

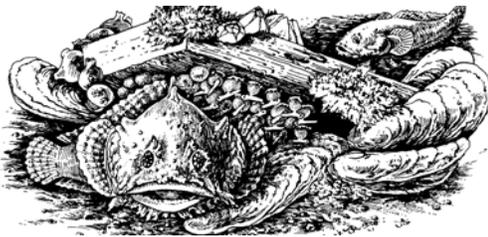
# The goo must go! on Elizabeth's bottom

*The vital effort to clean up our river bed*

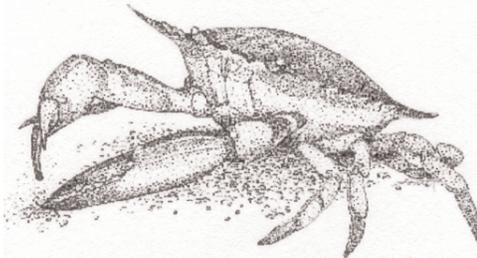
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## The fascinating world at the bottom of the Elizabeth.

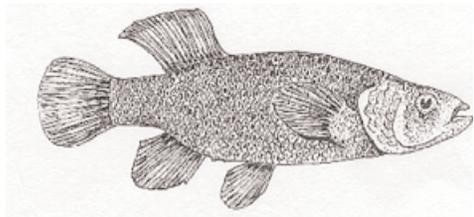
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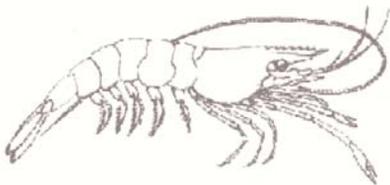
The bottom of the river is known as the “benthos” derived from Greek meaning “depths of the sea.” **One out of six living animal species is benthic!** The benthic community includes animals, plants and bacteria.



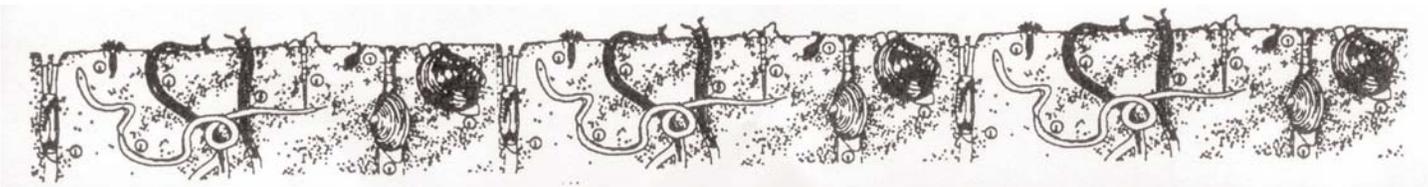
The ultimate fate of all contaminants is to be deposited on the bottom! Benthic organisms ingest pollutants when they feed on contaminated sediments and algae. **These toxic pollutants can be transferred through the food chain to humans.**

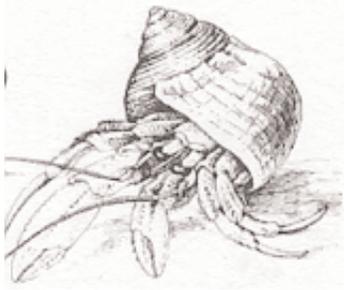


Cleaning up the bottom is important because contaminants have an adverse effect on the health of fish, wildlife and humans. **A healthy benthos = a healthy estuary --- the two go hand in hand.**

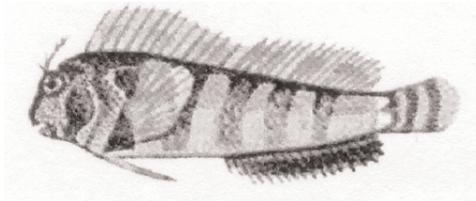


Nineteen out of 21 monitoring stations in the Elizabeth River show toxics in the sediment.



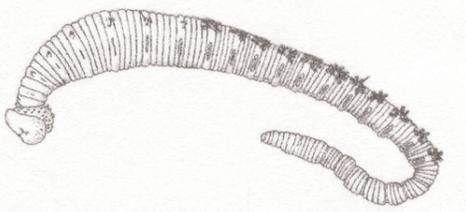


Polycyclic Aromatic Hydrocarbons (PAH), formed by the incomplete combustion of organic matter, are toxic and carcinogenic. PAH levels associated with creosote in the Elizabeth River are among the highest in the bay. **In some hot spots, toxics are 463 times the average for Chesapeake Bay and 18 times the average for Baltimore Harbor.**



### Classes of pollutants

- ♦ Metals that naturally occur include silver, arsenic, cadmium and copper.
- ♦ Organic compounds containing carbon and can be man-made or natural.
- ♦ Organometallic compounds which contain both metals and carbon include methyl mercury and TBT.



Persistent chemicals, such as PCB's, can bioaccumulate in the fat tissues of animals living in the river.

In Waukegan Harbor in Lake Michigan, a pool of PCB contamination was found in 1981. In 1985, 1 million pounds of PCB-laden sediments were removed. In 1997, for the first time in 30 years, the city removed the fishing ban. Between 1980 - 1990 there was 0% growth in population. Between 1990 - 2000 there was a 40% growth in population primarily as a result of improved image.

### THE Elizabeth River Project

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## The goo must go!

The Elizabeth River bottom is the most polluted on the Chesapeake Bay. Sediment contamination concentrations are higher in the Elizabeth River than anywhere else in the Chesapeake Bay watershed, designating the Elizabeth as one of the three "Regions of Concern." In some hot spots of the river sediments, toxics are 463 times the average for the Chesapeake Bay and 18 times the average for the Baltimore Harbor. Some stretches of river bottom are virtually devoid of life.

Toxics accumulating on the river's muddy floor have long been correlated with tumors, cataracts, and other abnormalities in fish, and pose risks for human health as well. Scientists once thought the problem might be in isolated "hotspots" only. However, data collected in 1999 for the Virginia Department of Environmental Quality's Elizabeth River Monitoring Program found contamination throughout the river bottom, with extremely high levels in some locations.

## The bottom line solution

For the first time in our nation, a major river sediment cleanup has been initiated by voluntary community action. The cities of Chesapeake, Norfolk, Portsmouth and Virginia Beach are cost-sharing a voluntary project with the Commonwealth of Virginia for the US Army Corps of Engineers to conduct a demonstration clean up of Elizabeth River sediments.

The first site, Scuffletown Creek in Chesapeake, will demonstrate cost-effective cleanup technologies to be applied to other sites. The first effort is expected to cost \$13 million. Local and regional leaders have pledged support for

cost-sharing the project with 65 percent federal and 35 percent state and city dollars.

The Elizabeth River Project organized this initiative to address our No. 1 goal: cleaning up the most contaminated hotspots in the river bottom by 2020. The Elizabeth River Project is raising private funds for the Bottoms Up! Education Campaign and to contribute private support for the clean up.

## The value of restoration

Improving the health of the Elizabeth River bottom is the most important step toward restoring a healthy river ecosystem. In fact, scientists believe that without cleaning the river sediments, restoration of the river will be nearly impossible.

In addition to improving the health, abundance and diversity of life along the river bottom ("benthic" ecology), cleaning up the contamination will improve quality of life, recreation opportunities and marketability of the region for humans. Studies show that people prefer to live in areas with clean water and air. Industries consider such factors in relocation decisions.

## Education campaign

The "Bottoms Up!" Campaign is a two-year education initiative by the Elizabeth River Project, in partnership with the Virginia Institute of Marine Science at the College of William and Mary; the school systems of Portsmouth, Norfolk, Chesapeake and Virginia Beach and the Children's Museum of Virginia.

Funded by the Beazley Foundation, Portsmouth Community Foundation, American Management Systems and the sale of Chesapeake Bay license plates, this project is providing Hampton Roads' first public education on bottom dwelling ecology.

Learning experiences range from elementary and middle school lessons meeting Virginia's Standards of Learning to adult workshops and pre-school museum experiences. The purpose is for all age-levels in the four cities to understand the ecology of healthy river bottoms; the pollution challenges in the Elizabeth, and actions proposed to clean the contaminated river bottom.

## We speak for the river

Achieving restoration requires thousands of committed people and organizations working patiently over several decades to carry out hundreds of initiatives. The non-profit Elizabeth River Project is recognized as a model for the Chesapeake Bay for its success in organizing grassroots support for broad environmental improvements.

The mission of the Elizabeth River Project is to restore the Elizabeth River to the highest practical level of environmental quality through government, business and community partnerships. Although the Elizabeth River is a dirty waterway with toxic sediments in some hot spots, the river is also cleaner than ever before in modern times. The Elizabeth River Project invites you to be a part of making this caring vision of a cleaner river a reality. Let us know how you would like to help with the Elizabeth River restoration. Call (757) 399-7487 or visit our website





**Made possible by**

*Beazley Foundation*

*Portsmouth Community Foundation*

*American Management Systems*

*Funds generated from the sale of Chesapeake Bay license plates*

THE Elizabeth River Project

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