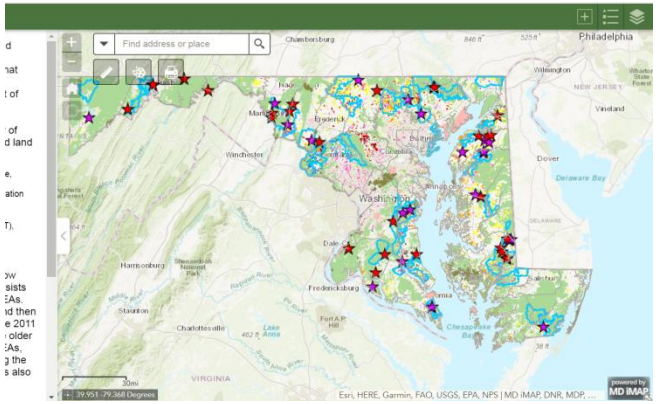
The Chesapeake and Atlantic Coastal Bays Trust Fund and New Tools for Land Conservation in Maryland



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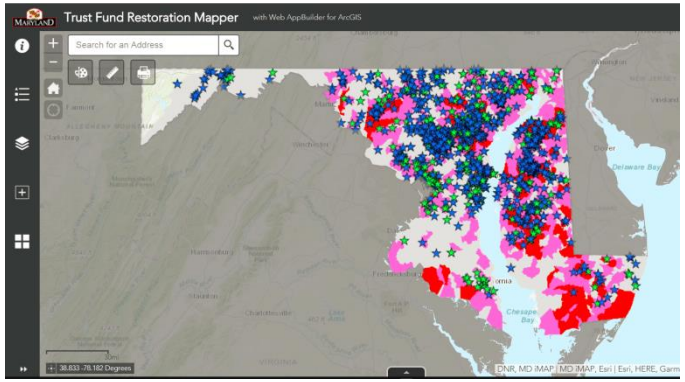

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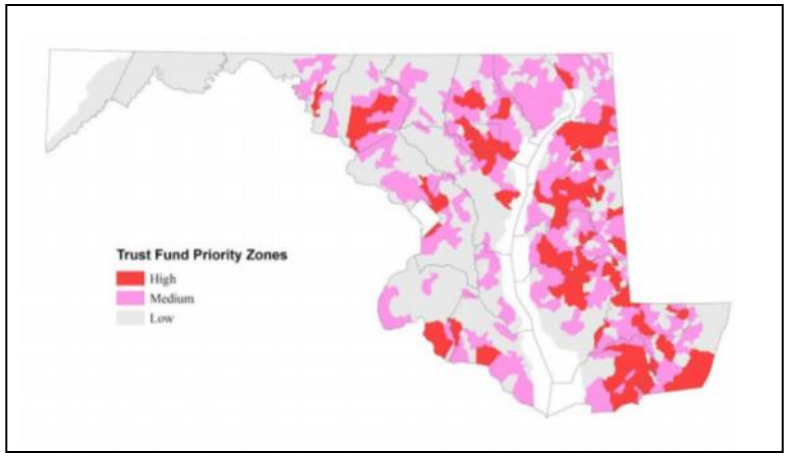
Chesapeake & Coastal Service

Maryland Department of Natural Resources

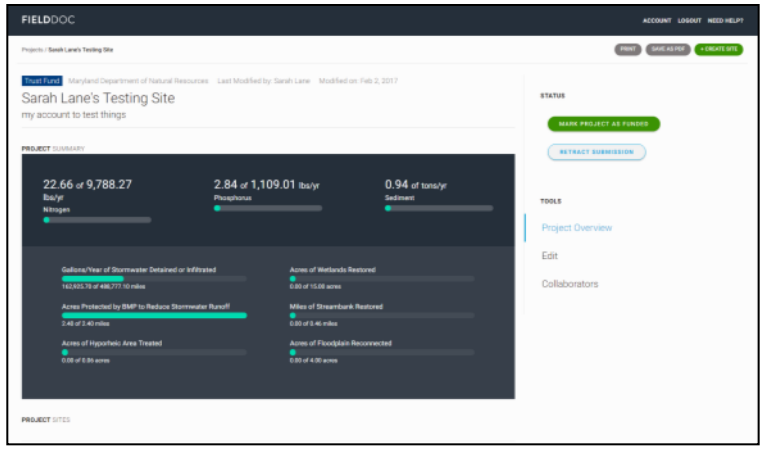
Trust Fund 101

WHO:	Local governments and non-governmental organizations
WHAT:	Funding for non-point source nutrient and sediment reduction projects
WHERE:	Geographically targeted areas of the portion of the state within the Chesapeake and Atlantic Coastal Bays watersheds
WHEN:	Annual solicitation issued in December for funds available July 1 of subsequent year
WHY:	Provide resources to help make progress towards Bay water quality restoration goals
HOW:	Funding provided through motor fuel and car rental tax

Project Selection



geographic targeting



cost effectiveness

readiness and ability to proceed

MARYLAND DEPARTMENT OF NATURAL RESOURCES

CHESAPEAKE AND ATLANTIC COASTAL BAYS TRUST FUND 2018 ANNUAL REPORT

Measuring Impact

Magothy Watershed Stream Restoration In Anne Arundel County

PROBLEM: Eroding stream banks and flooding along Cypress Creek were allowing excess nutrients and sediment to reach the Chesapeake Bay.

SOLUTION: Reduce excess nutrients and sediment by reconnecting floodplain and restoring wetlands and riparian buffer on the North Branch of Cypress Creek.

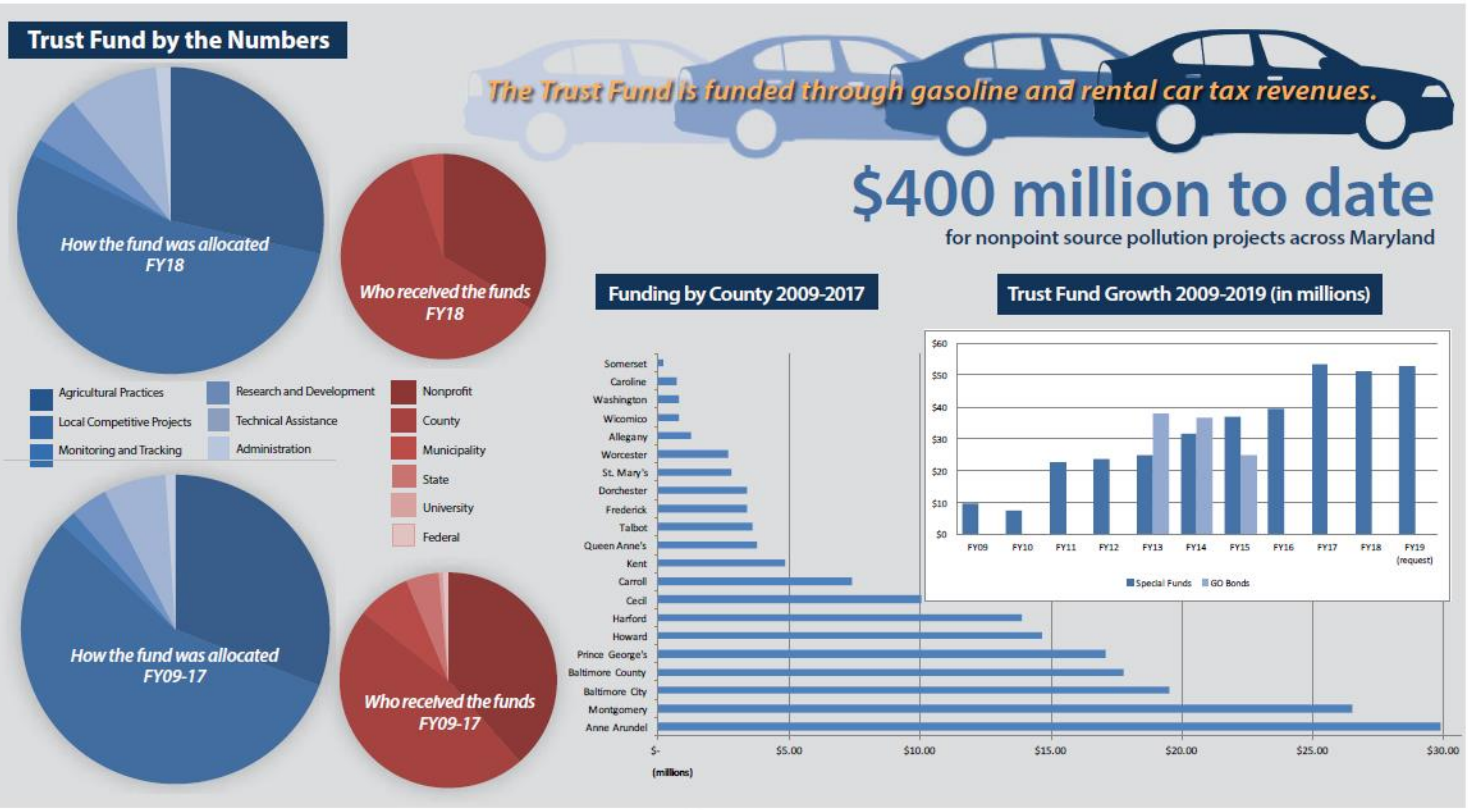
Erosion Reduction
(Annual lbs.)

42,866	Suspended Sediments
349	Phosphorus
1,485	Nitrogen

Cost per Pound
(Based on an est. 15-yr. project life)

cost per lb. of Sediments	$4.46
cost per lb. of Phosphorus	$548
cost per lb. of Nitrogen	$129

Trust Fund by the Numbers



Completed to Date

2,706	acres of wetland restored
151,484	linear feet of stream restored
470	stormwater retrofits installed
500	rain gardens installed
17	acres of impervious surface removed
15,467	urban trees
374,146	acres of Cover Crops in FY17
1,161	acres of riparian forest
34,680	volunteers engaged
2,619	direct and indirect jobs supported

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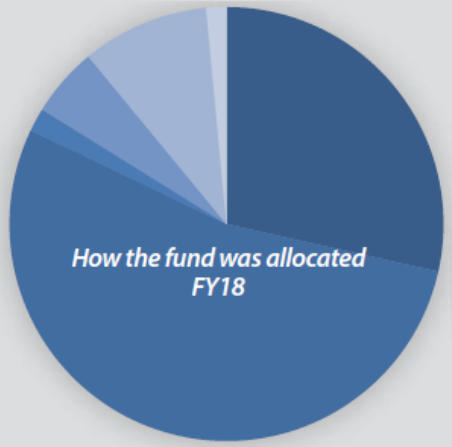
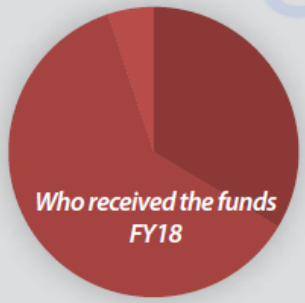
Trust Fund by the Numbers

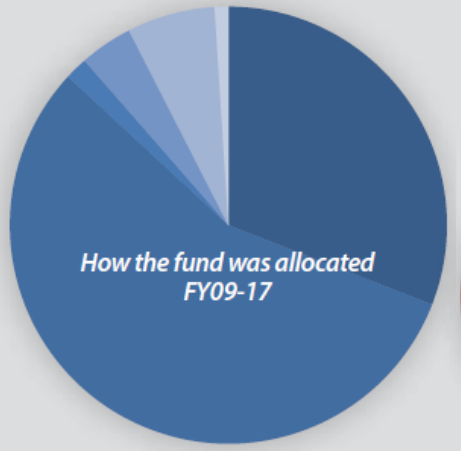
$400 million to date

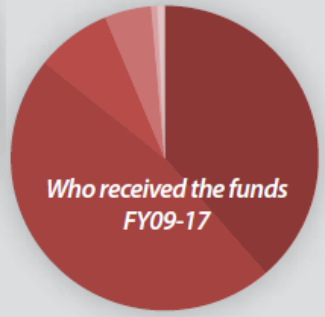
for nonpoint source pollution projects across Maryland



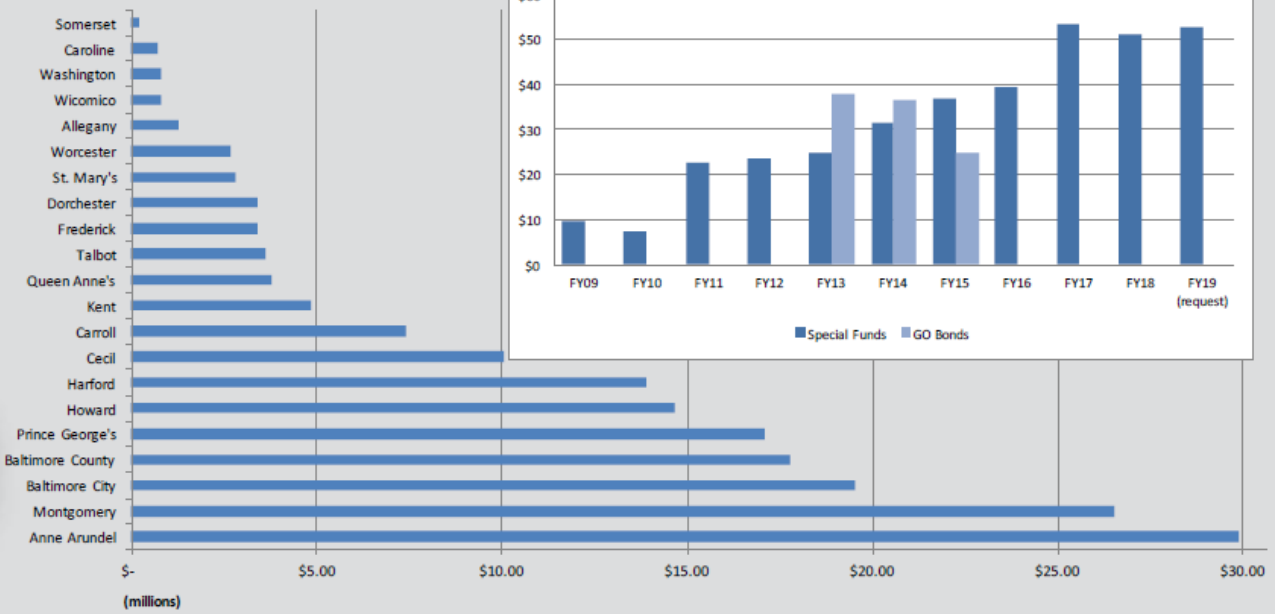


Agricultural Practices
Local Competitive Projects
Monitoring and Tracking
Research and Development
Technical Assistance
Administration
Nonprofit
County
Municipality
State
University
Federal





Funding by County 2009-2017



Trust Fund Growth 2009-2019 (in millions)

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Completed to Date

- 2,706 acres of wetland restored
- 151,484 linear feet of stream restored
- 470 stormwater retrofits installed
- 500 rain gardens installed
- 17 acres of impervious surface removed

- 15,467 urban trees
- 374,146 acres of Cover Crops in FY17
- 1,161 acres of riparian forest

- 34,680 volunteers engaged
- 2,619 direct and indirect jobs supported

Funded Projects

Land Trust Examples

Private investment firms in the watershed are combining private equity fund management with ecosystem restoration expertise to realize desired environmental returns in a cost-effective, large-scale manner. Recently, the Trust Fund has partnered with Cecil land Trust and Ecosystem Investment Partners (EIP) to restore stream reaches, riparian buffers and wetlands in the Principio Creek watershed. EIP will leverage private investment to design, build, verify and monitor the stream restoration to ensure desired outcomes are met and maintained.

Cecil Land Trust – Horst Property

Cecil Land Trust – Zartler Property

Cecil Land Trust

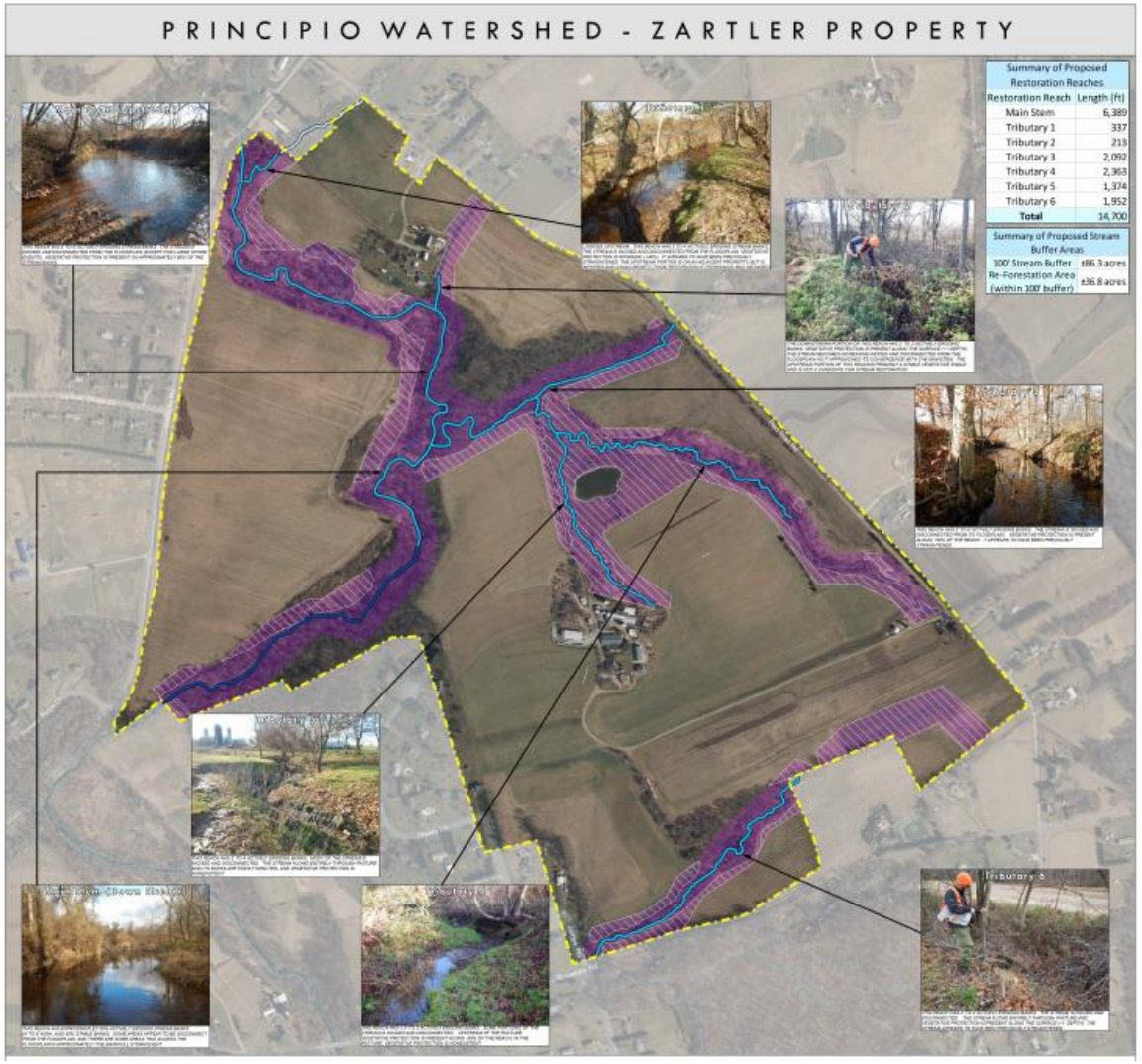
Horst Property

Horst Property

- 8,200 linear feet of stream restoration
- 25 acres of riparian buffer
- $798/lb of Nitrogen
- Monitoring and maintenance schedule for 5 years
- Restoration completed 2017

Cecil Land Trust

Zartler Property



Zartler Property

- 14,000 linear feet of stream restoration
- 31 acres of riparian buffer
- $300/lb of Nitrogen
- Monitoring and maintenance schedule for 5 years
- $500,000 in leveraged funding from Cecil County
- Cecil County receives credits towards their MS4 permit
- Planned completion 2018

MD DNR Parcel Evaluator Tool

- Two components:

- Conservation Benefit Assessment
  - 1 star (low) through 5 star (high) rating of benefits for seven categories of benefit

- Ecosystem Service Assessment
  - Models the biophysical quantity and resulting economic benefit of seven ecosystem services in Maryland

MD DNR Parcel Evaluator Tool

- The DNR uses the Conservation Benefit Assessment to score lands acquired by the state

- The Ecosystem Service Assessment can also be considered in land acquisition and being used to evaluate
  - Benefits of ecological restoration
  - Costs of impacts to existing state lands

- The tool will be housed on Maryland Greenprint - http://dnr.maryland.gov/land/Pages/Green-Infrastructure-Mapping.aspx and available to the public in the coming weeks

Conservation Benefit Assessment

- **Habitat Connectivity ★★★★★**
  - The state's remaining large blocks of forest and wetlands (hubs) and the habitat pathways (corridors) that connect them.
  - Data Source: Maryland DNR, Green Infrastructure - Hubs and Corridors. 2005

- **Rare Species & Wildlife Habitat ★★★★★**
  - As described by the Biodiversity Conservation Network(BioNet), these are habitats of the state's rarest plants and animals, as well as high quality and rare natural communities and other living resources of conservation concern.
  - Data Source: Maryland DNR, BioNet Version 2. 2017

Conservation Benefit Assessment

- **Forests Important for Water Quality Protection** ★★★☆☆
  - Forests for healthy watersheds that are the most effective in preventing pollution to streams, rivers and bays and maintaining healthy stream hydrology.
  - Data Source: Maryland DNR Forests Important for Water Quality. 2011.
- **Targeted Ecological Area** YES or NO
  - Lands and watersheds identified as the most ecologically valuable areas in the State and are preferred for conservation funding through Stateside Program Open Space(POS). At least 50% of the parcel must be in a Targeted Ecological Area to meet ecological criteria for POS.
  - Data Source: Maryland DNR, Maryland Focal Areas - Targeted Ecological Areas 2011.

Conservation Benefit Assessment

- **Coastal Community Resiliency★★☆☆☆**
  - Areas along the shoreline where natural habitats, such as marshes and coastal forests, have the potential to reduce the impact of coastal hazards to the adjacent coastal communities by dampening waves, stabilizing sediment, and absorbing water.
  - Data Source: Maryland DNR, Maryland Coastal Resiliency Assessment - Priority Shoreline Areas and Marsh Protection Potential Index. 2016.
- **Future Wetland Habitat ★★★★★**
  - Areas important for inland wetland migration resulting from sea level rise that will support high value coastal habitats of the future.
  - Data Source: Maryland DNR, Maryland Sea Level Rise Wetland Adaptation Areas. 2016.

Conservation Benefit Assessment

- **Protected Lands ★★★★★**
  - Conservation opportunities located near other protected land areas contributes to landscape scale protection which is key for conserving healthy aquatic and terrestrial ecosystems.
  - Data Source: Maryland DNR and Dept. of Planning, Protected Lands. 2017.

Ecosystem Service Assessment

"Benefits that People Gain from the Environment'

We Quantify Both Biophysical and Economic Value

- **Air Pollution Removal**: Trees remove pollution from the air that would otherwise contribute to human health problems, such as asthma and cardiovascular stress.
- **Carbon Sequestration**: Ecosystems take up carbon and store it in their biomass, offsetting some of the emissions from human activity and helping to reduce climate change.
- **Groundwater Recharge**: Ecosystems allow for water to percolate through the soil and recharge aquifers, which Maryland relies on for 50% of its drinking water supply.

Ecosystem Service Assessment

- **Nitrogen Uptake Potential Index**: Nitrogen pollution is critically important to the health Chesapeake Bay. Forests and wetlands remove nitrogen through taking it up in their biomass and soils.
- **Stormwater Mitigation/Flood Prevention Potential Index**: Forests and wetlands absorb rainfall, lessening the amount of runoff that would otherwise cause erosion, need to be treated by stormwater systems, or cause flood damage.
- **Wildlife Habitat and Biodiversity Potential Index**: Certain forests and wetlands are better able to support wildlife and more likely to support rare and threatened species. These are typically ecosystems that are less impacted by people.
- **Surface Water Protection**: Forests reduce pollutant runoff into reservoirs, increasing water quality in the reservoir and reducing the cost of treating water to meet drinking water standards.

Tool Demonstration

- Parcel Evaluator Tool

- Questions?

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