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### Risk assessment of Bear Creek Sediments

Rebekah Godfrey

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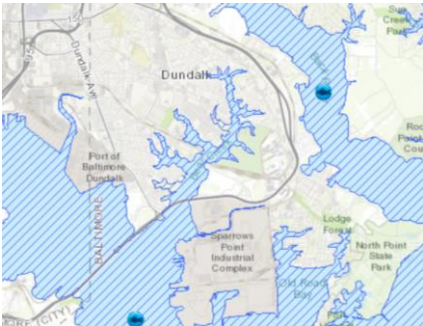
# Risk Assessment of Bear Creek Sediments

Rebekah Godfrey

BIOL364: Perspectives in Toxicology (Instructor: Dr. Erin Shanle), Longwood University

## Site Description

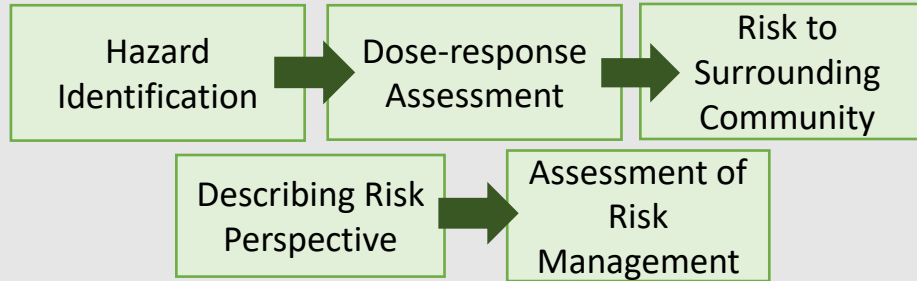
- Bear Creek connects to Chesapeake Bay (1)
- Mainly used for ship building and steelmaking (2)
  - Where toxins came from
  - Arsenic and benzopyrene
- Investigation completed earlier this year (3)



## Specific Aim

The aim of this study was to develop a perspective on the risk management of your site/scenario using multiple perspectives.

## Methods



## Results

- Arsenic
  - Found naturally in an inorganic and organic form (4)
  - RfC=  $2 \times 10^{-6}$  mg/m<sup>3</sup> (5)
  - RfD=  $3 \times 10^{-4}$  mg/kg/day (5)
  - Exposure can lead to different effects depending on route and dose
- Benzopyrene
  - Spreads easily through soil and groundwater (6)
  - RfD=  $3 \times 10^{-4}$  mg/kg/day (7)
  - Exposure can cause to irritation of different body parts, cancer
- Surrounding communities: Dundalk, Edgemere, and Parkville

	Edgemere	Dundalk	Parkville
Population	9,069	67,796	31,812
% Living in Poverty	8.0%	14.6%	8.3%
% Without Health Insurance	4.2%	9.6%	6.6%

## Conclusion

- Many in surrounding community are affected by the chemicals
- Fishing, crabbing, and water recreational activities
- Children could endure developmental problems (4)
- Case of environmental injustice
  - Considerable portion of population living in poverty and without health insurance (8)
  - Many may get their food from the waterways affected
- Risk management
  - Immediate need for cleanup
  - Use plants to help clean up the toxins (9)

## References

