Development of a New CBP Shad Indicator

Background:

American Shad populations have plummeted since the late 19th and early 20th Centuries due to overfishing and the building of dams reducing open spawning grounds. Maryland initiated a moratorium on Shad in 1980 and Virginia's moratorium began in 1994 in order to rebuild shad stocks. Until the moratoriums went into place, jurisdictions were monitoring shad based on commercial landings. Currently ASMFC does not have any hard targets or reference points for shad and only varying pieces of information from each jurisdiction exist to develop a new indicator for Chesapeake Bay Program reporting.

Options for a New Indicator:

1. Keep the current CBP indicator (detailed description on page 2-3):
    a. Each river system has its own numeric target:
        i. Susquehanna River: 2,000,000 shad passing York Haven Dam annually
        ii. James River: 500,000 shad passing Boshers Dam annually
        iii. Potomac River: 31.1 Catch per Unit Effort (CPUE)
        iv. York River: 17.4 CPUE
2. Keep the current CBP indicator, but present the raw data rather than "percent of goal achieved"
3. Juvenile Abundance Indices (JAI) from MD and VA
    a. Striped Bass Seine Survey Bycatch Data
4. Catch Per Unit Effort (CPUE) from MD and VA
    a. MD → Pound Net CPUE with trend line
    b. VA → CPUE for 5 Rivers (James, Rappahannock, Mattaponi, Pamunkey, and York)
5. Both JAI + CPUE (as described above)
6. Solicit STAR for guidance and development of a new indicator

Current CBP Shad Indicator

Spawning shad stocks are tracked in four major river systems: the Susquehanna, Potomac, York and James. Two of these rivers have fish passage systems in place so shad can bypass dams and other blockages.

Each river system has its own numeric target:

1. **Susquehanna River: 2,000,000 shad passing York Haven Dam annually**
2. **James River: 500,000 shad passing Boshers Dam annually**
3. **Potomac River: 31.1 Catch per Unit Effort (CPUE)**
4. **York River: 17.4 CPUE**

Susquehanna and James River Shad

The Susquehanna and James River counts are determined by fish passage data at York Haven and Boshers Dams, respectively.

- Assessment of the Susquehanna River changed from shad passage at Conowingo Dam to shad passage at York Haven Dam to reflect the goal of two million shad passing the York Haven Dam annually.
- On the James River, American shad passage at Boshers Dam is compared to a passage goal of 500,000 shad.

The Susquehanna River restoration goal of two million American shad above the York Haven Dam was developed for the 1981 FERC hearings during hydro-project relicensing.

- Research in the Connecticut and Columbia rivers estimated up to 50 American shad per acre during the spawning run.
- Acres of available spawning habitat in the Susquehanna River were estimated and then multiplied by 50 shad per acre.
- The resulting estimate of two million shad represents how many spawning shad can be supported above the York Haven Dam, assuming effective fish passage downstream.

The James River restoration goal of 500,000 American shad above Boshers Dam is based upon the number of shad that can be supported by the 137 miles (11,930 acres) of habitat that became available following construction of the Boshers Dam fishway.

- The number of acres was multiplied by 50 shad per acre, which is consistent with the Susquehanna River methodology and studies of the Connecticut and Columbia rivers.
- A total of 568,200 shad can be supported between Boshers Dam and Lynchburg, Virginia, including tributaries in between.
- The Boshers Dam fishway was sized to pass 500,000 shad annually.

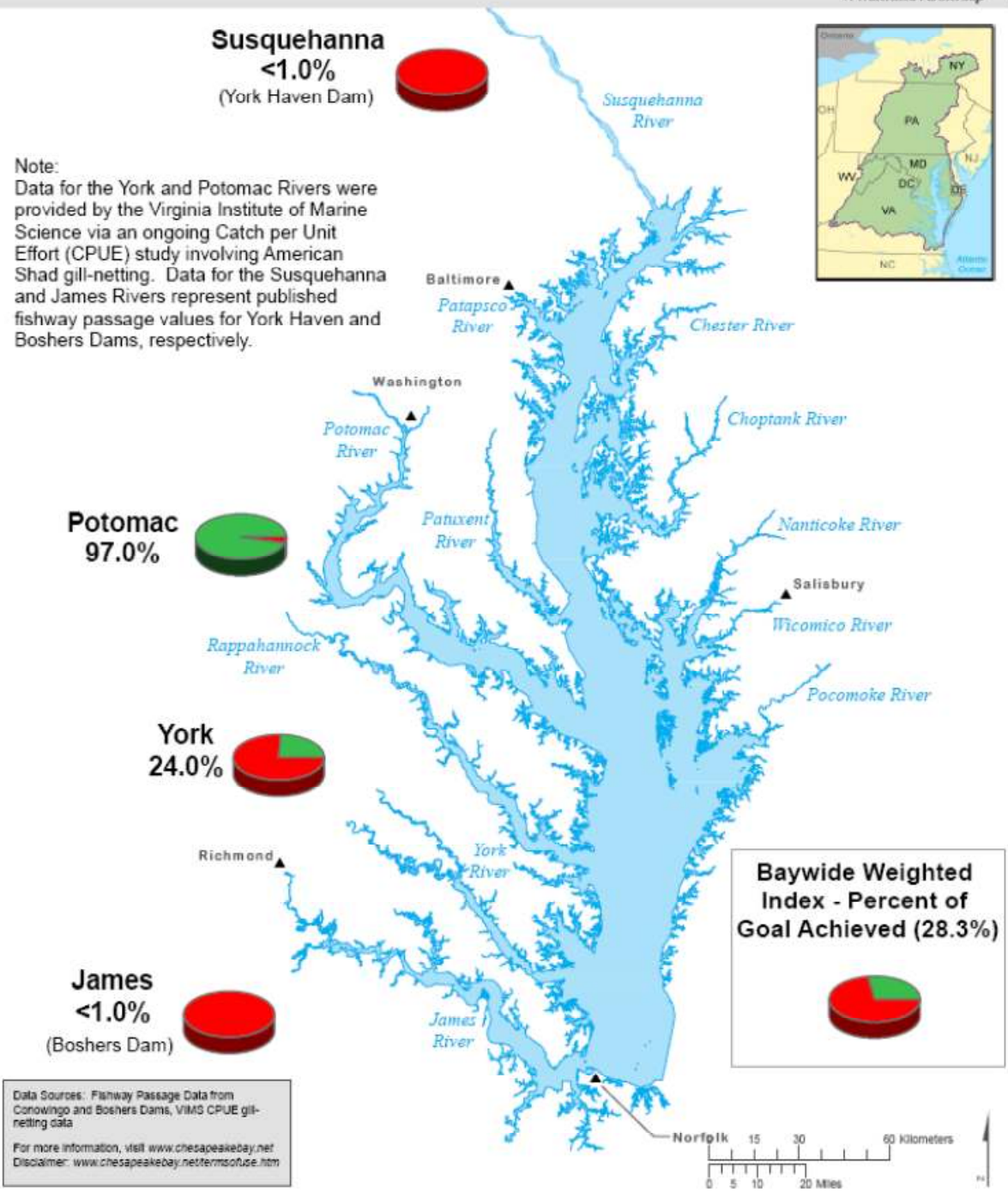
York and Potomac River Shad

Values for the York and Potomac rivers are determined using gill-net data from the Virginia Institute of Marine Science and pound net bycatch and discard data from the Potomac River Fisheries Commission. To determine goal achievement, the 1950s commercial Catch per Unit Effort (CPUE) is compared to the current commercial (Potomac River pound net) or fishery-independent York River monitoring CPUE

Shad Abundance (2010)

Ecosystem Health Assessment

Chesapeake Bay Program
A Watershed Partnership



Data Sources: Fishway Passage Data from Conowingo and Boshers Dams, VIMS CPUE gill-netting data

For more information, visit www.chesapeakebay.net
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