

THE ECONOMIC BENEFITS OF CLEANING UP THE CHESAPEAKE

A VALUATION OF THE NATURAL BENEFITS GAINED BY
IMPLEMENTING THE CHESAPEAKE CLEAN WATER BLUEPRINT



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“The region’s environmental and economic health will improve when we fully implement the Blueprint. The cleanup plan was designed with the understanding that all people and communities in the watershed can contribute to making the Bay cleaner, and that everyone will benefit when pollution is reduced. Our analysis confirms this.”

Dr. Spencer Phillips,
lead author



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The Economic Report

Every year, thousands of visitors come to the Shenandoah Valley to see the fall foliage, spending roughly \$750 per family, to do so.



*In 2011, saltwater anglers in Virginia
spent almost \$1 billion on fishing related
expenses.*



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Recreational Value



In Virginia, trees remove 446,000 tons of air pollutants, each year.



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Air Pollution Treatment

Three Scenarios

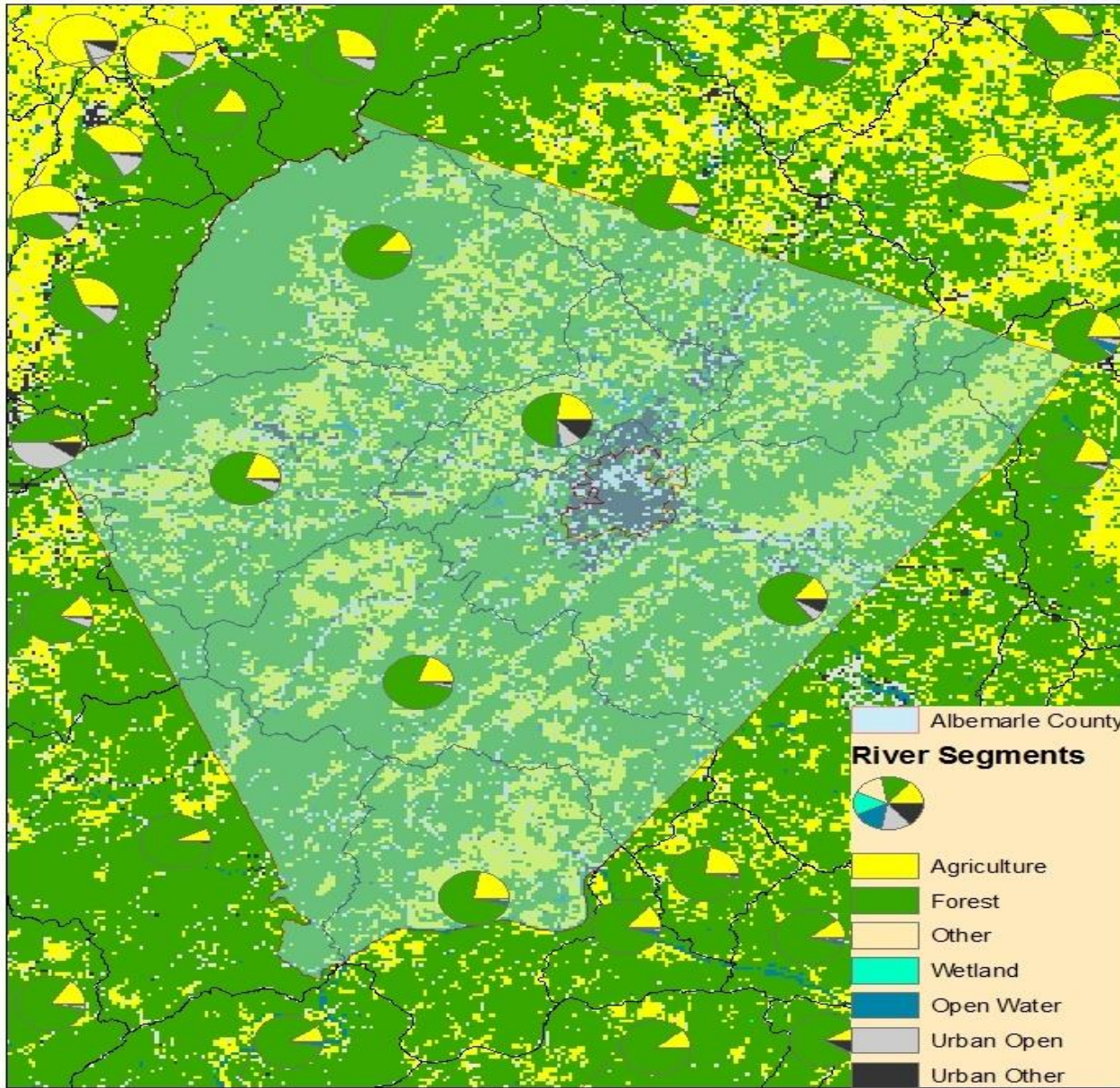
- The present-day dollar value of natural benefits for the watershed (based on 2009 pre-Blueprint)
- The dollar value of the same services post-Blueprint
- Estimate of what we lose if we don't fully implement the Blueprint ("Business as usual")



Approach

- Quantify habitats of Chesapeake Bay watershed (acres, baseline and projected)
- Adjust health of habitats based on pollution loads and expected changes to dissolved oxygen
- Apply “benefits transfer method” to assign value to benefits associated with each habitat (\$/acre/yr)





7 types of habitat

1,100 + land/river segments



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Habitats

We chose 8 natural benefits most likely to be affected by the Clean Water Blueprint

Aesthetic value

Agriculture, Open water, Forests

Air Pollution Treatment

Forests, Urban open

Climate stability

Urban open, Wetlands

Food production

Agriculture, Open water

Recreation

Open water, Forests

Water Supply

Forests, Wetlands

Waste Treatment

Forests, Open water

Water regulation

Wetland, Urban other



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Examples

Implementation of Blueprint will have 2 primary effects:

1. **Changes in acres of the various habitats**
e.g., increases in higher value habitats like forests
2. **Improved condition of existing habitats and their services** (e.g., increased Bay DO results in more food production, reduced nitrogen pollution means healthier wetlands that can better reduce flooding)



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Approach

Apply “comps”: \$/acre/year

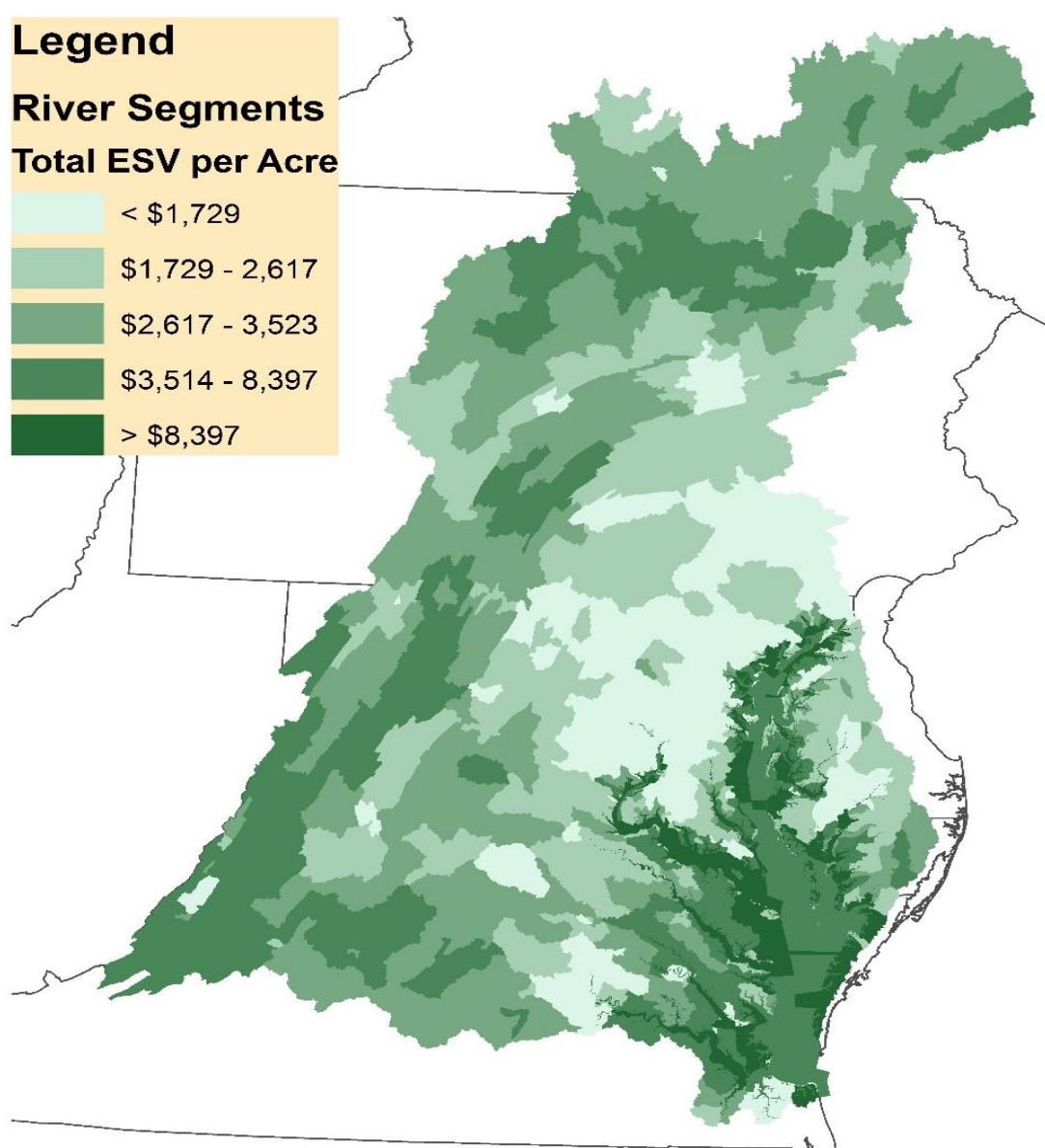
- 8 services
- to the applicable land uses/habitats

Legend

River Segments

Total ESV per Acre

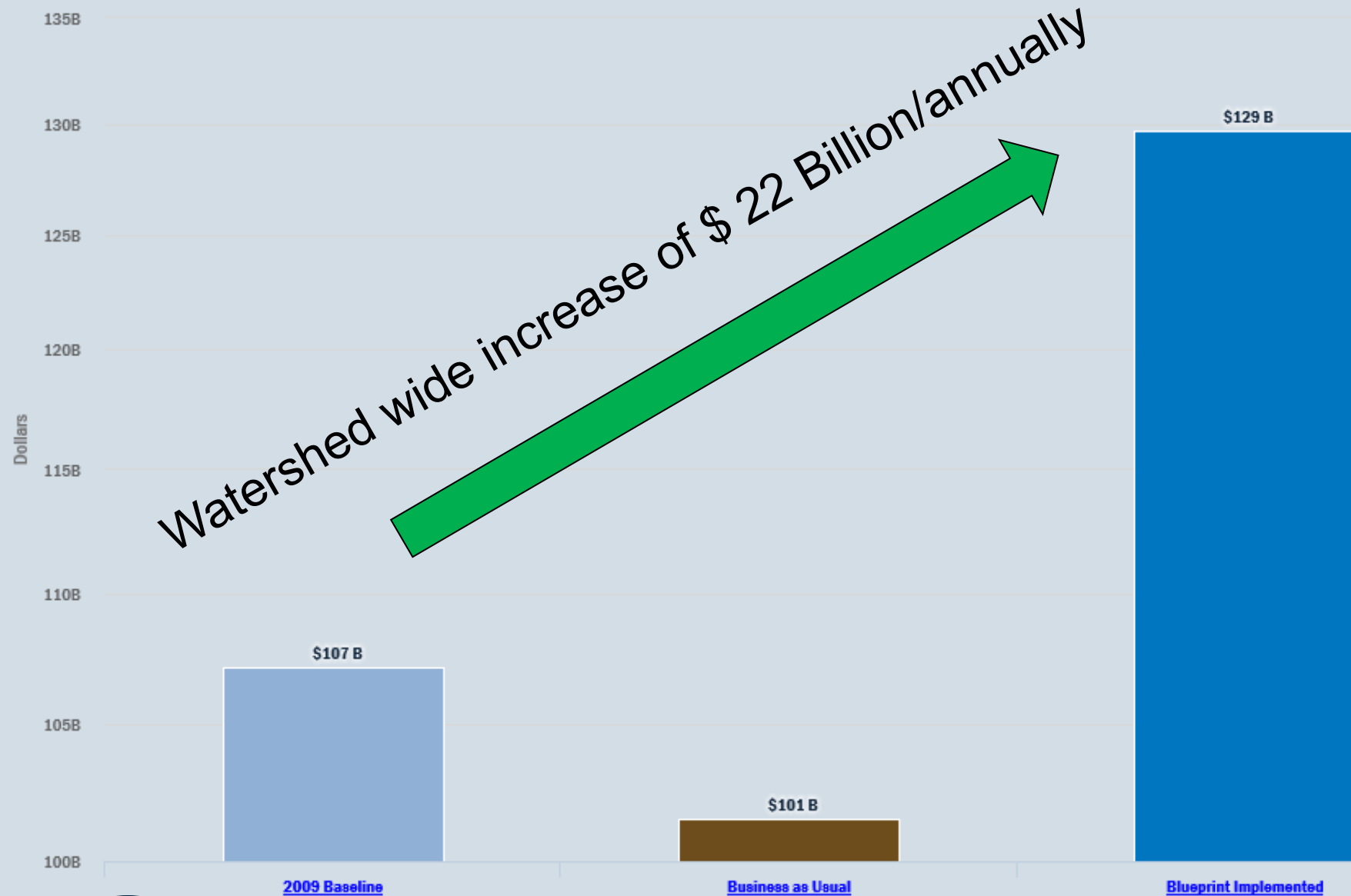
< \$1,729
\$1,729 - 2,617
\$2,617 - 3,523
\$3,514 - 8,397
> \$8,397



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Blueprint Scenario

The Value of Natural Benefits Before, With, and Without the Blueprint



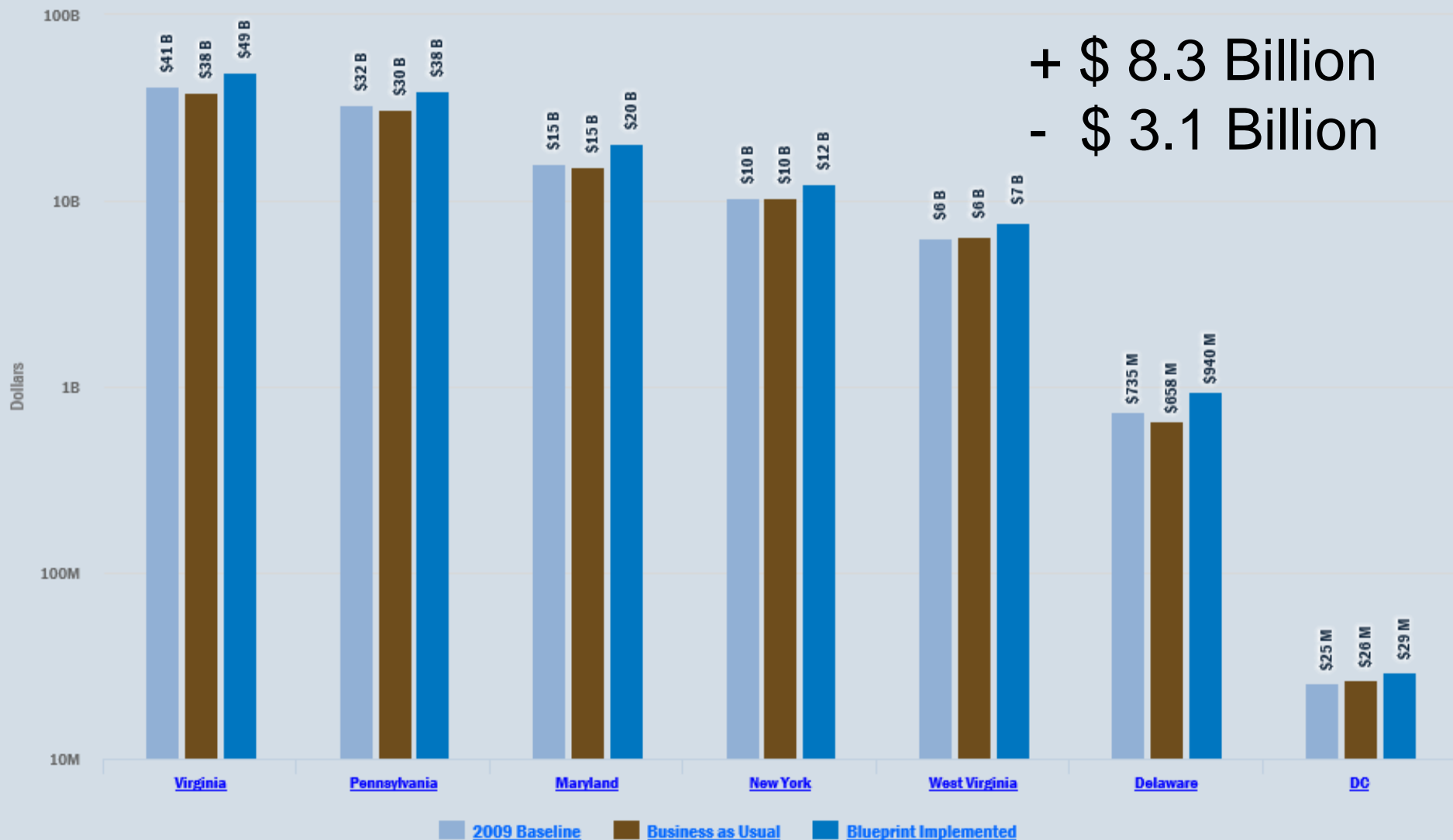
Highcharts.co



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Watershed-wide Value

The Value of Natural Benefits by State

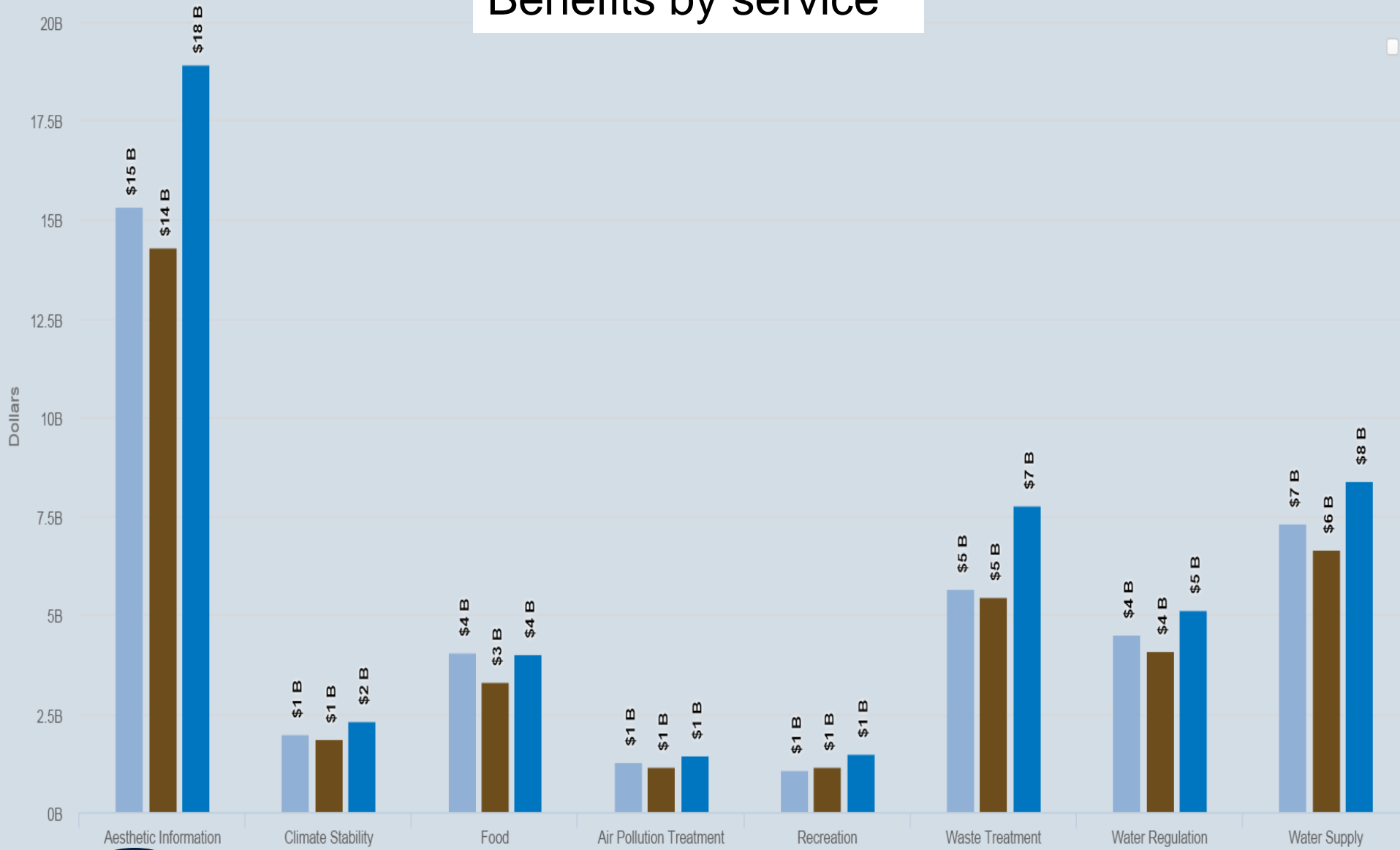


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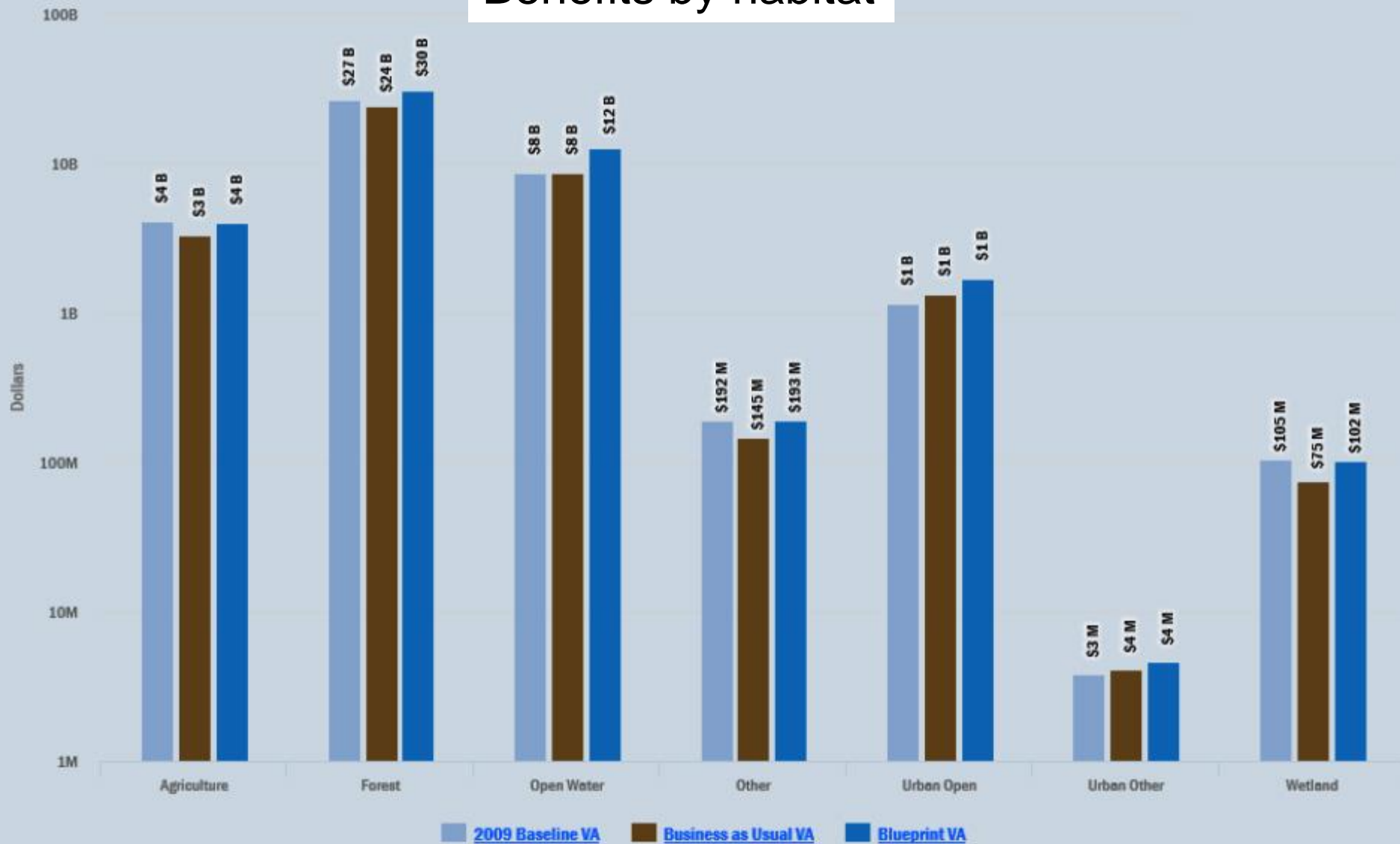
Benefits by service



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Virginia Benefits

Benefits by habitat



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Virginia Benefits

Takeaways

- Watershed-wide benefits
- Benefits 4x the cost



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Thank you!

To download the report, visit:

www.cbf.org/economicreport

To download the paper,

<http://www.tandfonline.com/doi/full/10.1080/08920753.2016.1160205>



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The Economic Report