



Rapid growth potential of intertidal oyster reefs outpace any future rate of sea-level rise

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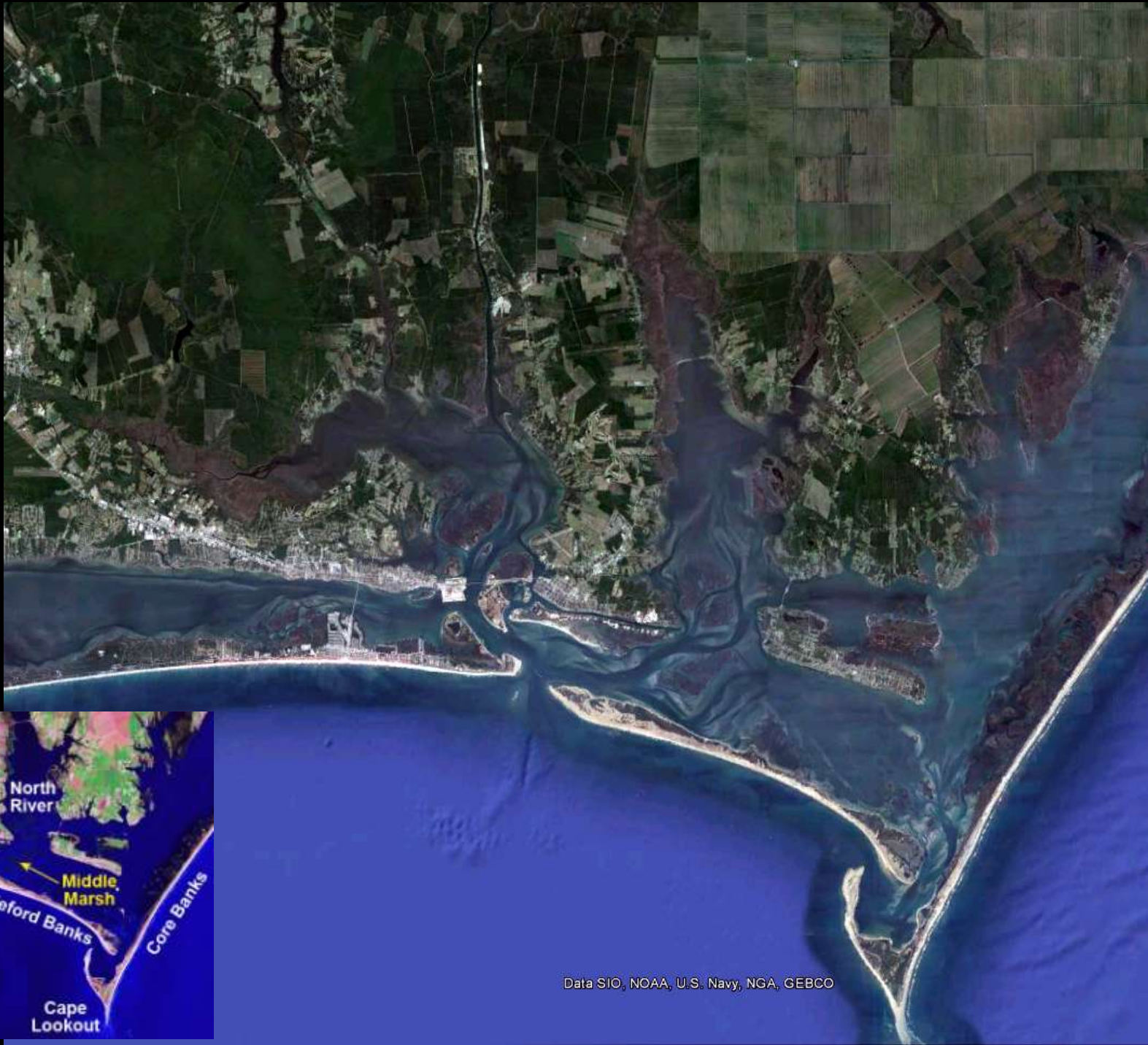
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01908 USA*

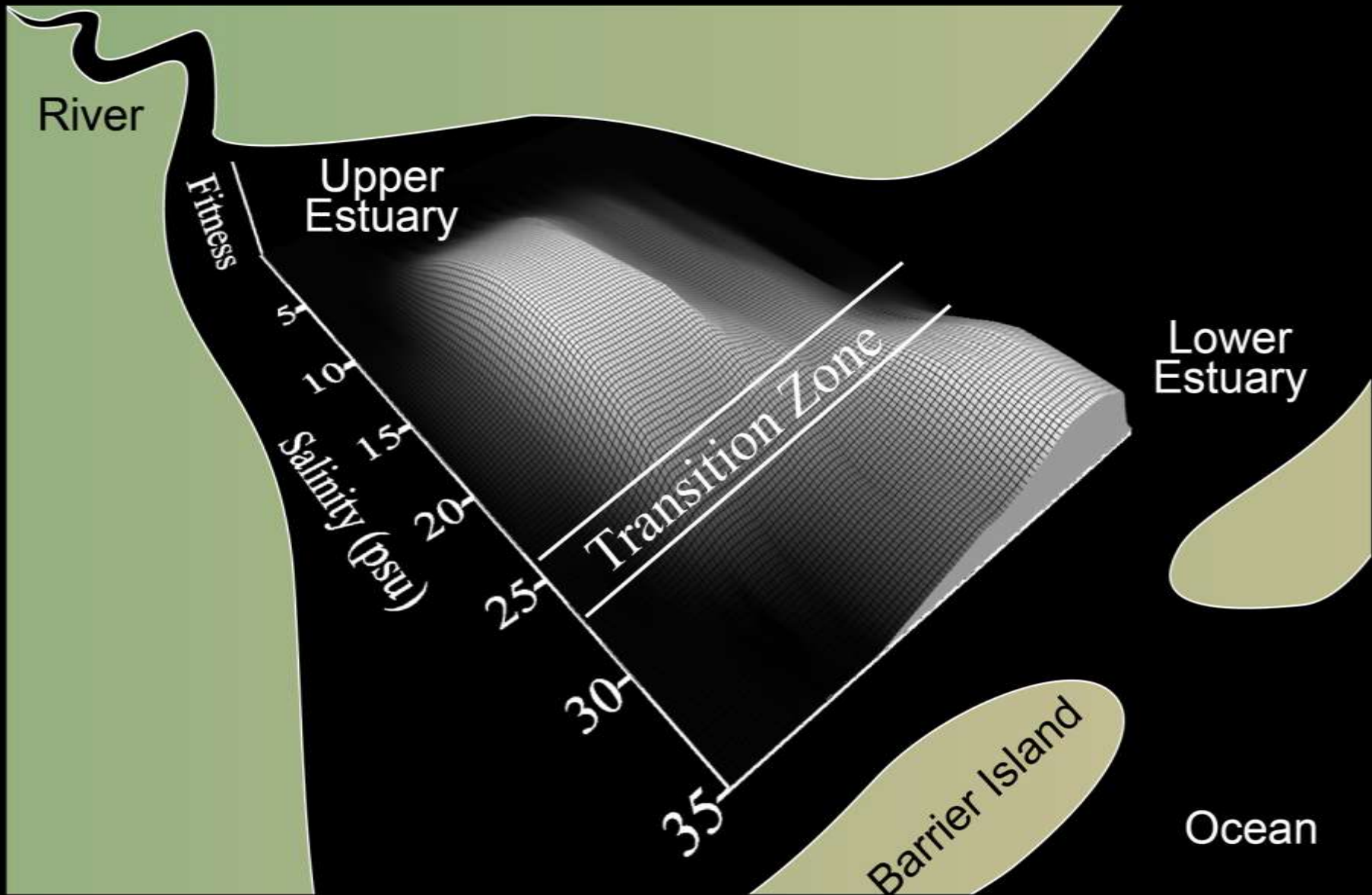


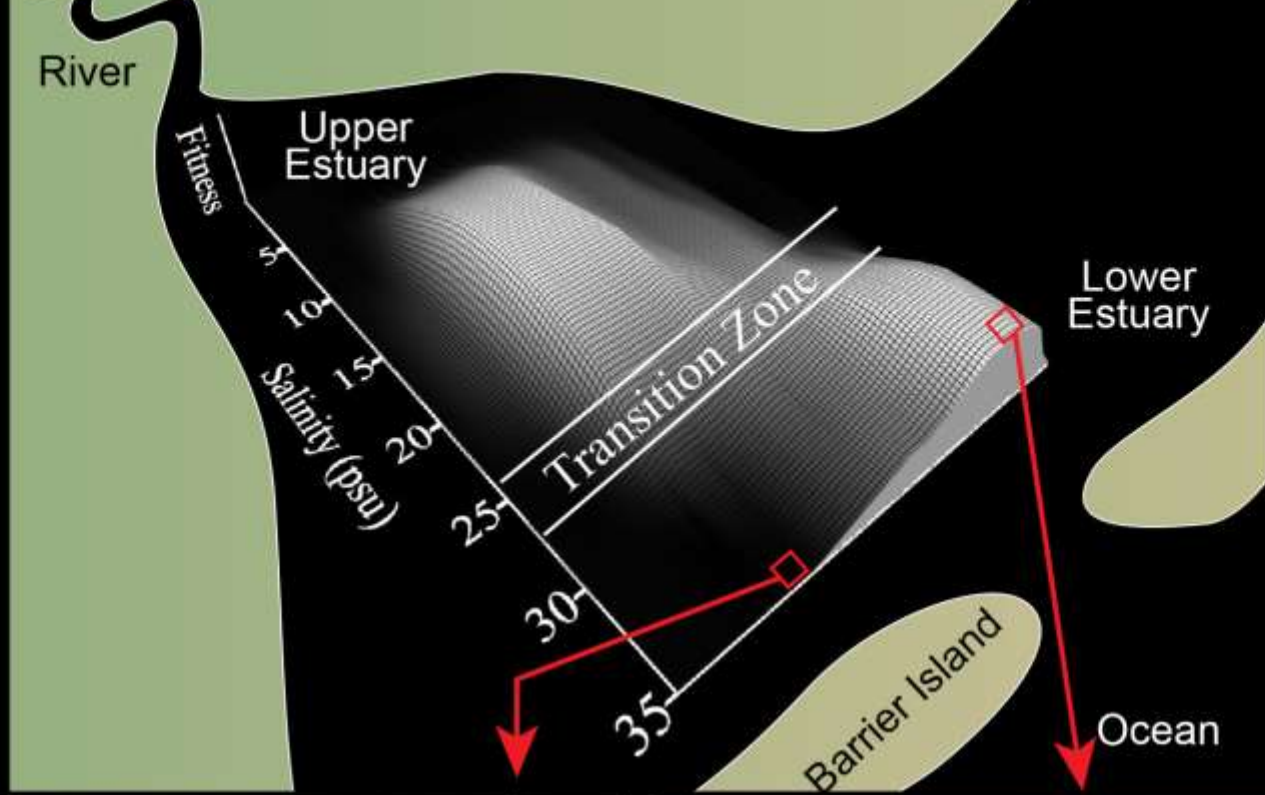
abrodrig@email.unc.edu





Data SIO, NOAA, U.S. Navy, NGA, GEBCO



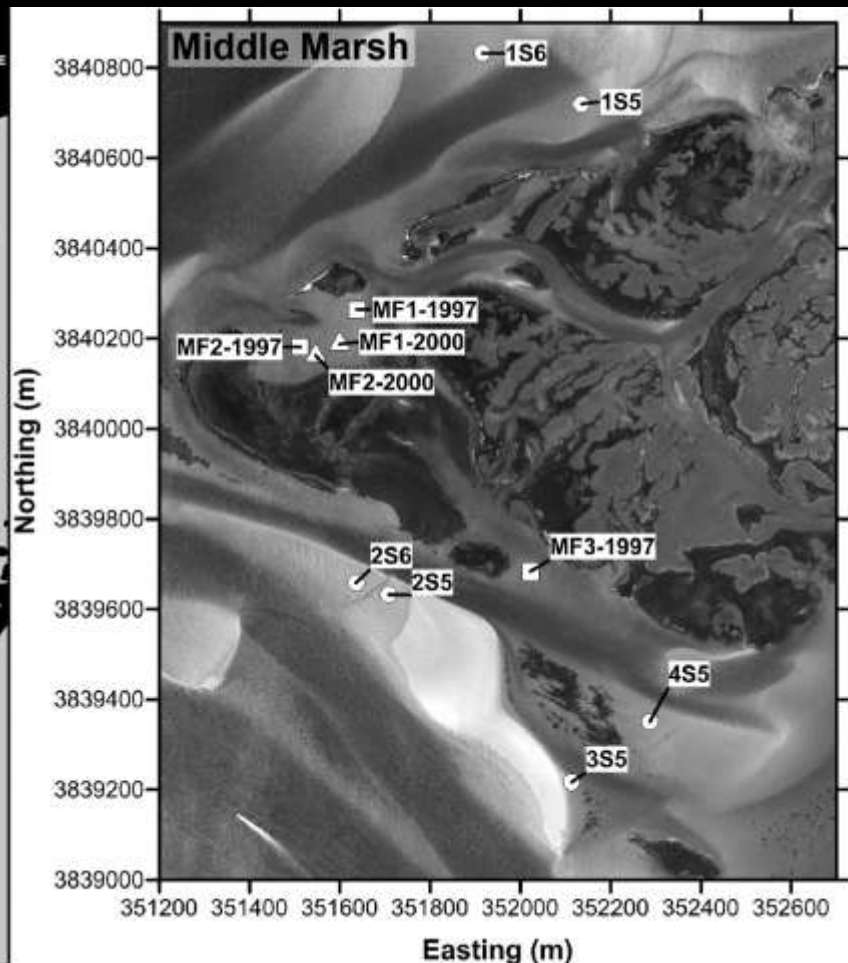


- If the reef becomes subtidal it will eventually be buried.



- An in important indicator of restoration success is reef growth.





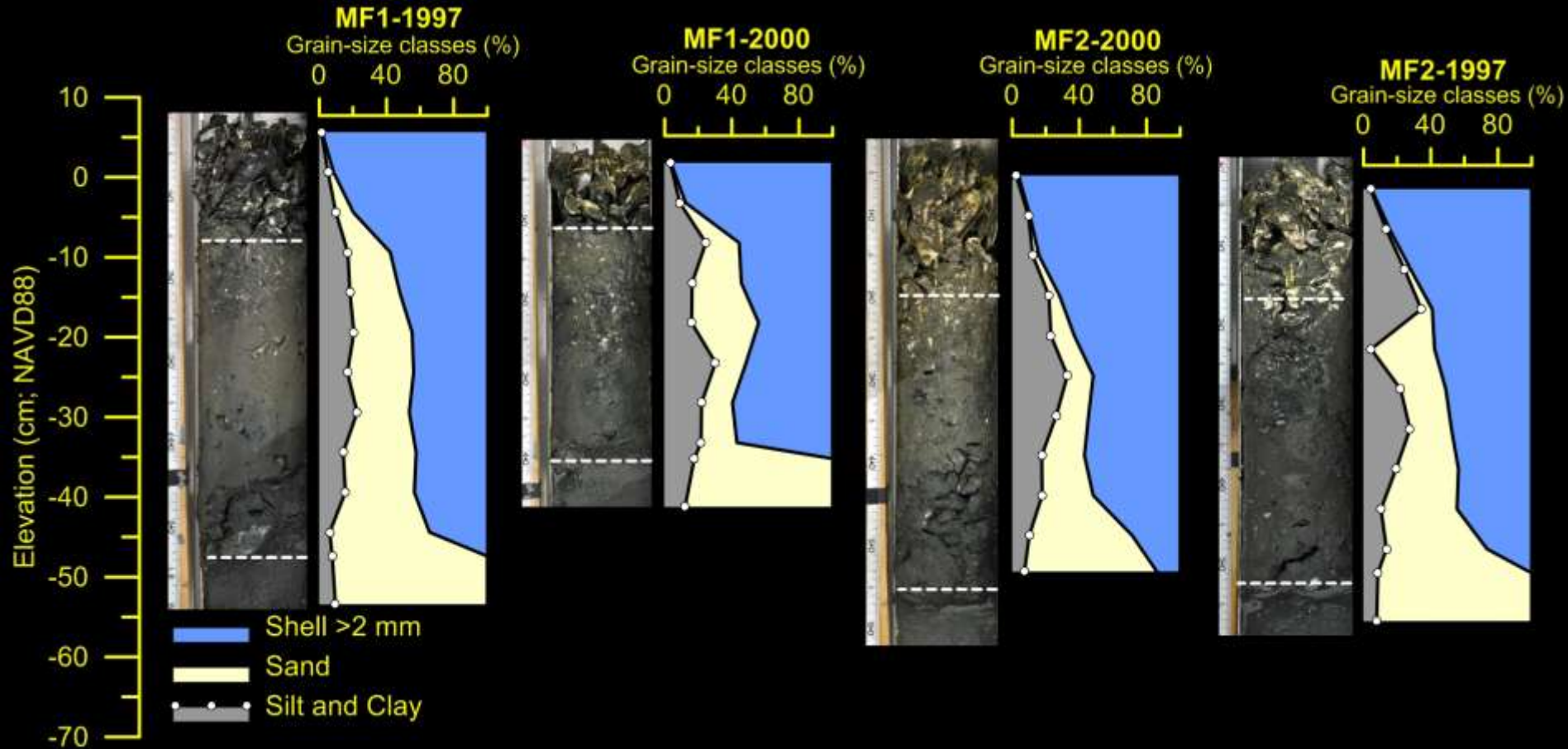
1997 reefs= 3
2000 reefs= 2
2011 reefs= 6

- Growth can be measured from cores that penetrate the entire reef structure.





Cores show reef growth of 2.7 ± 0.7 cm/yr.



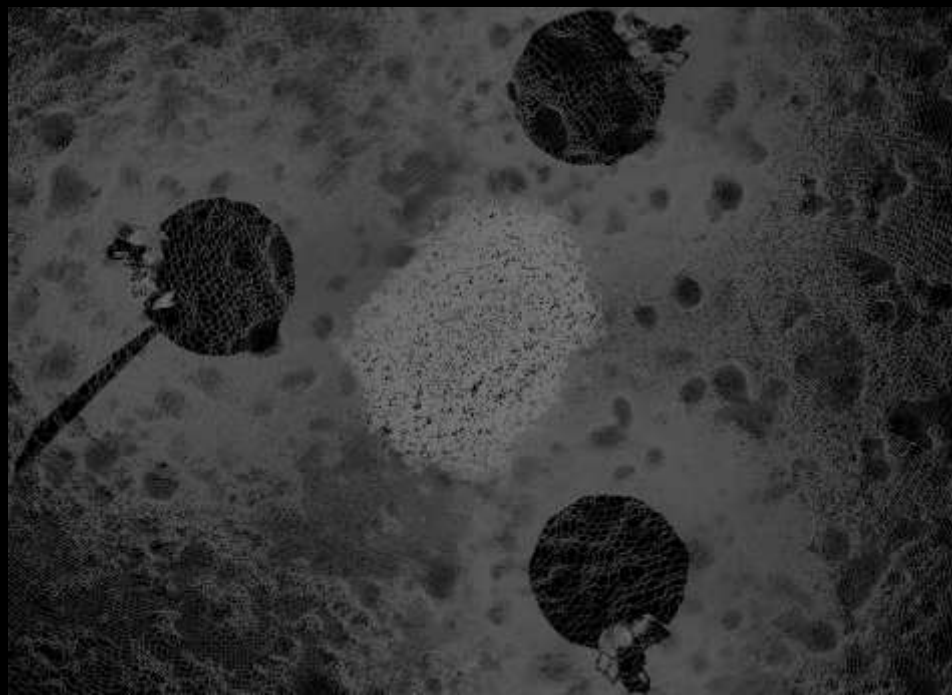
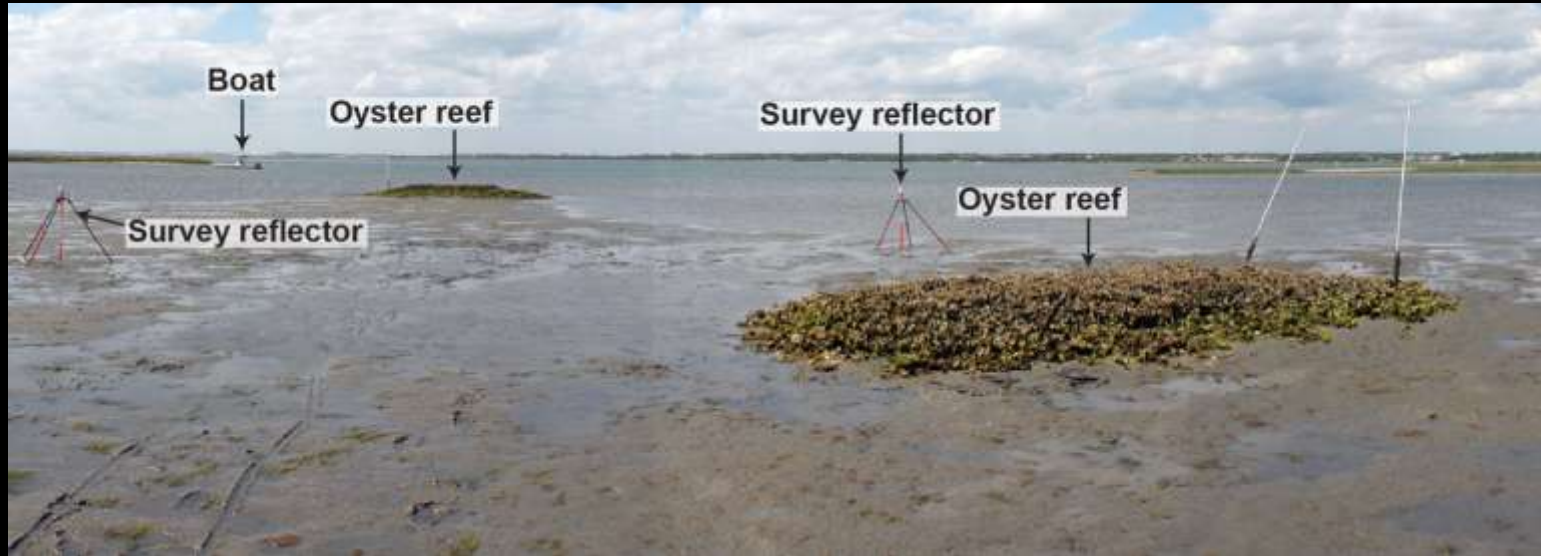
- They may have reached their growth ceiling.

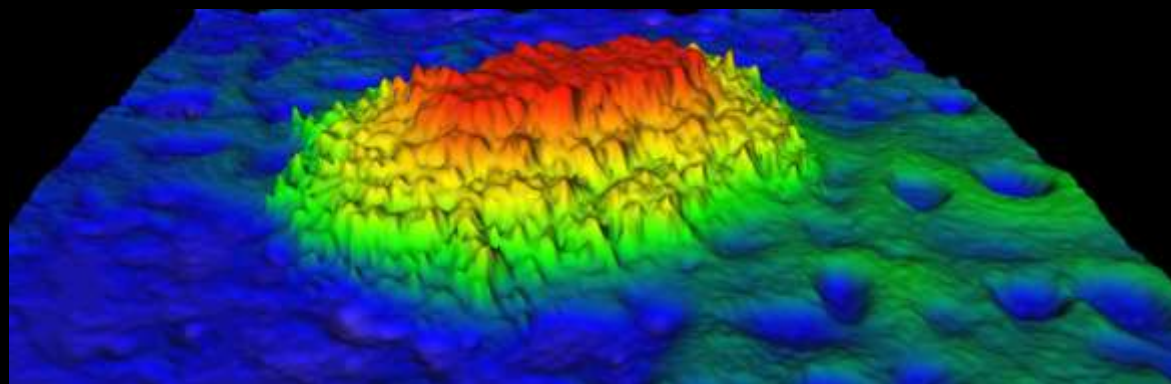
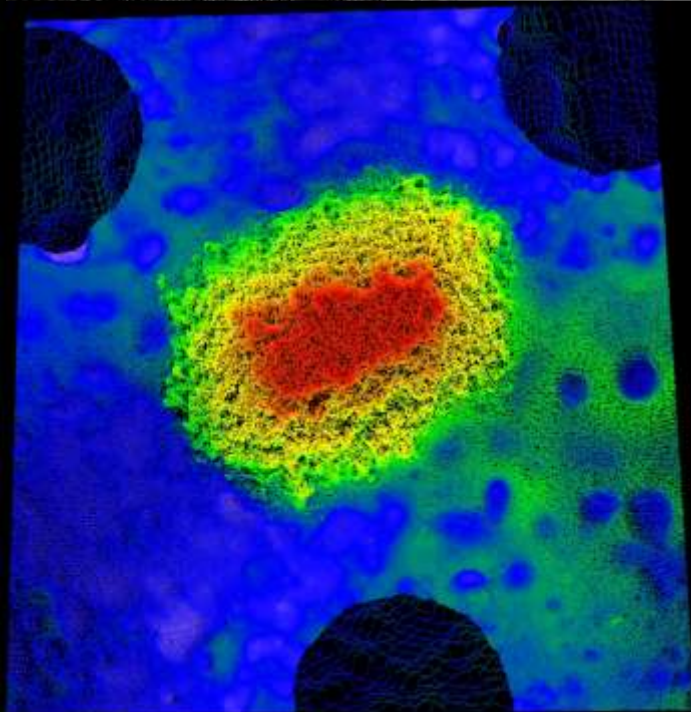
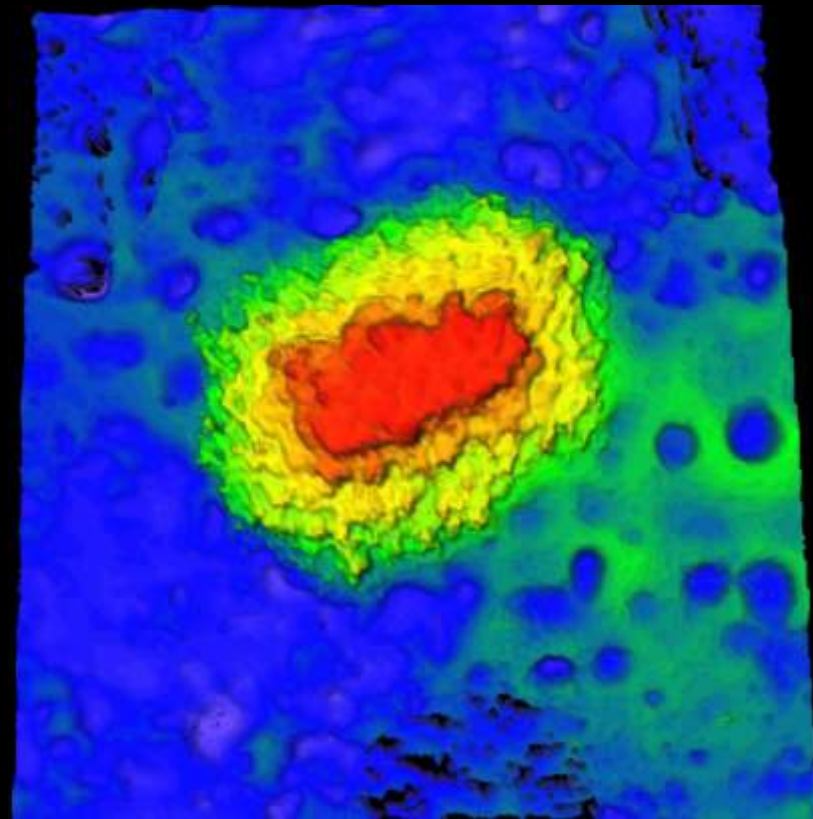
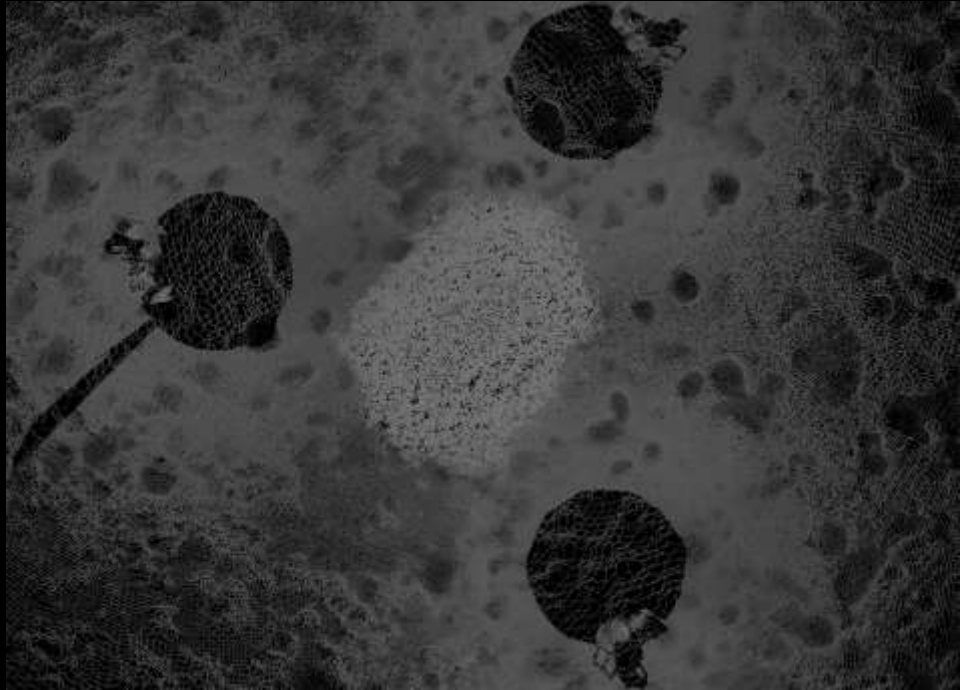


Need to look at reef growth holistically.



- Terrestrial laser scanning at low tide

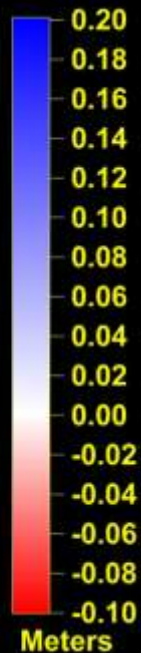
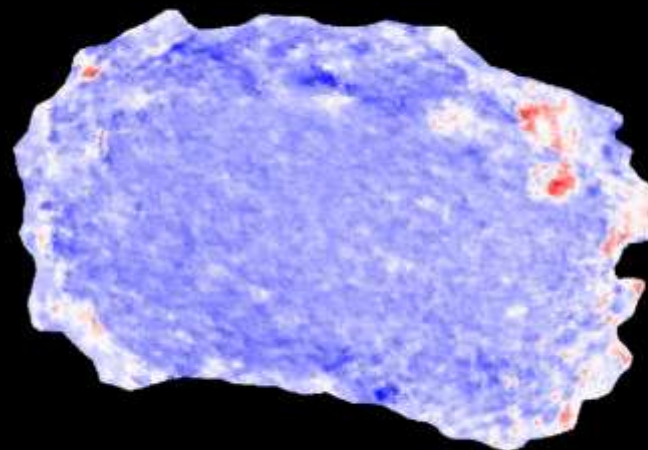




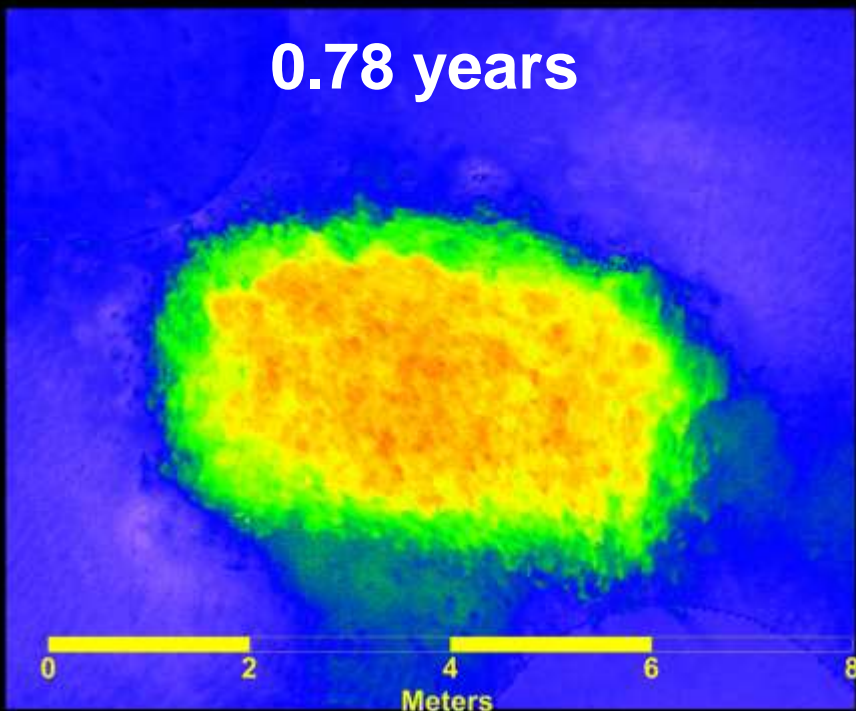
0.10 years



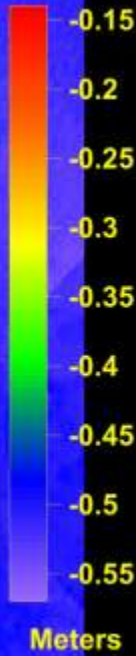
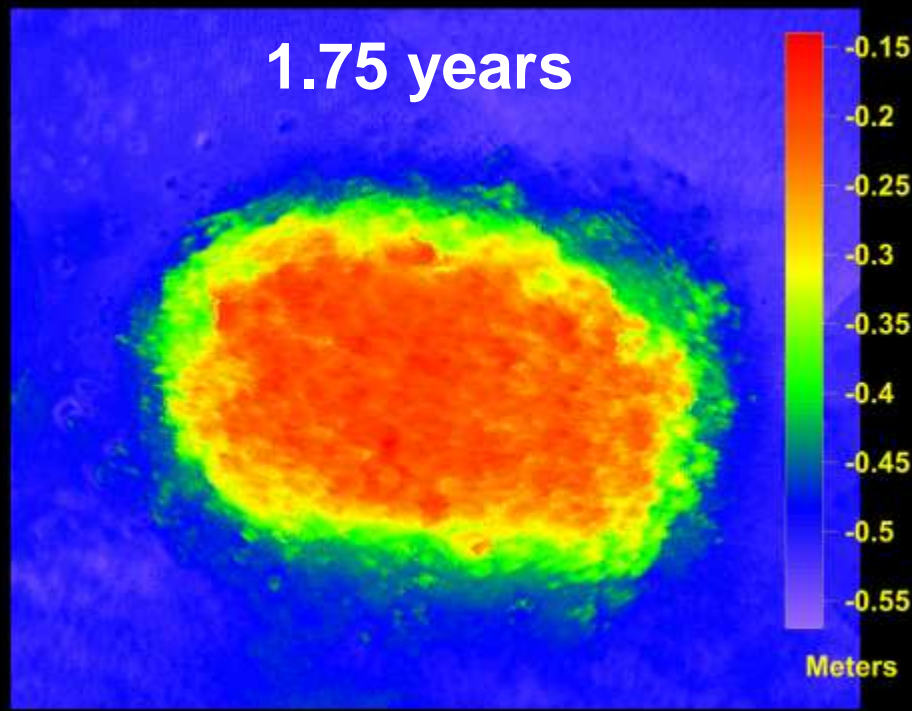
Subtraction



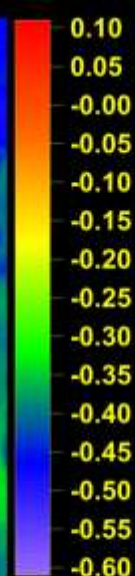
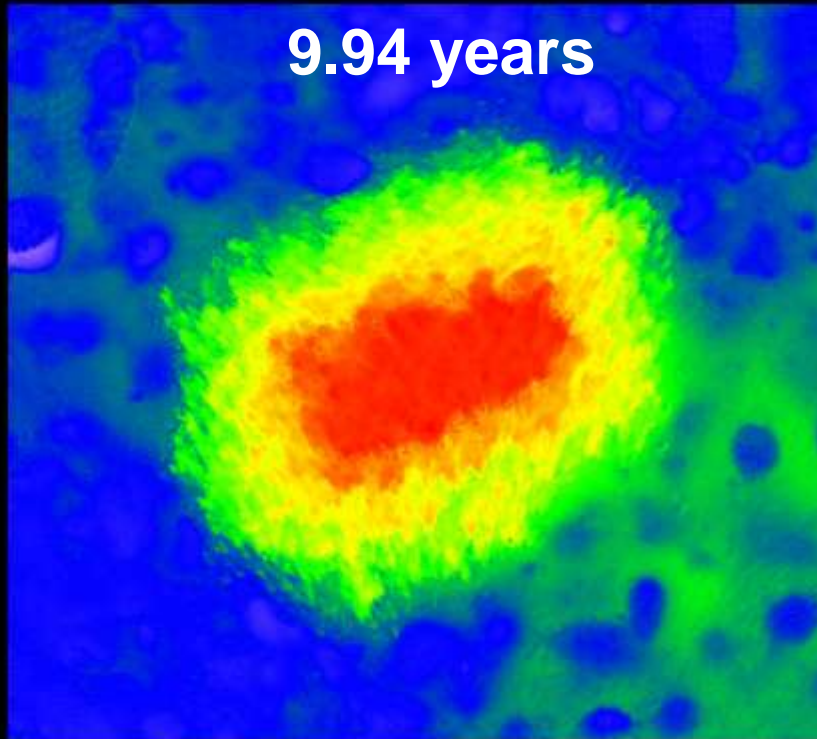
0.78 years



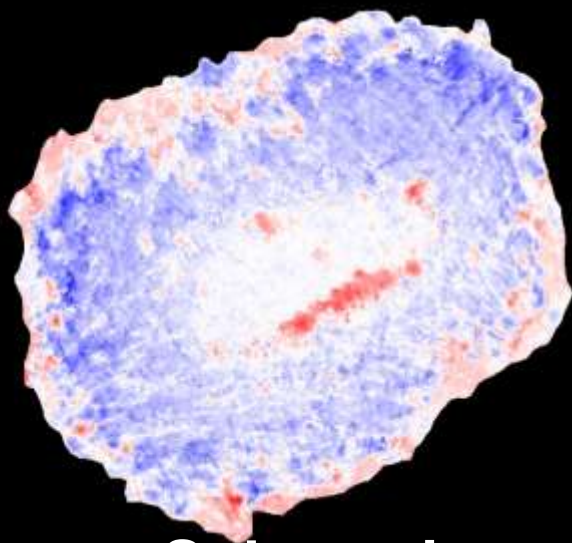
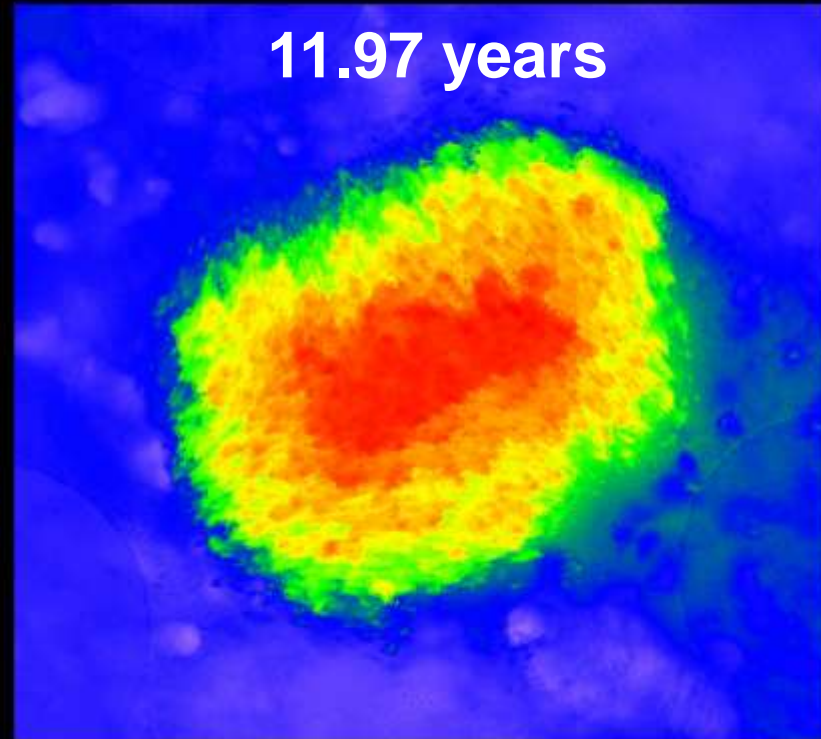
1.75 years



9.94 years



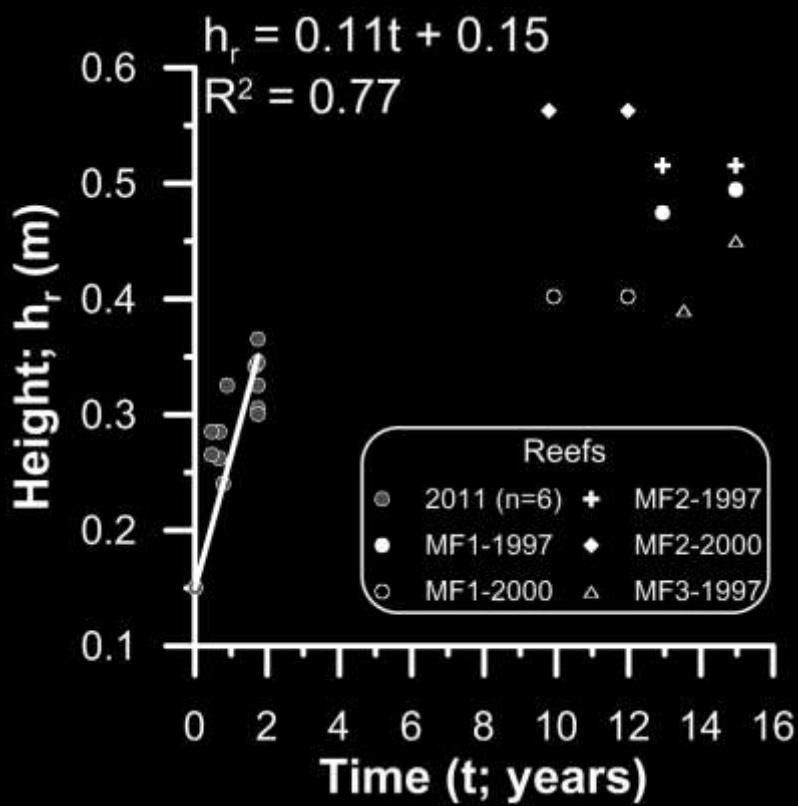
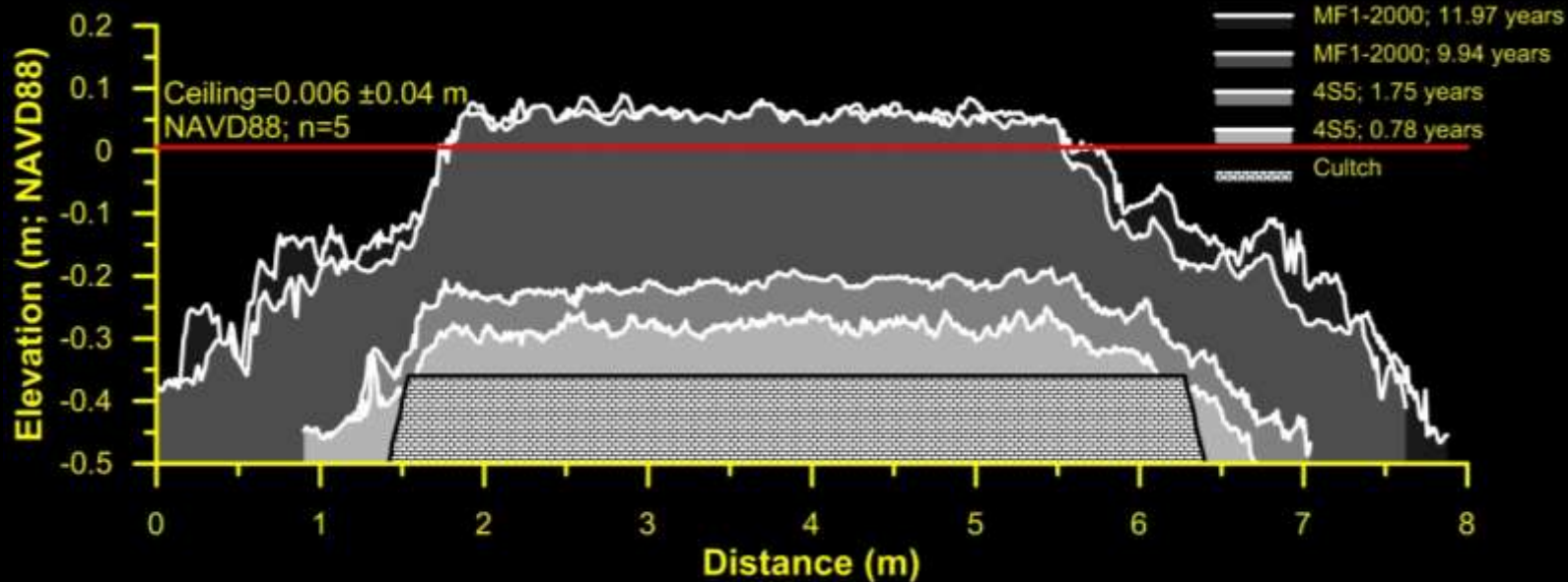
11.97 years

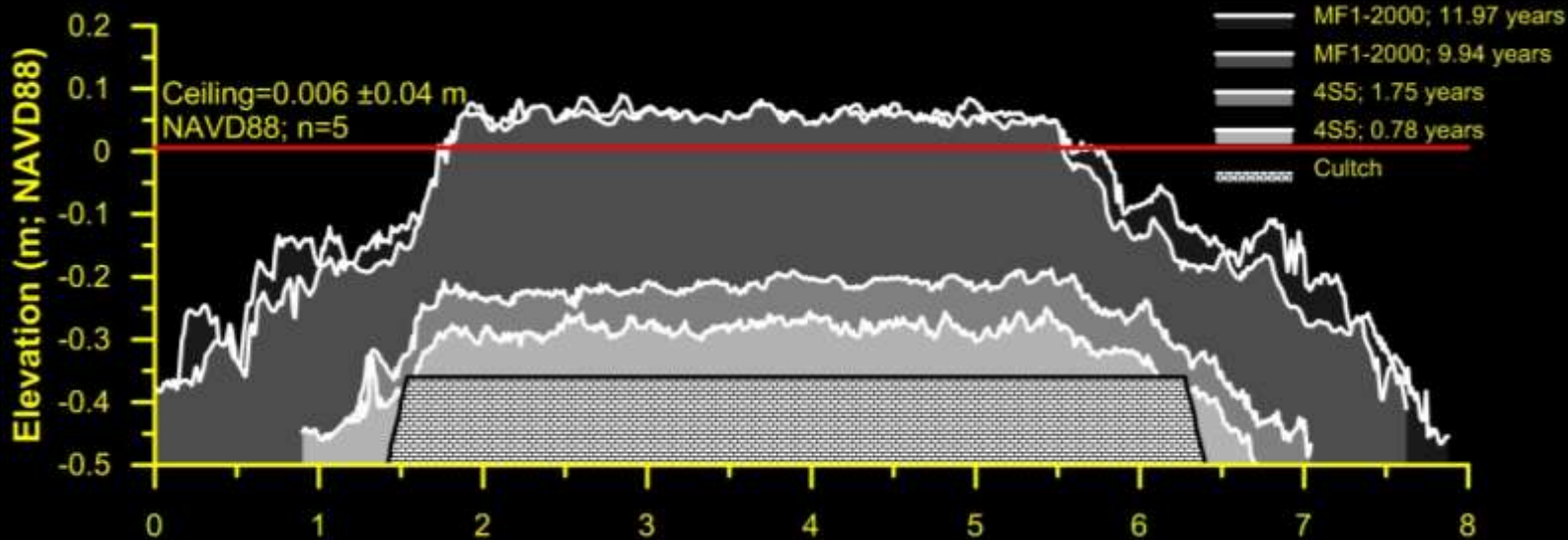


Subtraction

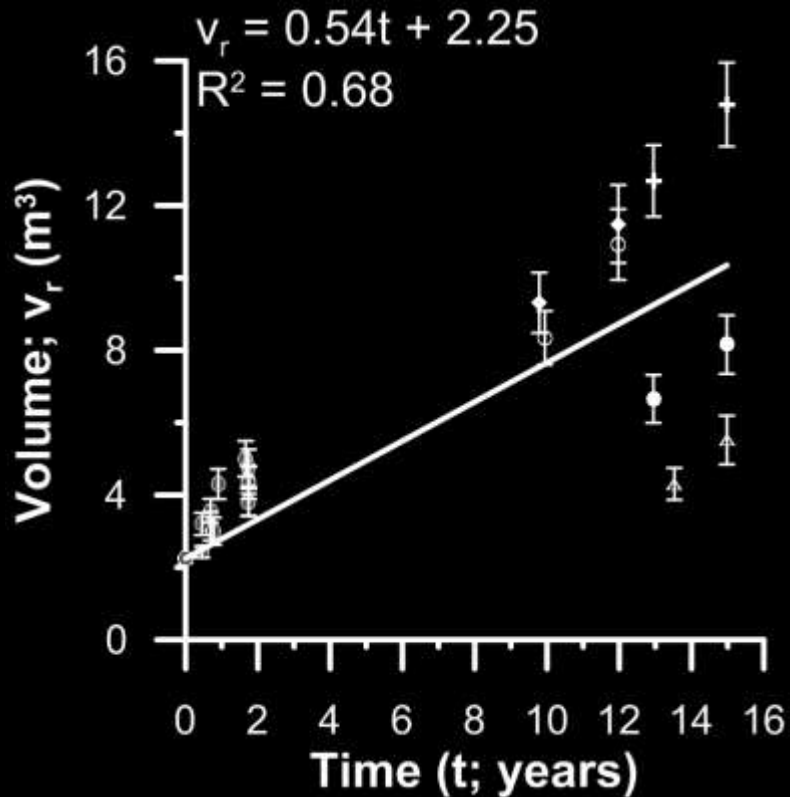
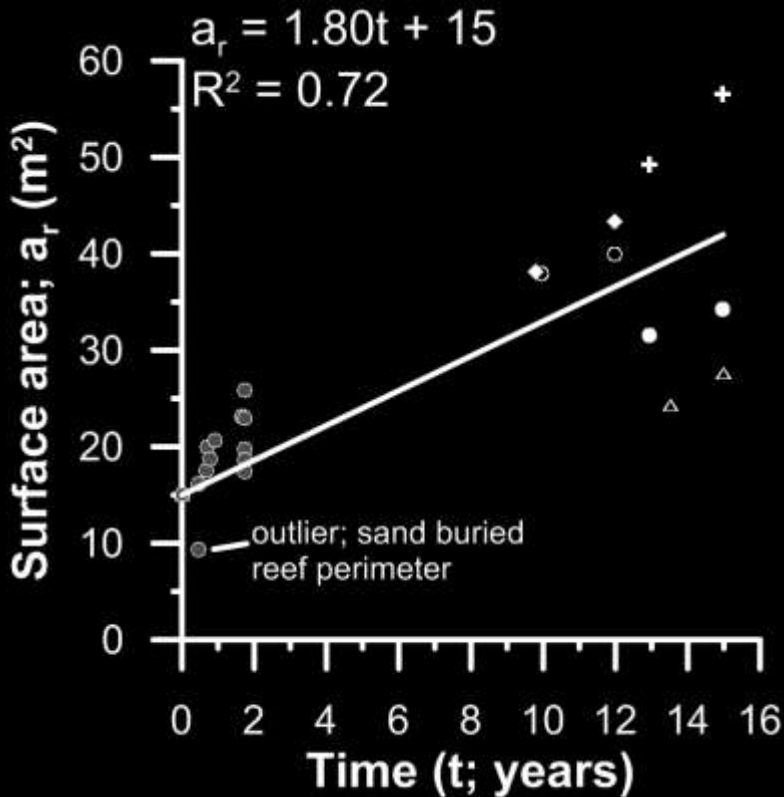
9.94 years



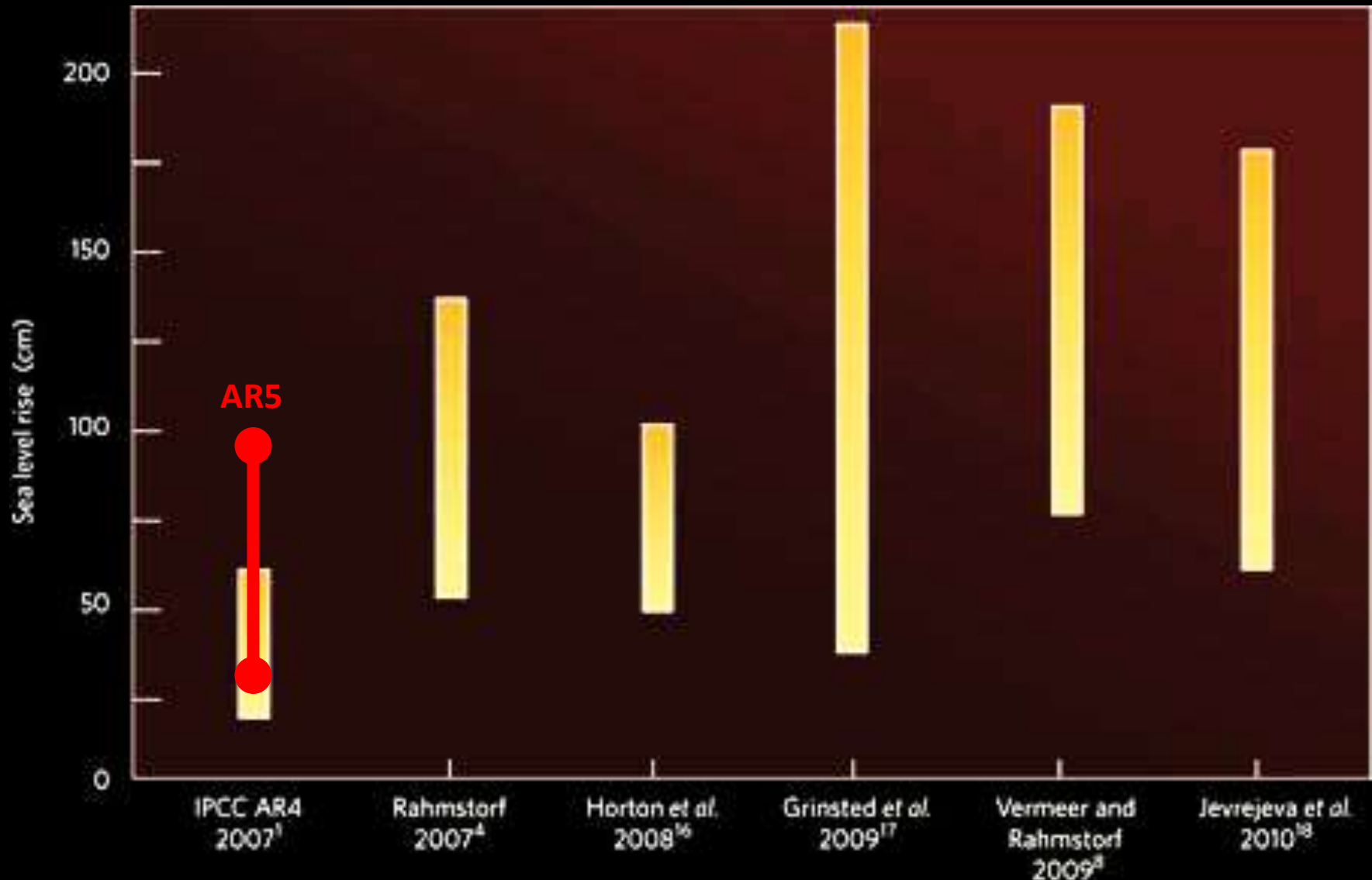




Reefs double in area and volume every 9.5 and 4.0 years, respectively.



Intertidal oyster reefs have the potential to outpace all of these predictions of sea-level rise.



Rahmstorf et al., 2010 Nature Climate Change.



Growth rates are landscape dependent.

In addition there are many other factors that influence growth (duration of inundation, disease, sedimentation, etc.)