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Title: Using living data to inform restoration and monitoring: An example from Lone Cabbage Reef

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Abstract:

“Living” data, data that are continuously collected from field programs or automated sensors, can provide critical information for informing ongoing restoration and monitoring programs in aquatic ecosystems. For example, these data can help inform whether water quality sensors are recording useable data and at what frequency field crews should service the sensors to ensure their functionality. This reduces the likelihood of sensor failure and missing data observations. However, continuous data can be difficult to manage for several reasons including (1) high volume of observations, (2) limited time to enter, QA/QC, and summarize data during busy field seasons, (3) limited training/experience by biologists in working with large datasets (4) inconsistent methods of surveying. Here we demonstrate a case history of a living data lifecycle for the Lone Cabbage reef oyster restoration project near Cedar Key, Florida using open source widely available, free or low-cost software. We demonstrate how data are collected by field teams on oyster populations and recorded on paper data sheets, as well as water quality data from an array of autonomous sensors are rapidly, compiled, QA/QC’ed, and analyzed to provide prompt feedback to ongoing monitoring programs. These efforts are designed to inform ongoing monitoring programs to improve data quality, reduce cost, and improve restoration actions by assessing system response and adaptively informing ongoing restoration and monitoring efforts. By accelerating the speed of learning of what does and doesn’t work, we hope to improve the effectiveness of the Lone Cabbage Reef and to influence other restoration efforts to do the same.