

README – GEMS metrics database

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The GEMS metrics database includes details on the social and economic metrics identified for each restoration project outcome shown as yellow boxes in the logic models. The full metrics list can also be viewed and filtered on the GEMS website: <https://nicholasinstitute.duke.edu/project/gems/metrics>. Measurement protocols with more detailed methods on how to measure each project-scale, tier 1 and tier 2 metric are also being added to the GEMS website.

Metrics database fields

Outcome-related information (columns A-C)

- A. **Outcome category:** General category for the socioeconomic outcome (e.g., economic activity, human health)
- B. **Model outcome:** Socioeconomic outcome that the metric (column D) is used to measure. Model outcomes are shown as yellow boxes in the logic models.
- C. **Resilience outcome:** Whether or not the outcome was identified as related to community resilience (yes or no)

Metric-related information (columns D-G)

- D. **Metric title:** Brief title of the metric used to measure the socioeconomic outcome (column B)
- E. **Metric tier:** Level of difficulty for using the metric. Tier 1 metrics require relatively few resources or specialized skills to measure. Tier 2 metrics may require bringing in partners with relevant skills and take more time to measure. Research & development (R&D) metrics are not fully established or required data are not readily available.
- F. **Metric scale:** Project-scale metrics measure changes in outcomes due to one project. Program-scale metrics measure cumulative changes in outcomes for multiple projects.
- G. **Metric definition:** Detailed definition of what the metric measures and what data is required.

Outcome links to specific project types (columns H-AD): These columns show whether each socioeconomic outcome is strongly linked (XX), weakly linked (X), or not linked (blank) to each of the coastal restoration project types considered in the GEMS project. Strongly-linked outcomes are likely to show a significant change due to the project type. Weakly-linked outcomes are unlikely to show a significant change but may be affected by the project type. Outcomes that are not linked to a particular project type are not expected to be affected by those projects.

Core metrics by project category (columns AE-AH): These columns show whether each metric is considered a core metric for each project category (habitat restoration, oyster reef restoration, recreational enhancement, and water quality). Core metrics are common across project types and can be measured for multiple projects to allow for consistency, comparison, and rolling up results. Core metrics for a given project category are strongly linked to at least half of the project types in the category. R&D metrics are not eligible to be core metrics since they are not fully established.