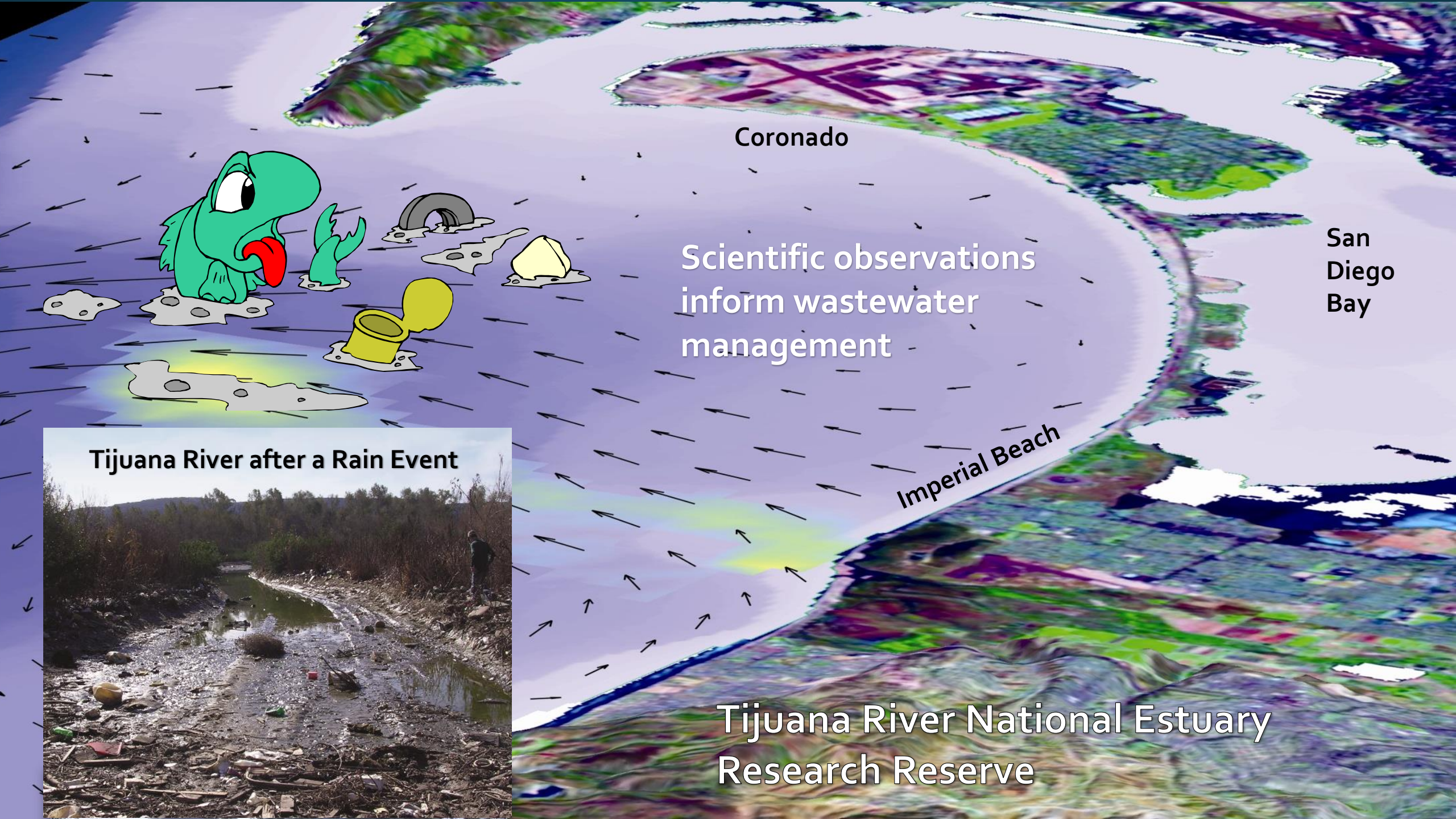
Benefits of MPAs

- MPAs as a testbed for:
 - scientific research
 - new technologies
- To inform:
 - fisheries management
 - coastal planning
 - local stakeholders



SCCOOS Surface Currents





Coronado

San Diego Bay

Scientific observations inform wastewater management

Imperial Beach

Tijuana River National Estuary Research Reserve

Tijuana River after a Rain Event



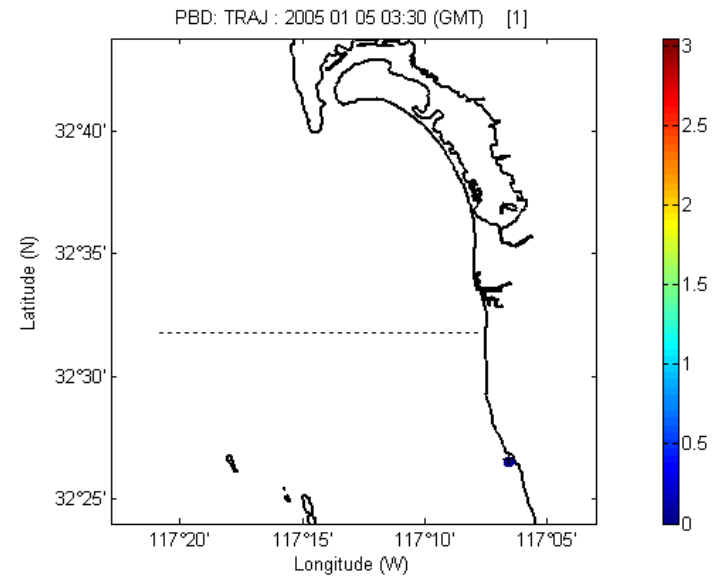
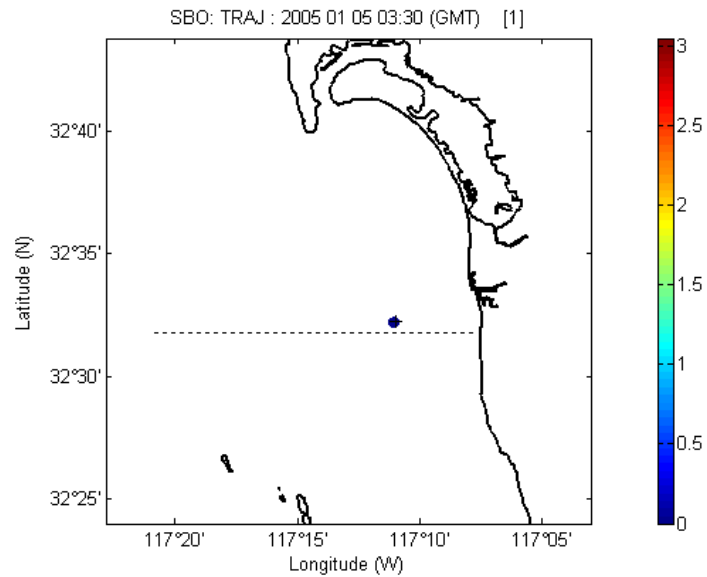
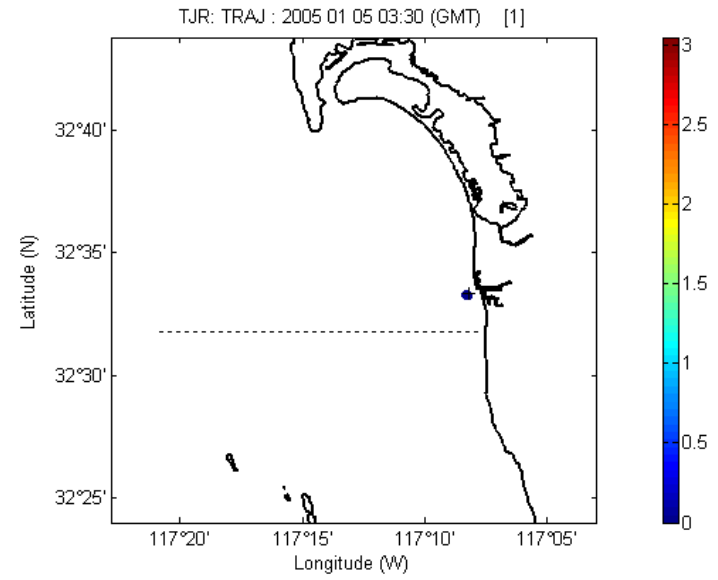
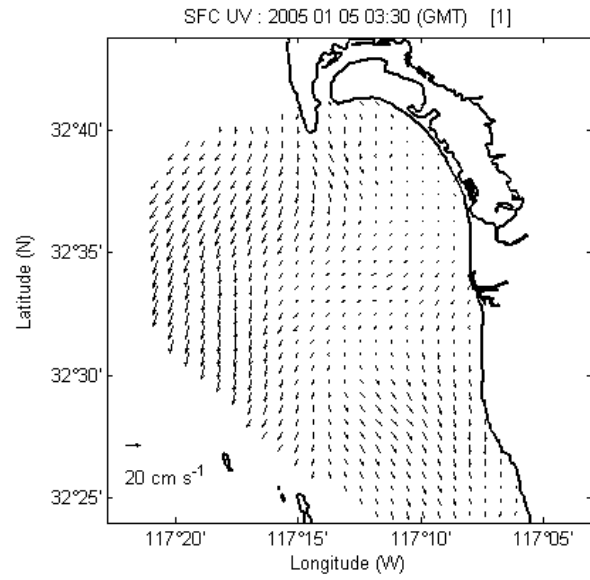
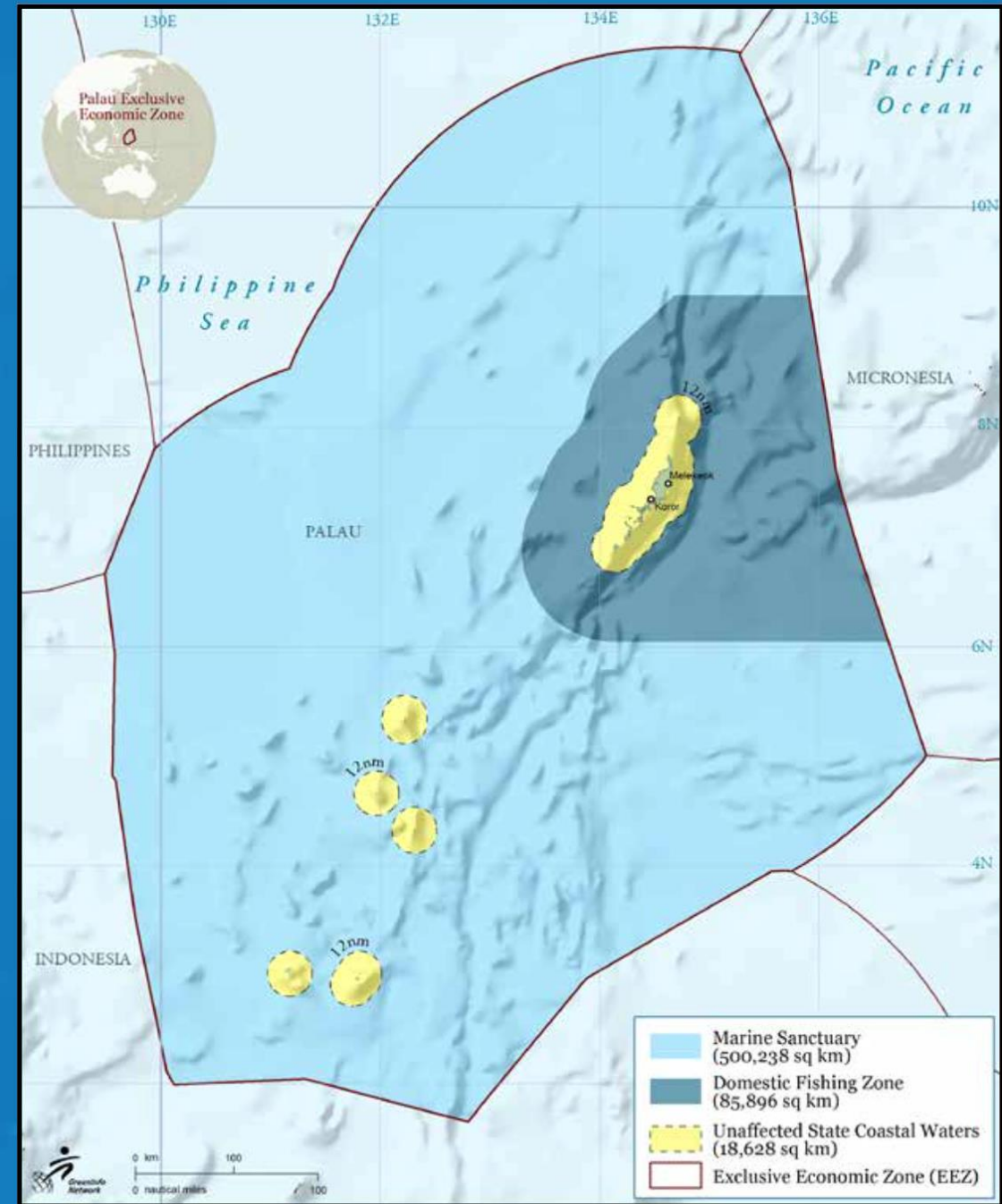
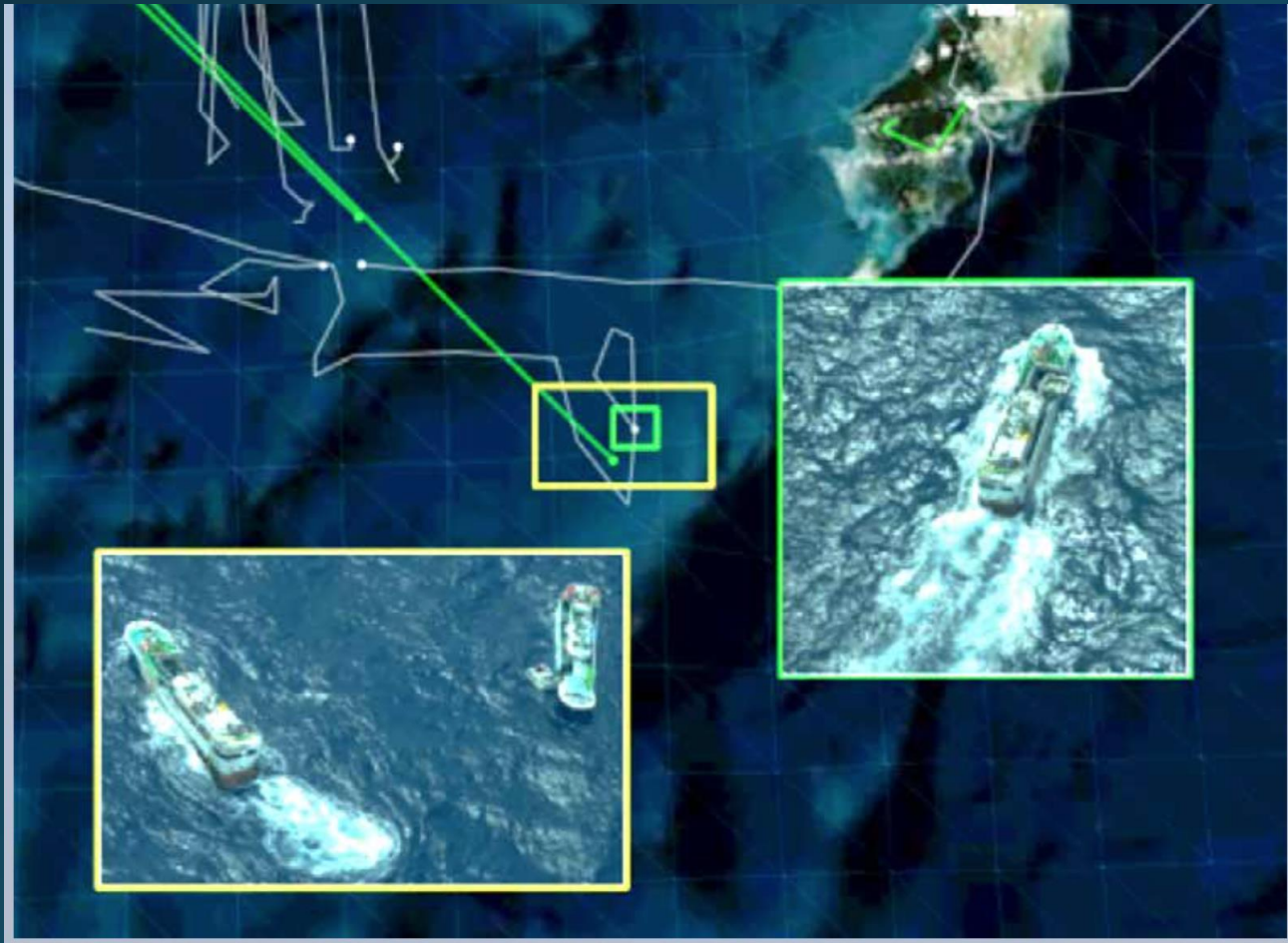




Photo: J Freund/WWF

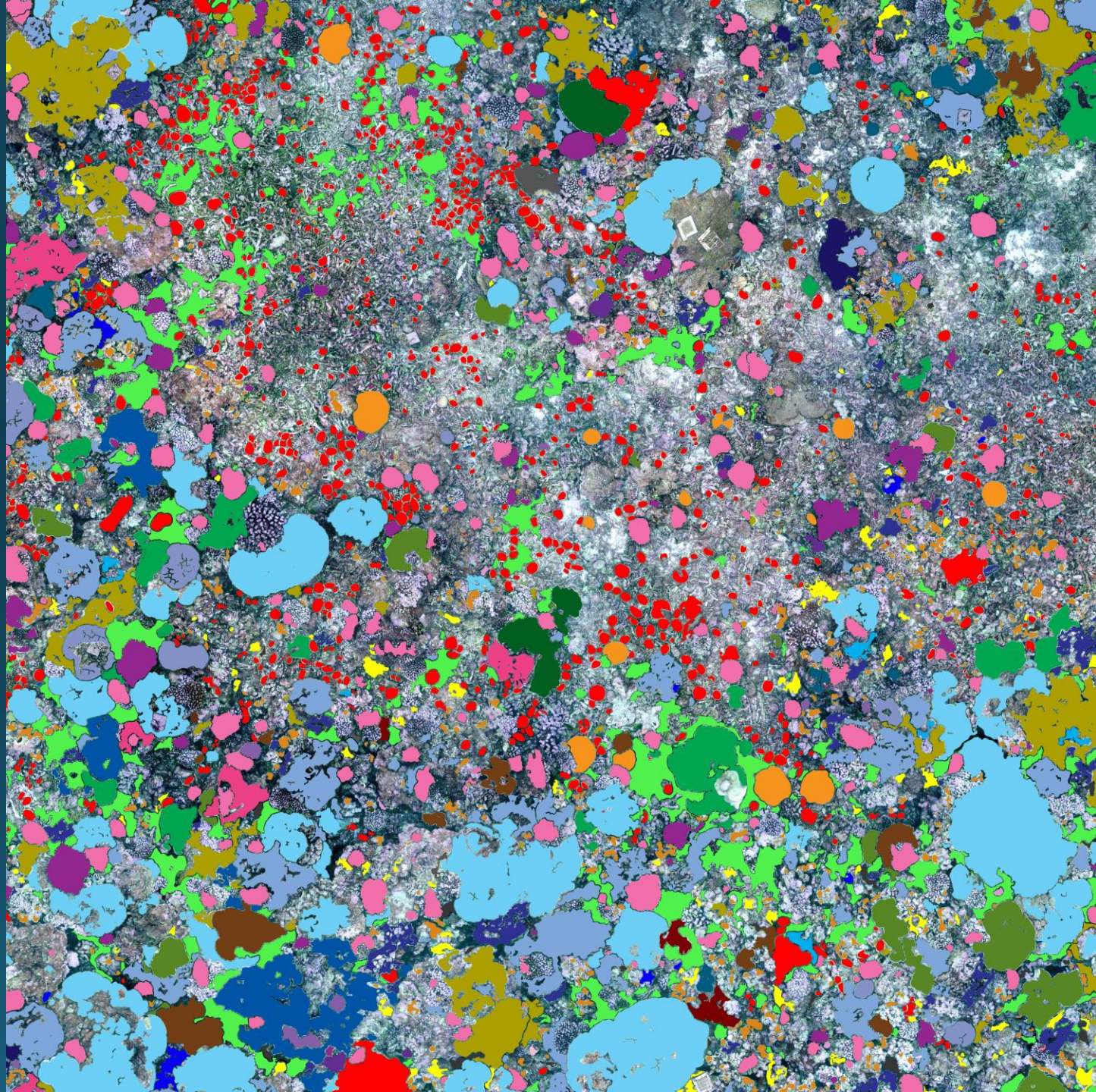
IUU Fishing in Palau



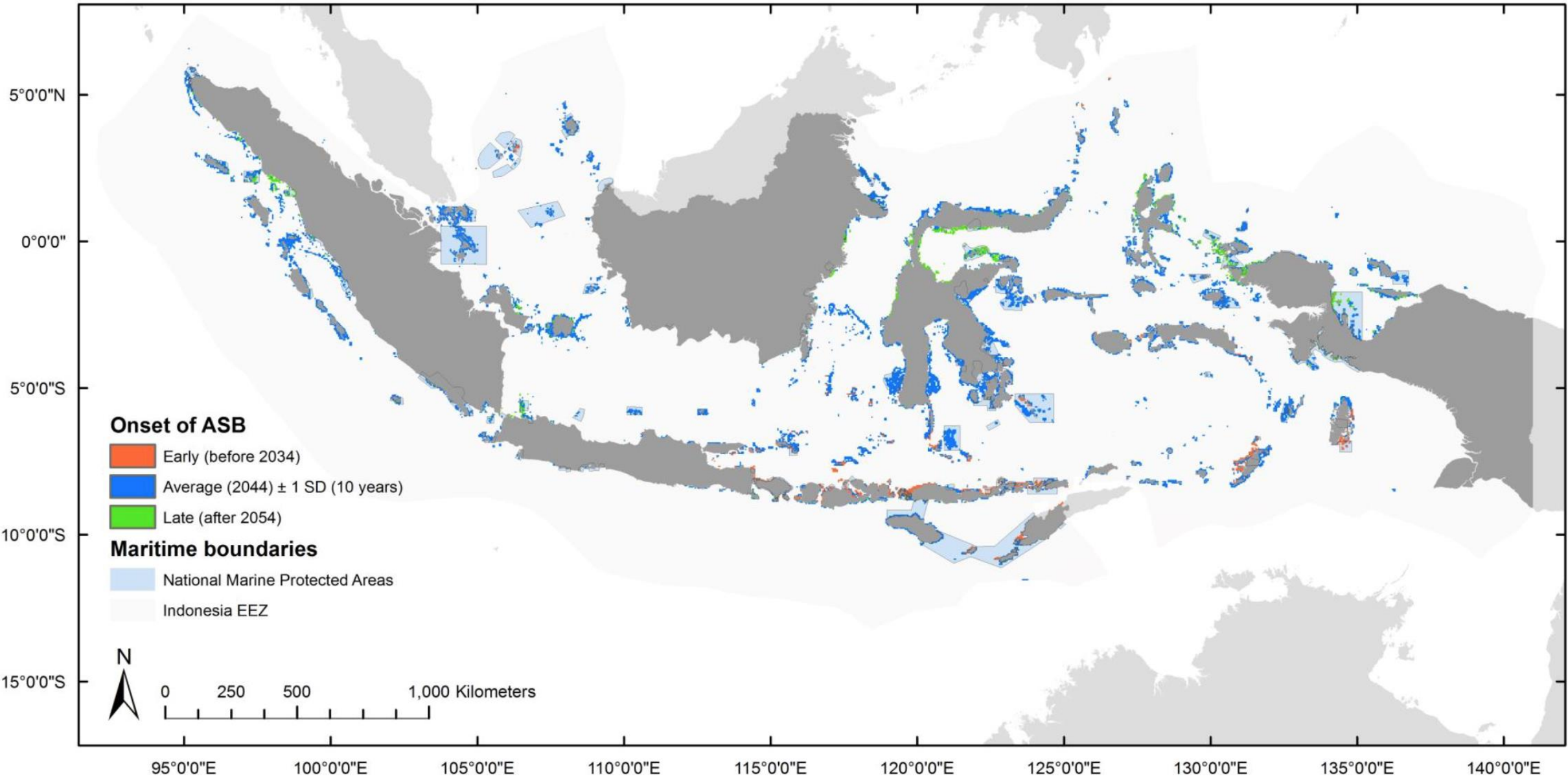
Coral mosaics: using photographs to document coral reef health in 3D



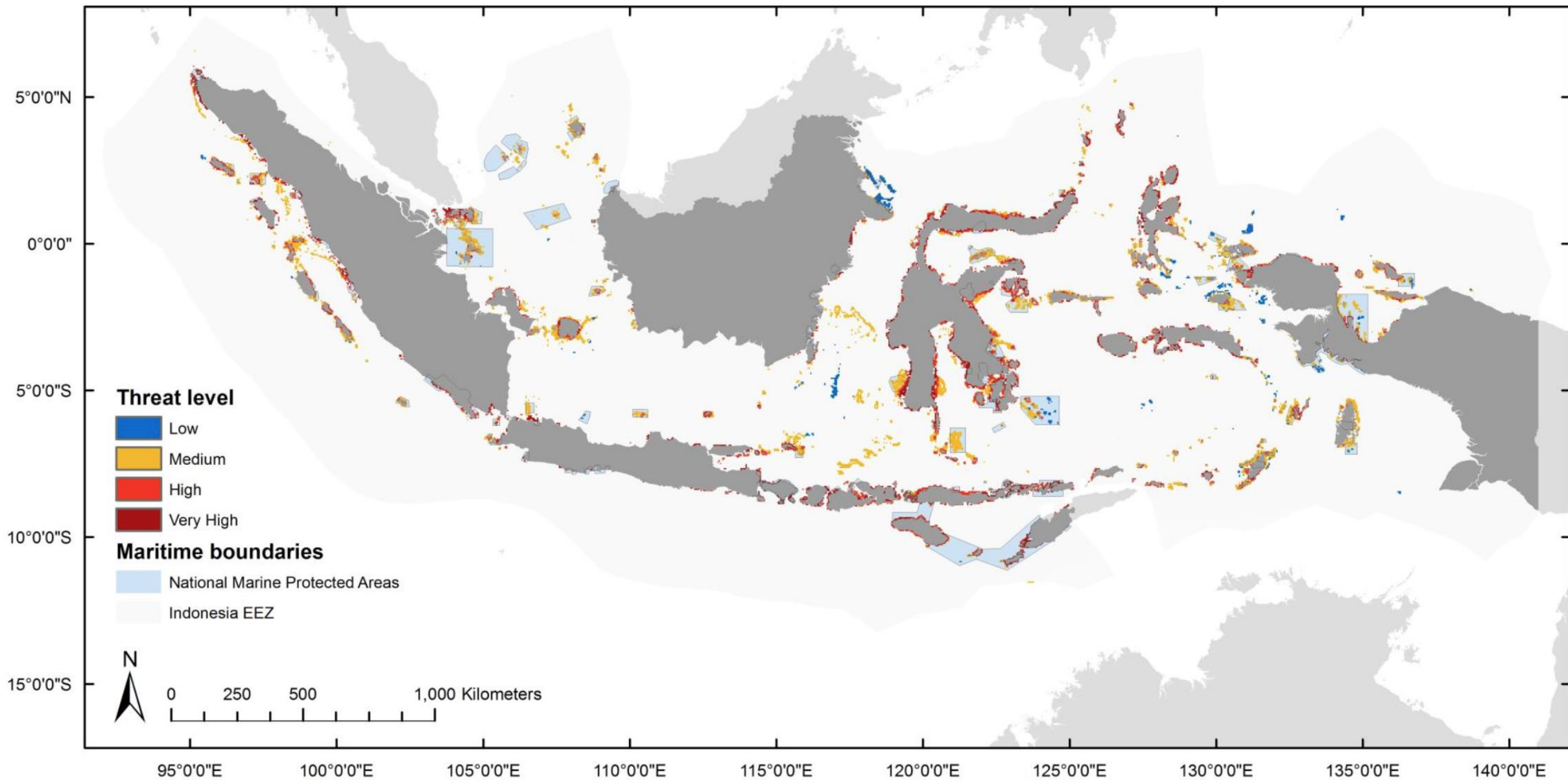
Sandin Lab, Scripps Institution of Oceanography
100 Island Challenge (<http://100islandchallenge.org>)



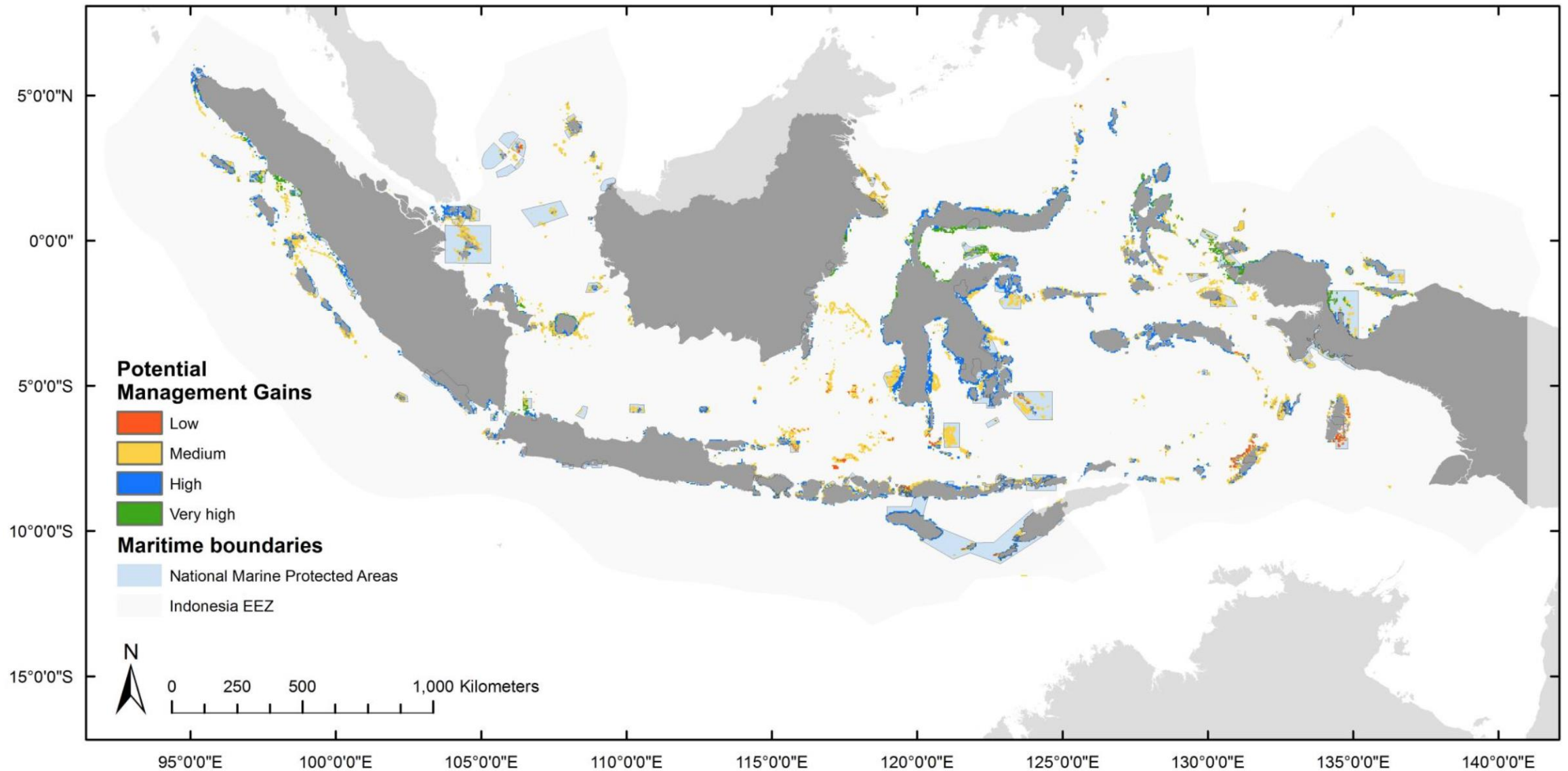
Climate Projections of coral reef resiliency in Indonesia



Local threats to coral reef ecosystems (overfishing, coastal development, pollution)



Climate change projections + Local threats = Potential for management impact



Take Home Messages

- MPAs can be adaptation solutions to fight against climate change
- Technological advances can help inform MPA management
- Rigorous scientific data highlight new ways to manage MPA's
- Add your country to the "Because The Ocean" Declaration signed yesterday by several Heads of State