

# Sustaining Monitoring Networks: Recommendations for Water-Quality Monitoring and Assessment

Management Board

July 9, 2015

Peter Tango and Lea Rubin  
on behalf of STAR



# Building Environmental Intelligence

Phase I



Phase II



Phase III



**Short-Term Gap Filling  
Solutions for FY13**

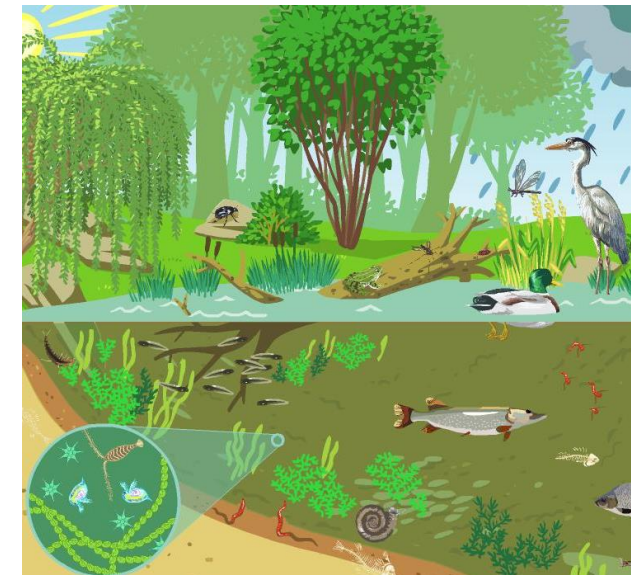
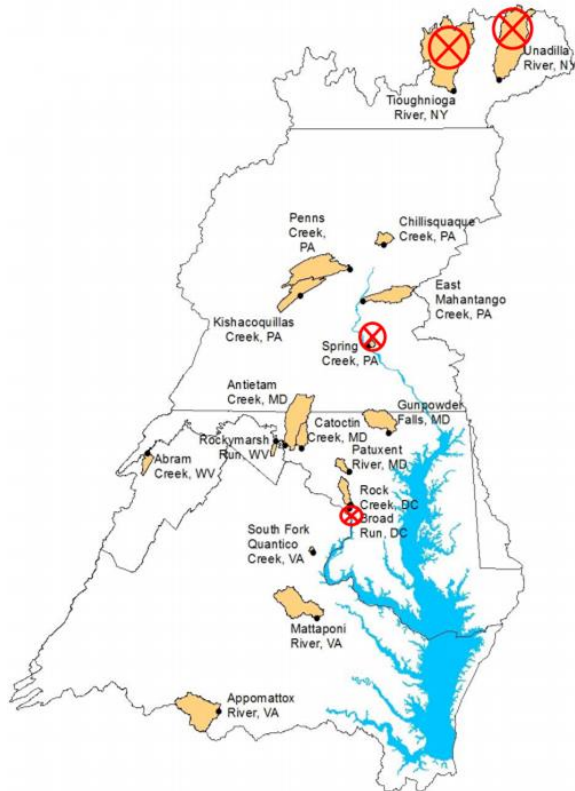
June - December 2013

**Water Quality Monitoring Networks  
Exploration**

January - December 2014

**2014 Watershed  
Agreement  
Monitoring Needs**

Ongoing



*Credit: eduMedia*

# Sustaining Monitoring: Making Adjustments

Policy Agreements

Funding Priorities

Funding Availability

Changing Science

Changing  
Leadership

Inflation



## CBP Partnership Reviews

### *Alignment with Chesapeake 2000 Agreement*

- Watershed Loads
- Bay Shallow water Monitoring Programs
- End Zooplankton Program

### **STAC 2007-09 Review: *Monitoring Realignment***

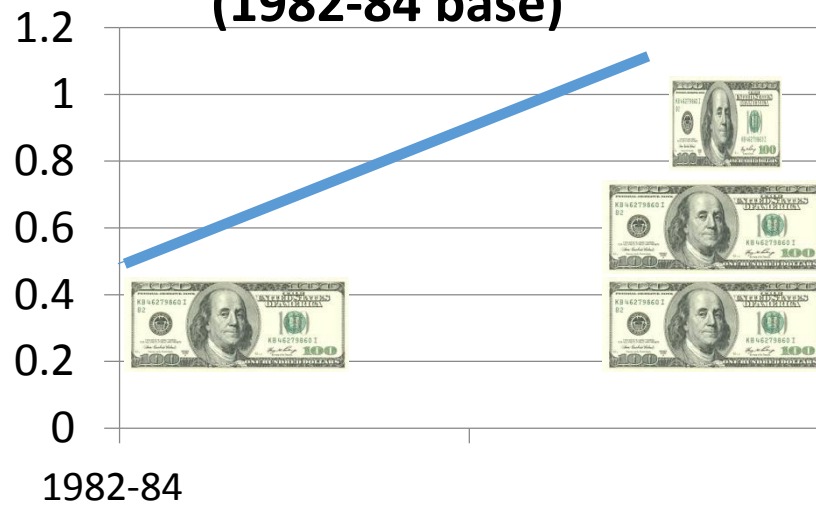
- Water quality standards attainment;
- Basin focus assessing BMPs
- End Phytoplankton Program

### **TMDL and Standards Attainment**

# Building and Sustaining Networks: Pressures on Financial Planning



**Consumer Price Index  
(1982-84 base)**



In 2013 it required about \$234 to afford what \$100 could purchase in 1982/4. That's about a 2.5x increase over 30 yrs.

## ***INFLATIONARY PRESSURES***

<http://www.statista.com/statistics/190974/unadjusted-consumer-price-index-of-all-urban-consumers-in-the-us-since-1992/>

## ***Local to Regional Scale Events:***

- Harmful Algal Blooms (HABs) can introduce food security and human health threats.
- Public pressure may demand increased monitoring information.



# Building Environmental Intelligence Report:

Leading the future of water-quality monitoring

- What We Know
  - Monitoring IS Important
- What We Learned
  - Experience (1984 – present)
  - Global Seminar Series
- What We Recommend
  - Water-quality standards
  - Explaining response to management actions
  - Sustaining Resources
- Summary of Recommendations



## Authors:

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Bennett, Bill Dennison





# Decision Support



*Credit: Council of Communication Associations*

“Addressing the needs of the CBP partners requires monitoring to support adaptive management and communication of results to inform decision makers.”

- TMDL and Standards Attainment
- Evaluate progress, WIPs
- User Council

# Citizen Science



*Credit: Wisconsin's Citizen-Based Water Monitoring Network*

“Citizen Science has tremendous potential but requires coordination, training and continuity.”

- Supplement CBP monitoring
- Watershed “hot spots”
- Target smaller tidal tribs
- New Citizen’s monitoring project

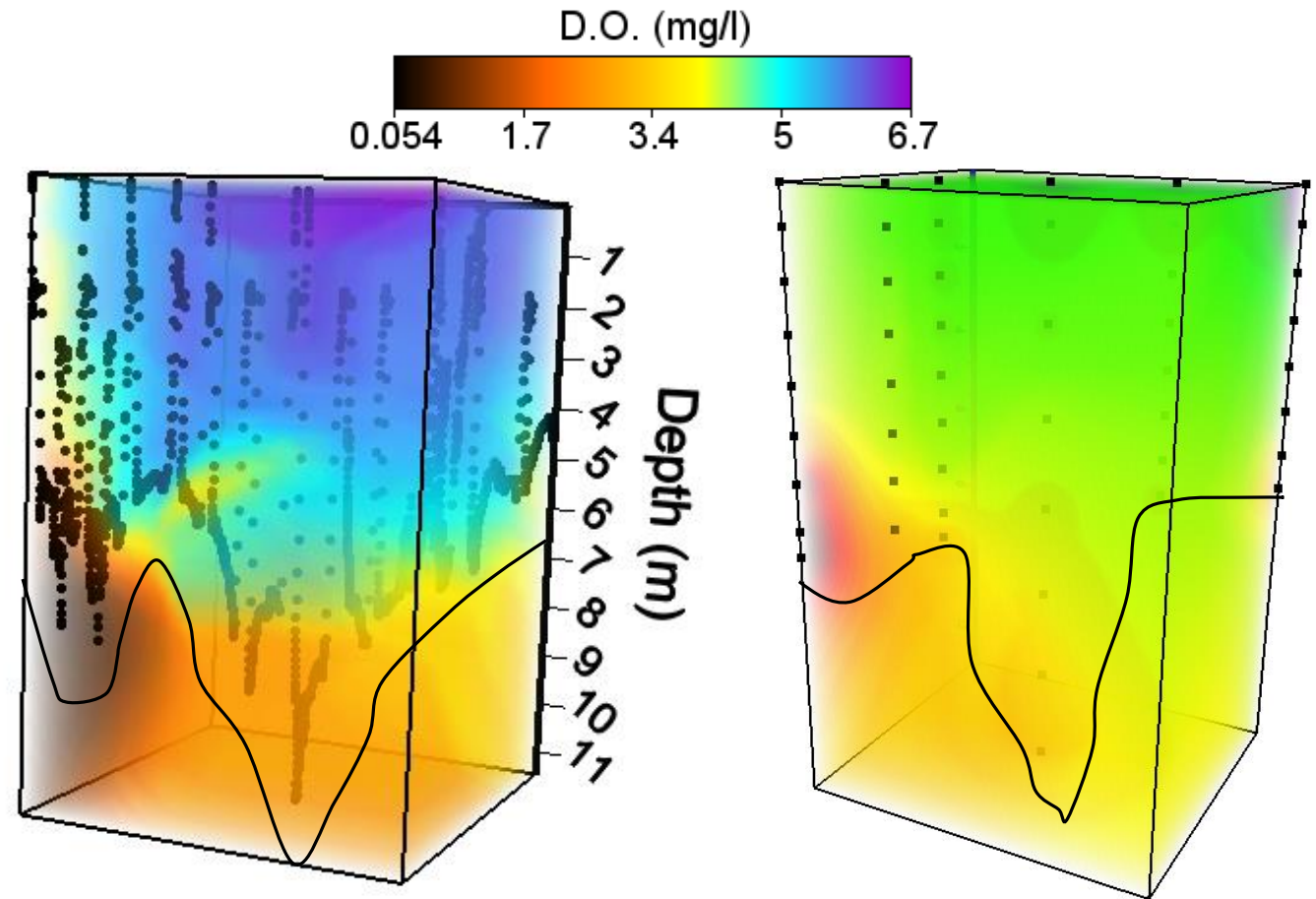


# Innovation



**REMUS 100**  
**Autonomous Underwater Vehicle**

*Credit: UC Santa Barbara*



**REMUS 100 AUV (6-8 AM)**

*Credit: U.S. Naval Academy*

**Severn River Keeper weekly  
monitoring (8 AM – 2 PM)**

- Improved interpretation of the monitoring information
- Efficiencies in monitoring

# Innovation



**REMUS 100**

**Autonomous Underwater Vehicle**

*Credit: UC Santa Barbara*

- Distinct source sectors
- Tidal network design
- More frequent measurements
  - Loads
  - Standards attainment
- Refine networks

# Partnerships



*Credit: Social Media Examiner*

“Partnering ...each partner benefits by co-locating monitoring efforts and the overall cost of the monitoring effort is reduced”

- Local jurisdictions
- Enhance coordination with regional partners
- Build upon existing infrastructure



# Combining Funds

“Having agencies contribute funding into a common pool of resources provides opportunities for efficiencies and integration of priorities.”



*Credit: Global Humanitarian Assistance*

- MD Water Monitoring Council
- Public-private opportunities
- Pooled CBP monitoring



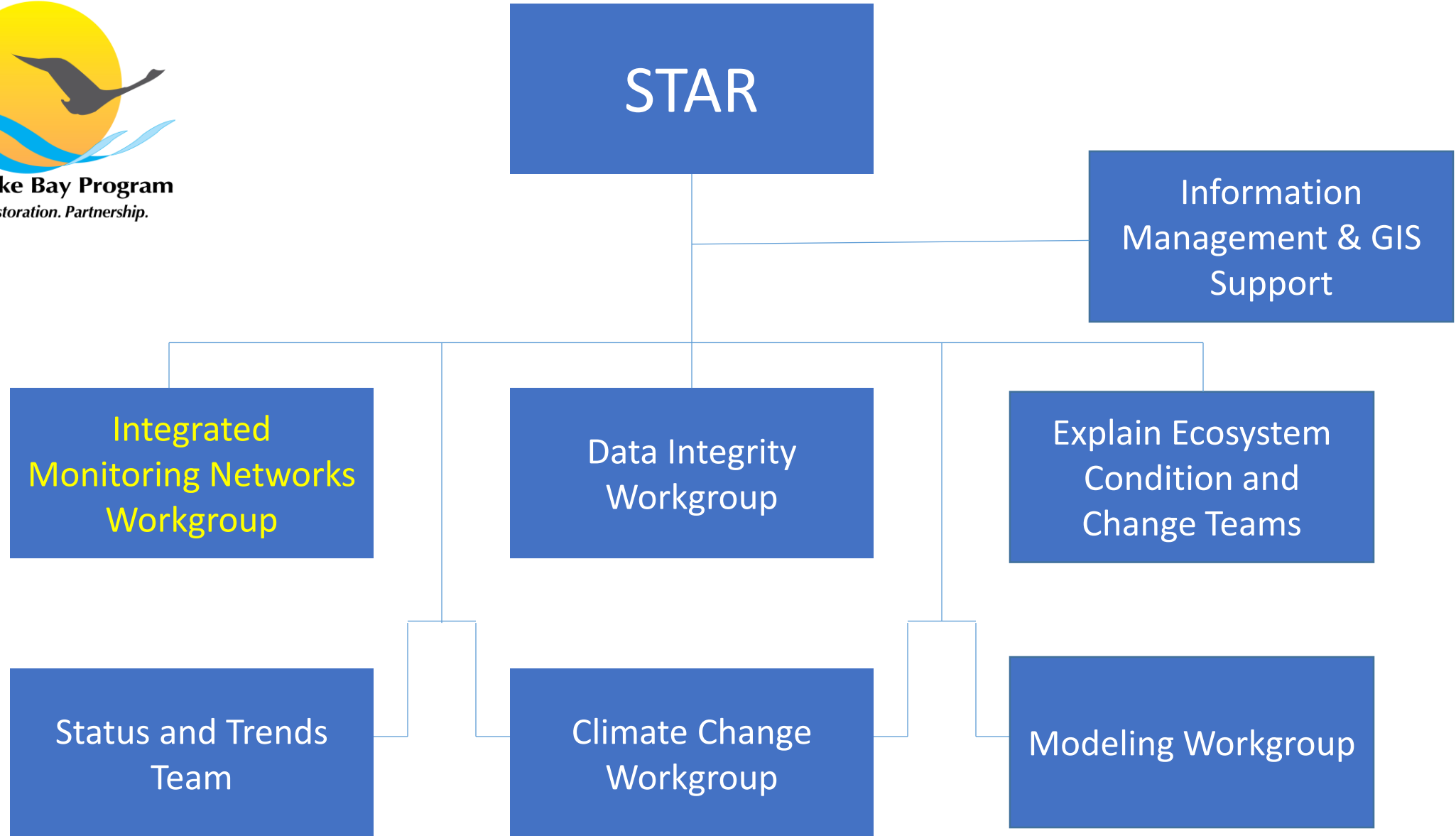
# Leadership



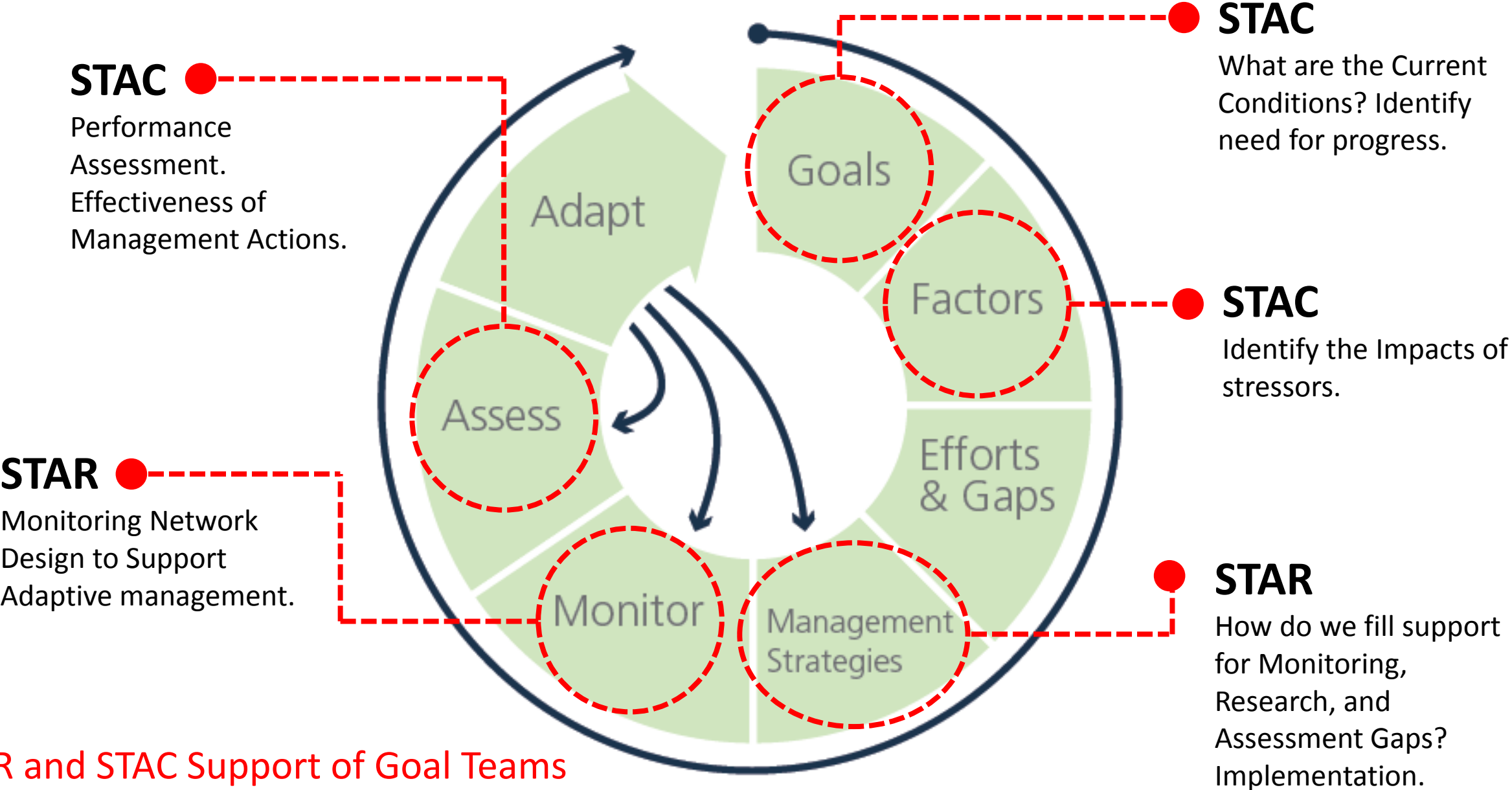
*Credit: Kuder, Inc.*

“It is essential to have a network of peers to share and discover successes and challenges when operating monitoring programs.”

- Think beyond our own programs
- Interact with Global partners
- Emphasize and build integrated networks



**Indicators:** *A summary measure that provides information on the state of, or change in, the system that is being measured.*



# Next steps

1. Technical review of report & summer release
2. Prioritizing recommendations
3. Moving forward with Phase III: Supporting the rest of the Watershed Agreement

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