CESR

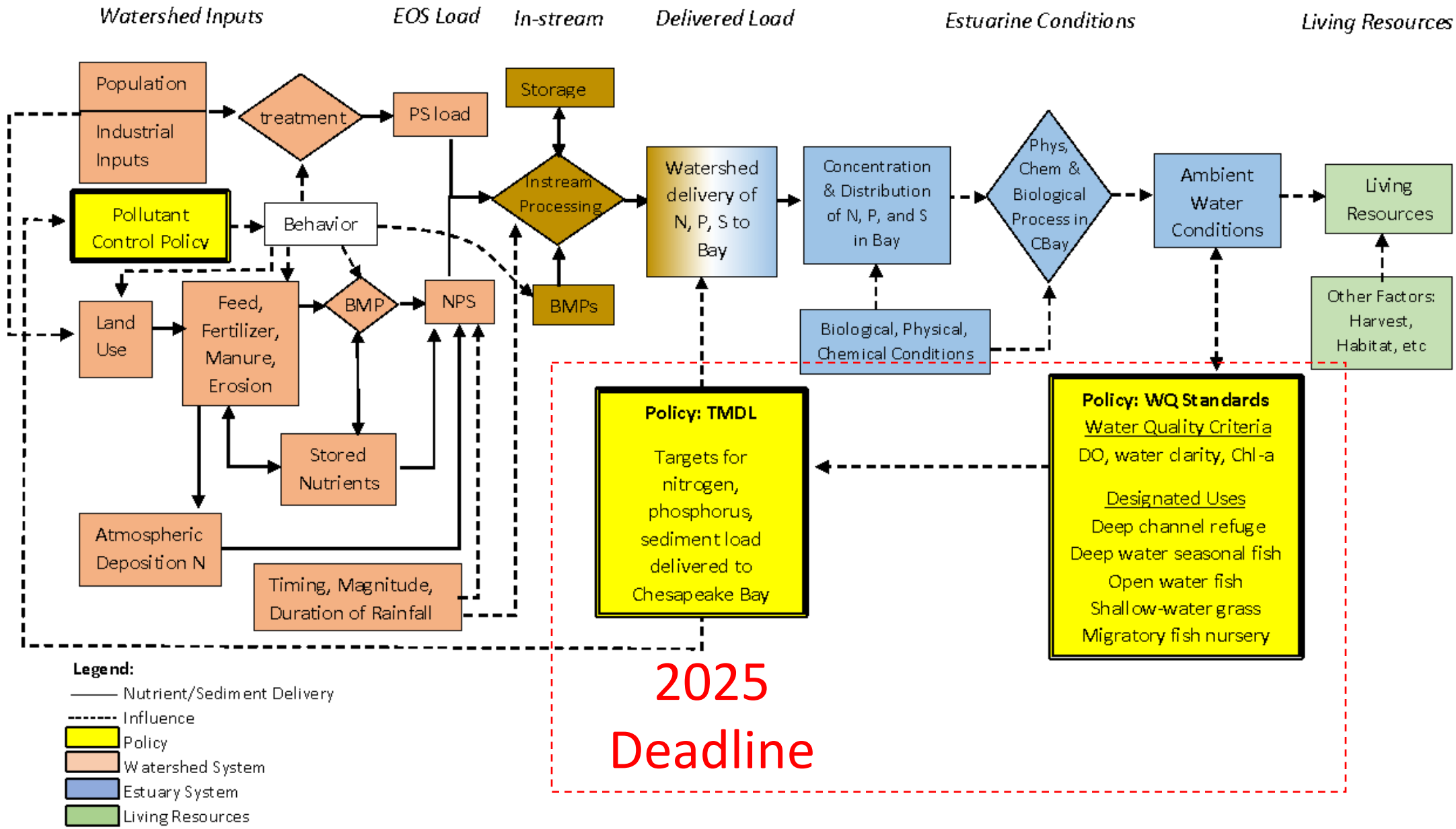
(Comprehensive Evaluation of System Response)

Update

March 24, 2021

Objectives

- Identify gaps and uncertainties in system response —physical, chemical, biological, and socioeconomic— that impact efforts designed to attain WQS.
- Identify recent scientific developments that can shed light on the gaps and uncertainties in system response to advance efforts to attain WQS, and
- Recommend research strategies that improve understanding of system response to support informed decision making to attain WQS.
- Recommend strategies for integrating scientific and technical analysis with active adaptive management in order to aid decision-making under uncertainty (to achieve WQS).


Watershed Inputs
EOS Load
In-stream
Delivered Load
Estuarine Conditions
Living Resources
Population
Industrial Inputs
treatment
PS load
Storage
Instream Processing
Watershed delivery of N, P, S to Bay
Concentration & Distribution of N, P, and S in Bay
Phys, Chem & Biological Process in CBay
Ambient Water Conditions
Living Resources
Pollutant Control Policy
Behavior
BMPs
Land Use
Feed, Fertilizer, Manure, Erosion
BMP
NPS
Biological, Physical, Chemical Conditions
Other Factors: Harvest, Habitat, etc
Stored Nutrients
Atmospheric Deposition N
Timing, Magnitude, Duration of Rainfall
Policy: TMDL
Targets for nitrogen, phosphorus, sediment load delivered to Chesapeake Bay
Policy: WQ Standards
Water Quality Criteria
DO, water clarity, Chl-a
Designated Uses
Deep channel refuge
Deep water seasonal fish
Open water fish
Shallow-water grass
Migratory fish nursery
2025
Deadline
Legend:
Nutrient/Sediment Delivery
Influence
Policy
Watershed System
Estuary System
Living Resources

General Outline

Section 1: Introduction

Section 2: Gaps and Uncertainties in System Response to Meet Water Quality Standards

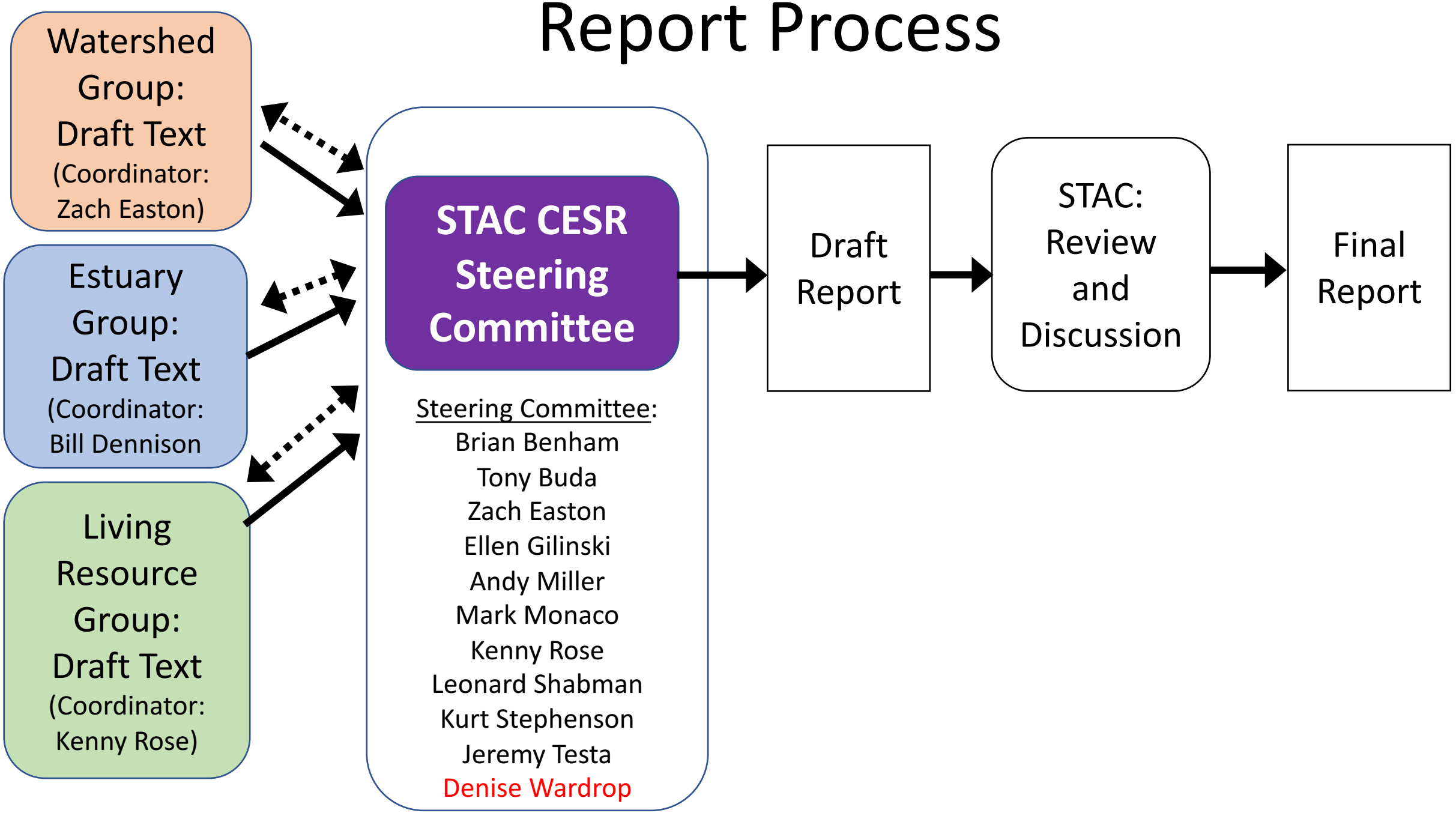
Section 3: Watershed Response

Section 4: Estuary Response

Section 5: Living Resource Response

Section 6: Implications

Report Process



Today

- *Updates,*
- *Workgroup section drafts*
- *Sharing of tentative findings, identifying cross cutting themes.*

Report

Section 1: Introduction

Section 2: Gaps and Uncertainties in System Response to Meet Water Quality Standards

Section 3: Watershed Response

Section 4: Estuary Response

Section 5: Living Resource Response

Section 6: Implications *(some illustrative emerging ideas*)

A. System response: Implications for achieving WQS
   - TMDL
   - Achievement of water quality criteria

B. Adaptive management: Improving response in the face of uncertainty

C. Implications for water quality standards
   - Improvements for monitoring and assessment of WQ criteria
   - Criteria, monitoring, modeling for shallow water habitats
   - Consideration of living resource-based water quality criteria.

D. Future Visions for the Chesapeake Bay Water Quality