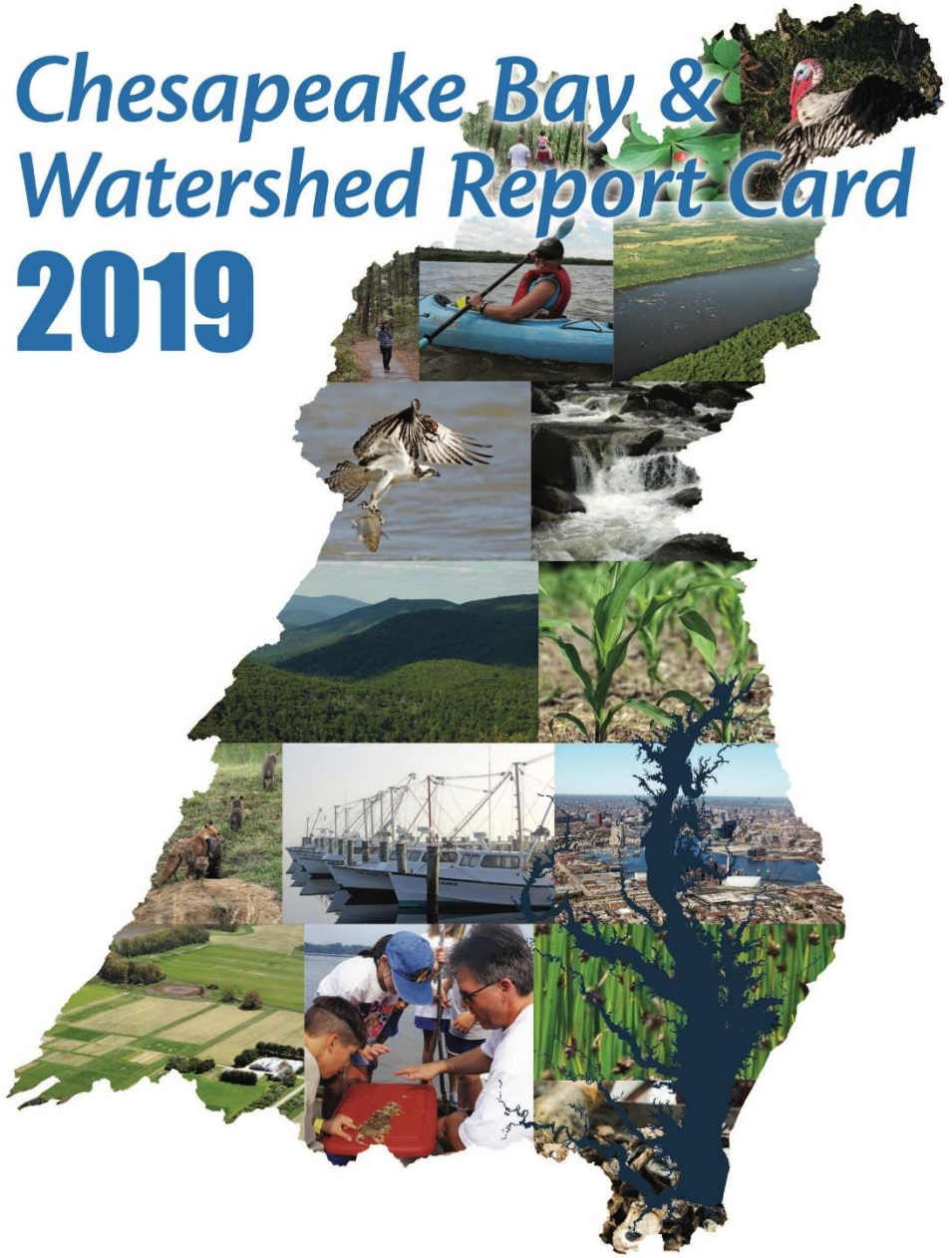
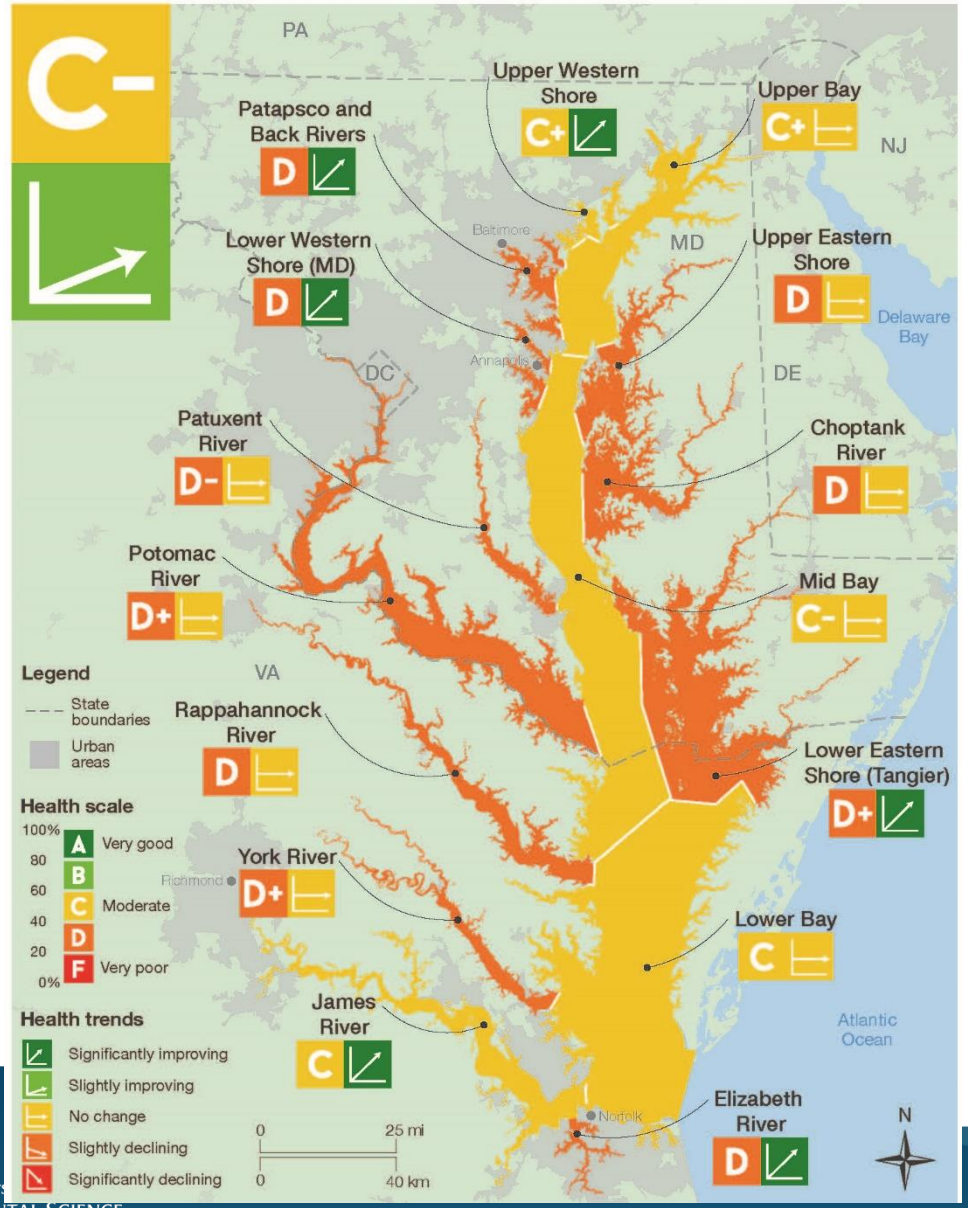
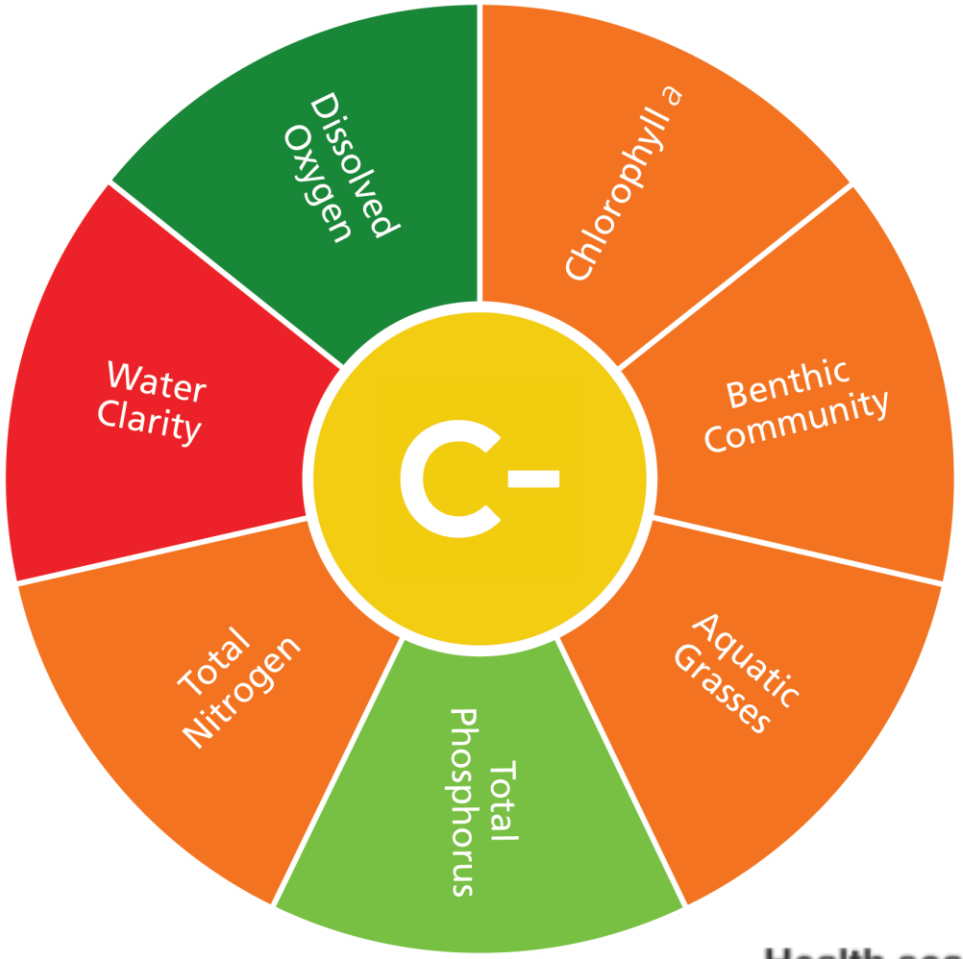
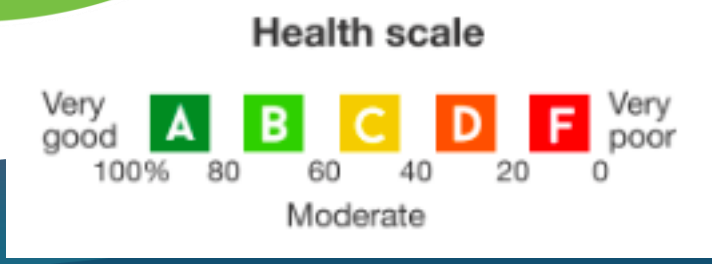


Caroline Donovan
UMCES IAN
STAR Meeting, July 2020

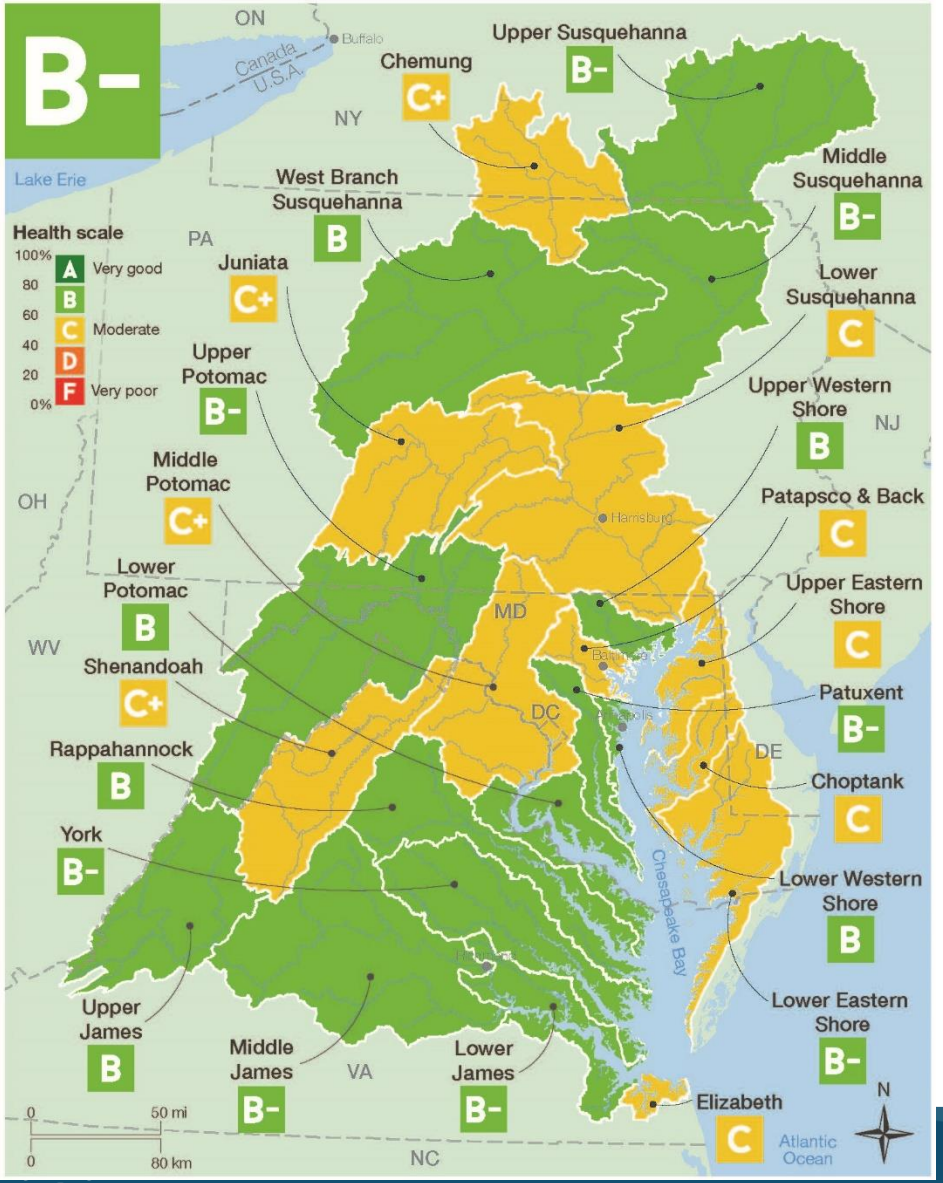
2019 Bay health - Moderate

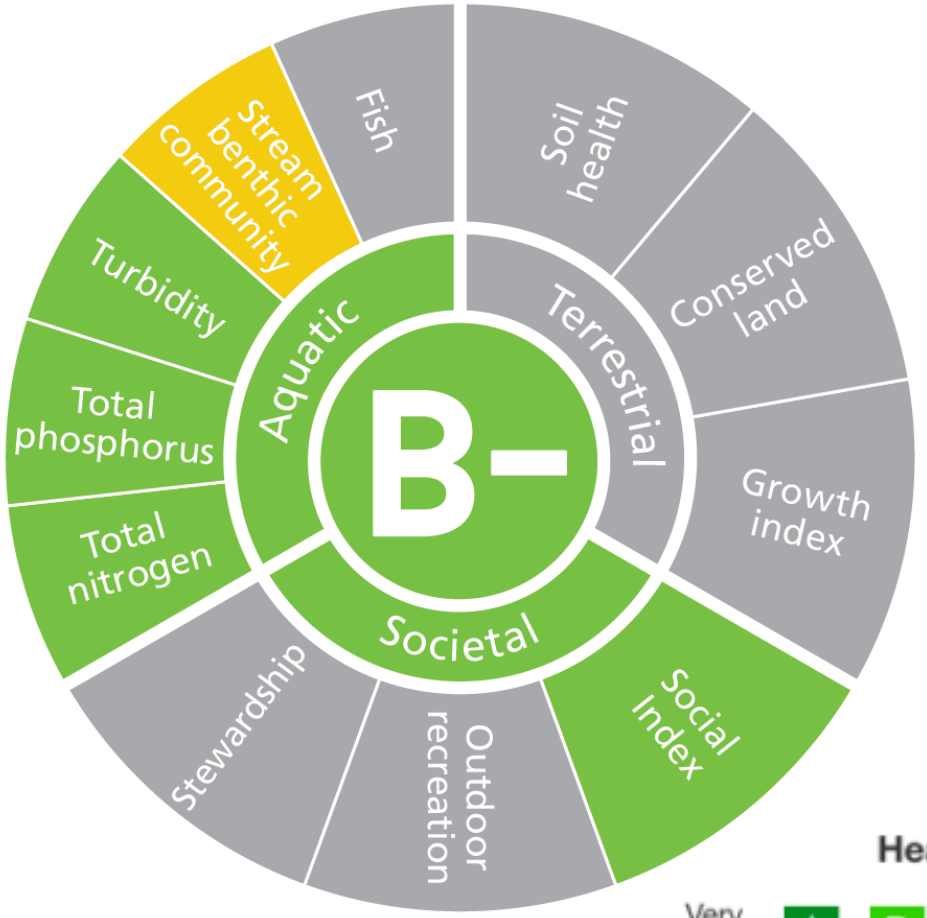


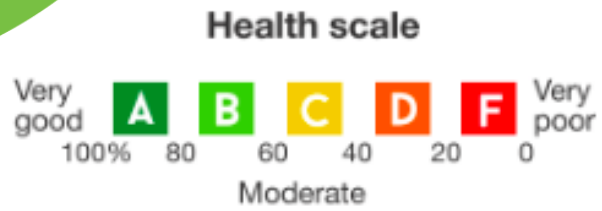




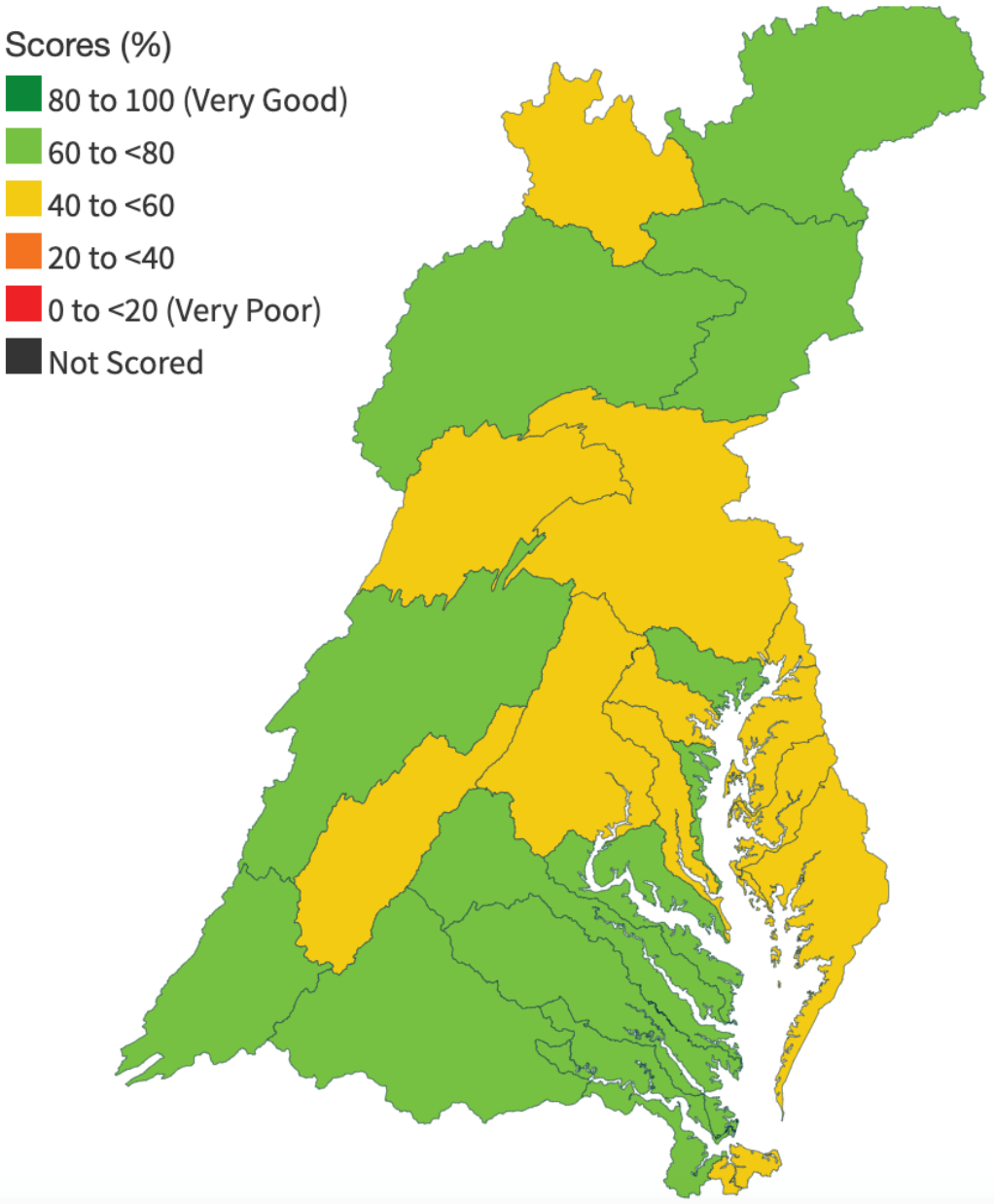
2019 Watershed health - Good





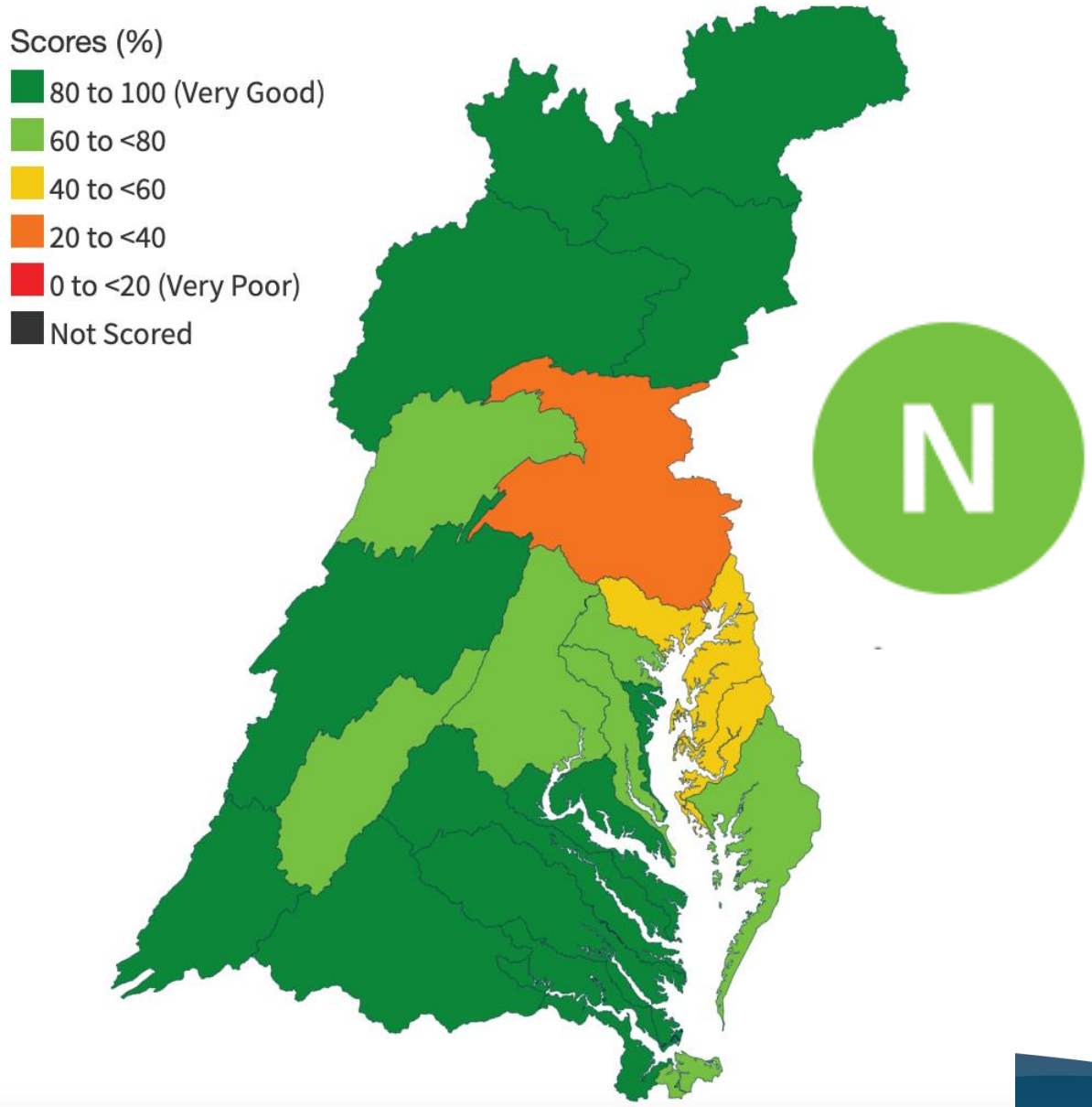


2019 Watershed Health



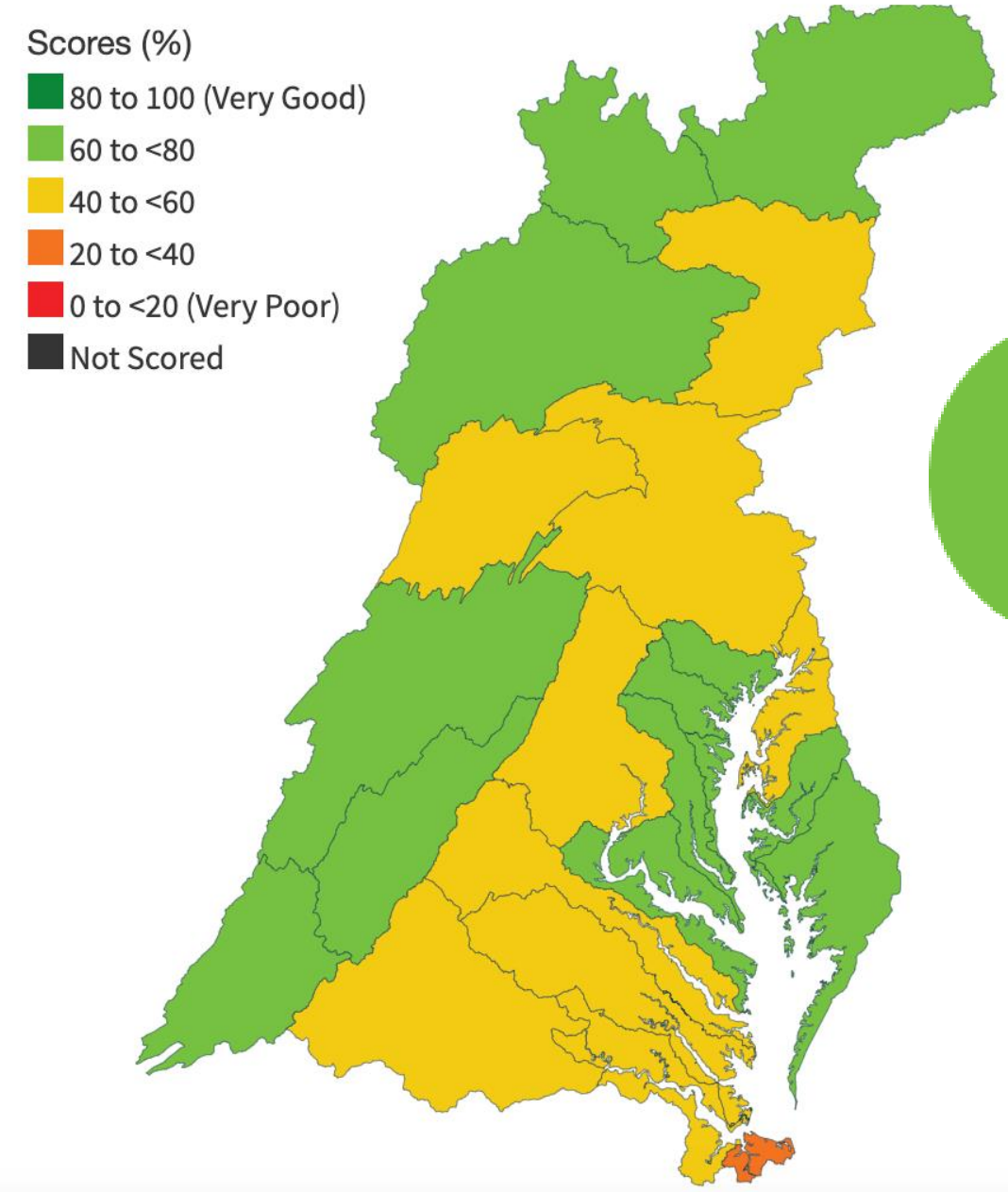
Total Nitrogen

- Year round from 2012-2017
- The proportion of time that total nitrogen was above the threshold at each station was calculated. Station scores were then averaged to HUC12. HUC12 scores were area-weighted to the reporting region scores.



Total Phosphorus

- Year round from 2012-2017
- The proportion of time that total nitrogen was above the threshold at each station was calculated. Station scores were then averaged to HUC12. HUC12 scores were area-weighted to the reporting region scores.



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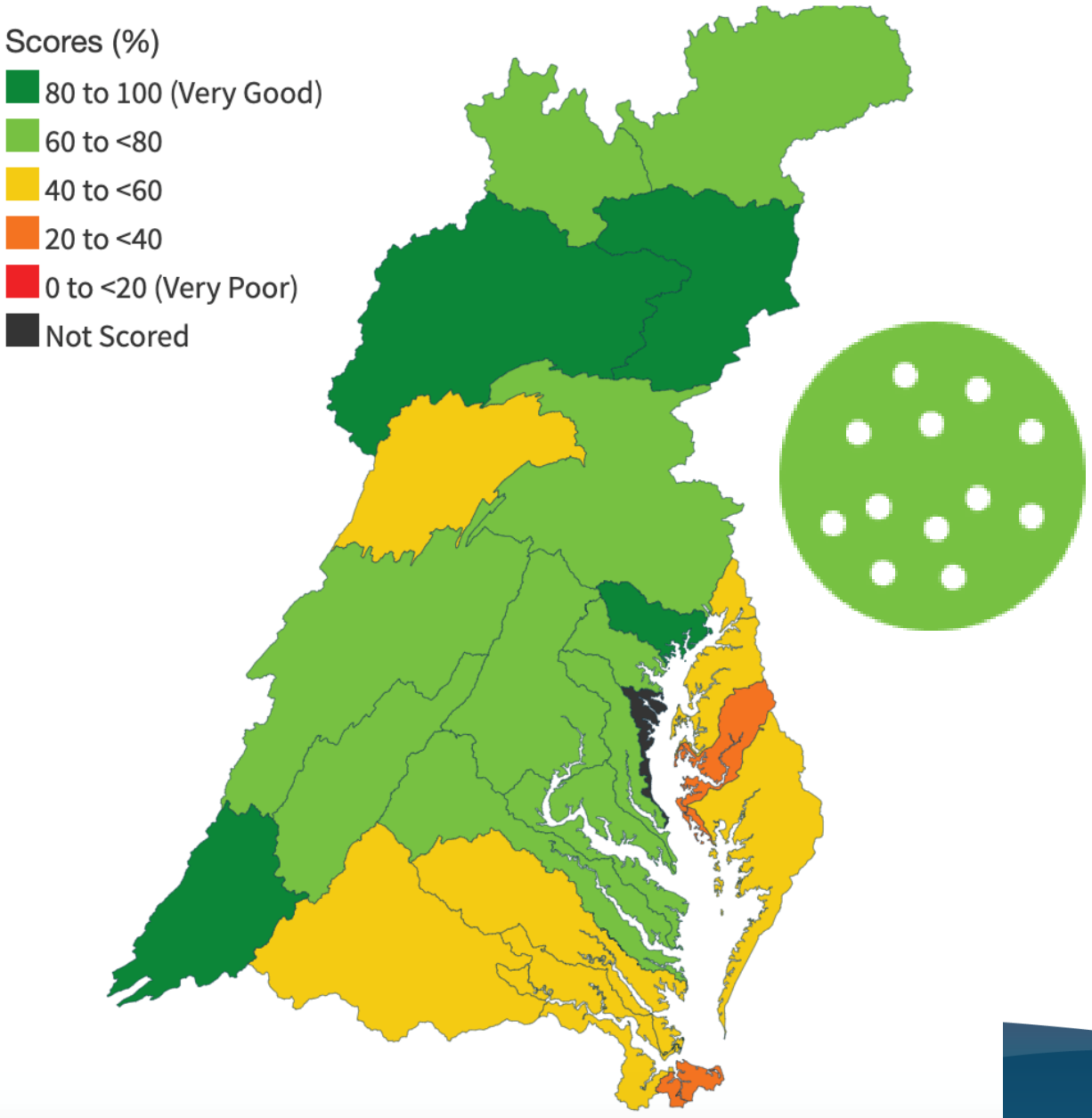
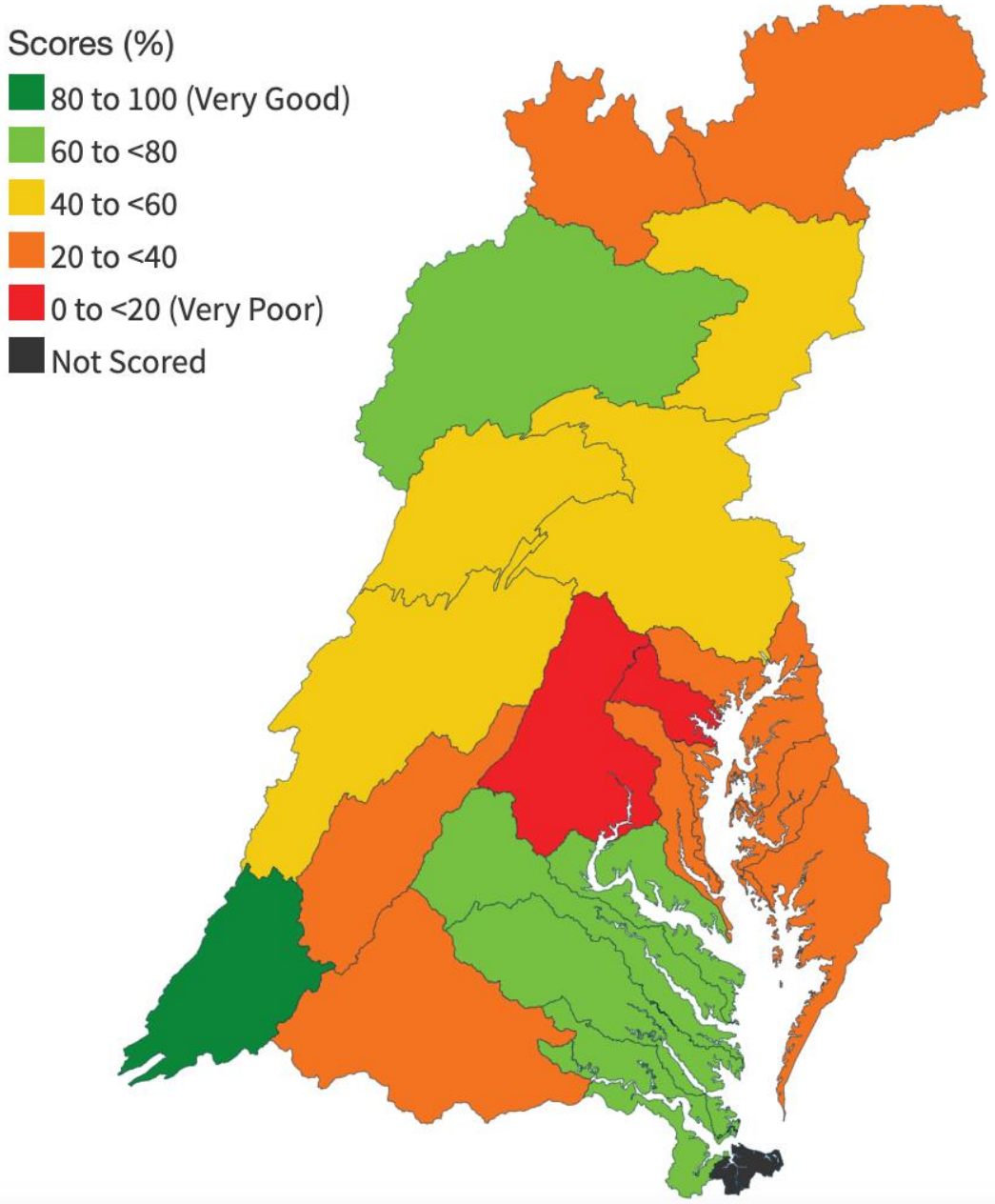
Turbidity

- Year round from 2012-2017
- The proportion of time that total nitrogen was above the threshold at each station was calculated. Station scores were then averaged to HUC12. HUC12 scores were area-weighted to the reporting region scores.



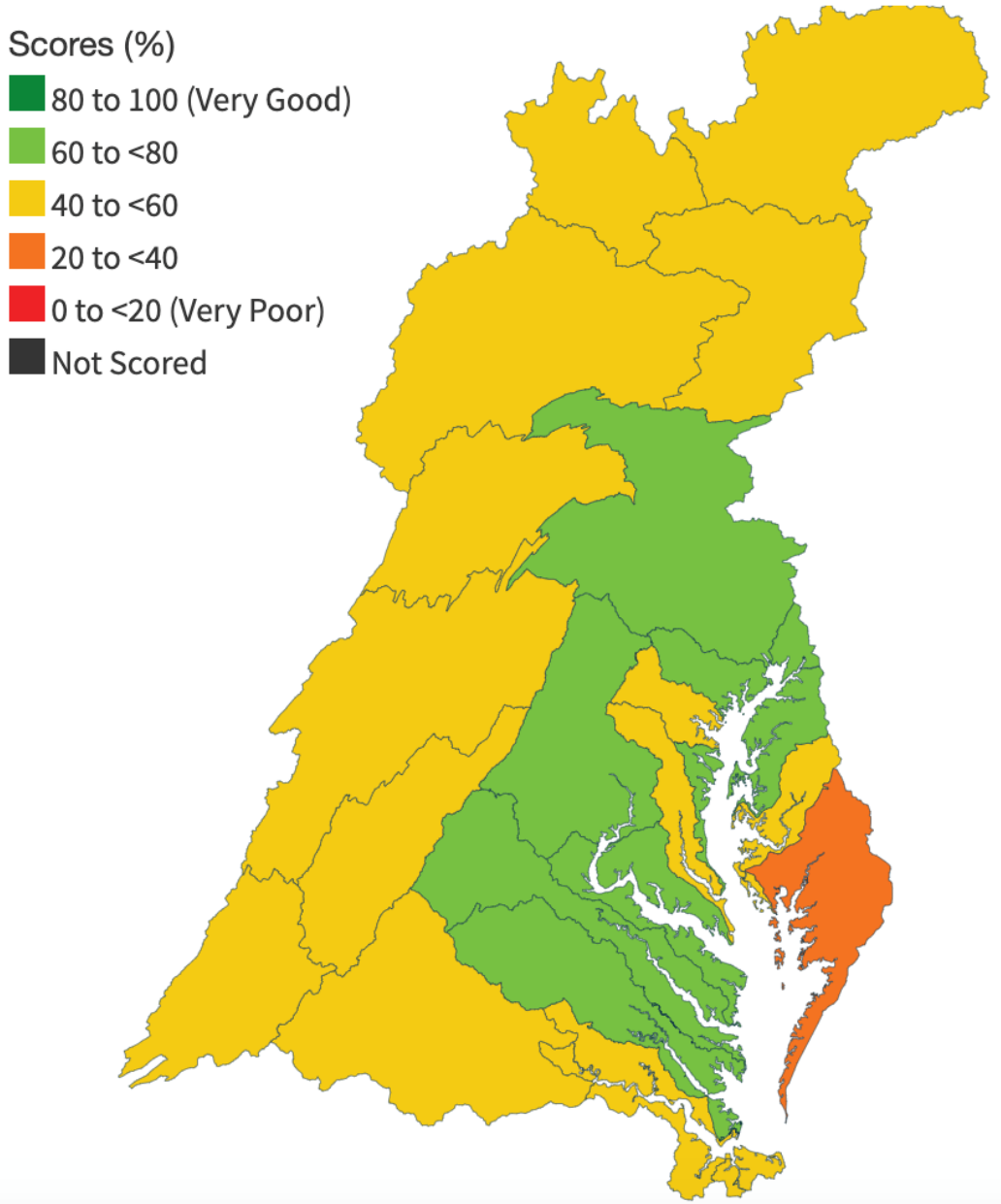
Benthic community

- Samples for assessing benthic community were collected from 2006-2011. Data from each sampling station is used to calculate a Benthic Index of Biotic Integrity (BIBI) score. The stations are averaged to the HUC12 level. The proportion of the HUC 12 area meeting the Benthic Index of Biological Integrity score is calculated. These scores are then area-weighted to the region scores.



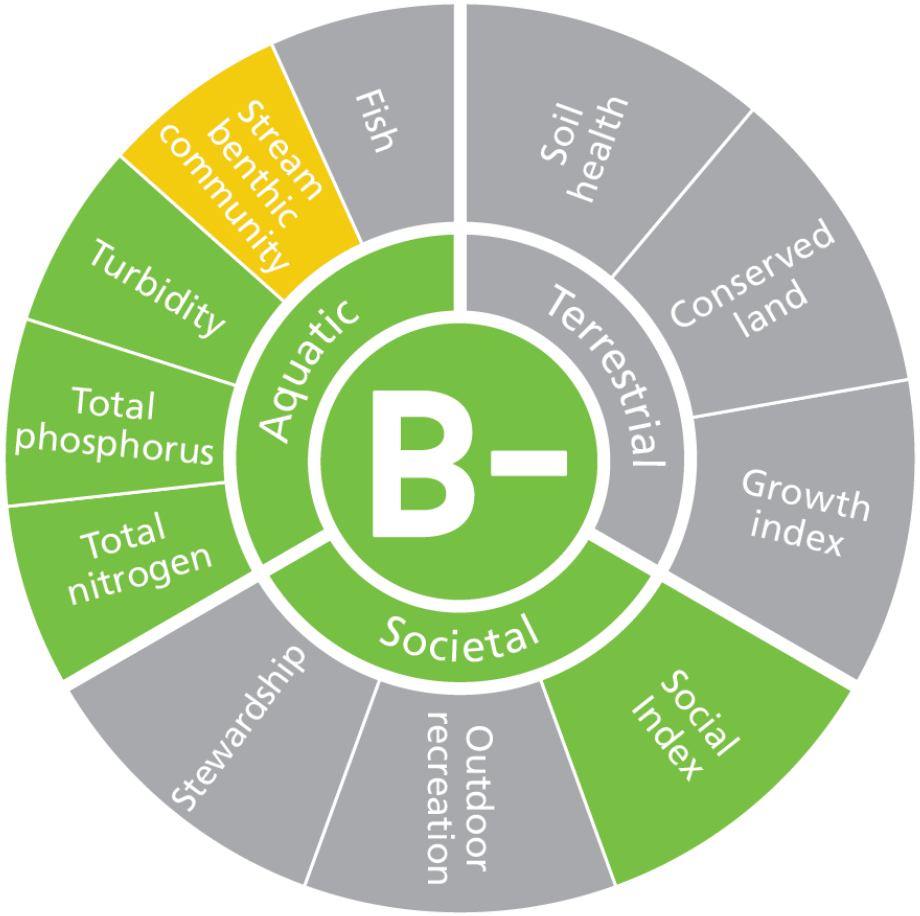
Social Index

- The Social Index uses data about social vulnerability from the Center for Disease Control and Prevention (CDC) collected within the American Community Survey.
- Social vulnerability is defined by the CDC as a measure of how able a community is to respond and bounce back from hazardous events such as natural disaster, tornado, or disease outbreak.
- Some of the measures in the index include socioeconomic status, household composition, diversity, minority status, language, housing, and transportation.
- The report card scores regions that are more vulnerable according to the CDC as less healthy, and regions that are less vulnerable as more healthy. According to the CDC, a social vulnerability index score of a 1 is the highest vulnerability a census tract can have. This would translate to a score of a zero in the report card.
- The data are scored by census tract. Census tracts are weighted by population to a score for each reporting region.



2020 report card indicators

- Presented several indicators during April webinar to improve for next round
  - Stewardship Index
  - Protected lands
  - Fishing (recreation)
  - Fish (aquatic)
- Additional indicators
  - Economic indicators
  - Diversity
  - Soil health indicator
  - Forest health

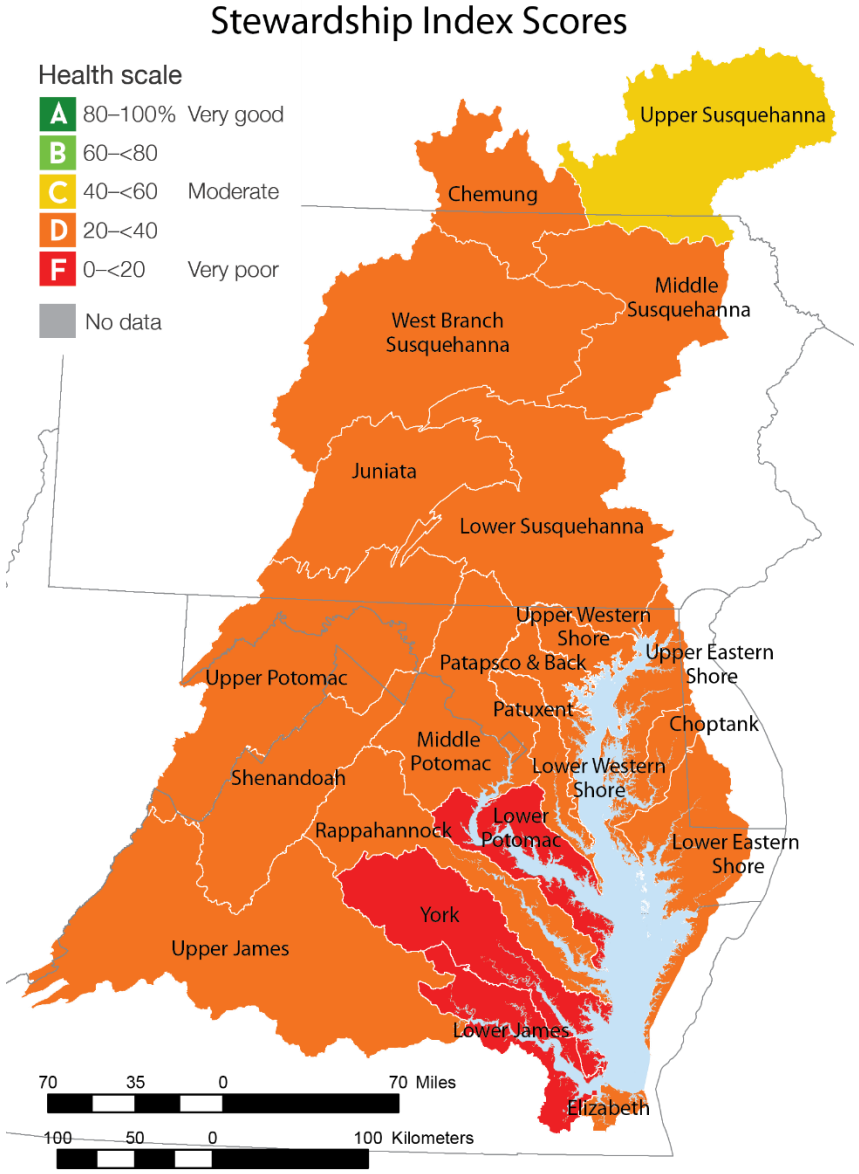


Stewardship indicator

- Steve Raabe, OpinionWorks and Stewardship Working Group
- Data comes from the 2017 Baseline Citizen Stewardship Indicator survey issued by OpinionWorks
  - ❖Link: https://www.chesapeakeprogress.com/engaged-communities/citizen-stewardship
- The index uses questions from three categories, Behaviorism, Volunteerism, Civic Engagement
- We used OpinionWorks' Survey results to calculate regional scores, based on respondent ZIP codes
- We attempted to duplicate the methods that OpinionWorks established
- Weighting
  - ❖Each ZIP code was weighted according to 2010 Census populations
- We did not adjust the weight by demographics

Stewardship indicator

- Results were consistent with OpinionWorks results for the overall bay and states, but don't give much variability in scores
- We're currently exploring several new options:
  - Use same Stewardship Index but adjust the scale so that scores are more reasonable based on what people could actually achieve
  - Combine the Stewardship Index with the Likelihood responses. AKA, if you said you would not do this action, how likely would you be to do it in the future
  - Look at the Stewardship Index and Score Likelihood separately to compare.
  - Pull out selected behaviors to target those and create a new Stewardship Index.



Protected lands

- Protected lands data came from Chesapeake Progress (CBP)
- In the 2017 report card we included this map of the protected lands by type of land owner
- Data was last updated in 2018
- Contacts: Renee Thompson and Nora Jackson (CBP)
- Protected lands goal is an increase of 2 million acres from the amount reporting in 2010.
- Total protected lands goal is 9.8 million acres for the entire watershed (7.8 million + 2 million).
- This goal was divided over the 22 reporting regions with larger areas having a larger goal and smaller areas having a smaller goal.
- Each reporting region acreage was divided by its goal and multiplied by 100.
- This gave a score for each region.

Protected lands

- Results of first analysis did not make sense since the goal was allocated by area to the reporting regions.
- We're currently exploring:
  - Looking at the CCP most valued lands and overlaying those areas with the reporting regions we can see how many acres of priority land are within each region.
  - Then we can evaluate how much of the most valued lands we are already protected versus how much there is in each region and the overall goal.
  - This will allow us to set a goal for each region that is based on the quality of land to protect in the region, not just the total area of land in the region.
  - We are waiting to receive the dataset we need from Chesapeake Conservancy (Renee is in touch with them)

Recreation

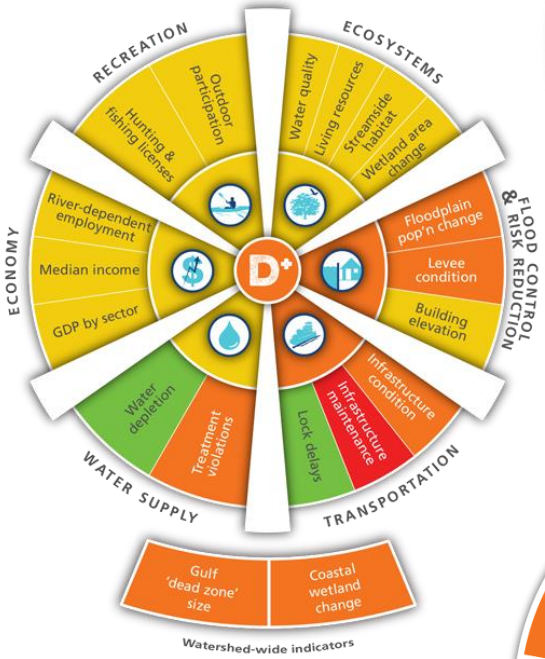
- Hunting and Fishing Licenses – Data & Scoring
- Data from the Wildlife & Sport Fish Restoration Program
- Data is yearly and only on the state wide level
- This indicator can only be calculated at the watershed level
- Methods were replicated from those used in the Mississippi River Watershed Report Card
- New options:
  - Look at other sources of recreation data that we can use at a finer scale
  - Examine EnviroAtlas and other data portals for relevant information

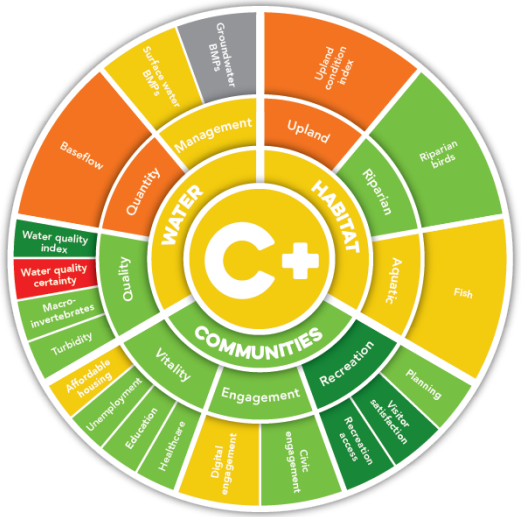
Fish (aquatic)

- Collecting and organizing state agency, and local county data
- We are going to attempt to calculate a species diversity index by reporting region, such as the Simpson's Diversity Index or Shannon Weiner Diversity Index
- Will review the results with appropriate CBP working groups
  - Sustainable Fisheries GIT
  - Others?

Economic indicators

- CouncilFire, LLC
- Stakeholder workshop in September 2020
  - Suggestions for participants
- Reviewed other report cards with economic indicators
- Local, community indicators rather than watershed-wide (not GDP, for example)





Soil Health

- We are looking at using Agricultural BMP data from CAST and overlaying that with the hydric soils dataset on EnviroAtlas to come up with some kind of indicator that would examine sustainable practices that support soil health
- This indicator is at the beginning stages
- We are in touch with Olivia Devereux and Jeff Sweeney about developing this indicator
- Would want to review preliminary analysis with the agriculture workgroup or habitat workgroup as appropriate

Other indicators

- Diversity indicators
  - Diversity workgroup
  - CBP DEIJ Strategy
  - EJScreen
  - This indicator is at the beginning stages
- Forest health
  - Haven’t started, but it’s on the list

Thanks!

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- Umces.edu/ian
- Chesapeakebayreportcard.org