

Proposed Strategic Science & Research Framework

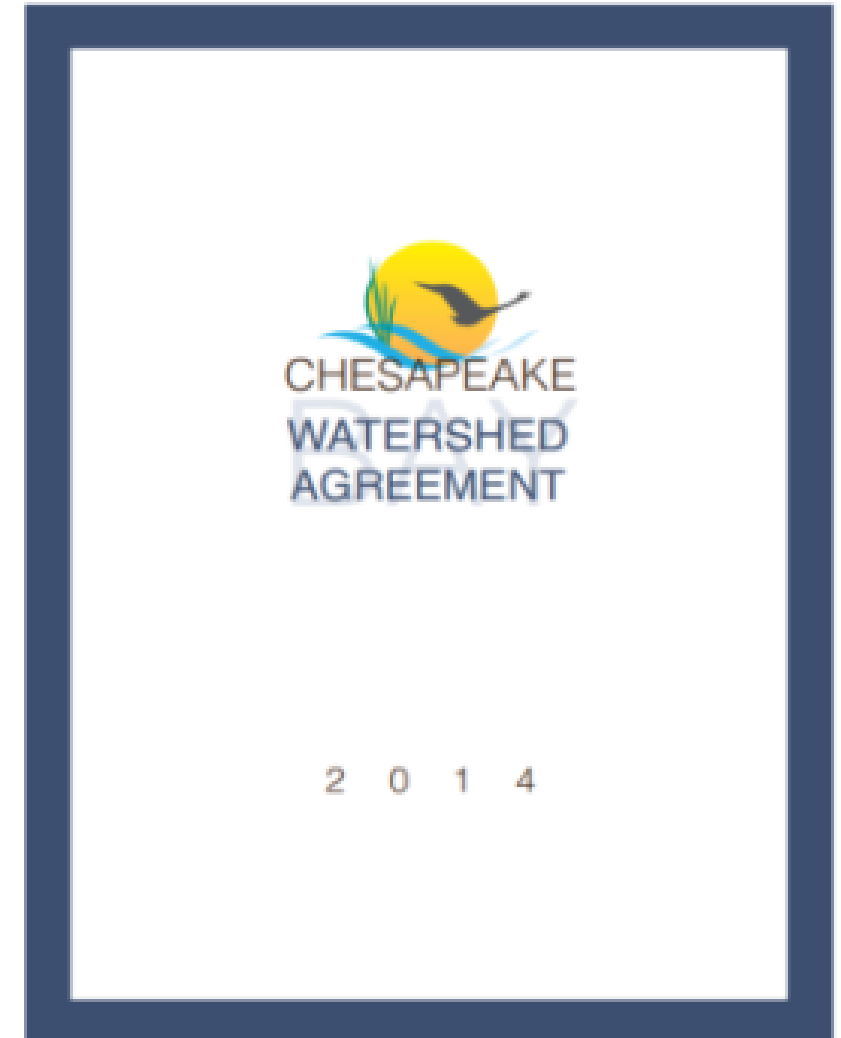


Kristin Saunders, Cross-GIT Coordinator
Emily Trentacoste, STAR Co-Coordinator

STAC Quarterly Meeting Meeting
3/26/2019

Origin of the Proposed Framework

- Strategy Review System MB meeting (August 2018)
- Too many science needs for climate resiliency;
 - MB requested priorities
- Led to another MB request to understand science priorities from SRS reviews of all outcomes



Request from Management Board

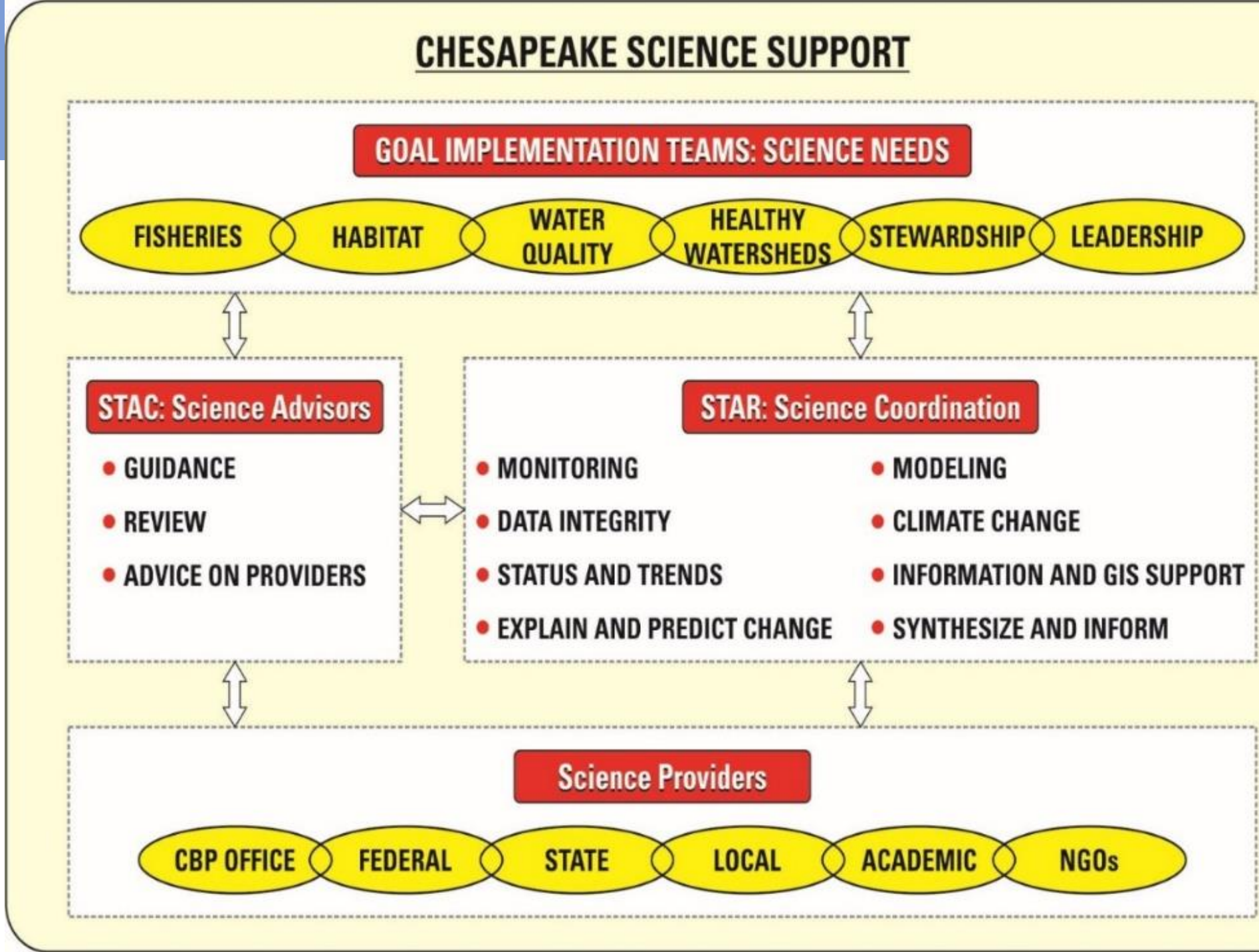


August 2018 Request from MB:

“The SRS small group will compile into a list the SRS data and science needs requests. This list will be shared with STAR and STAC leadership and the CBP associate directors for input. The Management Board will review the 2017-18 SRS requests to prioritize science and data needs. The Management Board will present their prioritization during the 2019 SRS Biennial meeting.”

Involvement

- Goal Teams
- STAR
- STAC
- SRS team



Progress to Date

- MB request discussed with STAR and SRS team (Sep '18)
- Solicited feedback from GIT-chairs, STAR and STAC (Oct-Dec '18)
- Consolidated initial list of science needs from GITs (Oct-Dec '18)
- STAR coordinated discussion to develop idea of Strategic Science & Research Framework (Dec '18-Feb '19)
- Began holistic look across all needs and initial resource assessment (Feb '18)

- Connect to the decision framework and SRS process
- Develop a process repeatable every 2 years with SRS reviews

Consider:

- Operational and fundamental science
- Integrate STAC science workshop and review findings
- Don't prioritize numerically
- Look holistically: common themes, gaps in resources, and opportunities to address
- Be clear on how the findings can be used

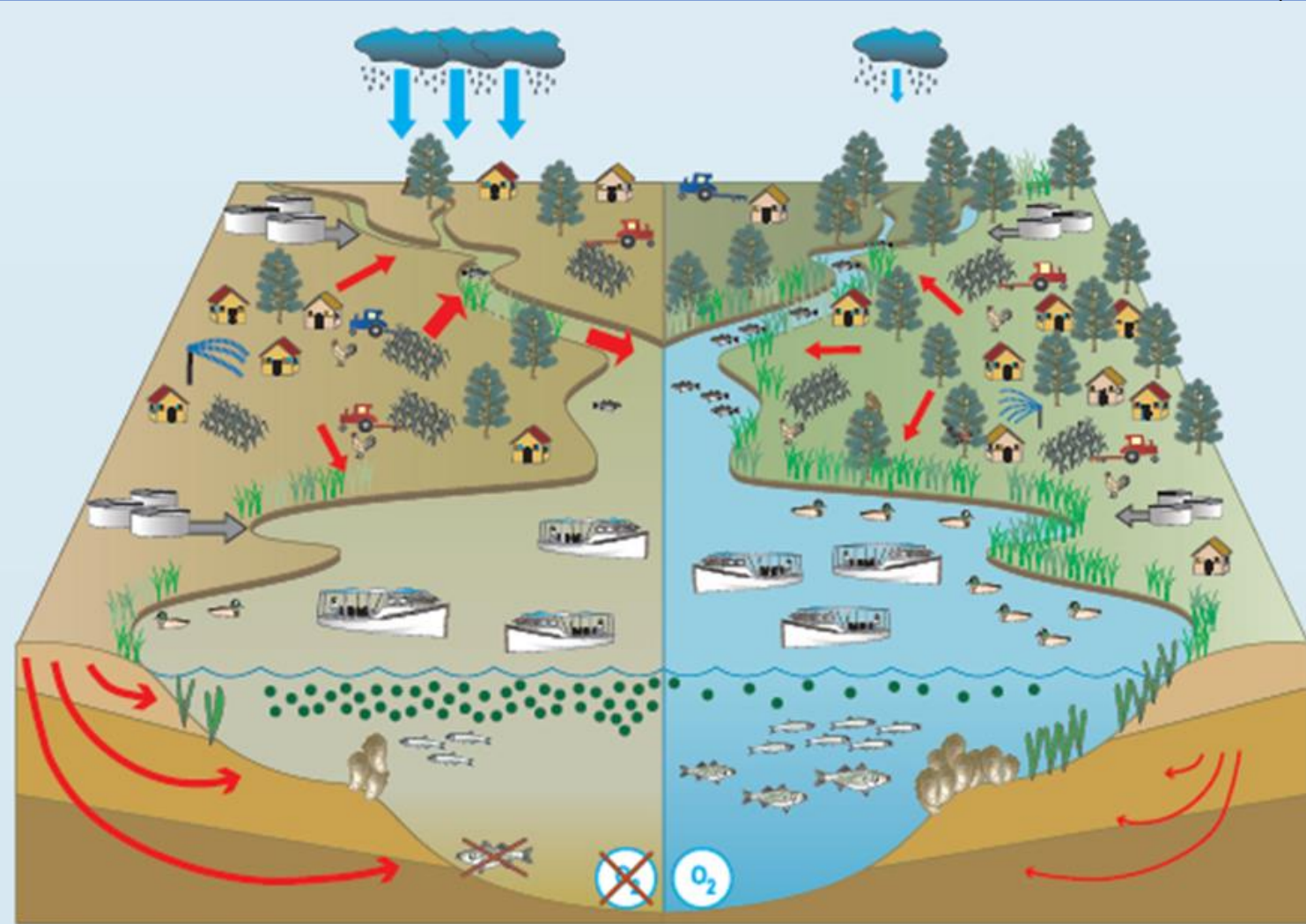
Operational and Fundamental Science

Operational

- Specific outcome
- Indicator, GIS, data gathering, synthesis

Fundamental

- Look holistically, multiple outcomes
- Monitoring
- Modeling
- Research



(Modified from Phillips, 2006)

Present

Future

How Can Findings from Framework Be Used?



MB & their agencies: MB can suggest how collective resources should evolve; agencies represented can identify their own resources to address needs

GITs: Can identify projects for GIT RFPs; can determine common needs; represented agencies can identify how to evolve efforts

CBP Office: Evolve EPA grants and contracts to address needs; evolve focus of CBP modeling, monitoring, research, GIS

STAR: Updates activities and workgroups to address science priorities to support GITs; evolve directions of CMC; identify science providers to address needs

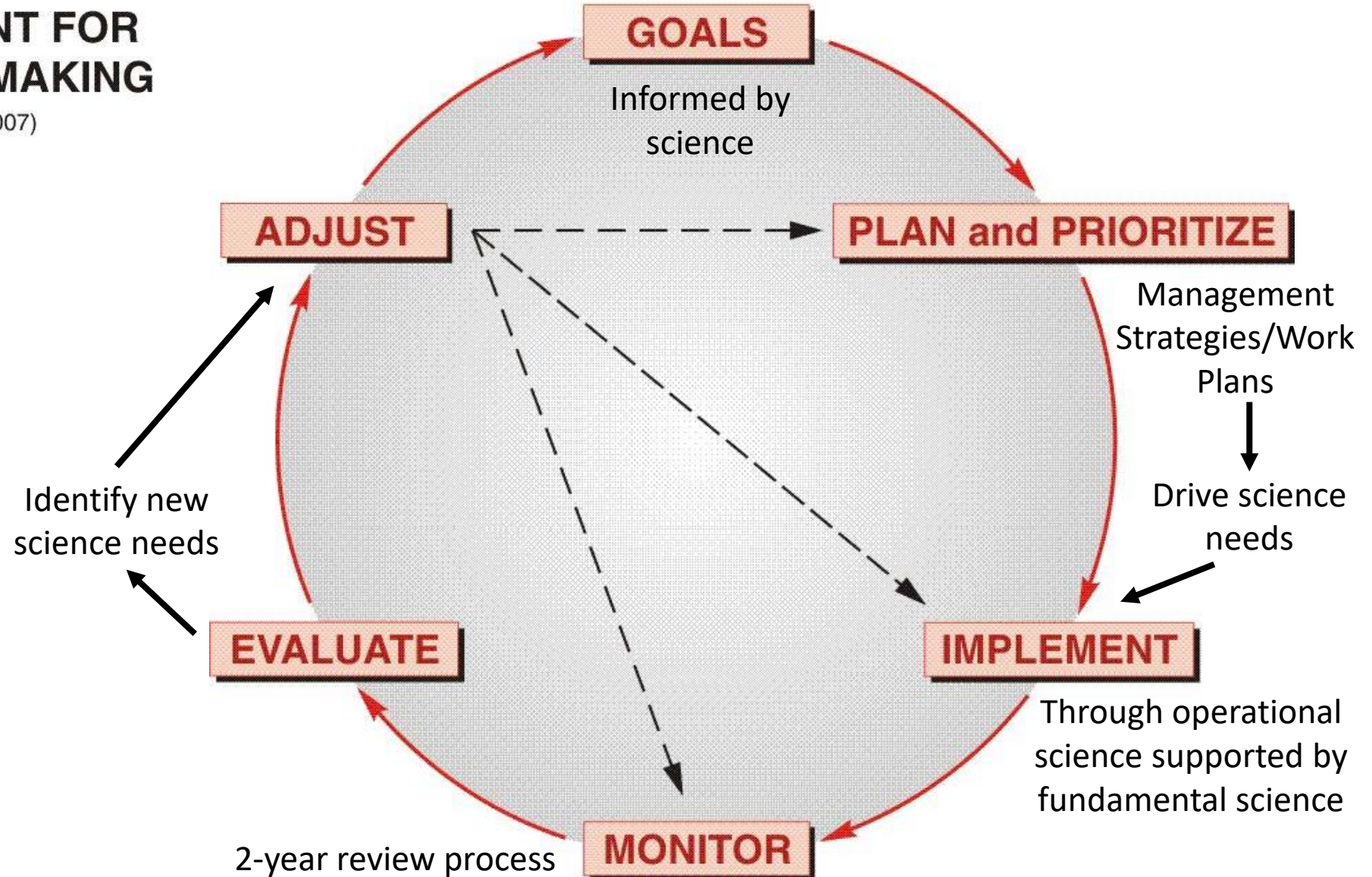
STAC: inform STAC research priorities and selection of workshops; individual researchers can be providers

Connection to Decision Framework and SRS



ADAPTIVE MANAGEMENT FOR ECOSYSTEM DECISION MAKING

[Modified from Williams and others (2007) and Levin and others (2009)]



Proposed Approach: Strategic Science and Research Framework



- Update GIT science needs and proposed progress for Strategic Science and Research Framework **Oct 2018 – Feb 2019**
- Integrate STAC workshop recommendations and reviews **Mar-May 2019**
- Conduct a resource assessment to identify current science providers and gaps in resources **Mar-July 2019**
- Holistically assess gaps in resources for science needs and work with GITs, STAR and STAC to prioritize needs requiring resources **Summer, 2019**

Proposed Approach: Strategic Science and Research Framework



Identify opportunities to evolve CBP activities and work with science providers

Aug-Sept 2019

Present opportunities to MB

**Summer-Fall
2019**

Take actions to address primary gaps

**Summer-Fall
2019**

Institute process for Strategic Science and Research Framework

Fall, 2019

Update science needs based on 2019-2020 SRS Process

2019-2021

Current State of the Science Needs



- All GITs provided input: needs, explanations, priority, resources
- Currently conducting initial resource assessment
- Incorporating STAC workshop recommendations from 2014 on
- Working with STAC on how to engage them for feedback from larger group
- Initial assessment of needs list

Information in the Science Needs List



- Science need – identified by GIT or SRS meeting
- Progress – completed, ongoing?
- Additional detail
- Why it is needed
- Category – modeling, monitoring, research, synthesis, analysis, data gathering, coordination, training
- Other goals/outcomes addressed
- Current resources/efforts
- Future opportunities for resources
- GIT-identified prioritization

A Basic Breakdown of the Science Needs List



124

→ Total Needs Identified

68

→ Needs that are not completed
and not fully resourced

Most have some resources or other contributions

A Basic Breakdown of the Science Needs List



Of those 68, 58 were given a priority by GIT:

35 → **High**

7 → **Medium**

16 → **Low**

A Basic Breakdown of the Science Needs List



Needs related directly to development or update of indicator:

- Forage fish indicator development
- Climate indicator development – fish distribution
- Stream Health indicator reporting
- Brook trout monitoring efforts for indicator
- New black duck indicator based on habitat acreage/baseline
- Tracking framework for potential healthy watersheds sustainability indicator
- Stewardship Indicator data collection support every 3-5 years
- Diversity indicator target/goal

Purple text = GIT-identified as high priority

A Basic Breakdown of the Science Needs List



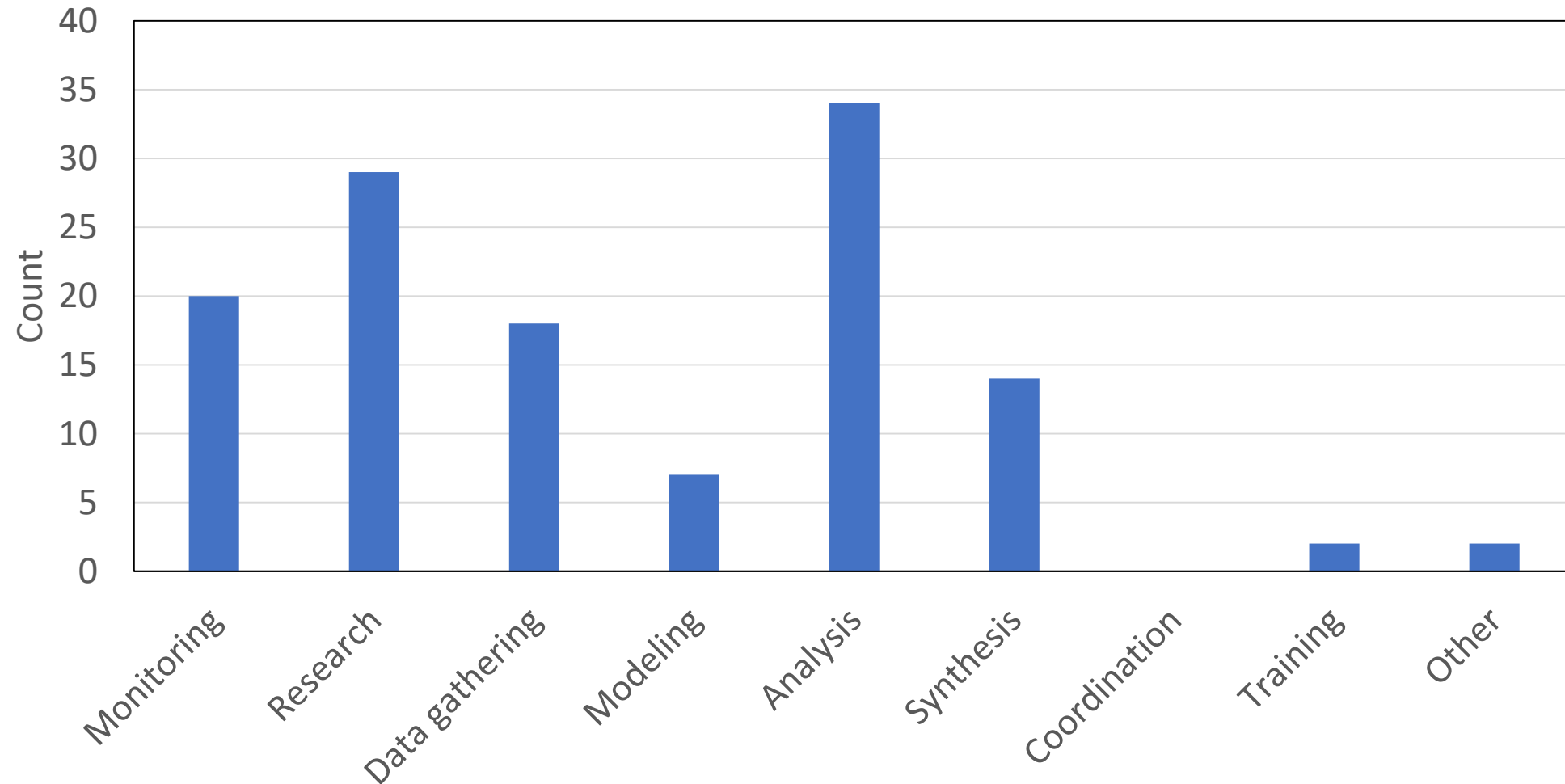
Science Needs Categories:

- **Modeling:** Modeling effort required, within CBPO or not
- **Monitoring:** Pertains to monitoring efforts including new efforts, utilizing existing efforts, coordinating efforts, etc.
- **Research:** Requires original research to address or generation of new data
- **Synthesis:** Requires synthesizing existing research or advancing science by pulling from multiple current lines of research
- **Analysis:** Requires new analysis be conducted on existing data or information
- **Data Gathering:** Requires identifying, consolidating, etc. existing datasets or data layers
- **Coordination:** Coordination needed between groups on existing data, information or efforts
- **Training:** Resources are necessary to disseminate information, data, product, etc.
- **GIS:** Support potentially needed from CBPO GIS Team

A Basic Breakdown of the Science Needs List



Science needs categories



A Basic Breakdown of the Science Needs List



Needs flagged for research:

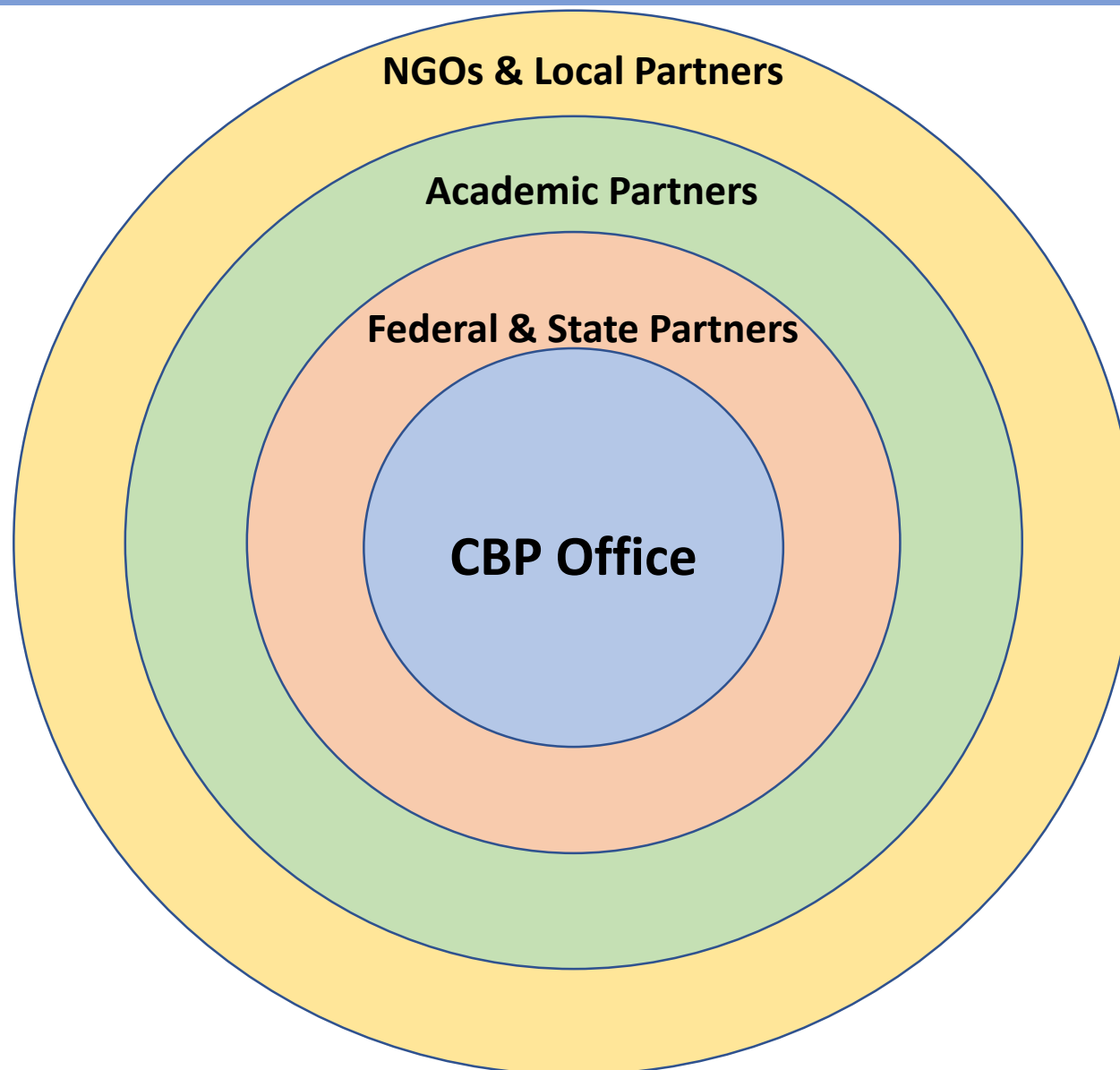
Purple text = GIT-identified as high priority

- Ecosystems services
- Blue catfish predation
- Gauging public perceptions and fishery stakeholder views
- Biological lift from stream restoration
- Monitoring presence/absence fish species
- Spatial-temporal groundwater model expansion
- PCB sources and fate in environment
- BMP effectiveness at PCB removal
- Effects of toxic contaminants on fish and shellfish
- BMP response to climate change
- Precipitation changes due to climate change
- Sea level rise and subsidence impacts in changing climate
- Social science and human behavior behind climate change
- Climate change impacts on SAV
- Climate change impacts on invasive species
- Green infrastructure performance under climate change
- Climate change impacts on wetlands
- Climate change impacts on fish species

Examples of possible cross-pollination:

- Climate change estimations → modeling team
- Citizen science monitoring → monitoring needs
- Stream Health analysis & reporting → biological lift, brook trout monitoring, healthy watersheds assessments, marginally healthy watersheds
- Shallow water monitoring → estuary model in local waters
- Living resource modeling → fish habitat assessment case studies, oyster restoration monitoring
- Advancing/incorporating social science approaches → model human attitude/behavior relations, gauging public perceptions & fishery stakeholder views, implications of human response to climate change/motivation and needs of communities to adapt
- Land use/Land change metrics → forest buffer, tree canopy, healthy watershed vulnerability, protected lands threats

Assessing Resources from Science Providers



Next Steps & STAC Engagement



1. Small STAC team involved in process
2. Continue to incorporate STAC recommendations into list
3. Connect to any long-term STAC efforts on assessing science & research
4. Short-term review of list: opportunity to start with needs flagged for research

Proposed Strategic Science & Research Framework



Kristin Saunders, Cross-GIT Coordinator

Emily Trentacoste, STAR Co-Coordinator
Trentacoste.Emily@epa.gov