

Considering the Economic Impact of Watershed Restoration Activities in the Boone Watershed

Sarah Ketron
Boone Watershed Partnership, Inc.

Challenges of Assigning Value to Watershed Restoration

- Often left to Governments.
- Long timescales are often needed for achieving return on investments.
- Unknown incremental benefits of watershed restoration.

How Does Clean Water Affect Our Economy?

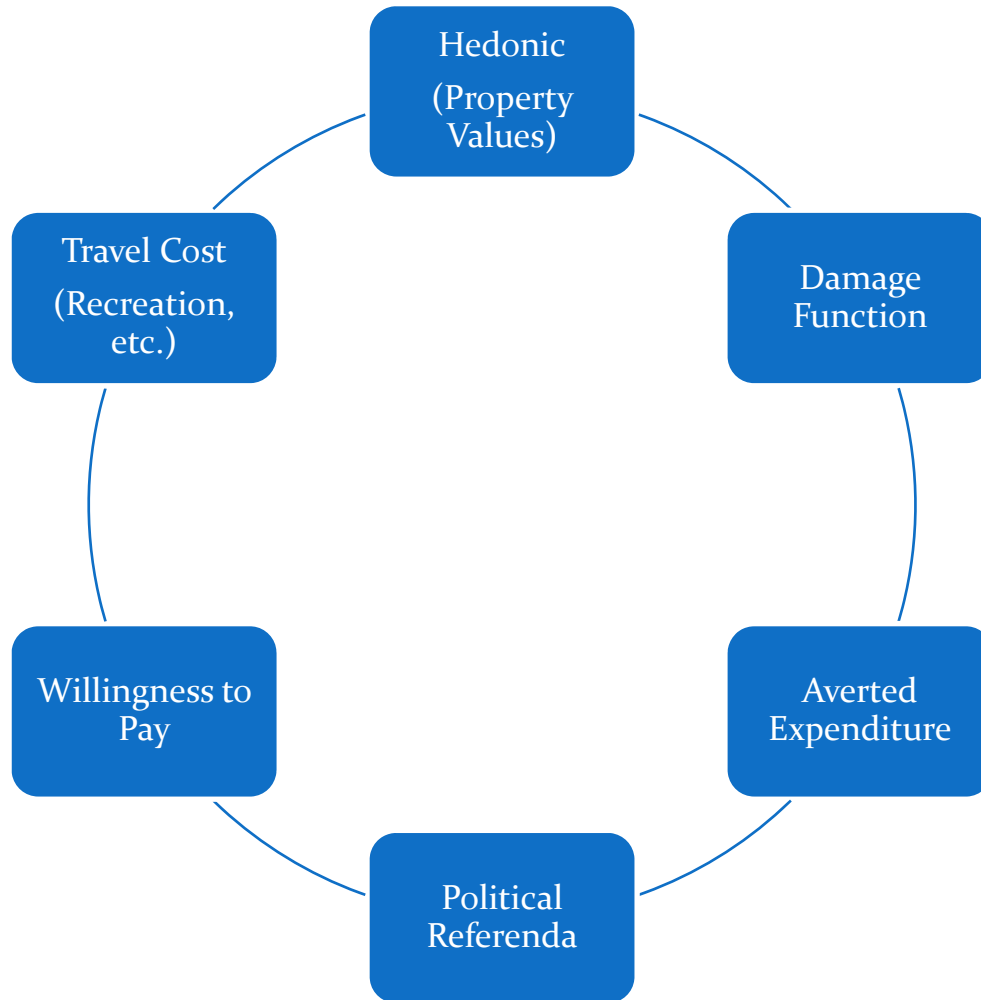
- Has not been studied extensively, would be a great opportunity for a student project!
- 686 square miles, watershed activities could touch each of the Tri-Cities and affect thousands of residents.
- Over 40 named creeks, 13 are considered “impaired”, though specific pollutants vary.
- Opportunities exist for investment in contracting, maintenance and recreation.
- Forests and public lands provide for long term sustained economic growth in rural areas.*

Can We Value Watershed Restoration?



Photo Courtesy of <http://www.tu.org/conservation/conservation-library/watershed-restoration>

Economic Methods



Economic Methods

Damage Function Method - An economic technique that quantifies the worth of potential improvements in environmental health by analyzing the economic damages caused in similar and already-degraded ecosystems.

Willingness to Pay (contingent valuation method) - Value arrived at by surveying people, usually those who live within the area of restoration activities, and measuring how much they would be willing to pay for restoration.

Political Referendum Method- Local and state governments put fundraising measures, such as general obligation bonds, in front of the public for approval. Occasionally, the public votes on measures to fund watershed restoration.

Averted Expenditure Method - Quantifies the prevention of potential future damage.

Travel Cost Method - (TCM) of environmental valuation determines economic values through analyzing people's travel expenses incurred in visiting natural areas.

Hedonic Price Method(property values) - This technique assumes that the implicit societal value for environmental amenities is manifested in housing prices.

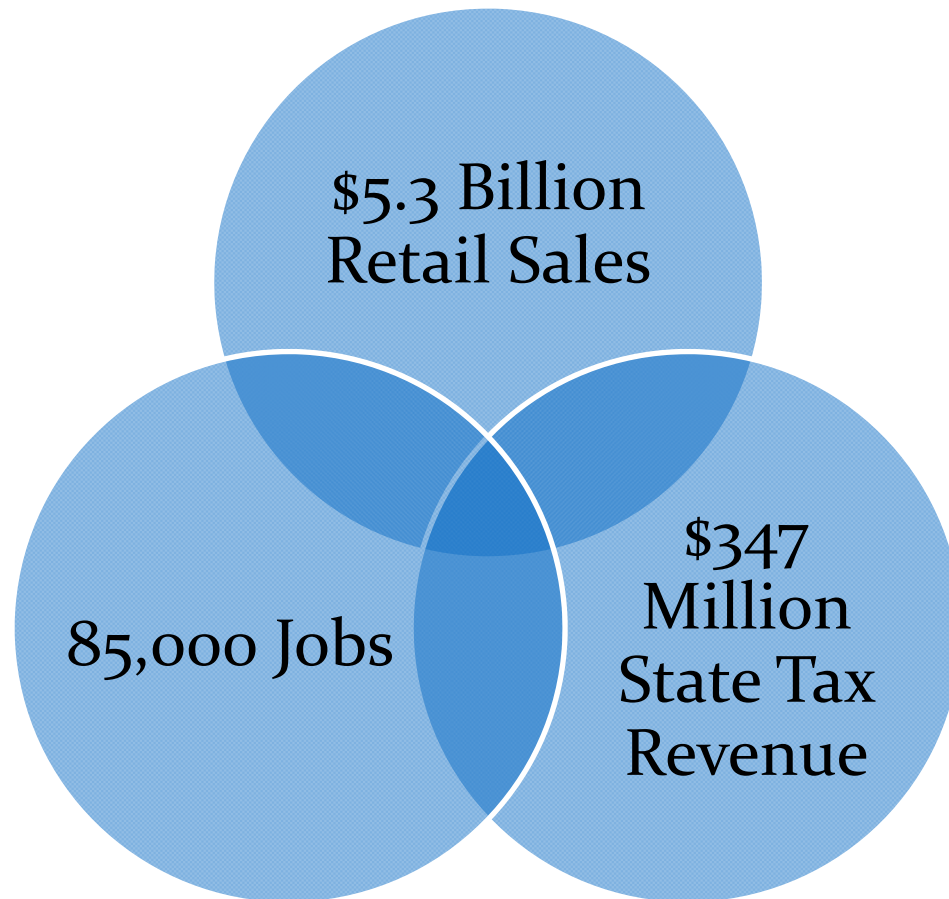
If we could visualize a market for **Watershed Restoration Activities** for impaired streams in the Boone Watershed, what would it look like?

- Recreation?
- Property Values?
- Improved municipal operations?
- Other?

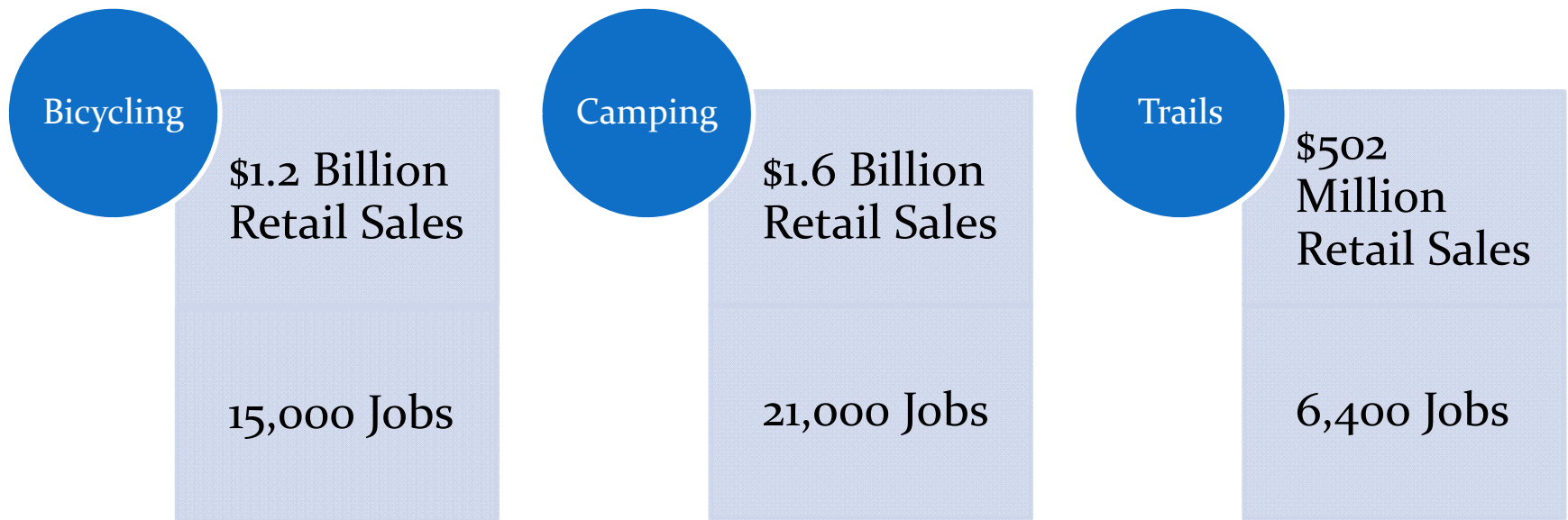


Photo Courtesy of <http://www.tu.org/conservation/conservation-library/watershed-restoration>

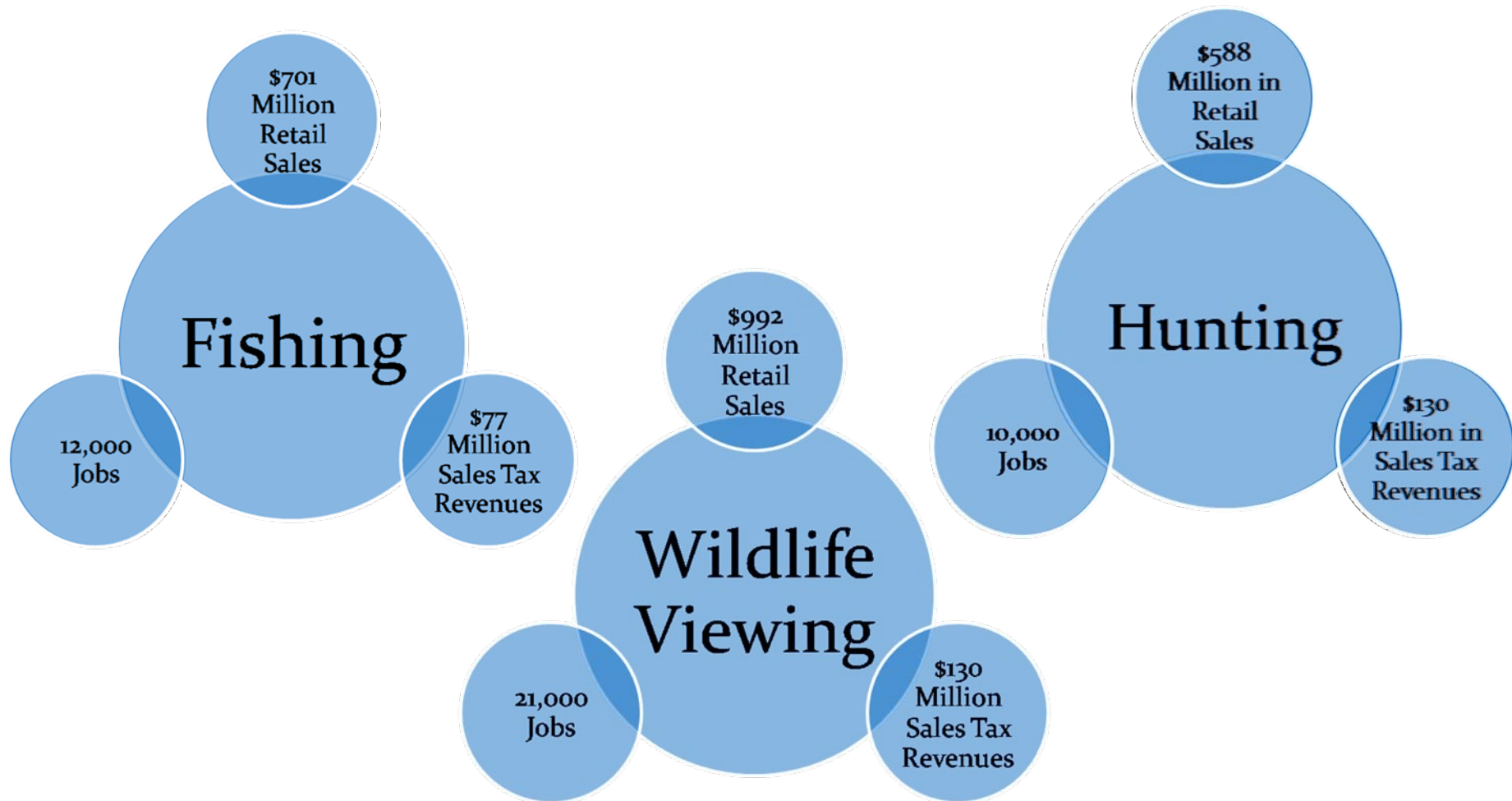
Outdoor Recreation-Big Business in Tennessee's Annual Economy



Recreation Breakdown



More on Recreation



Individual Land Values

- Home values increased in the Chesapeake Bay 1.5 percent for every 100 fecal coliform counts removed per 100mL of water (Legget and Bockstael, 2000),
- And in the St. Mary's watershed in Maryland home values decreased \$1,086 for every milligram per liter increase in total suspended solids and \$17,642 for every milligram per liter increase in dissolved inorganic nitrogen (Poor et al., 2007).

Dollars and Sense-Value for Whole Communities

- Local parks and greenways not only play a role in watershed protection, they also increase property values and property tax revenue.
- The property tax increase is often times enough to offset debt load and retire purchase and development costs (Crompton, 2000).

Municipal/Regional “Revenue” from our Resources, (in Tennessee annually)

For Every

10,000 Acres of
Wetland

- \$79 Million
- Flood Control,
Drinking Water
Filtration,
Ground Water

For Every

10,000 Acres of
Forest

- \$1.2 Million
- Clean Air and
Clean Water

For Every

10,000 Acres of
Lakes and Rivers

- \$34 Million
- Water Storage,
Flood Water
Retention

Other Benefits



Reduction of
Erosion/Loss
of Land



Human and
Animal
Health and
Safety



Community
Involvement

Local Examples

- Sinking Creek Restoration Project- 2008-Pollutant: Fecal Coliform, especially *e Coli* (Bacteria)
- ~10 stream miles in Washington and Carter Counties and the City of Johnson City
 - Economic Opportunities:
 - Improved grazing practices for herds could affect farmer's bottom line by both reducing harmful bacteria and reducing erosion of valuable land.
 - Residential areas may benefit by receiving public services and increased property values.
 - Businesses have an opportunity to interact with the community.

Local Examples

- Gap Creek Restoration Project-2009-Pollutant: Sediment
- ~2 Stream Miles in Elizabethton
- Economic Opportunities:
 - Reduction of the loss of property to erosion
 - Possible reduced maintenance costs for maintaining public infrastructure (i.e. roads)
 - Possible avoidance of penalties for not addressing problems

Clean Water Makes it Possible!

