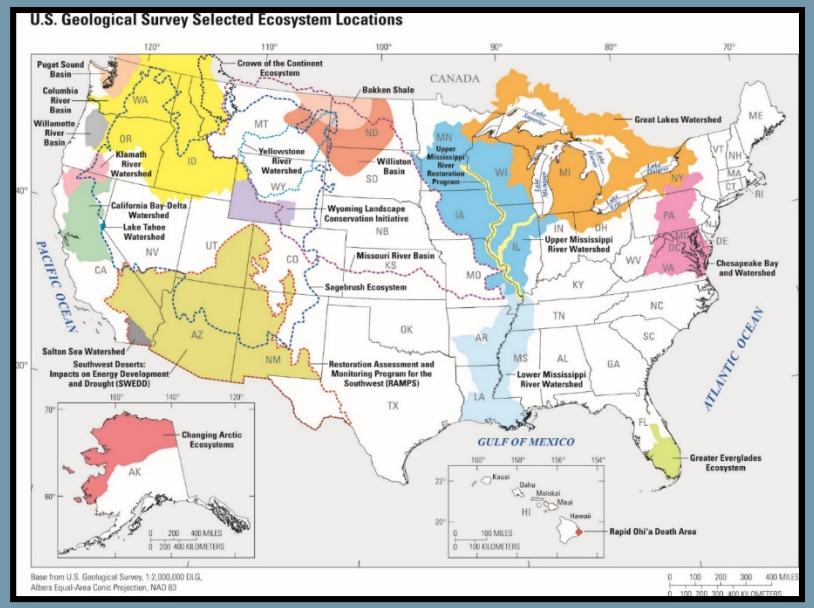
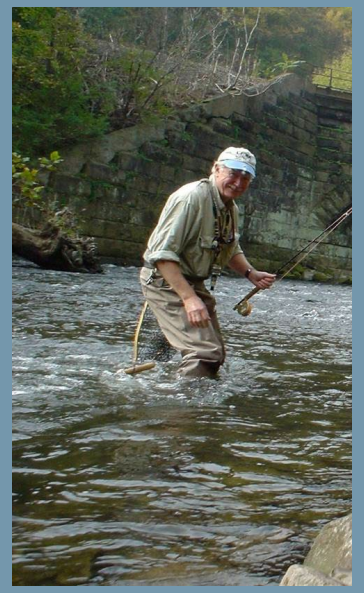
Evolving USGS Chesapeake Studies

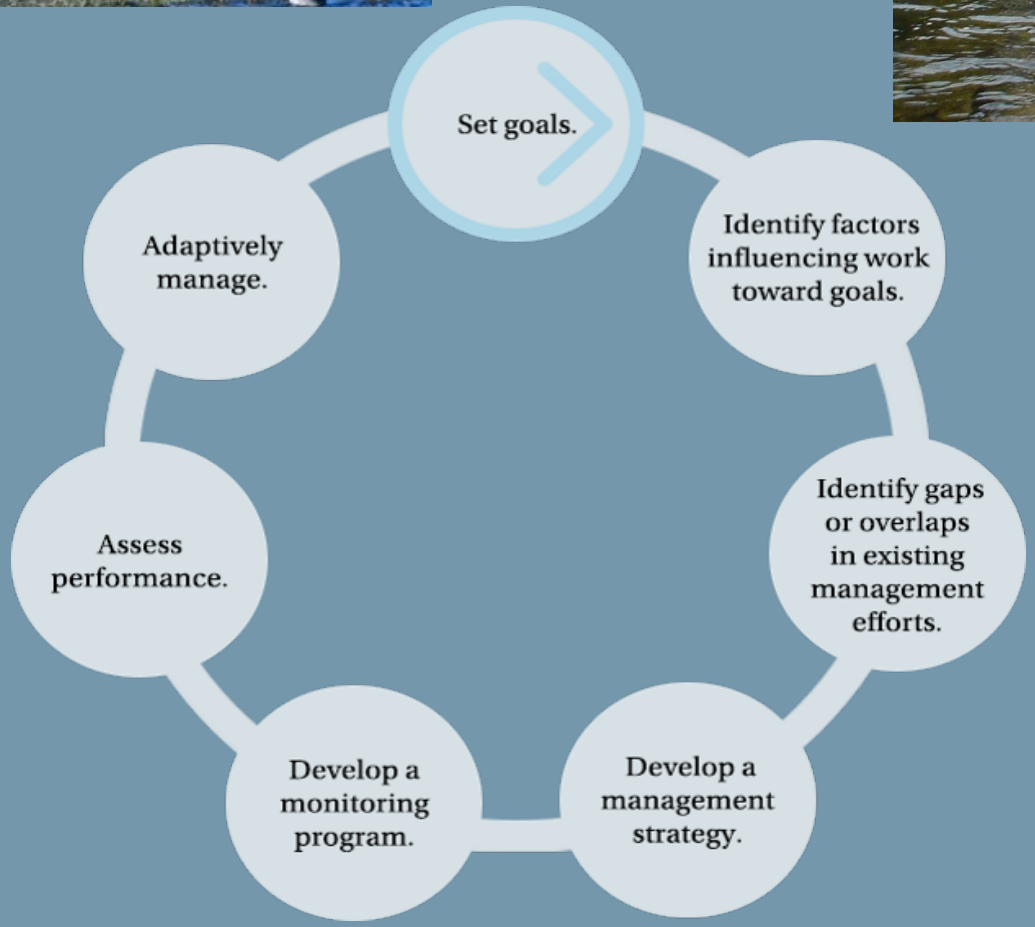


Scott Phillips
USGS Chesapeake Bay Coordinator
STAR Meeting
June, 2019

Outline

- Evolving Science Directions
- USGS Chesapeake Science Themes
- Next Steps





USGS Chesapeake Studies:
Providing Science and Evolving for the Future

USGS Role and Contributions:

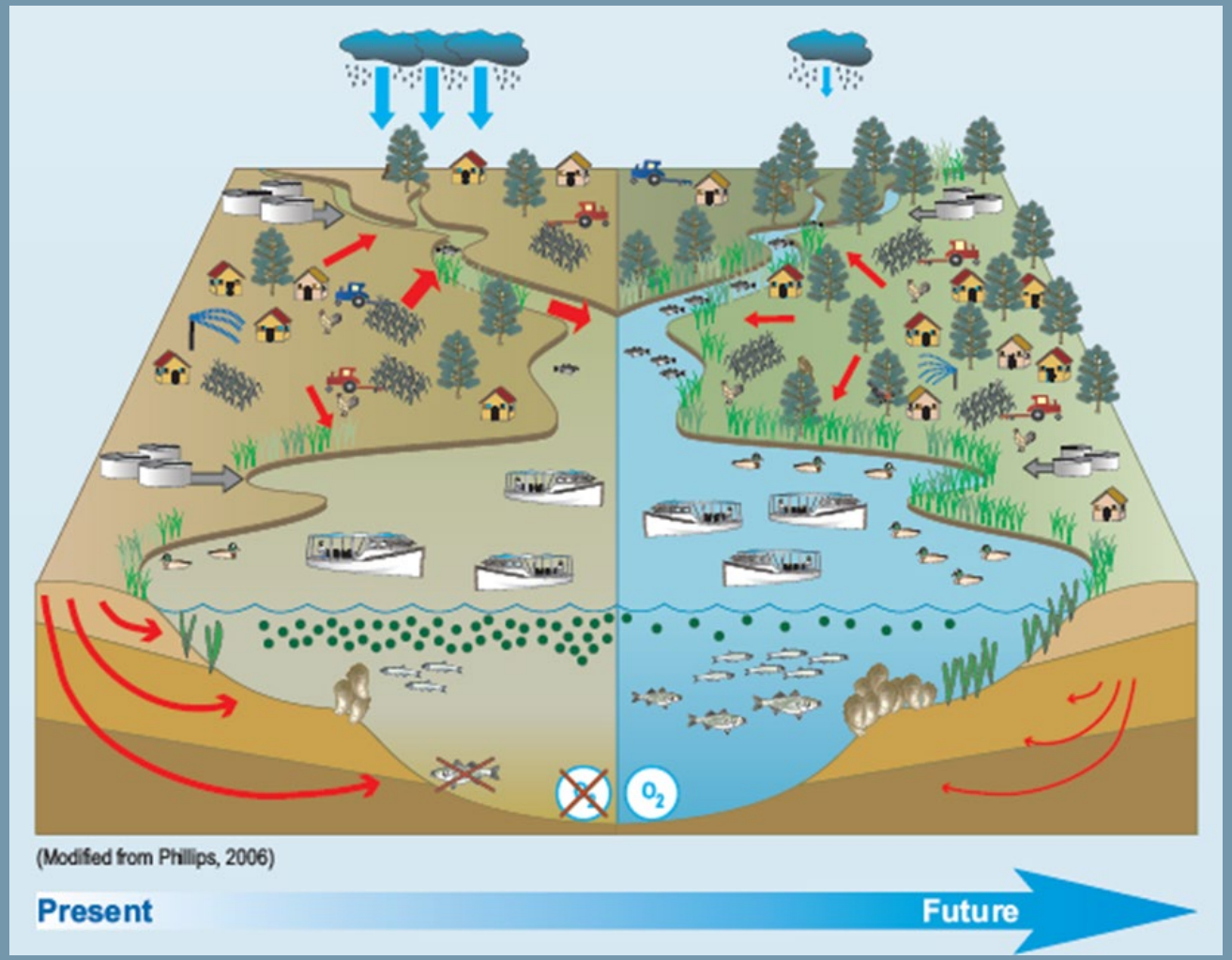
- Monitor conditions….assess progress
- Explain ecosystem change…focus and evaluate management approaches
- Forecast…..identify emerging issues
- Translate science…inform difficult decisions

Completing science for Midpoint assessment:

- Monitoring nutrient and sediment changes
- Explaining response to management efforts
- Forecasting land growth
- Informing state implementation plans

Evolving USGS Science:

- Fish, waterfowl, and people
- Integrated science to address complex issues



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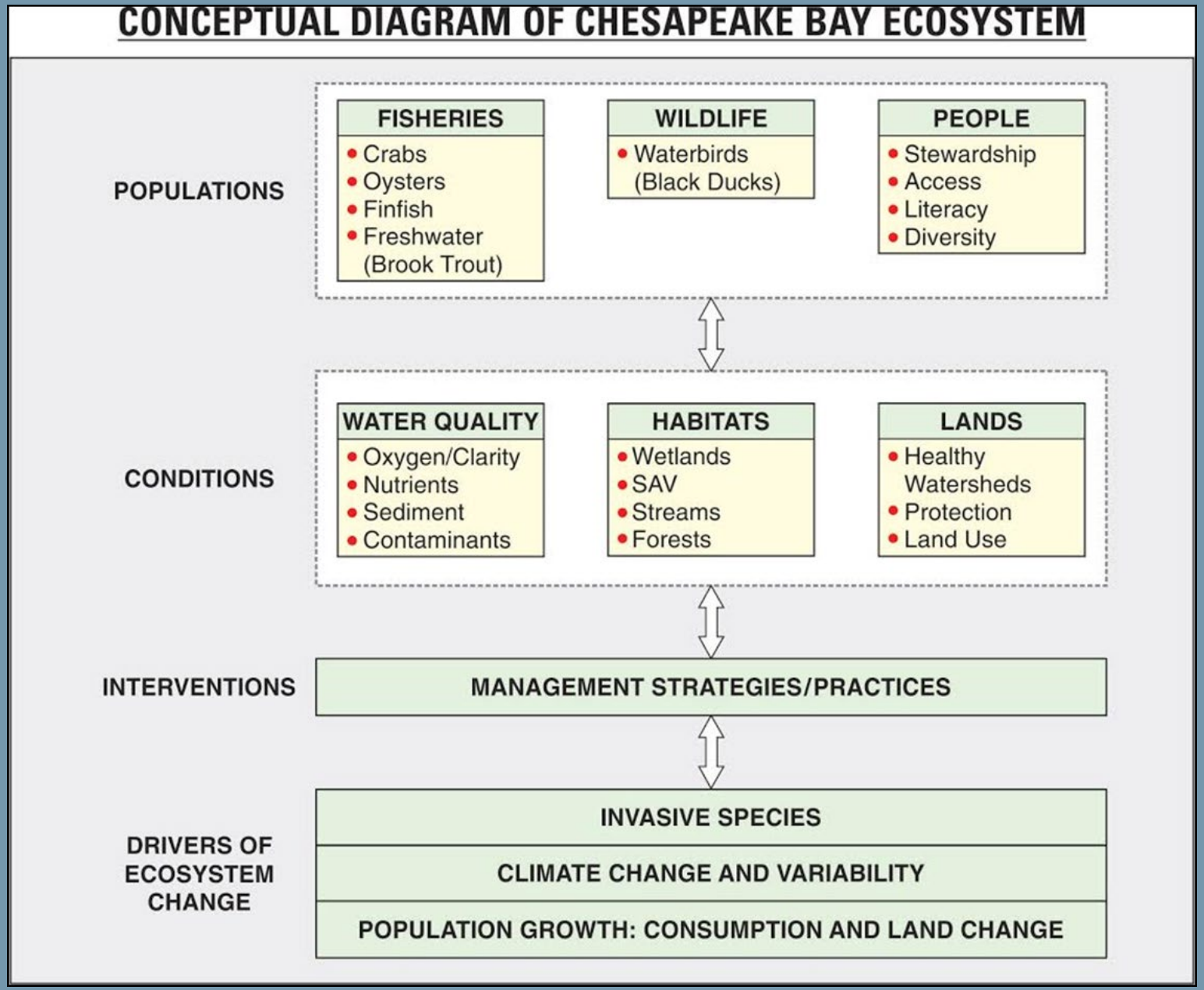
Evolving SUGS Science Activities

- **Two-year process**
- **Considerations**
  - Mid-point assessment done
  - New Administration priorities
  - Unmet needs of Watershed Agreement
- **Chesapeake Bay Watershed Agreement**
  - Goals and Outcomes
  - Sciences needs from Goal Teams

USGS Chesapeake Needs and Science Themes



USGS Themes:

1. Fish habitat, health, and aquatic conditions
2. Coastal habitats and waterbirds
3. Land change and watersheds
4. Integrate and engage stakeholders

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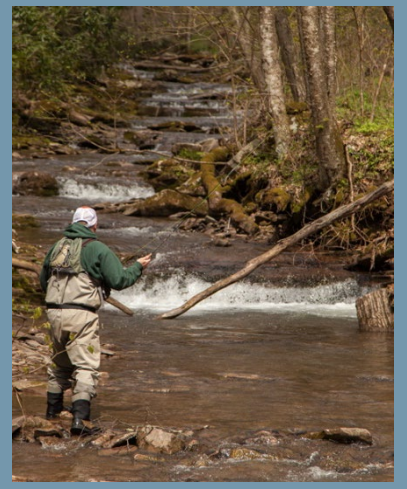
Theme 1: Fish Habitat, Health, and Aquatic Conditions

CBP:

- Fish habitat
- Stream health
- Brook trout
- Fish passage
- Toxic contaminants
- Water quality

DOI/USGS:

- Biological threats (invasive species, disease)
- Fish health
- Aquatic conditions



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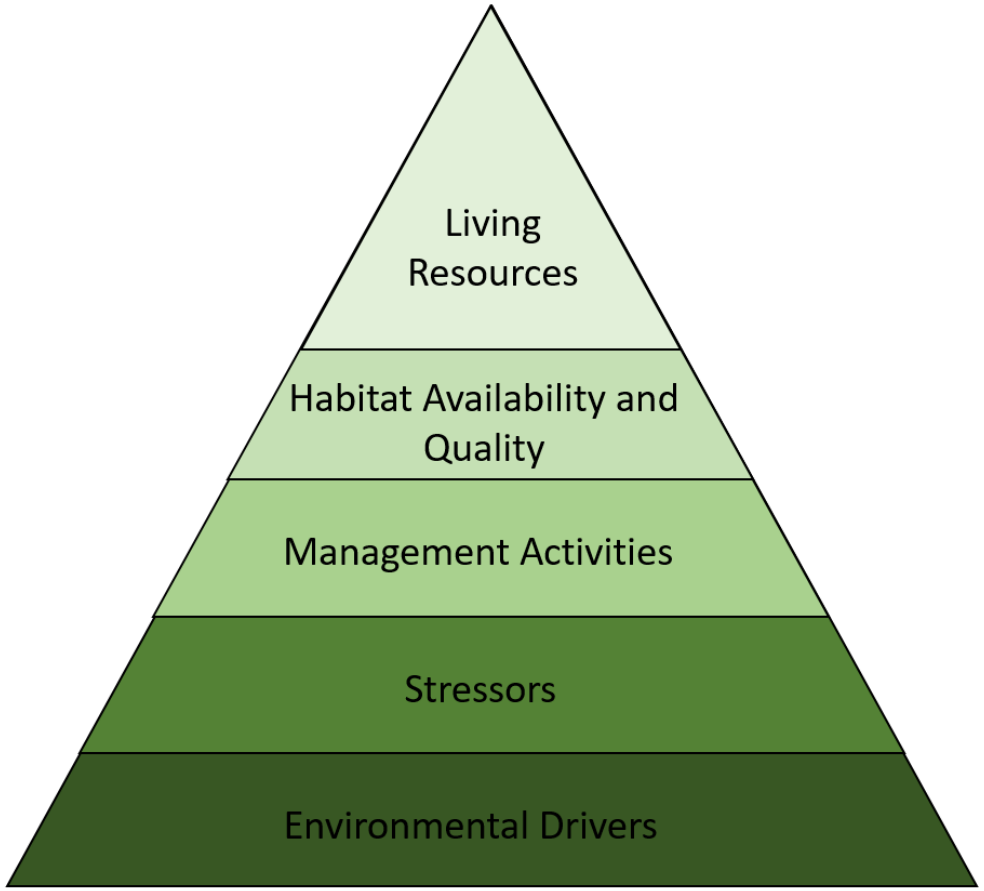
USGS: Fish Habitat, Health, and Aquatic Conditions



Fish-habitat assessments

- Watershed and estuary
- Selected fish species
- Stream conditions
- Factors affecting habitat quality
- Focus management efforts

Explain changes and response to management

- Flow, water quality, and stream conditions
- Fish health, disease, and contaminants
- Brook trout, invasive species, temperature
- Effectiveness of management approaches

Status and Trends

- Monitoring & analysis
- Documents progress and challenges

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Theme 2: Risks to Coastal Habitats and Migratory Waterbirds

Coastal habitats and DOI lands

CBP:

- Wetlands, SAV
- Climate resiliency

DOI/USGS:

- Assess risks to coastal habitats
- FWS Refuges, NPS lands

Migratory Waterbirds

CBP: Black Duck

DOI/USGS:

- Atlantic flyway & 1M wintering waterbirds
- Multiple migratory species
- Factors affecting habitat & food sources
- Biological threats

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USGS: Risks to Coastal Habitats and Migratory Waterbirds

Risks to Coastal Habitats & DOI Lands

- Factors affecting nearshore habitats
- Forecast marsh migration, coastal vulnerability & response
- Relation to waterbird habitats

Migratory Waterbirds and Habitats

- Waterfowl distribution
  - Multiple species and black ducks
  - Benthic and SAV abundance
- Avian influenza and biological threats

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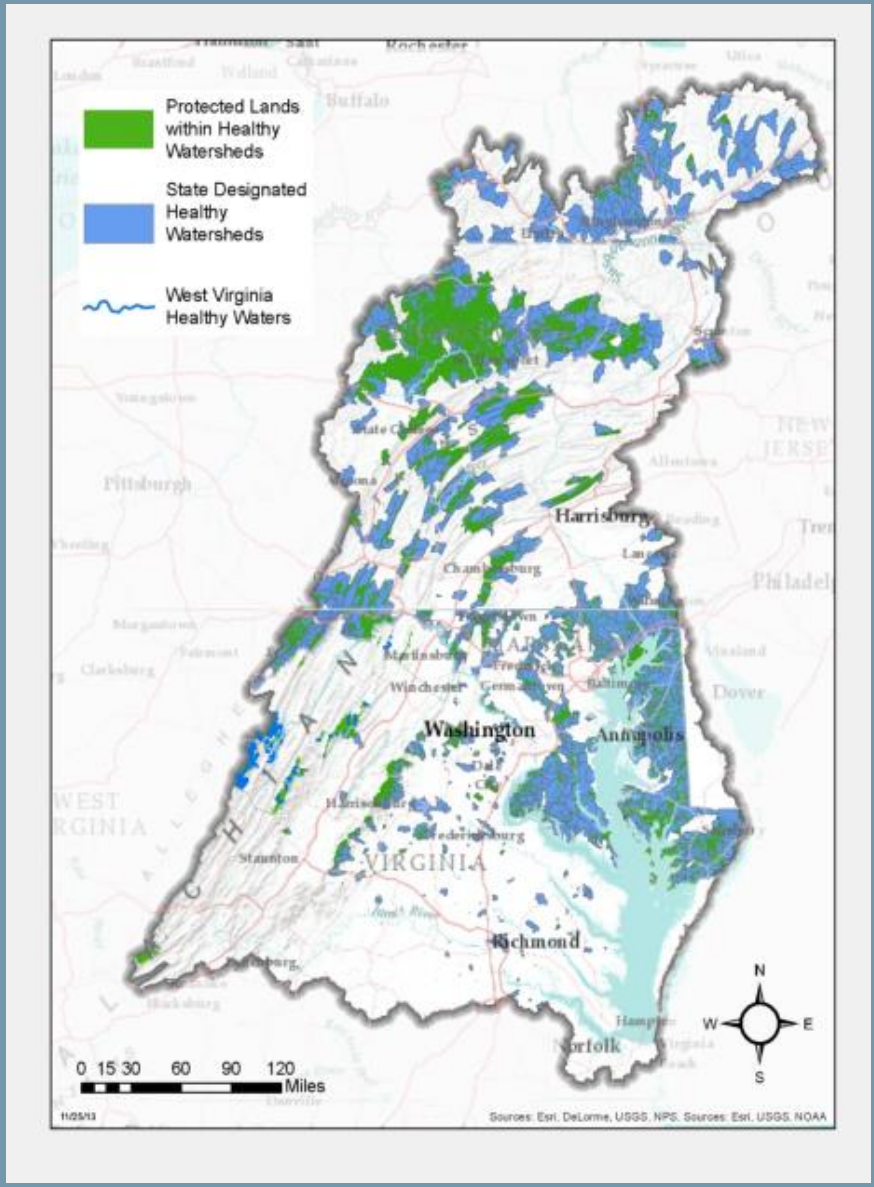
Land Change and Watersheds

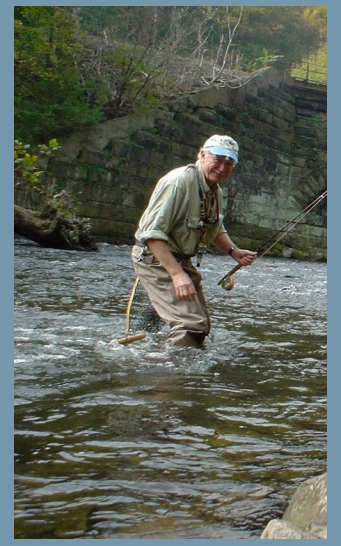


CBP:

- Healthy watersheds and streams
- Land protection
- Public access
- Land use

DOI/USGS:

- Forecasting land change
- Landscape characteristics
- Protection/drinking water



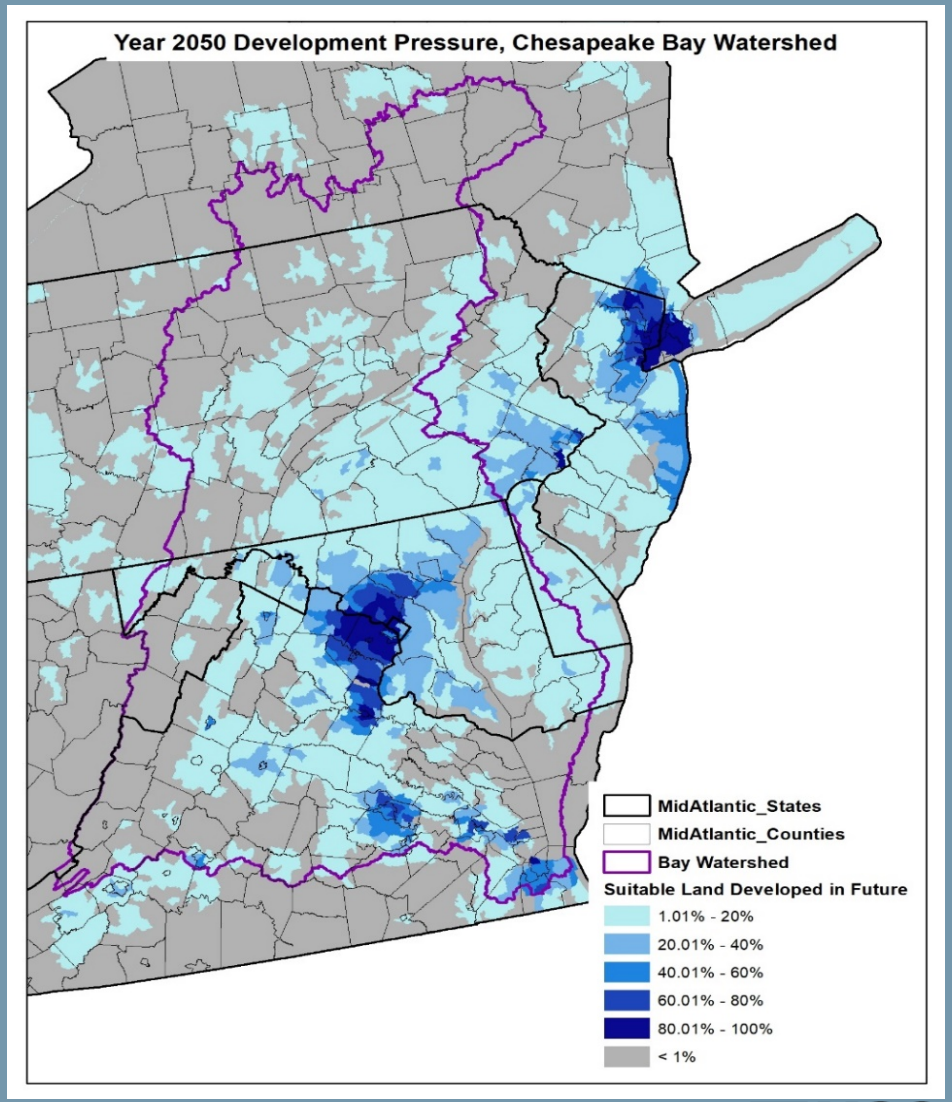
USGS: Land Change and Watersheds

Land characteristics, vulnerability, and resilience

- Healthy watersheds, habitats, vital lands
- Forecast land use change
- Stream conditions
- Inform land protection and planning

Monitor and assess land change

- Monitor land cover/use change
- Develop hydrographic datasets



Chesapeake Bay Land Change Model v3a

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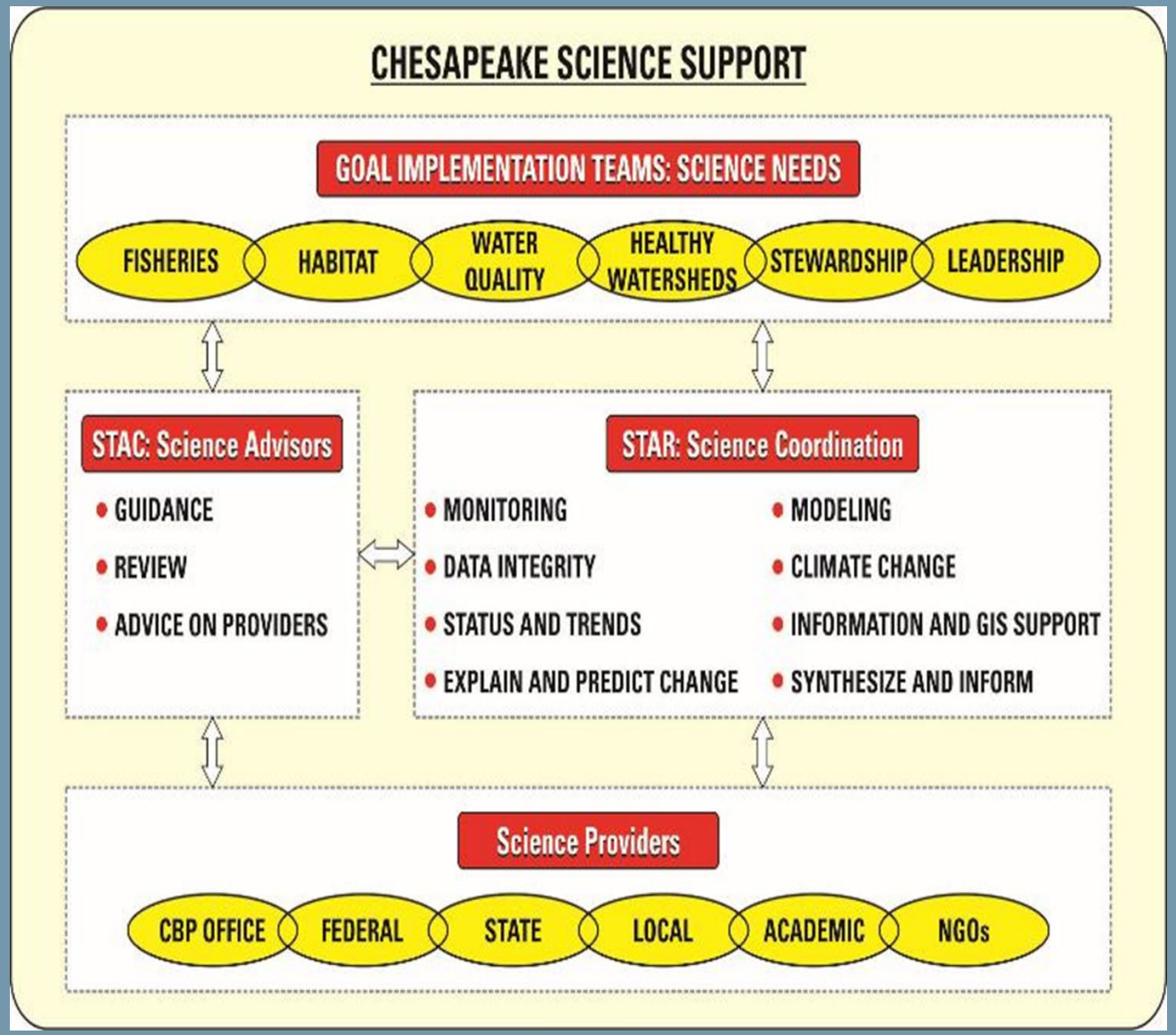
Integrate Science and Engage Stakeholders



Importance & Issues

- Inform decisions for goals
- Meet deadlines
- Effective use of resources

Science Integration

- Collaboration
- Data sharing

Translate science and engage stakeholders

- CBP Goal Teams
- Co-produce materials
- Tools and multiple benefits

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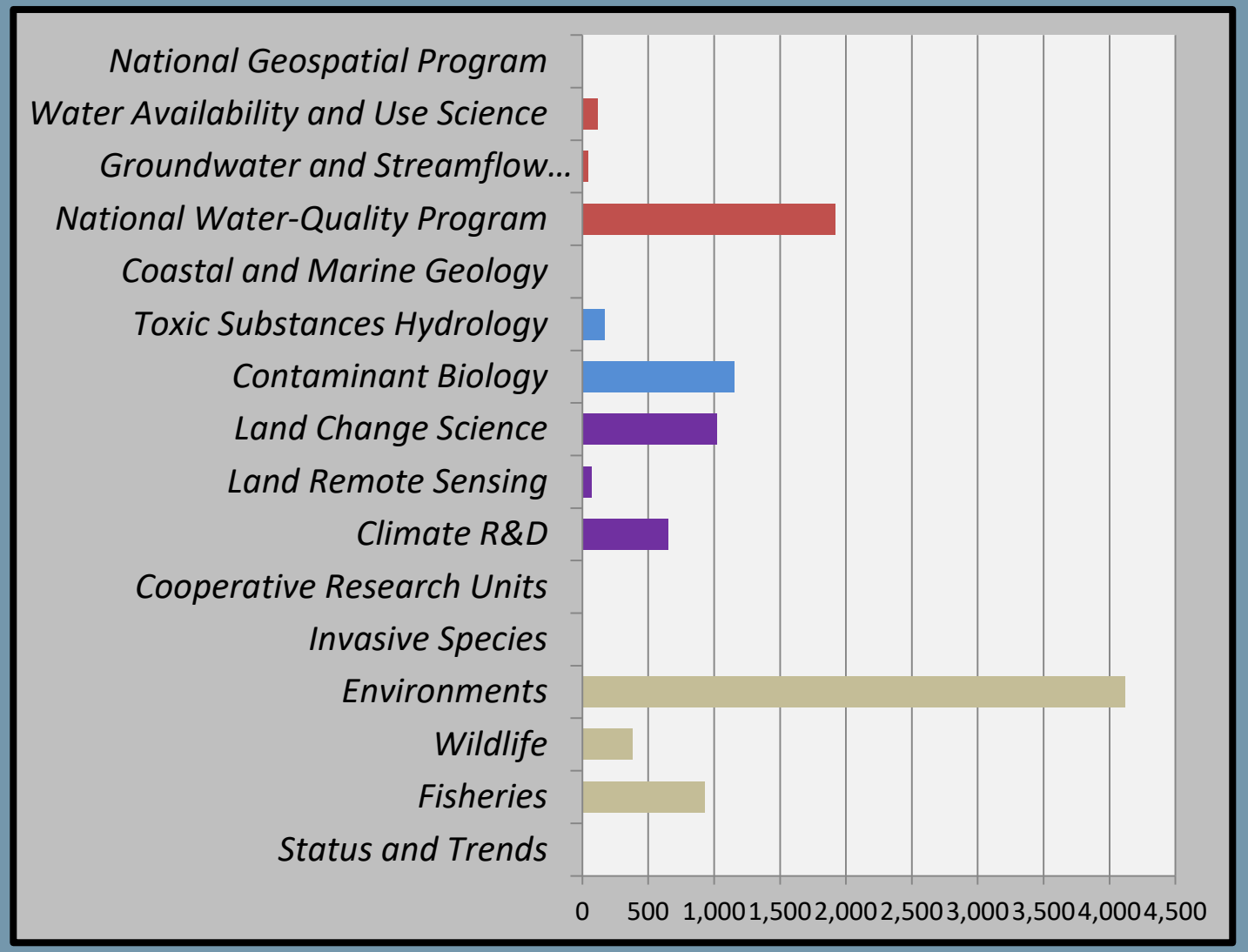
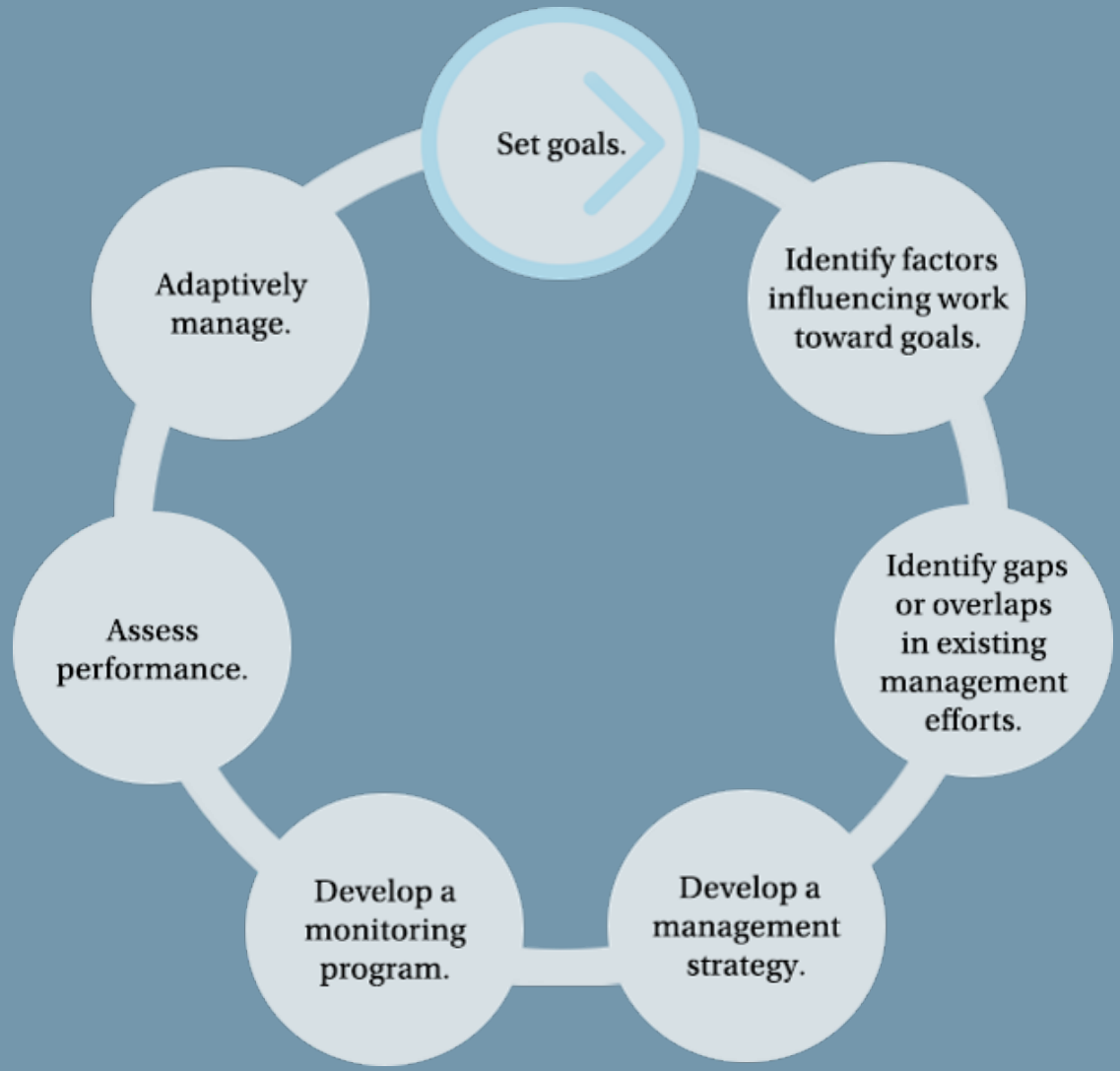
Leveraging USGS Resources for Chesapeake Efforts

- Multiple sources of funds: $23M
- USGS:
  - Mission Areas and programs: $13M
  - Most are obligated to specific projects or monitoring
  - PES: More flexible for stakeholder needs and integrated science
- Reimbursable
  - $10M
  - Mostly for water monitoring



Process and Next Steps

- CBP stakeholder interaction
  - SRS
  - Goal Teams and WGs
  - Strategic Science Framework
- Draft USGS science directions and inventories
- USGS Chesapeake multi-year work plan
- Conduct activities and work with stakeholders



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