

Partnering Against Land Based Sources (LBS) of Pollution

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Paul Sturm, Center for Watershed Protection



In this talk...

1. Diverse Threats = Diverse Partnerships
2. LBS is an actionable approach to minimize climate change impacts to coral
3. Target adequate load reductions that will lead to increased resilience in near shore coral systems
4. All LBS Restoration is local

1. Diverse Threats = The Need for Diverse Partners

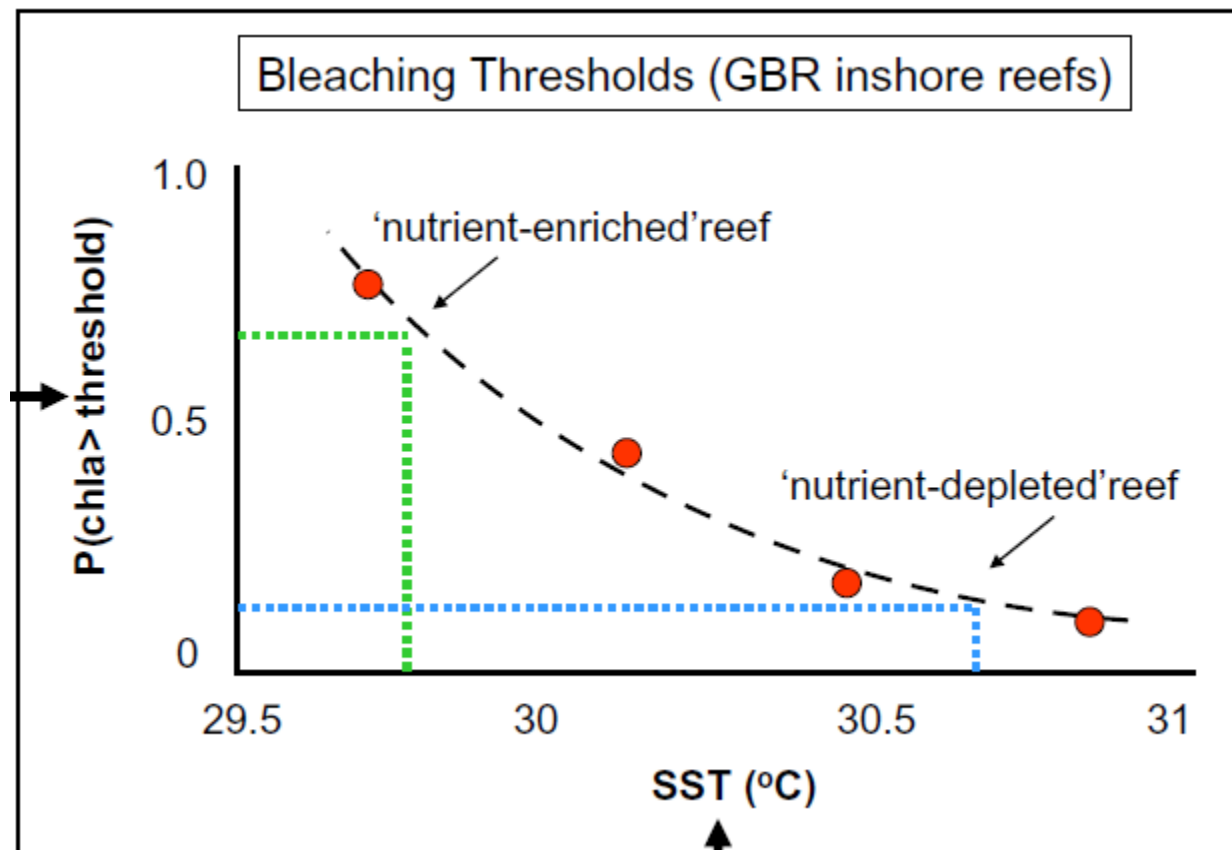


Diverse Threats = The Need for Diverse Partnerships



2) LBS is an actionable approach to minimize climate change impacts to coral

- ***“quantitative linkage between terrestrially-sourced dissolved inorganic nitrogen (DIN) loading and the upper thermal bleaching thresholds of inshore reefs”***
- ***“concrete evidence for the belief that improved watershed management/nitrogen reduction will increase the survival prospects of coral reefs to global climate change”***



3. Target adequate load reductions that will lead to increased resilience in near shore coral systems

- Guidance from recent papers on thresholds
- Addressing multiple stressors to coral reefs heightens prospects for recovery and resilience
- Critical for LBS threat reduction to be coordinated with marine scientists studying the reefs

Example Priority LBS Pollutants for Coral Reefs

Pollutant	Impacts	Sources
Nitrogen	Eutrophication, algae growth, enrichment beyond tolerance of coral reefs.	Wastewater, fertilizers, stormwater runoff, atmospheric deposition (Ortiz-Zayas, 2001; Lapointe 1997)
Sediment	Deposition on reefs, effects on sediment intolerant reef organisms, sediment particles leading to water temperature warming, pollutants attached to sediment particles.	Soil erosion, channel erosion, poor erosion and sediment control practices, African dust (Warne et. al., 2005)
Bacteria	Health related illnesses due to water contact, swimming, beach closures, source of pathogens that effect coral reefs	Untreated wastewater, sewage overflows, stormwater runoff, pet waste, animal waste, wildlife
PAHs	Toxicity to coral reefs	Stormwater runoff of automobile related contaminants, boat engine discharge particularly 2-stroke engines (NOAA, 2007)
DDT, PCBs	Toxicity to coral reefs	Legacy contaminants, erosion of legacy sediments (NOAA, 2007)

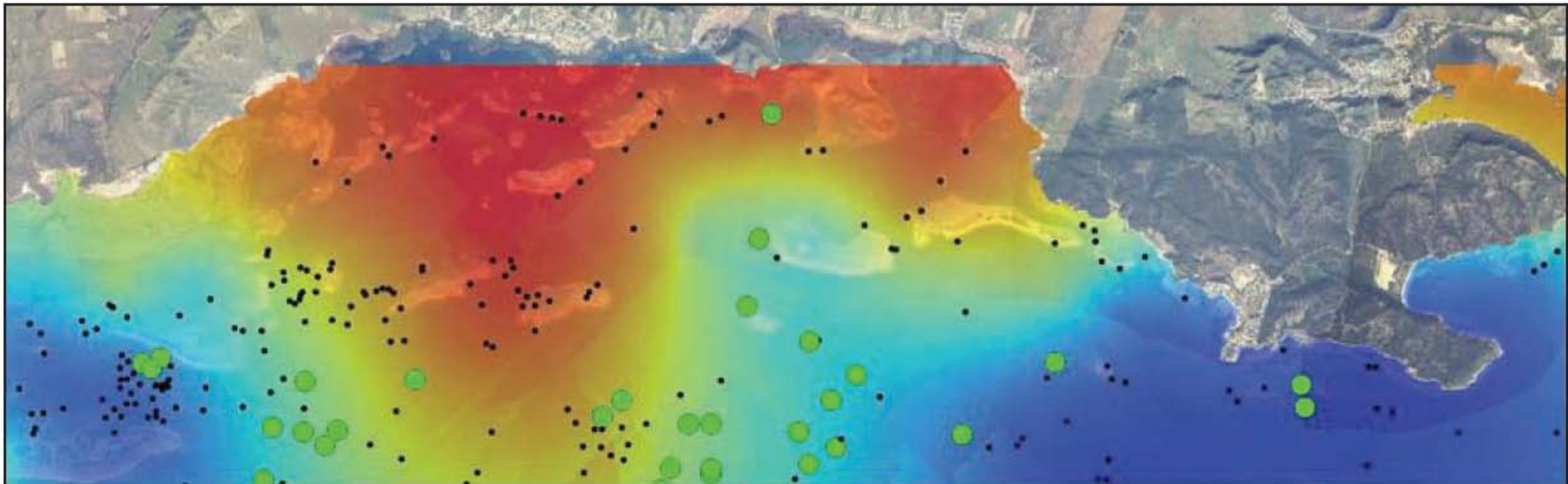


Figure 3.14. Kriging of total PAHs and coral species richness. Interpolated surface showing high (red) to low (blue) concentrations of PAHs in the nearshore environment ($p=0.0425$). Black dots indicate survey points for NOAA's CCMA-BB. Green dots indicate locations where coral species richness was in the top 25th percentile. Source: NOAA CCMA.

4. All LBS is Local and Solutions are

- Social con
- Economic
- Often Soc



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