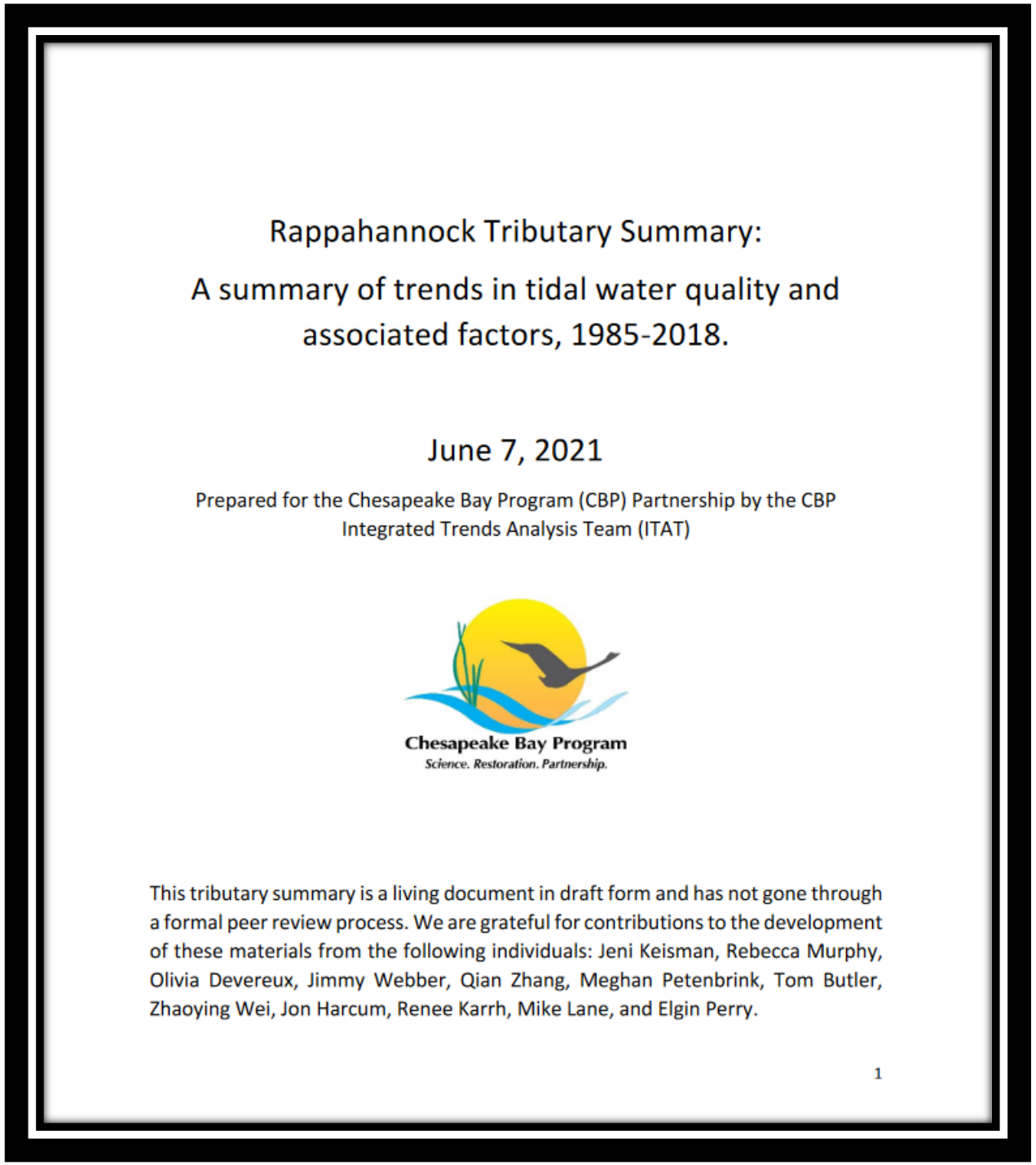
Tributary Summaries: *Overview*

Aug. 25, 2022

Rebecca Murphy (UMCES/CBP)

Tributary Summaries are a large collaborative ITAT effort coordinated by:
Breck Sullivan (USGS), Vanessa Van Note (EPA)



Rappahannock Tributary Summary:

A summary of trends in tidal water quality and associated factors, 1985-2018.

June 7, 2021

Prepared for the Chesapeake Bay Program (CBP) Partnership by the CBP Integrated Trends Analysis Team (ITAT)

Chesapeake Bay Program
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This tributary summary is a living document in draft form and has not gone through a formal peer review process. We are grateful for contributions to the development of these materials from the following individuals: Jeni Keisman, Rebecca Murphy, Olivia Devereux, Jimmy Webber, Qian Zhang, Meghan Petenbrink, Tom Butler, Zhaoying Wei, Jon Harcum, Renee Karrh, Mike Lane, and Elgin Perry.

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Purpose of the Tributary Summaries

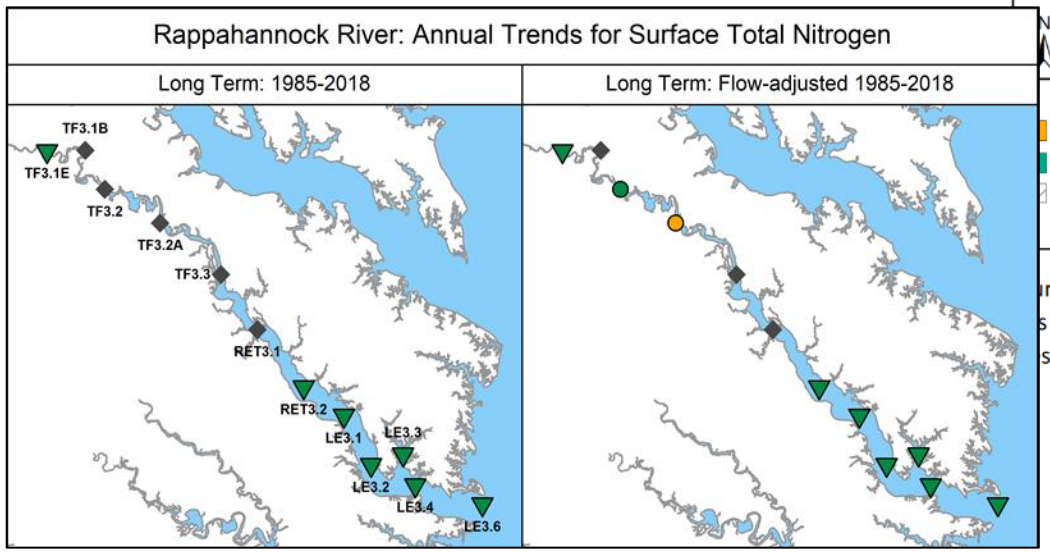
- As a readily-available one-stop-shop on ***background*** for change over time observed with monitoring data.

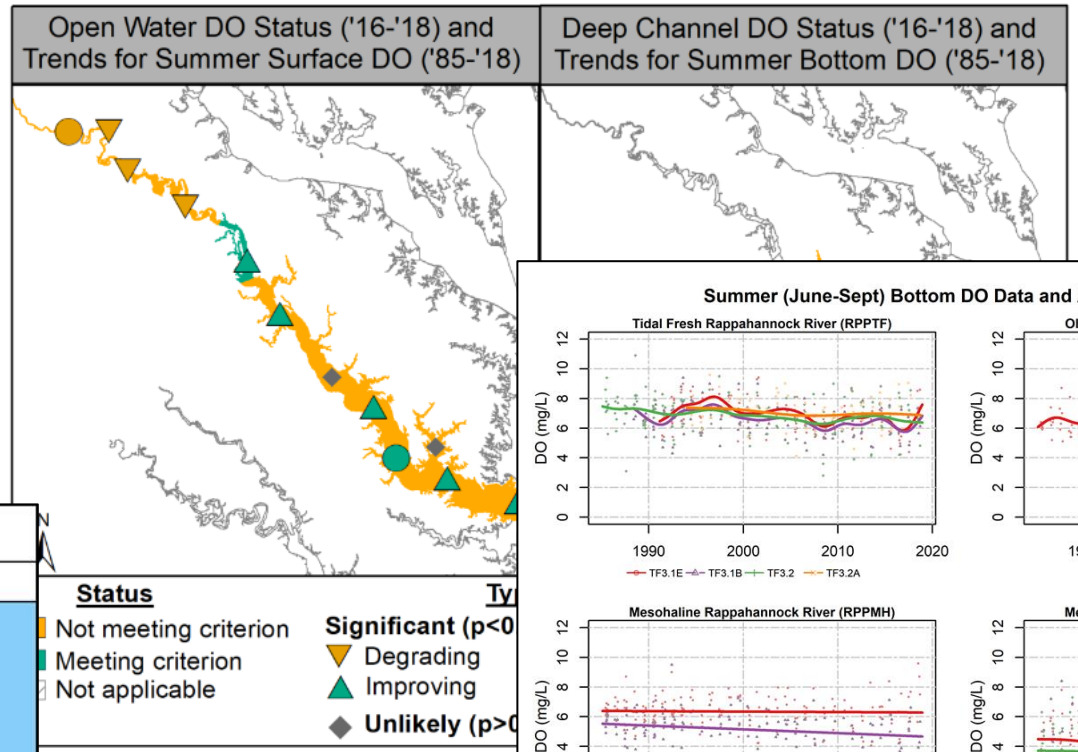
- To answer questions such as:
  - *Have water quality indicators in my river been improving or degrading over time?*
  - *How have landscape factors that drive water quality change in my watershed changed over time?*
  - *What clues do they provide that might explain observed water quality change (or lack of change)?*
  - *What should I target to turn a degrading trend around or maintain improvements for future water quality and living resource conditions?*
  - *What should scientists focus our analyses on to provide better answers in the future?*

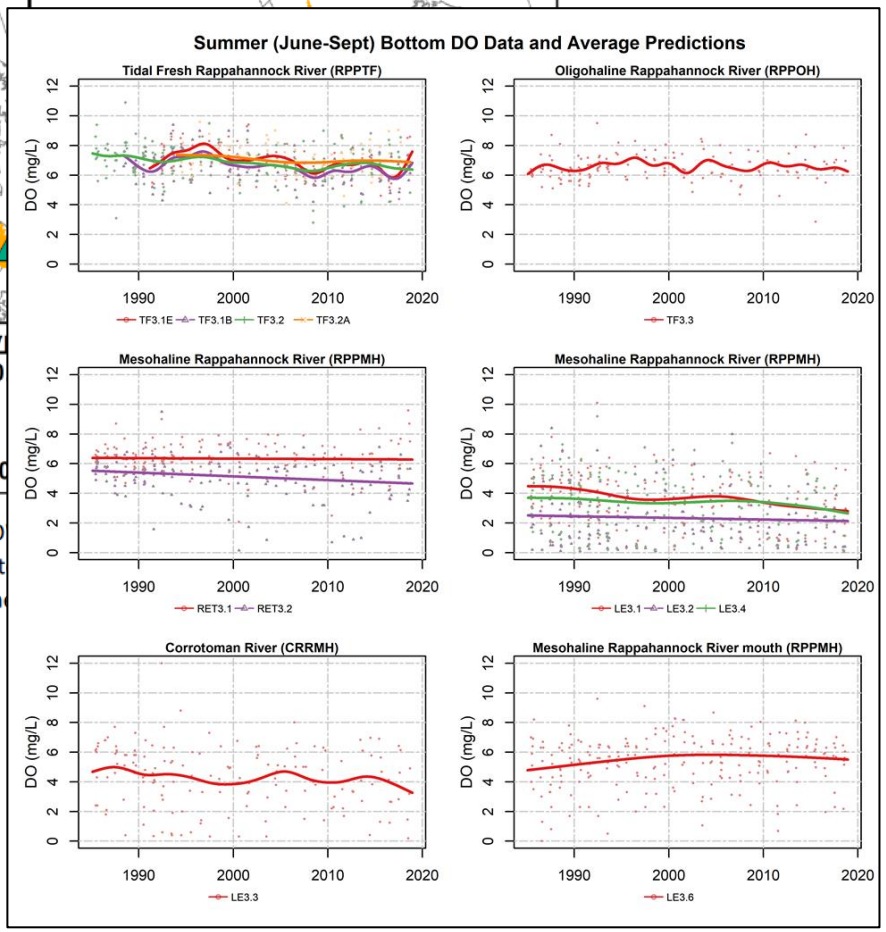
What are the Tributary Summaries?

A compilation of information by tributary or region on:

- **Tidal water quality and trends**



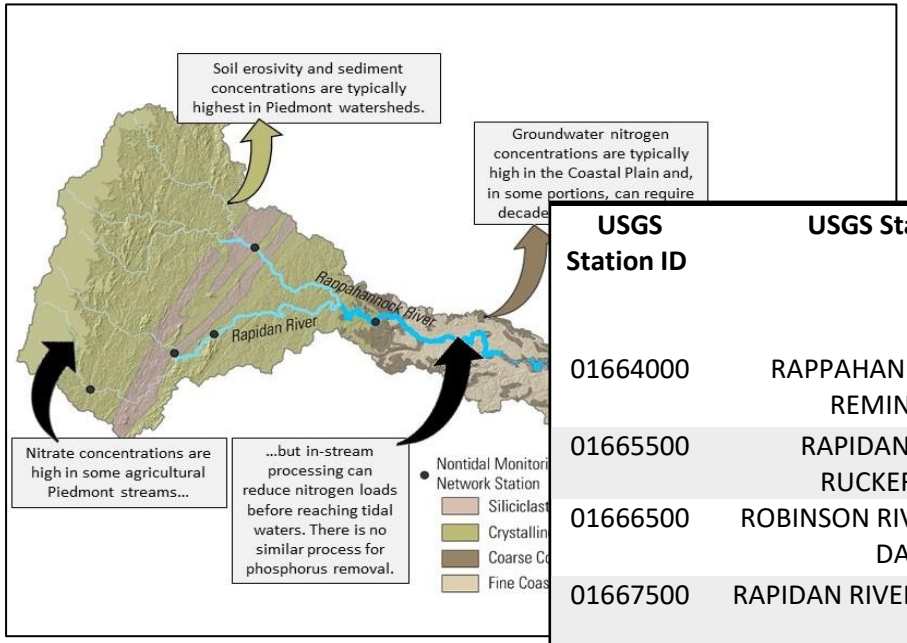




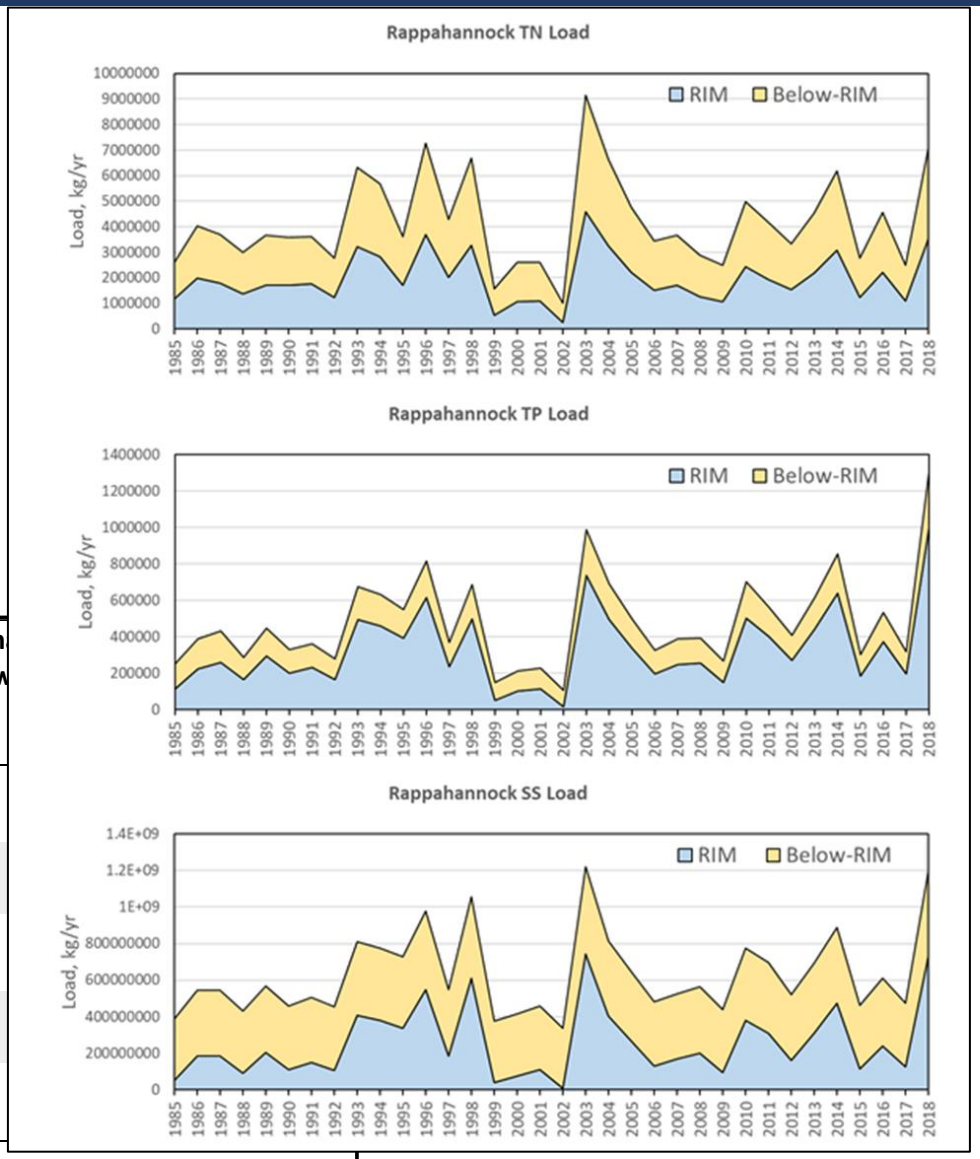
What are the Tributary Summaries?

A compilation of information by tributary or region on:

- Tidal water quality and trends,
- **Watershed characteristics and changes**



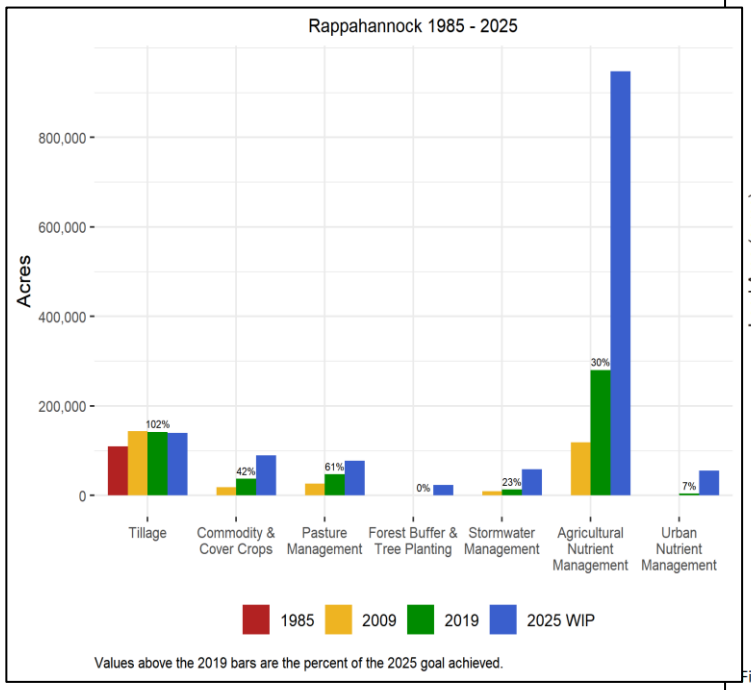
USGS Station ID	USGS Station Name	Trend start water year	Percent ch w TN
01664000	RAPPAHANNOCK RIVER AT REMINGTON, VA	1985	24.4
		2009	15.4
01665500	RAPIDAN RIVER NEAR RUCKERSVILLE, VA	2009	-5.1
01666500	ROBINSON RIVER NEAR LOCUST DALE, VA	1985	2.5
		2009	3.5
01667500	RAPIDAN RIVER NEAR CULPEPER, VA	2009	-8.9
01668000	RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA	1985	-12.7
		2009	6.3



What are the Tributary Summaries?

A compilation of information by tributary or region on:

- Tidal water quality and trends,
- Watershed characteristics and changes,
- **Landscape drivers.**



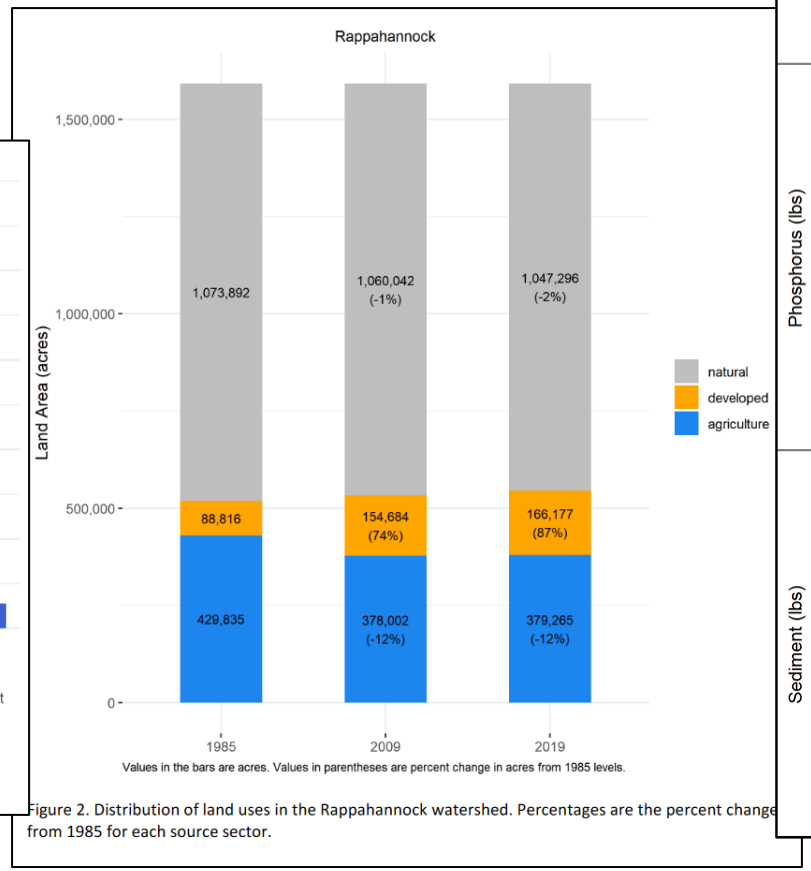
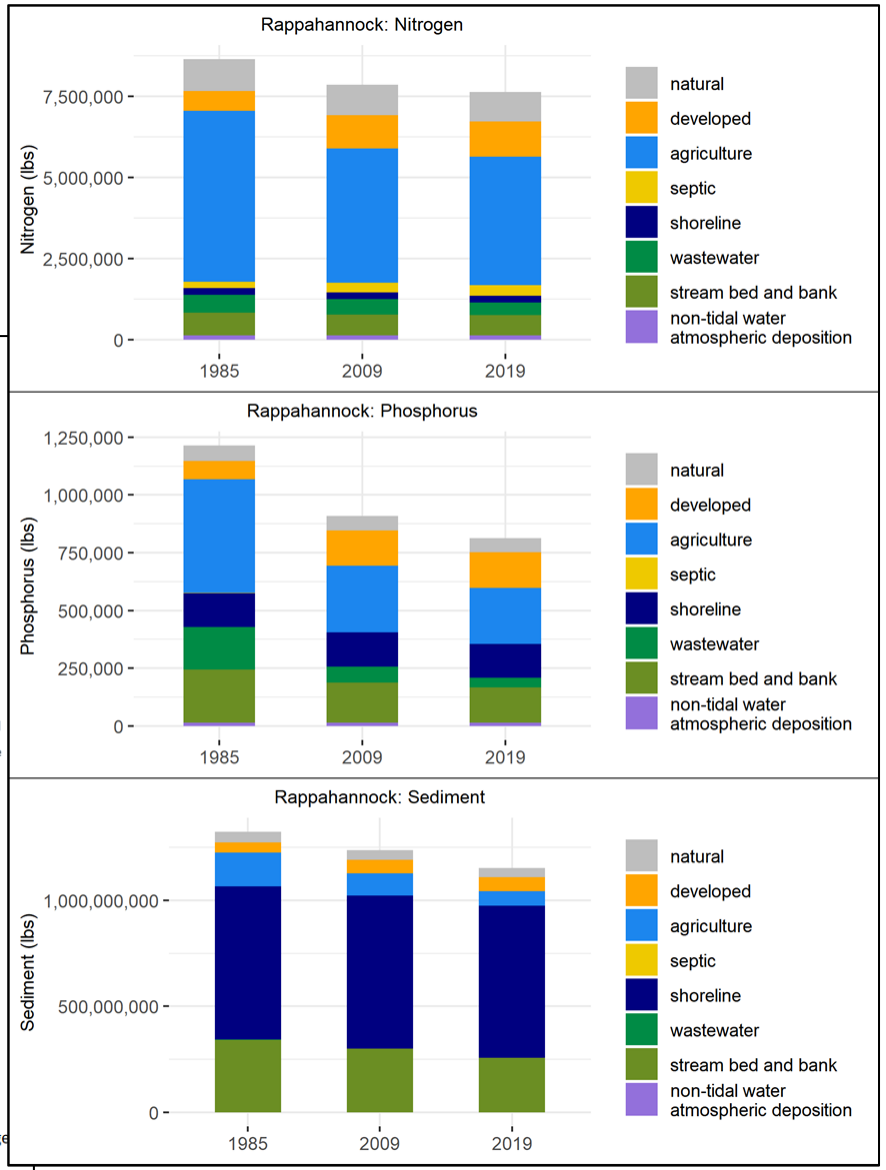


Figure 2. Distribution of land uses in the Rappahannock watershed. Percentages are the percent change from 1985 for each source sector.



Why do they exist?

- Reports had previously been compiled with tidal trend information from the states,
- But with new analyses of monitoring data, **a new design** was possible.
- Thus, these summaries put much information in one place as **a technical resource**.

Technical managers within jurisdiction agencies
Local watershed organizations
Federal, state, and academic researchers

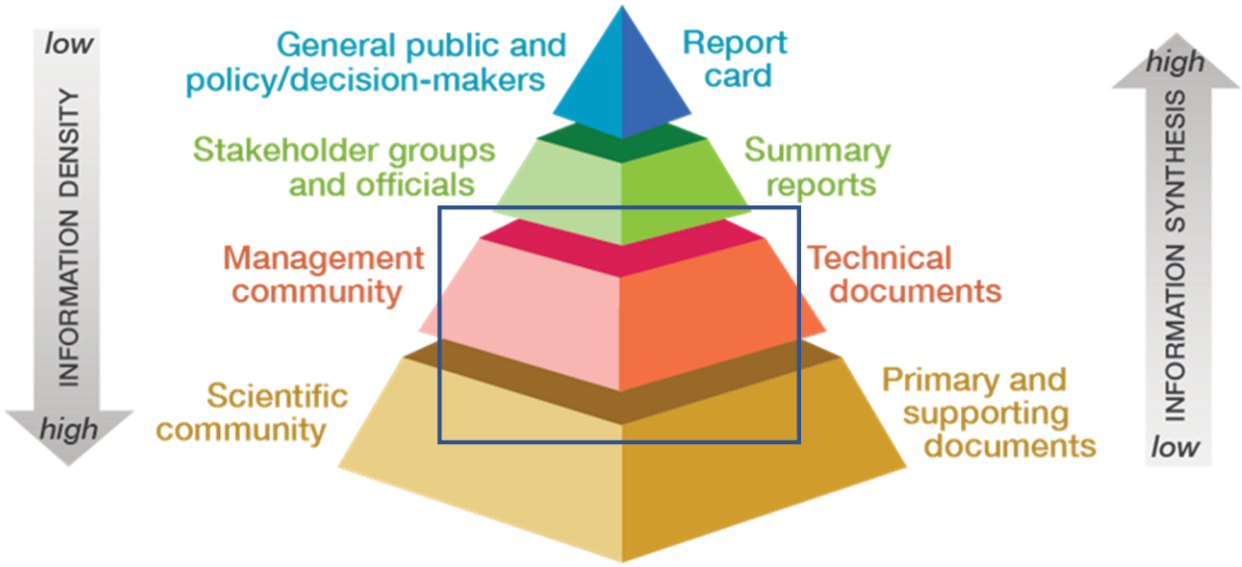
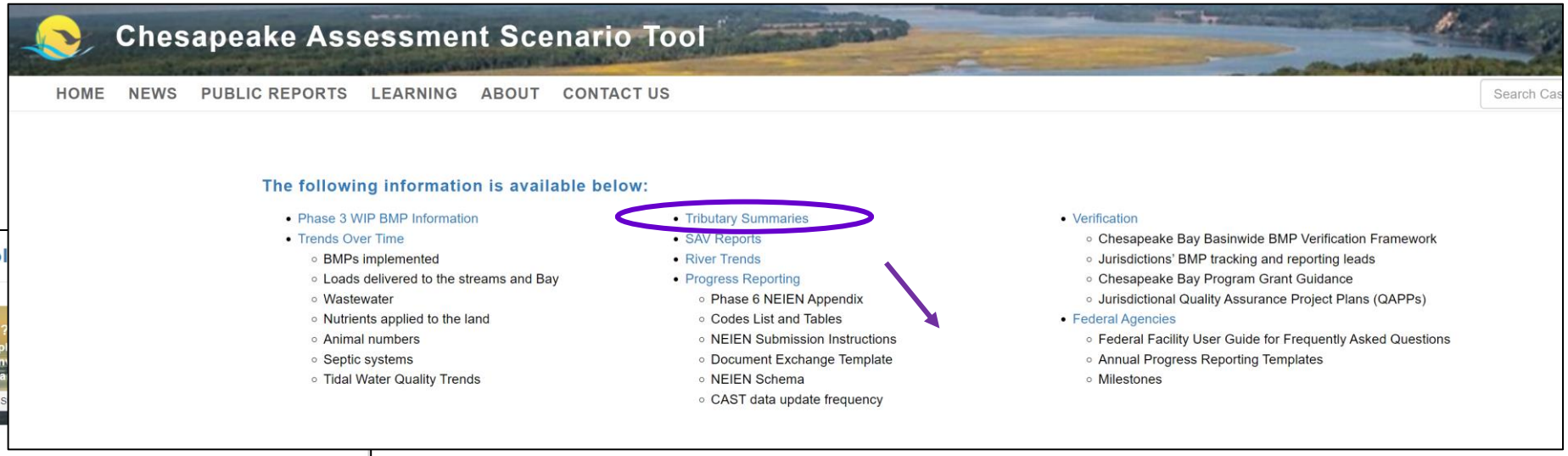
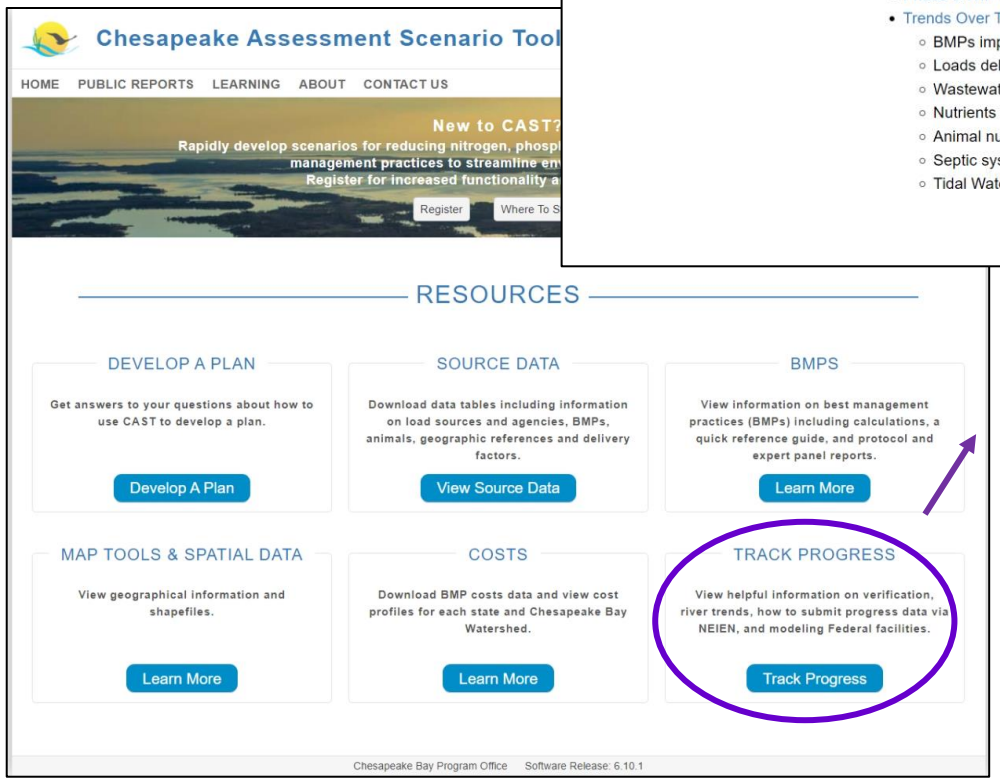


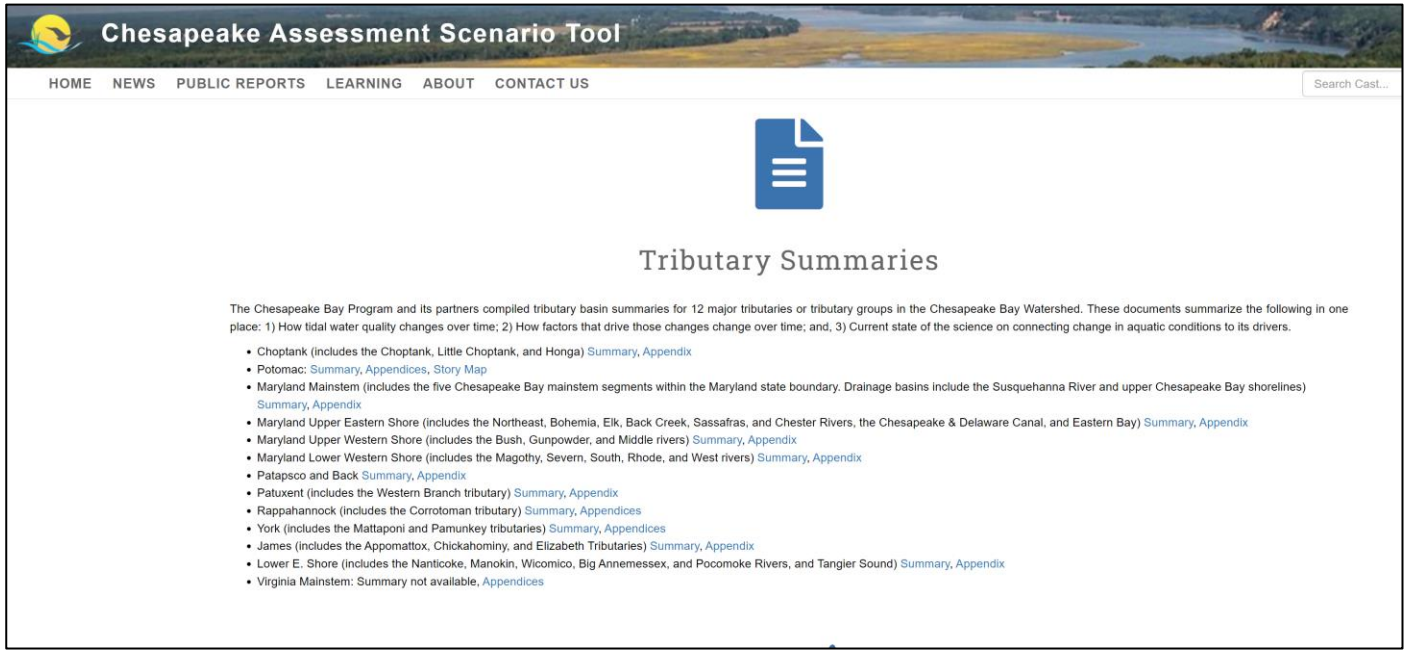
Figure courtesy UMCES Integration and Application Network, ian.umces.edu

Where to access?

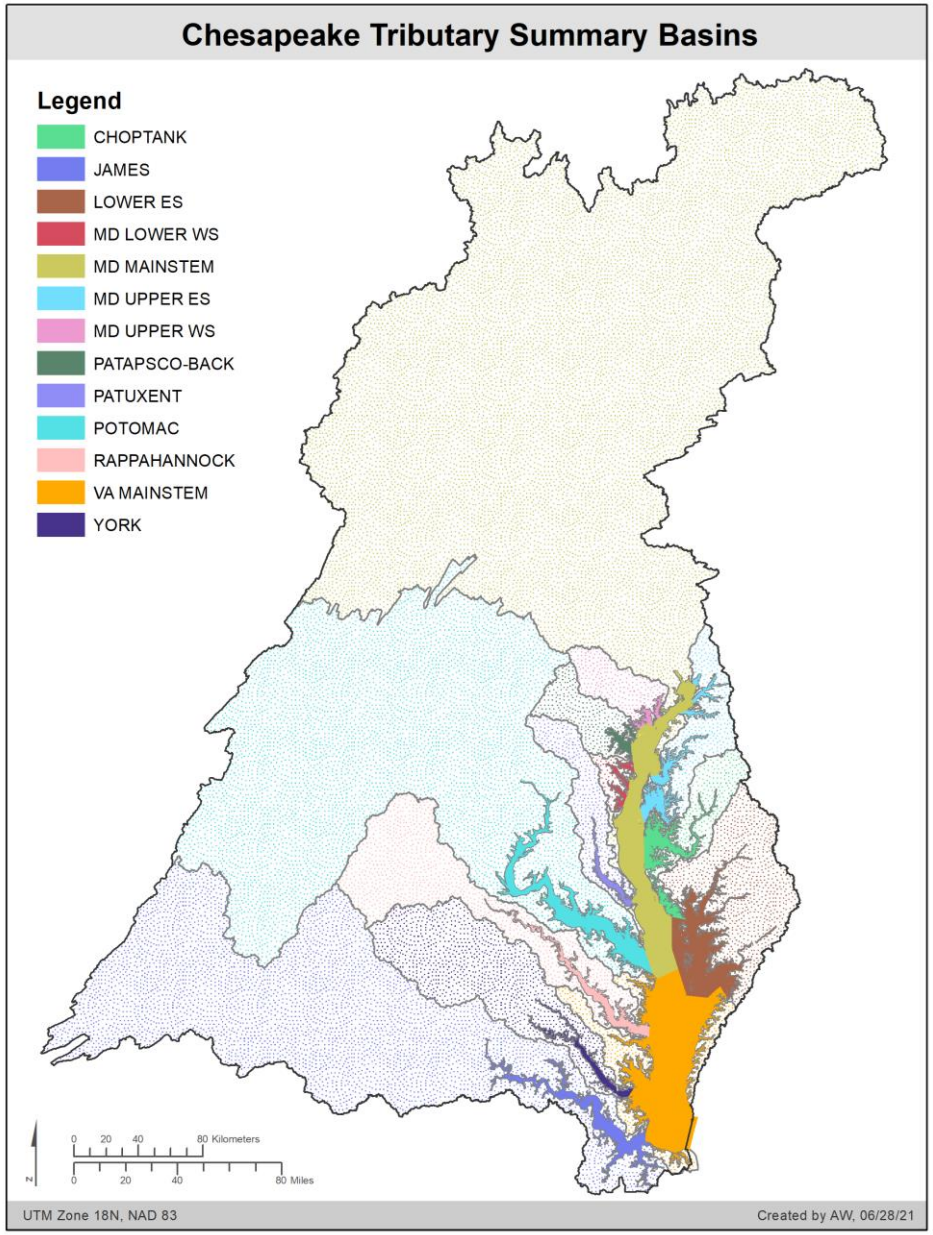




CAST: https://cast.chesapeakebay.net/



13 Tributary Trend Summaries



- **Maryland Mainstem** *(The 5 Chesapeake Bay mainstem segments within the MD state boundary. Drainage basins include the Susquehanna River and upper Chesapeake shorelines)*
- **Maryland Upper Eastern Shore** *(The Northeast, Bohemia, Elk, Back Creek, Sassafras, and Chester Rivers, the C&D Canal, and Eastern Bay)*
- **Choptank** *(the Choptank, Little Choptank, and Honga)*
- **Maryland Upper Western Shore** *(Bush, Gunpowder, Middle Rivers)*
- **Maryland Lower Western Shore** *(Magothy, Severn, South, Rhode, and West)*
- **Patapsco & Back Rivers**
- **Patuxent** *(includes the Western Branch tributary)*
- **Potomac**
- **Rappahannock** *(includes the Corrotoman tributary)*
- **York** *(includes the Mattaponi and Pamunkey tributaries)*
- **James** *(includes the Appomattox, Chickahominy, and Elizabeth tributaries)*
- **Lower E. Shore** *(includes the Nanticoke, Manokin, Wicomico, Big Annemessex, and Pocomoke rivers & Tangier Sound)*
- **Virginia Mainstem** *(no summary but Appendices are provided)*

Next Steps

- Incorporate 2021 data into tributary summaries and/or associated products.
- New additional sections will be added with climate change relevant information and trends (rainfall, temperature, etc).
- Ongoing work to share the summaries and get insights from local groups in different tributary regions.

Contact Information

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