## Purpose and Background

The Indicators Framework (Framework) is a conceptual model that illustrates the relationships among Indicators and how they are used. Aligned with the *Chesapeake Bay Watershed Agreement* (Watershed Agreement) at the Outcome and Target level, the Framework integrates the information needed to support adaptive management and to communicate progress toward Outcomes and Targets across the Chesapeake Bay Program (CBP). It also serves as an accountability framework for the full suite of Watershed Agreement Outcomes, demonstrating a commitment to transparent, objective assessment for a range of audiences.

Types of Indicators

Two types of Indicators support adaptive management processes and communication needs by tracking progress toward Outcomes in the Watershed Agreement. An Indicator must align directly with an Outcome or Target in the *Chesapeake Bay Watershed Agreement* and demonstrate progress over time.

- **Output Indicator** – Measures the direct outputs of actions or projects implemented under a Management Strategy or Workplan (e.g., number of stream miles opened from implementation of fish passage projects, number of land use planning and decision support cases developed annually).
- **Performance Indicator** – Measures the environmental, programmatic, or system responses resulting from those outputs and related actions or projects outlined in the Management Strategy or Workplan (e.g., blue crab abundance, annual pollutant loads affecting water quality).
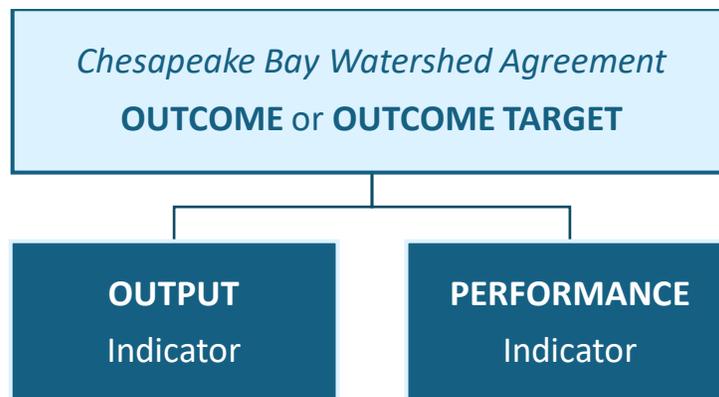
Indicators may measure overall progress toward an Outcome or track progress toward a specific Outcome Target. Multiple Indicators may be needed to effectively track and report progress toward an Outcome.

In some cases, tracking progress toward an Outcome or Target may not be well suited to the formal Indicator types defined in this Framework; in those cases, alternative tracking methods, supported by narrative context, may be developed outside the Indicators Framework for publication on ChesapeakeProgress. At a minimum, Outcomes without a formal Indicator should describe how progress toward the Outcome and its Targets will be demonstrated, how often progress will be updated and assessed, and how the Chesapeake Bay Program will communicate progress to support decision-making.

Additional data resources, such as ChesapeakeData and external dashboards, may also be used to support progress assessments and communicate the status of CBP priorities and initiatives.

Using Indicators to Support Adaptive Management

Indicators support reporting and decision-making within the Chesapeake Bay Program and enable adaptive management and continuous improvement. When used to measure and communicate progress toward an Outcome or Target, Indicators should align with the CBP Adaptive Management Framework and the finalized workflow that will accompany updated guidance.

This section will be updated once the Chesapeake Bay Program Governance and Management Framework, the Management Strategy template, Workplan template, and the overall CBP Adaptive Management Framework are finalized and approved.

Until that guidance is available, follow these interim practices:
- Where data are available, establish baseline values or current conditions to inform future assessments of progress toward Outcomes and Targets.
- Use Indicators to monitor progress and inform management decisions and course corrections.
- Align each Indicator with its associated Outcome or Target and use the Analysis and Methods document and data file to support progress updates.
- Maintain version control and ensure the Analysis and Methods document and associated data file remain synchronized when updates occur.
- Review Indicators on a regular schedule to ensure relevance, methodological soundness, and alignment with evolving Outcomes and Targets.

Once the workflow is finalized, this section will include the specific steps and roles for integrating Indicators into the CBP Adaptive Management Framework.

Creating and Maintaining a New Indicator

The following process guides Indicator development and implementation. The Indicators Coordinator works with Goal Teams and associated Workgroups to identify Indicator needs for each Outcome.

1. The Outcome Workgroup identifies a monitoring or tracking need related to an Outcome or Target and notifies the Indicators Coordinator.

2. The Indicators Coordinator consults with the Outcome Workgroup, relevant Goal Team, other Workgroups, and subject-matter experts to review the Indicator reporting requirements and establish expectations for the update process and reporting on ChesapeakeProgress.
    a. New Indicators must be approved at the Goal Team level before proceeding to the next steps.
3. An Outcome Representative collates the monitoring and tracking data in the data file template, completes the Analysis and Methods document, and submits both to the Indicators Coordinator.
4. The Indicators Coordinator conducts QA/QC on the data file and Analysis and Methods documents and notifies the Web Team, Communications Team, and the Geospatial Science and Applications Team (GSAT) of new Indicators and anticipated timelines.
    a. The GSAT creates or updates maps as needed.
    b. The Indicators Coordinator works with the ChesapeakeData Team to ensure the ChesapeakeData record for the dataset accurately reflects its status and includes the latest data file, Analysis and Methods document, and associated assets.
    c. The Web Team develops or updates ChesapeakeProgress content using the approved data file and Analysis and Methods document.
5. The Communications and Web teams determine whether, when, and how to promote Indicator updates, based on the editorial calendar, communications priorities, and audience relevance.
6. The Outcome Representative notifies the appropriate Goal Team and additional points of contact of the upcoming Indicator update and anticipated publication timeline.

Archiving an Indicator
1. The Outcome Representative notifies the Indicators Coordinator when an Indicator no longer meets a monitoring need because (a) the Outcome or Target has been achieved, or (b) the information is no longer relevant to tracking progress under the Watershed Agreement.
2. The Indicators Coordinator archives the most recent version of the data file, Analysis and Methods document, web content template, and associated assets (e.g., charts, maps) to the Accountability and Budget Team OneDrive.
3. The Web Team archives the relevant web pages, notes any achievement of an Outcome or Target, explains any adjustments to tracking methods, ad updates redirects and on-page notices as needed.

Appendix A. Guiding Questions for Developing Quality Indicators

One role of the Goal Teams is to identify assessment and accountability metrics that may guide adaptive management and be reported to external audiences (e.g., via ChesapeakeProgress and Bay Barometer). The questions below are designed to help Goal Teams select, refine, and document Indicator metrics for progress reporting toward Outcomes in the *Chesapeake Bay Watershed Agreement*. Responses can be used to assess readiness for reporting, shape key messaging, populate the data file and Analysis and Methods templates, develop ChesapeakeProgress web content, and identify gaps requiring follow-up.

1. How does this metric tie into a specific Outcome or Target of the *Chesapeake Bay Watershed Agreement*?
2. Can we reasonably track and report this metric over the Outcome's lifespan?
   a. Are there sufficient resources (e.g., funding and staff capacity) to sustain data collection, quality assurance, analysis, reporting, and maintenance for the Indicator over time?
   b. Who is the lead partner or organization responsible for data collection, quality assurance, analysis, reporting, and maintenance for the Indicator over time?
   c. When do we expect to see significant, measurable progress on this metric (e.g., in how many years)?
   d. Is the expected timeframe too long for the public to envision progress and remain engaged with this metric?
3. Who is your audience and what do they need to understand about this metric? Identify specific audiences (e.g., watershed organizations, media, interested public, scientists, students, local governments) and their interests.
4. How effectively can we communicate our progress using this metric? Why should people care about it?

Appendix B. Definitions

Analysis and Methods (A&M) document – Each Indicator update must include an Analysis and Methods document explaining how data are collected, analyzed, interpreted, and communicated to ensure transparency and consistency. Outcome Representatives and subject-matter experts complete the document during an Indicator's first iteration, addressing analytical methods, trends, and data quality, and update it with each new data release. The document is posted with the data file, which contains more detailed metadata and reported metrics, on ChesapeakeProgress for internal and external audiences across the Chesapeake Bay Program.

ChesapeakeProgress – A CBP website that provides oversight and accountability toward the Outcomes of the *Chesapeake Bay Watershed Agreement*. Indicator information and status are primarily reported on Outcome-specific pages of ChesapeakeProgress.

Data File – A data file accompanies each Indicator update to ensure transparency. The data file should contain a "Metadata" worksheet with essential metadata information for the data source and a "Summary" worksheet that summarizes the key data to be presented on ChesapeakeProgress. It may include both raw and summarized data, displayed in tables and charts as appropriate. In general, raw data should be included unless it is highly technical or sensitive. There should be enough detail for users to trace and, if needed, reproduce the transformations and calculations from raw to summary data with relative ease. The data should align with the metrics used to report progress toward the associated Outcome and/or Outcome Target(s). Data reported in this worksheet will be used to populate the associated Outcome page on ChesapeakeProgress. Additional worksheets in the data file may be used to organize and report supporting data, charts, calculations, and notes.

Indicator – A programmatically approved metric used to inform progress toward a *Chesapeake Bay Watershed Agreement* Outcome or Target. A suite of metrics may be referred to as a single Indicator if the data source, goal measured, and analysis methodology are aligned.

Indicators Coordinator – Responsible for overall coordination of all Chesapeake Bay Program Indicators, including developing guidance; briefing program groups; managing the update process; reviewing and approving Indicator data, methodologies, and analysis materials; coordinating with the Communications Team and Web Team; consulting on Indicator development; and providing updates to leadership.

Outcome Representative – Responsible for the overall coordination of Indicator data collection and analysis, production and review of supporting documents (e.g., data file, Analysis and Methods document), and review and approval of web content. This role could be served by a Goal Team Coordinator, Workgroup Chair, or other designated lead.