

SPATIAL VARIATION AND AVAILABILITY OF NUTRIENTS AT AN OYSTER REEF IN  
RELATION TO SUBMARINE GROUNDWATER DISCHARGE

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Submitted to:

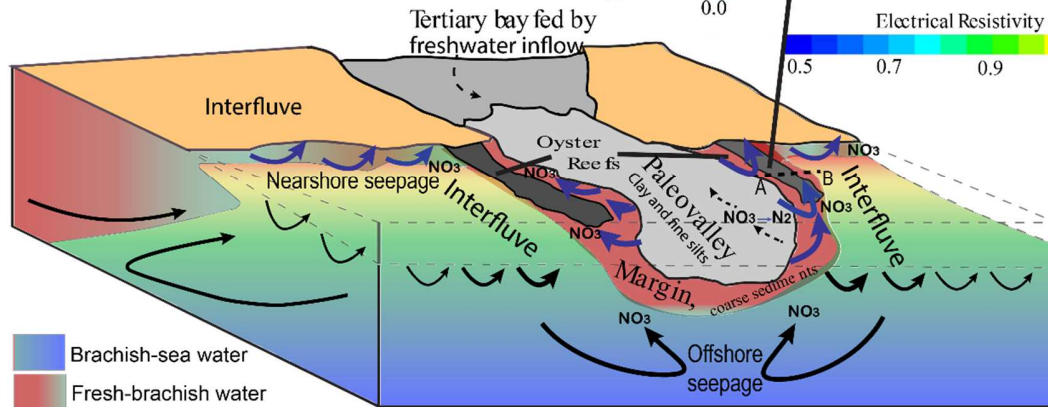
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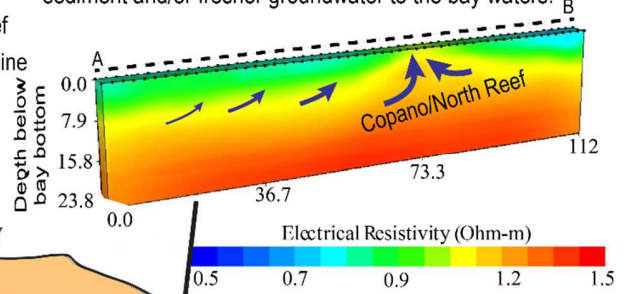
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Conceptual model of the paleovalley system morphology (modified from Sawyer et al., 2014)

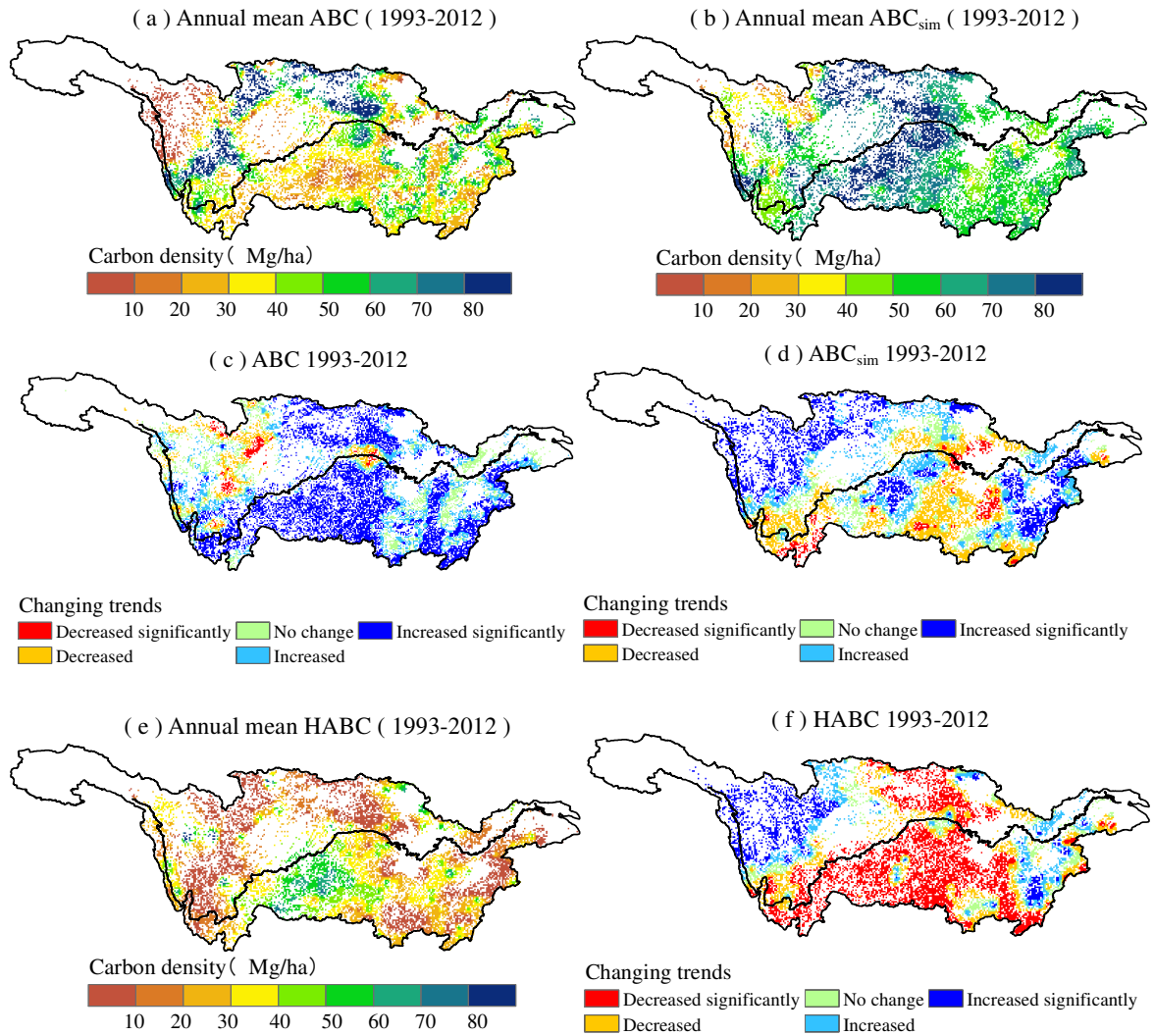
-  Highest magnitude of advective fresher SGD and NO<sub>3</sub> at reef
-  High magnitude of advective fresher SGD and NO<sub>3</sub> at shoreline
-  High magnitude of diffuse saltier SGD and NO<sub>3</sub> at interflume
-  Estuarine low magnitude diffusive saltier SGD
-  Paleovalley low magnitude diffusive saltier SGD



Electrical resistivity 3-D tomography of Copano Reef showing the shallow reef bathymetry and connection of coarse sediment and/or fresher groundwater to the bay waters.



Graphical representation of the paleovalley system morphology (modified from Sawyer et al., 2014)-oyster-reef relationship as well as magnitudes of submarine groundwater discharge (SGD)-nutrient fluxes. Nitrate (NO<sub>3</sub>) is used as an example. A 3-dimensional electrical resistivity image of the Copano or North reef is also presented in the top right insert. Blue arrows represent fresher SGD while black arrows more diffuse and saltier SGD inputs. The scale of the arrows corresponds to SGD magnitudes in relation to the paleovalley morphology.



Changing features and trends of annual mean forest satellite-observed ABC (aboveground biomass carbon), LPJ simulated ABC<sub>sim</sub> (simulated aboveground biomass carbon) and HABC (human-influenced aboveground biomass carbon) in the Yangtze River basin during the period of 1993-2012.