- Lessons learned and recommendations for oyster restoration/enhancement project directions, designs and downfalls

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  What lessons can we apply after 20 plus years conducting non-resource related reef restoration across the U.S. Do we know enough yet about site selection? Can we scale-up efforts and assess the relevant metrics and related success criteria with limited funding post-construction (3-5 yrs.)? Can we assume identical oyster "biologies" given that this species occurs from the intertidal to subtidal (> 10 m) from cold temperate to subtropical waters? Are there paradigms assumed or testable for intertidal or subtidal oyster reefs related to disease, environmental regimes, etc.? There is broad disagreement here. We need much more intensive sampling of natural areas to achieve a better understanding of how parameters with short to long timeframes including: (1) physical factors (including climate change); (2) biological factors; and (3) anthropogenic factors that often coincide with the above shaping oyster populations? Currently we have a few efforts on local to project-wide (single or multi-state) efforts using identical methods that natural oyster reef systems can be quite different. It is critical to know whether sites are recruit and/or substrate limited, as the former includes major capital expenditures such as hatcheries, growout facilities and related logistics. In order to move forward with restoration and related monitoring we (practitioners) have recommended that all efforts must have clear goals articulated up front, include experimental designs with replication, robust sample sizes, quantitative sampling, pre- and post restoration monitoring, reference or control site(s) where possible (Baggett et al. 2014). Finally, shellfish aquaculture may have potential ecosystem services that parallel restoration.