

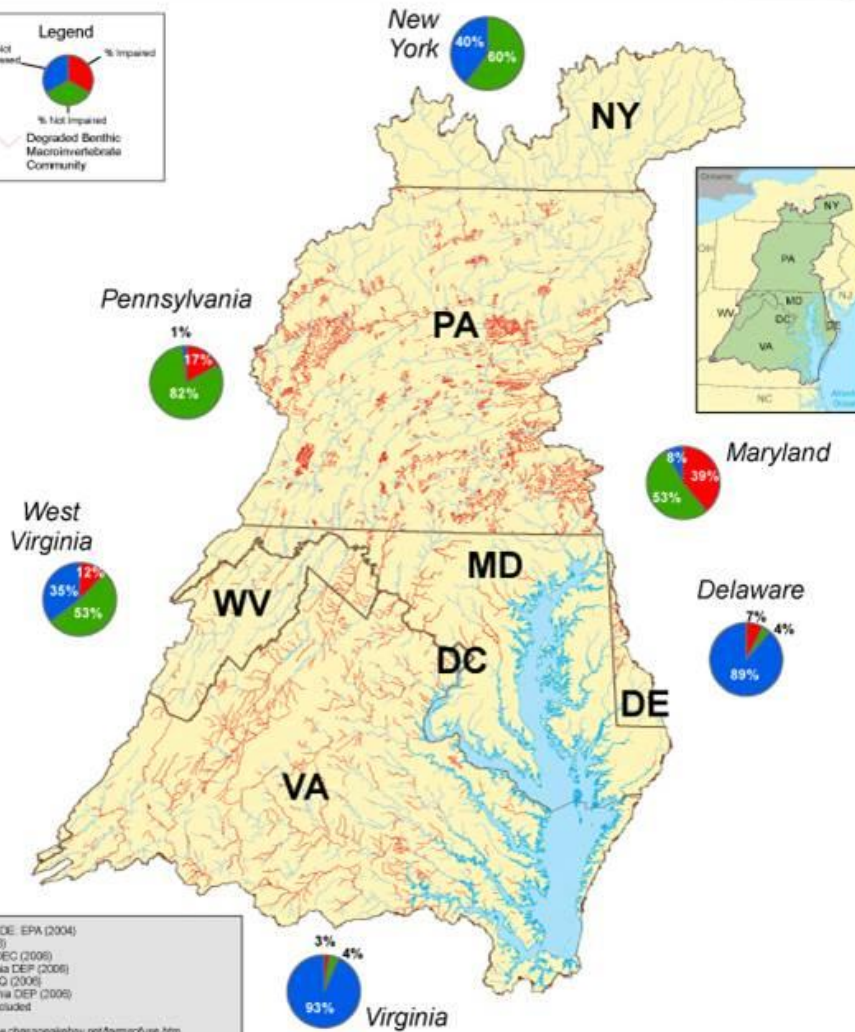
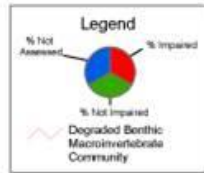


Overview of the “**Chessie BIBI**,” or Chesapeake Basin-wide Index of Biotic Integrity for streams

Claire Buchanan, ICPRB
Stream Health Workgroup meeting
12/9/2014

Benthic Macroinvertebrate Impairments

Freshwater Streams and Rivers Health Assessment



Data Sources: DE: EPA (2004)
MD: MDE (2006)
NY: New York DEC (2006)
PA: Pennsylvania DEP (2006)
VA: Virginia DEP (2006)
WV: West Virginia DEP (2006)
DC: Data not included

Disclaimer: www.chesapeakebay.net/forms/faq.htm

NOTE: Pie charts are not directly comparable since each state monitors and assesses benthic macroinvertebrates on different scales with different methodologies and criteria. For more information on these differences, please refer to: www.chesapeakebay.net/status/watershedhealth.aspx.



Created by J/V, 3/4/08

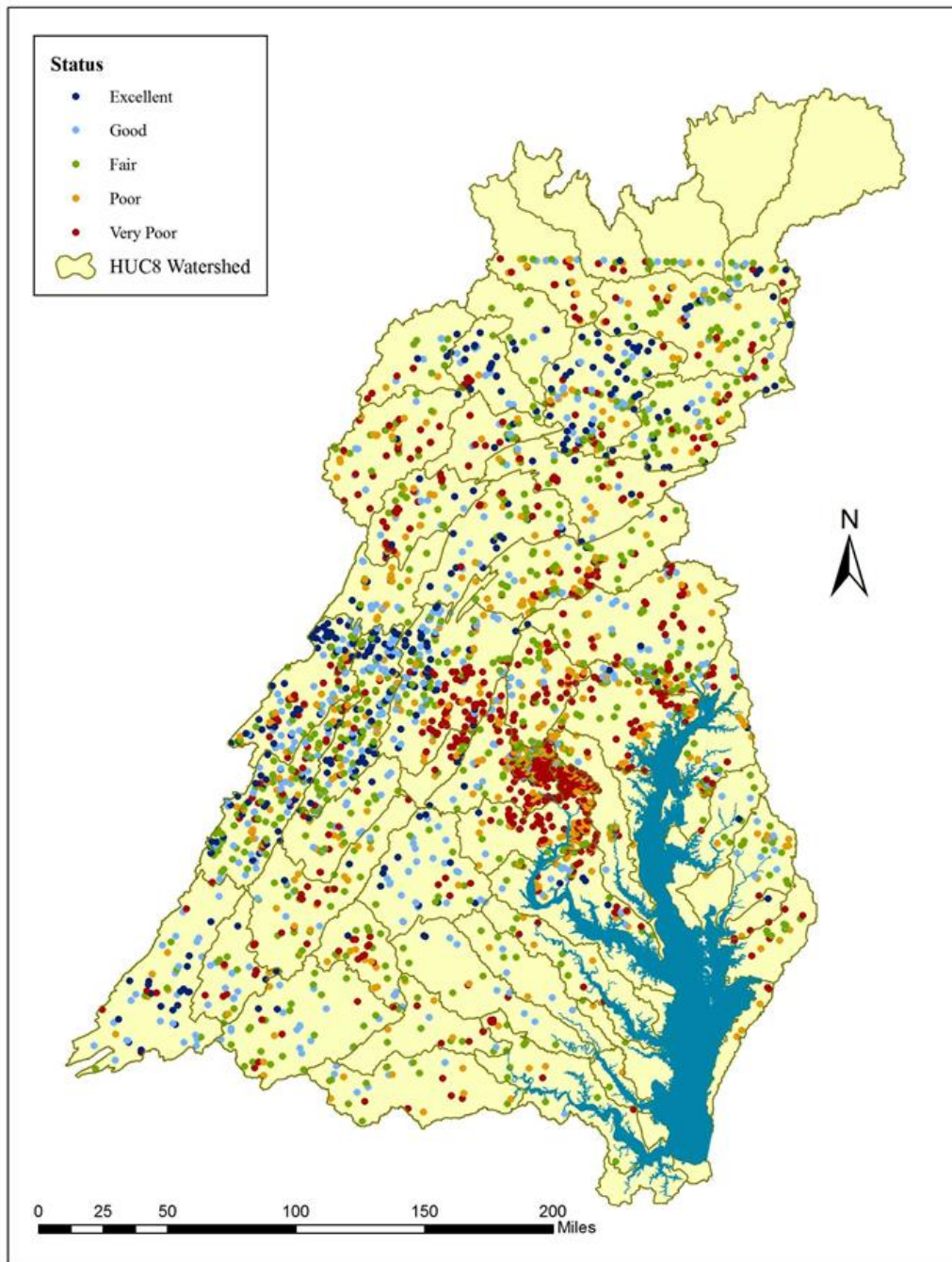
UTM Zone 18N, NAD 83

http://www.chesapeakebay.net/maps/map/benthic_macroinvertebrate_impairments

Objective: basin-wide
map of stream status

Non-tidal workgroup –
March 2008

- Developed from states' impaired waters listings
- “Apples – to – oranges”



Objective: basin-wide
map of stream status

ICPRB – L. Astin, 2 papers in
Environmental Indicators
(2006, 2007)

- Metrics developed from family-level data
- Consistent, bioregion-specific “Reference conditions” identified
- Consistent biometric scoring method used
- Potomac multi-metric index

ICPRB & Katie Foreman CBP

- Initial attempt used the same method for Bay
- Proof of concept
- Report – Dec 2008

Development of a Basin-wide Benthic Index of Biotic Integrity
for Non-tidal Streams and Wadeable Rivers in the Chesapeake
Bay Watershed:

Final Report to the Chesapeake Bay Program
Non-Tidal Water Quality Workgroup

May 9, 2011

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Objective: basin-wide
map of stream status

ICPRB & CBP – 2010 & 2011

- Updated database through 2008
- Worked with adhoc advisory group from Non-Tidal Workgroup
- Refined methods and scoring thresholds
- May 2011 report

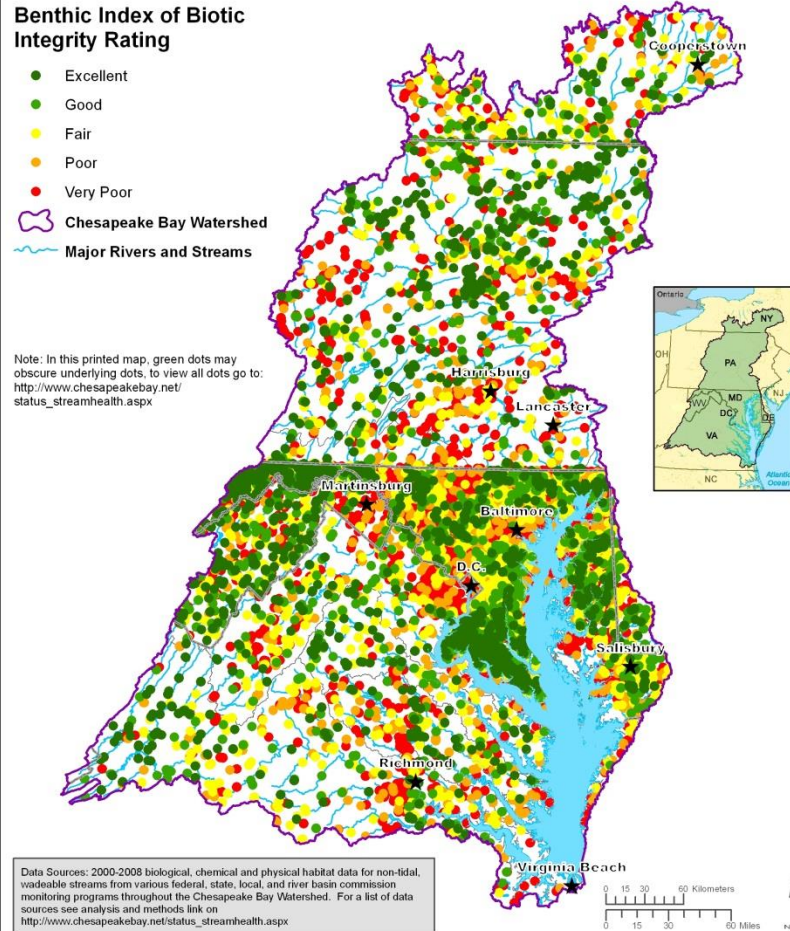
Average 2000-2008 Stream Health in the Chesapeake Bay Watershed



Benthic Index of Biotic Integrity Rating

- Excellent
- Good
- Fair
- Poor
- Very Poor
- ⬡ Chesapeake Bay Watershed
- ⬡ Major Rivers and Streams

Note: In this printed map, green dots may obscure underlying dots, to view all dots go to: http://www.chesapeakebay.net/status_streamhealth.aspx



Data Sources: 2000-2008 biological, chemical and physical habitat data for non-tidal, wadeable streams from various federal, state, local, and river basin commission monitoring programs throughout the Chesapeake Bay Watershed. For a list of data sources see analysis and methods link on http://www.chesapeakebay.net/status_streamhealth.aspx

Created by FMI, 03/07/2011

UTM Zone 18N, NAD 83

2000 - 2008

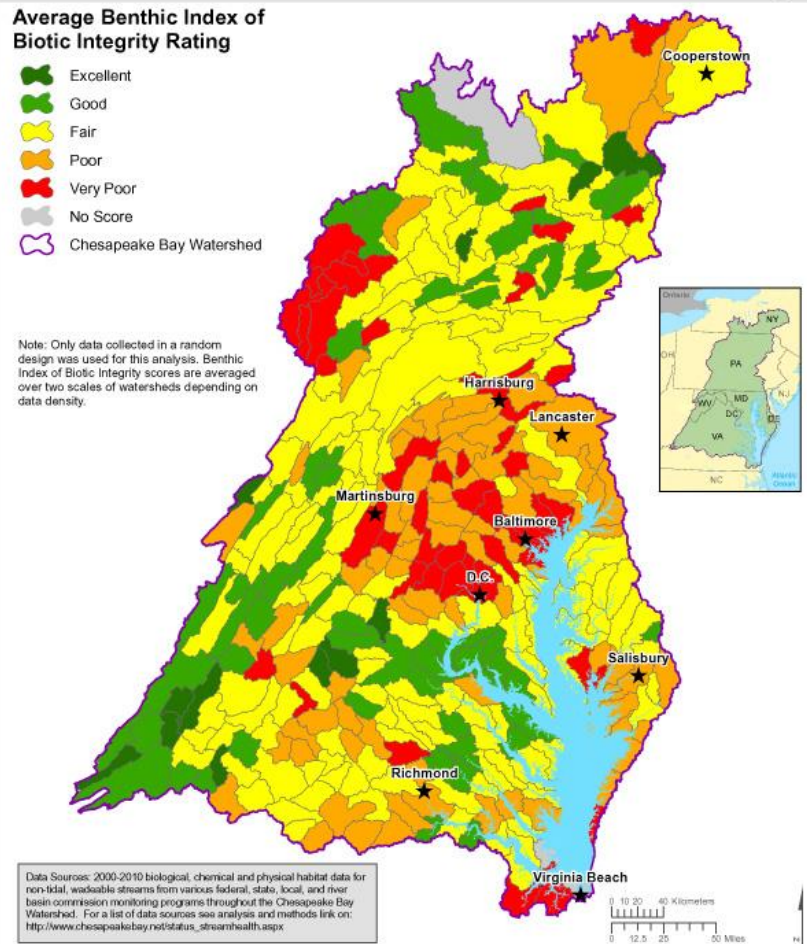
Average 2000-2010 Stream Health in Chesapeake Bay Sub-watersheds



Average Benthic Index of Biotic Integrity Rating

- Excellent
- Good
- Fair
- Poor
- Very Poor
- No Score
- ⬡ Chesapeake Bay Watershed

Note: Only data collected in a random design was used for this analysis. Benthic Index of Biotic Integrity scores are averaged over two scales of watersheds depending on data density.



Data Sources: 2000-2010 biological, chemical and physical habitat data for non-tidal, wadeable streams from various federal, state, local, and river basin commission monitoring programs throughout the Chesapeake Bay Watershed. For a list of data sources see analysis and methods link on: http://www.chesapeakebay.net/status_streamhealth.aspx

Created by JJ & FMI, 05/13/2013

UTM Zone 18N, NAD 83

2000 - 2010

Bay Barometer

A Health and Restoration Assessment of
the Chesapeake Bay and Watershed in 2010

Executive

Bay Barometer

A Health and Restoration Assessment of the
Chesapeake Bay and Watershed in 2010

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Chesapeake Bay Program
A Watershed Partnership

BAY BAROMETER

2012 - 2013

h and oration

in the Chesapeake Watershed

BAY BAROMETER 2011-2012

SPOTLIGHT on Health and Restoration in the
CHESAPEAKE BAY and its WATERSHED



Chesapeake Bay Program
Science. Restoration. Partnerships.

Executive Order 13508 (2009)

Chesapeake Watershed Agreement (2014)

Stream Health Outcome:

"Continually improve stream health and function throughout the watershed. Improve health and function of ten percent of stream miles above the 2008 baseline for the Chesapeake Bay watershed."

Objectives of New Effort:

- Update existing "Chessie BIBI" database with recent data (2010+)
- Incorporate genus-level metrics into index if warranted
- Simplify procedure for calculating index
- Develop a baseline against which progress in restoring stream health can be measured

Milestones

- DEC 2014 Request recent data from monitoring programs
- FEB – APR 2015 Updated database
- MAY – SEP 2015 Refine index (genus-level metrics) and procedures
- SEP – DEC 2015 Develop 2008 baseline
- MAR 2016 Draft final report for review
- JUN 2016 Final report with procedure for calculating metrics
- Quarterly Technical advisory group

Questions?