Through the Chesapeake Bay Watershed Agreement*, the Chesapeake Bay Program has committed to…*

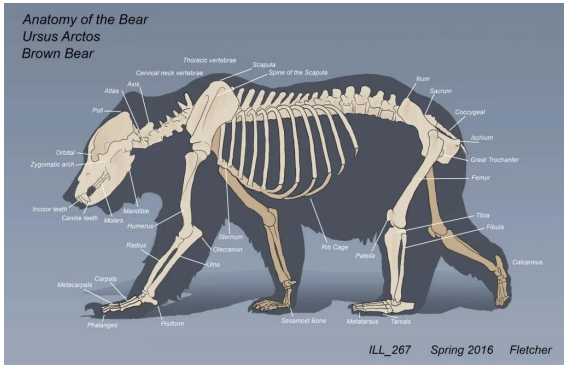
Goal: *Stream Health*

Outcome:

Continually improve stream health and function through the watershed. Improve health and function of ten percent of stream miles above the 2008 baseline for the watershed

Building a Bear

Agreement and Outcomes



Building a Bear

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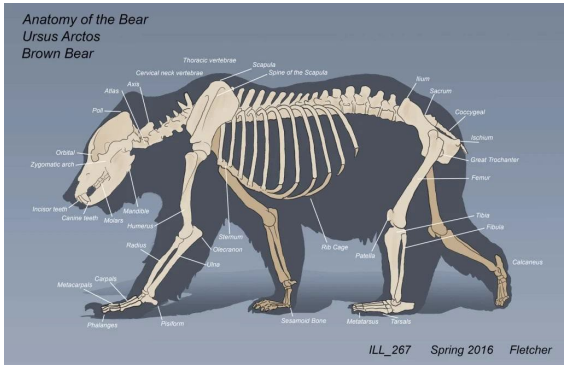
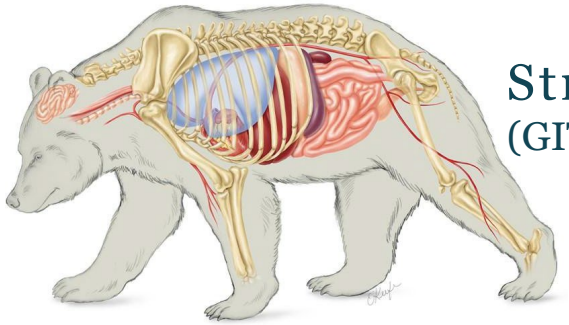
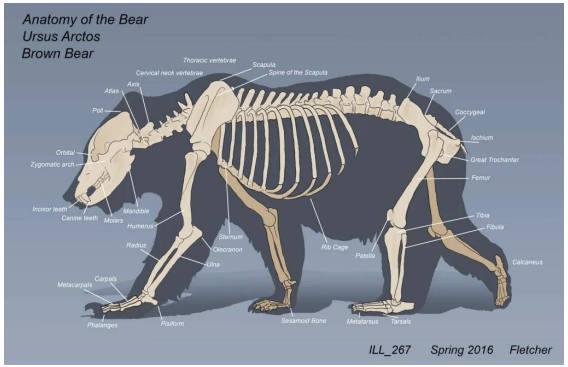


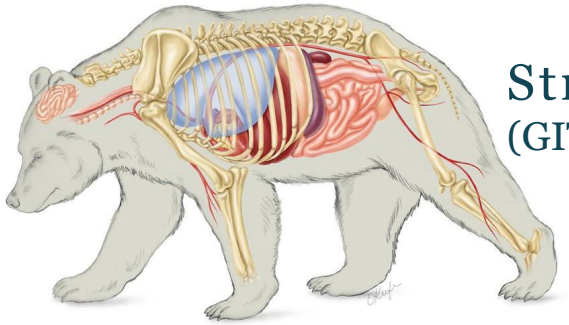


Structur e
(GITs, WGs?)

Building a Bear

Agreement and Outcomes



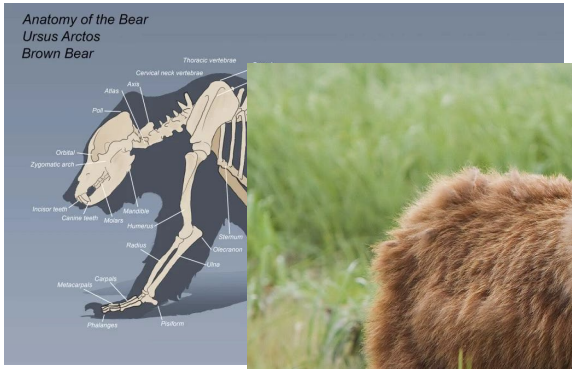


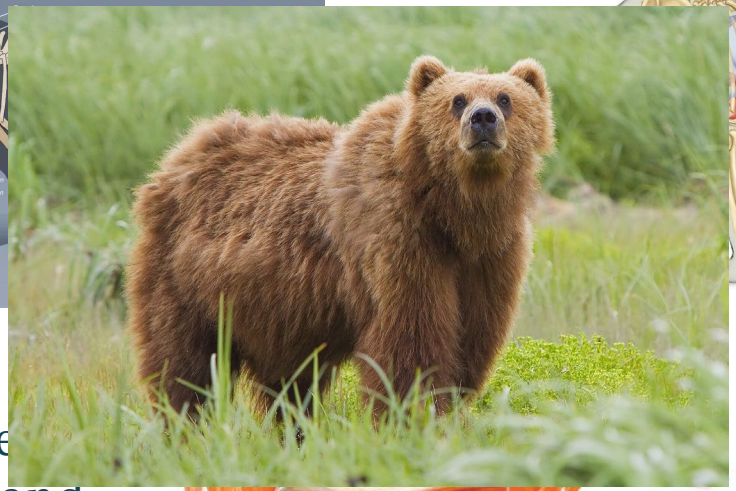
Structur e (GITs, WGs?)

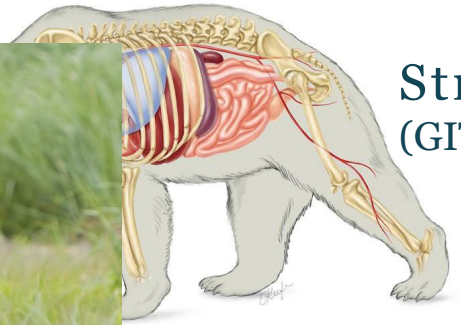
Management Strategies and Action Plans

Building a Bear

Agreement and Outcomes





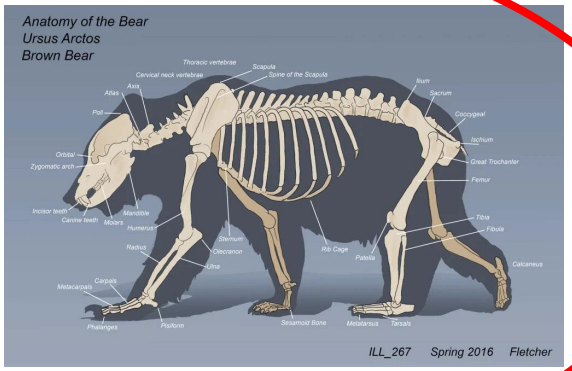


Structure (GITs, WGs?)

Management Strategies and Action Plans

Building a Bear

Agreement and Outcomes



We are here!

GOALS & OUTCOMES

The commitments contained in this section are the Goals and Outcomes that the signatories will work on collectively to advance restoration and protection of the Chesapeake Bay ecosystem and its watershed. The Goals articulate the desired high-level aspects of the partners' Vision. The Outcomes related to each Goal are specific, time-bound, measurable targets that directly contribute to achieving that Goal.

https://www.chesapeakebay.net/files/Chesapeake-Bay-Watershed-Agreement-Amended.pdf

Possible Goal Structure

Goals & Outcomes?

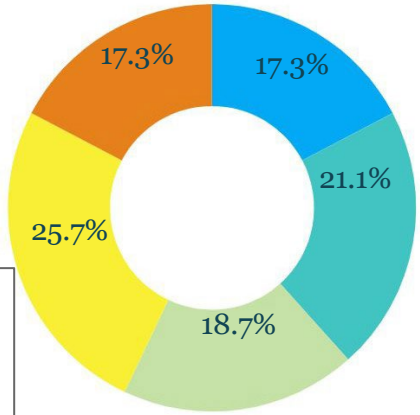
For Consideration & Discussion

Clean Water	Lands and Watersheds	Habitats and Wildlife	Engaged Communities
Water Quality Standards Attainment and Monitoring	Forest Buffers	Blue Crab Abundance	Public Access Site Development
2025 WIP	Tree Canopy	Oysters (Habitat & Abundance)	Environmental Literacy Planning
Toxic Contaminants	Land Use Decision Support	SAV	Students
	Protected Lands	Brook Trout	Stewardship
	Adaptation	Fish Habitat (Tidal & Nontidal)	Workforce
		Wetlands (Tidal & Nontidal)	Local Leadership
		Stream Health	
		Fish Passage	

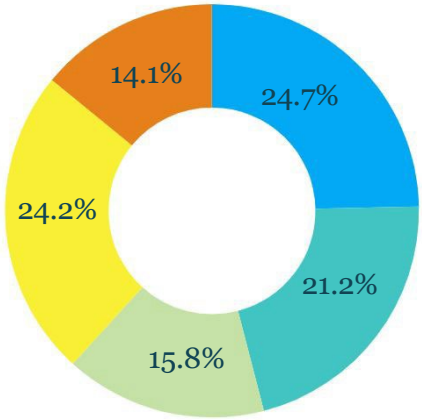
Chessie BIBI

OUTLOOK ON COURSE

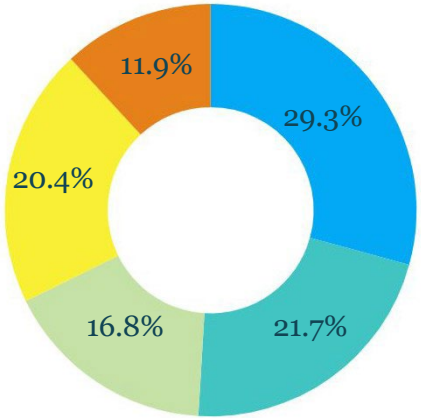
Pre-Baseline 2000-2005



Baseline 2006-2011



First Interval 2012-2017



~6% improvement in Chessie BIBI indicator between the baseline (2006 - 2011) and first interval (2012 – 2017) continues an earlier improving trend

Stream Health Workgroup Outcome Assessment

EC Charge: That changes reflect

- A renewed and **greater emphasis on engaging all communities** of the watershed as active stewards of a healthy and resilient Chesapeake Bay and its watershed
- Our mandate to address water quality **and living resources** throughout the Bay and watershed
- **Elevating conservation** as a key pillar of the Chesapeake Bay Program, alongside science, restoration, and partnership
- A grounding in the most recent scientific understandings and issues that have emerged since the current Chesapeake Bay Watershed Agreement was signed in 2014
- Goals and outcomes that are **measurable and time bound.** Time frames should be sufficient to accomplish the outcomes as quickly as possible. In particular, our regulated nutrient and sediment load reductions, especially those within non-point sources
- Acknowledgement that our scientific understanding is continuously evolving and that our efforts need to constantly adapt accordingly
- The fact that while each partner shares a common goal, we are all approaching this goal from different perspectives, challenges, and opportunities.

STREAM HEALTH OUTCOME

GOAL: Vital Habitats. LEAD: Habitat Goal Team (GIT2)

OUTCOME DISPOSITION ADVICE TO MANAGEMENT BOARD:

UPDATE

OUTCOME: Continually improve stream health and function throughout the watershed. Improve health and function of ten percent of stream miles above the 2008 baseline for the watershed.

- Update the outcome to reflect a more holistic approach to improving ecological integrity of stream systems and stream corridors, based on sound science, coupled with land management, planning, and protection to improve and sustain stream health.
  - Need additional indicators of stream health to measure changes in certain stream functions and identify specific ecological stressors. A project is underway to determine the appropriate indicators or metrics of stream health by identifying existing datasets and the feasibility of using them to measure stream health.

- Value
  - key outcome to achieving fishable, swimmable, drinkable water
  - incentivizes Bay jurisdictions to coordinate policies across the watershed

- Opportunities:
  - incorporate the findings from the 2023 CESR report and our 2023 STAC workshop
  - leverage work being done by related goal teams and consolidate data management and analysis

Presented by: Alison Santoro

Stream Health Workgroup Outcome Assessment

Is the Outcome SMART (Specific, Measurable, Achievable, Realistic, Time-bound)?

Outcome	ERG Comments	S	M	A	R	T	Overall
Stream Health Outcome - Continually improve stream health and function throughout the watershed. Improve health and function of ten percent of stream miles above the 2008 baseline for the Chesapeake Bay watershed.	The outcome statement meets the SMT criteria ERG assessed. Methods to assess stream health are available on CP.	✓	✓			✓	✓
Brook Trout - Restore and sustain naturally reproducing brook trout	The outcome statement meets the SMT criteria						

Outcome Format

OUTCOME

High level outcome language. (The change in state we aim to influence or the future state we aspire to reach as a consequence of our actions and their outputs.) This language does not need metrics.

- Bullets of **measurable targets** or objectives. These are shorter-term steps and results: this is the place to be as specific, measurable, achievable, relevant, and time bound (SMART) as possible to ensure we are tracking our work, learning from the results, and being publicly accountable.
- These could be more direct measures of our efforts and whether we are following through on plans and commitments.
- Interim steps and tiered targets acknowledge what is realistic in a set period while leaving space for what we ultimately know is needed for the healthy watershed we envision.
- Targets that are not thoroughly flushed out can be listed as "under construction."

New Outcome - Rough Draft

Continually improve and protect stream health and ecological integrity throughout the watershed based on sound science, coupled with land management, planning, and protection. (High Level Language)

- Annually improve health and function of at least <X>% of stream miles each year. (Measurable Target)

High Level Language

Continually improve and protect stream health and ecological integrity throughout the watershed based on sound science, coupled with land management, planning, and protection. (High Level Language)

Summary of Comments:

- Like “continually improve
- Like “protect”
  - Could be added as a separate target?
    - Ex: Annually increase the stream miles protected by 1 percent per year or 10 percent over ten years.
    - Discuss targets in later slides

High Level Language

Continually improve and protect **stream health and ecological integrity** throughout the watershed based on sound science, coupled with land management, planning, and protection. (High Level Language)

Summary of Comments:

- "Stream Health" and "Ecological Integrity" are similar, redundant
  - Define "ecological integrity" OR
    - Just of streams or the ecological integrity of streams and lands
  - Remove "ecological integrity" and let "Stream Health" stand alone

- "Stream Function" was removed from 2014 high level language
  - Leave it in updated outcome OR
  - Sufficient to call out in Targets

High Level Language

Continually improve and protect stream health and ecological integrity **throughout the watershed** based on sound science, coupled with land management, planning, and protection. (High Level Language)

Summary of Comments:

- Does it include Non-tidal AND Tidal streams?
  - Specify only non-tidal OR
  - Keep “Thoughout the watershed” OR
  - Clarify as “non-tidal and tidal stream health”

- Do we need a new indicator for tidal streams?
  - Chessie BIBI (benthic macros) only applied to small non-tidal streams

High Level Language

Continually improve and protect stream health and ecological integrity throughout the watershed **based on sound science**, coupled with land management, planning, and protection. (High Level Language)

Summary of Comments:

- "sound science" can be subjective
  - Remove “sound” or replace with better word?
- Science element be rolled into the list of tools
  - “Continually improve…throughout the watershed using sound science and land management, planning, and protection”

High Level Language

Continually improve and protect stream health and ecological integrity throughout the watershed based on sound science, **coupled with land management, planning, and protection.** (High Level Language)

Summary of Comments:

- Most liked the inclusion of these points
- “coupled with” intent is unclear
- If intent is to ensure watershed is considered (NOT just stream), replace the second part “with integrated consideration of the stream in its drainage basin context.” or similar
- Simplify to “Continually improve…throughout the watershed by managing, restoring and protecting waterways and lands.”
- Change to “sound science, technology and data.”

High Level Language

Continually improve and protect stream health and ecological integrity throughout the watershed based on sound science, coupled with land management, planning, and protection. (High Level Language)

Additional comments:

- Consider updating outcome high level text to include something identifying the importance to people of 'stream health and ecological integrity'

- Current language sounds like the SHWG is actually doing the work of improving stream health
  - Are the jurisdictions doing the management and restoration work?
  - SHWG becomes a supporting arm on the jurisdictional efforts
  - The outcome should focus more on monitoring, data analysis/assessment, and tool generating to inform what work is done and where.

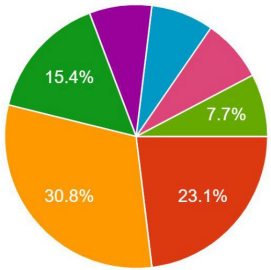
Measurable Targets

- Annually improve health and function of at least <X>% of stream miles each year. (Measurable Target)

Preference for the annual rate of improvement in stream health Bay-wide for the updated outcome.

The 2014 agreement outcome language had an unspecified annual improvement of ~0.58%. (10 percent over 17 years, 2008-2025). The overall Ba...n stream health Bay-wide for the updated outcome.

13 responses



Please see comment below under further thoughts.
Bi-annually measure the health and function of stream miles watershed-wide, utilizing the extensive data provided by each jurisdiction through the required U.S. EPA 305b Integrated Water Quality Reports submitted by each Chesapeake Bay jurisdiction.

0. We should not have a collective target in a voluntary partnership with voluntary action, it is not a recipe for success from a scientific or and expectations setting (communications) perspective

Make it equal to or slightly greater than the rate derived after the Chessie BIBI analysis of 2018-2023.

Improvements due to restoration? or to ecosystem responses?

Measurable Targets

Annually improve health and function of at least <X>% of stream miles each year. (Measurable Target)

Summary of Comments - Numerical Target:

- Annually is a bad time frame
  - Stakeholders expect annual updates
  - annually is too fine given the time it takes to sample, process and release all data
  - Restate the rate tied to Chessie BIBI - every 6 years
    - Improve health and function of at least 3% (OR 3.5%) of stream miles every six years.
- keep it conservative with existing climate change and flooding. We may have seen the improvements from the wastewater sector and the remaining nonpoint source sector will be delayed from lag times and other factors.

Measurable Targets

- Annually improve health and function of at least <X>% of stream miles each year. (Measurable Target)

Summary of Comments - Overall Language

- How are stream health and function differentiated?
  - If too similar, only one should be used. Are you using "function" to capture abiotic metrics? If so, this needs to be articulated to understand the outcome.

- Disagree with including “and function”
  - multiple stream functions that can be improved which would produce no improvement in stream health, nor water quality, nor utility by people, etc.
  - reword to state “improvement in functions likely to increase stream ecological integrity and or improve water quality.”

Measurable Targets

- Annually improve health and function of at least <X>% of stream miles each year. (Measurable Target)

Additional Comments:

- Are you talking about site-specific actions to improve stream miles (e.g. restoration, riparian buffer planting) or overall ecosystem responses in streams watershed-wide (e.g. Chessie BIBI)?
- What collective actions are the jurisdictions willing to commit to? Base the outcome language on that
- I do not like the assumption that all streams in a HUC12 are healthy based on just three sample points
    - The scale of accounting should be reconsidered- perhaps transitioning to NHD catchments or relying on larger and less clustered samples within each HUC12.

Measurable Targets - New?

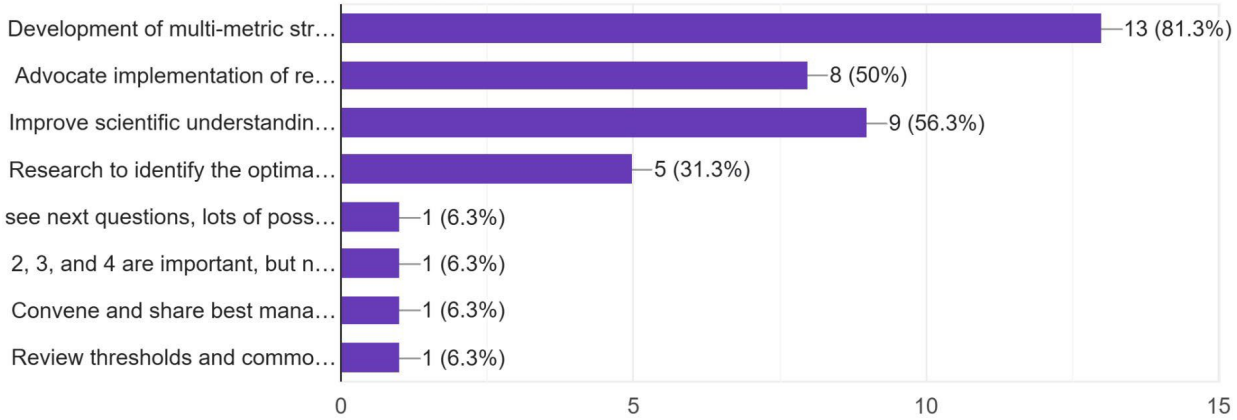
Continually improve and **protect** stream health and ecological integrity….

- Annually increase the stream miles protected by 1 percent per year or 10 percent over ten years.
  - Are streams already protected under federal and state regulations?
  - could "protect" mean it would be under protective covenant or easement?

Measurable Targets and Activities

We have brainstormed a few other potential targets. Please choose which (if any) activities you think are appropriate to recommend to the Manage... consider when new metrics/targets may be ready.

16 responses



Measurable Targets and Activities

- Development of multi-metric stream health indicators to complement the Chessie BIBI. (81.3%)
- Advocate implementation of restoration practices directly tied to improving instream biological conditions. (50%)
- Improve scientific understanding and predictions of stressors to the stream ecosystem at the spatial scale of individual stream reaches to assist in the choice of restoration approaches. (56.3%)

Measurable Targets and Activities

- Additional Suggestions
  - Research to identify the optimal amount of dynamic geomorphic change for various stream ecosystem attributes could help restoration designs.
  - Research to identify the optimal amount of dynamic geomorphic change for various stream ecosystem attributes could help restoration designs.
  - Review thresholds and common elements of state BSID procedures
  - Convene and share best management practices, best science and policy, communications best practices

Measurable Targets and Activities

- Stream health indicators should include watershed conditions and biological stressor assessments relating stream corridor and watershed conditions to impairments.

- If thresholds for stressors exists that is another option for a target - Identify biological thresholds for each key stressor, but this is a difficult task.
    - identify priority stressors for remediation

- I think it is worth the workgroup's time to investigate how we could achieve the suggested targets related to stream restoration, it might be premature to make a recommendation to the management board at this point.

Measurable Targets and Activities

- Stream Health Workgroup could synthesize the progress in other groups that help to improve stream health, e.g., Brook Trout, wetlands, (fish) passage, healthy watersheds.

- Health has a biological endpoint with indicators based on these (bug, fish, mussels, people); indicators of stress (pH, geomorph); indicators of drivers (LULC, climate). Cross-walk these with related Outcome teams.