



# Fisheries/Aquaculture: MDE SHELLFISH MONITORING

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MDE/Field Services Program



**Maryland**  
Department of  
the Environment

# MDE SHELLFISH MONITORING

Interagency Workshop on Societal  
Applications of Satellite Data for the  
Chesapeake Bay

August 7, 2018

John McKay-MDE/Field Services Program



# Types of Surveys

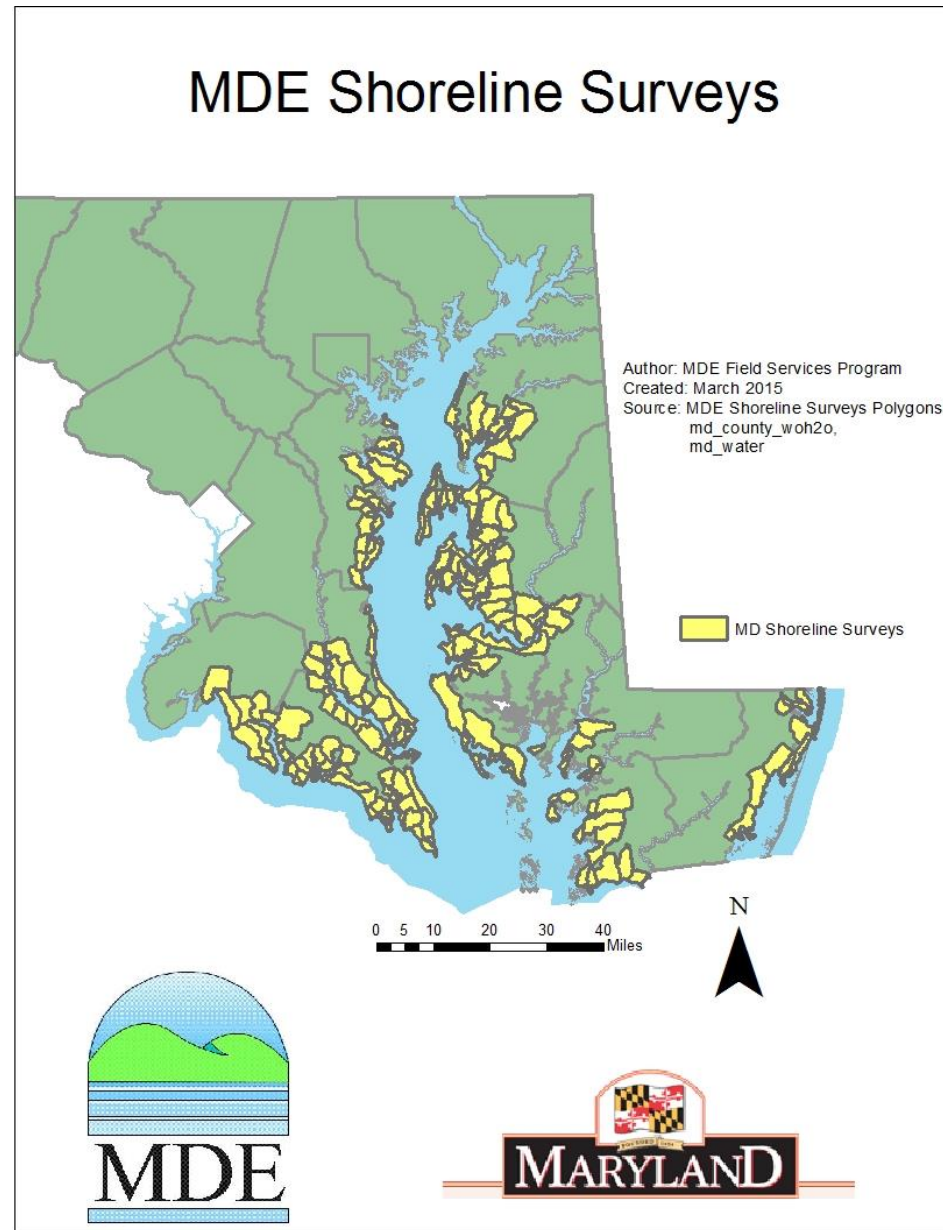
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- Shoreline
- Bacteriological
- Meteorological
- Hydrographic



## SHORELINE SURVEYS

Mostly door to door surveys of shoreline areas adjacent to shellfish growing areas looking for various bacterial loading sources such as failing onsite waste systems, direct pipe discharges, and animal waste concentrations.







# FAILING ONSITE WASTE SYSTEMS

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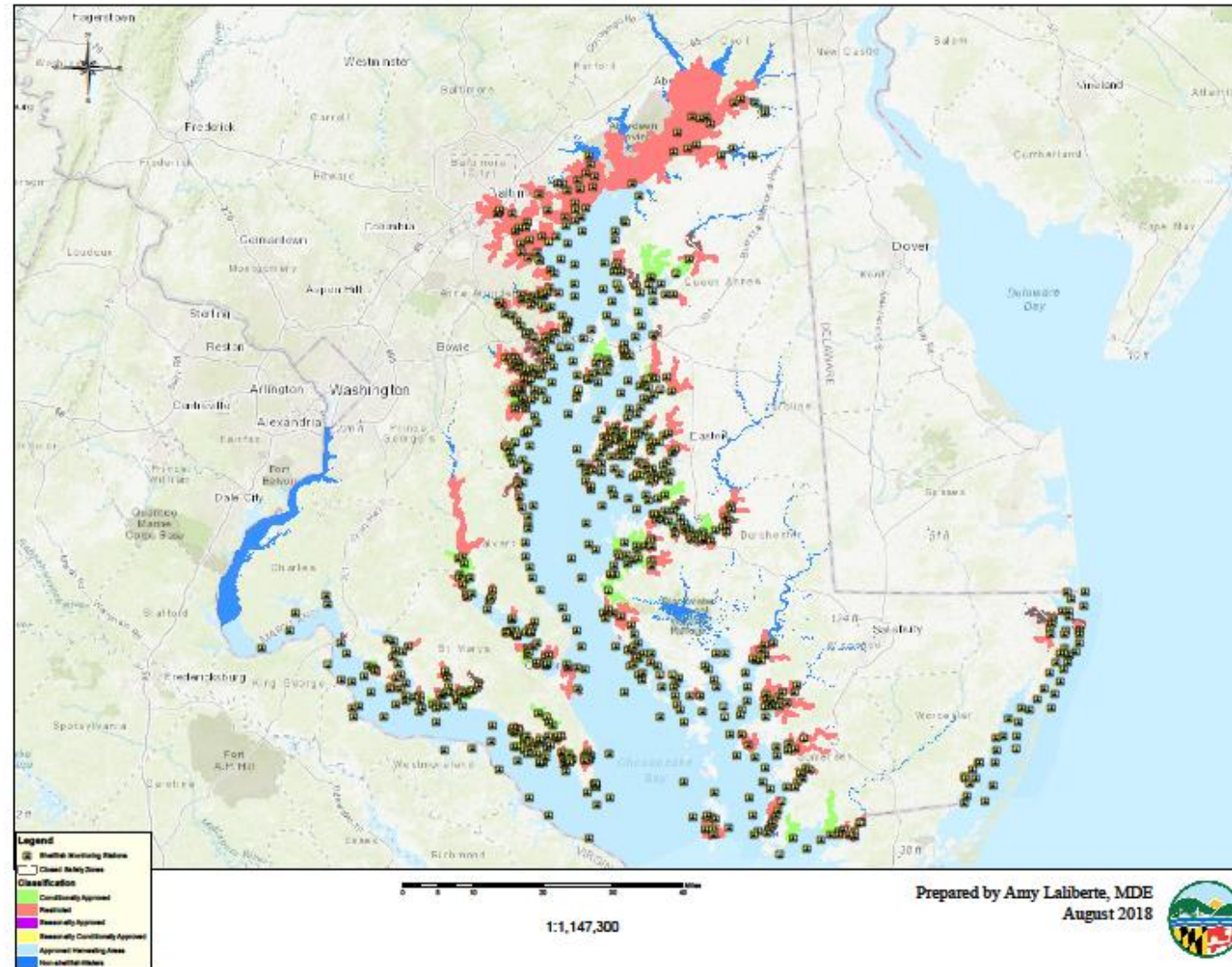


## BACTERIOLOGICAL SURVEYS

- 5 regionally deployed boat teams sample at more than 750 sites every month.
- Field teams collect water samples for bacteriological analysis and measure physical water quality parameters that include temperature, pH, dissolved oxygen, secchi depth and salinity at select locations.

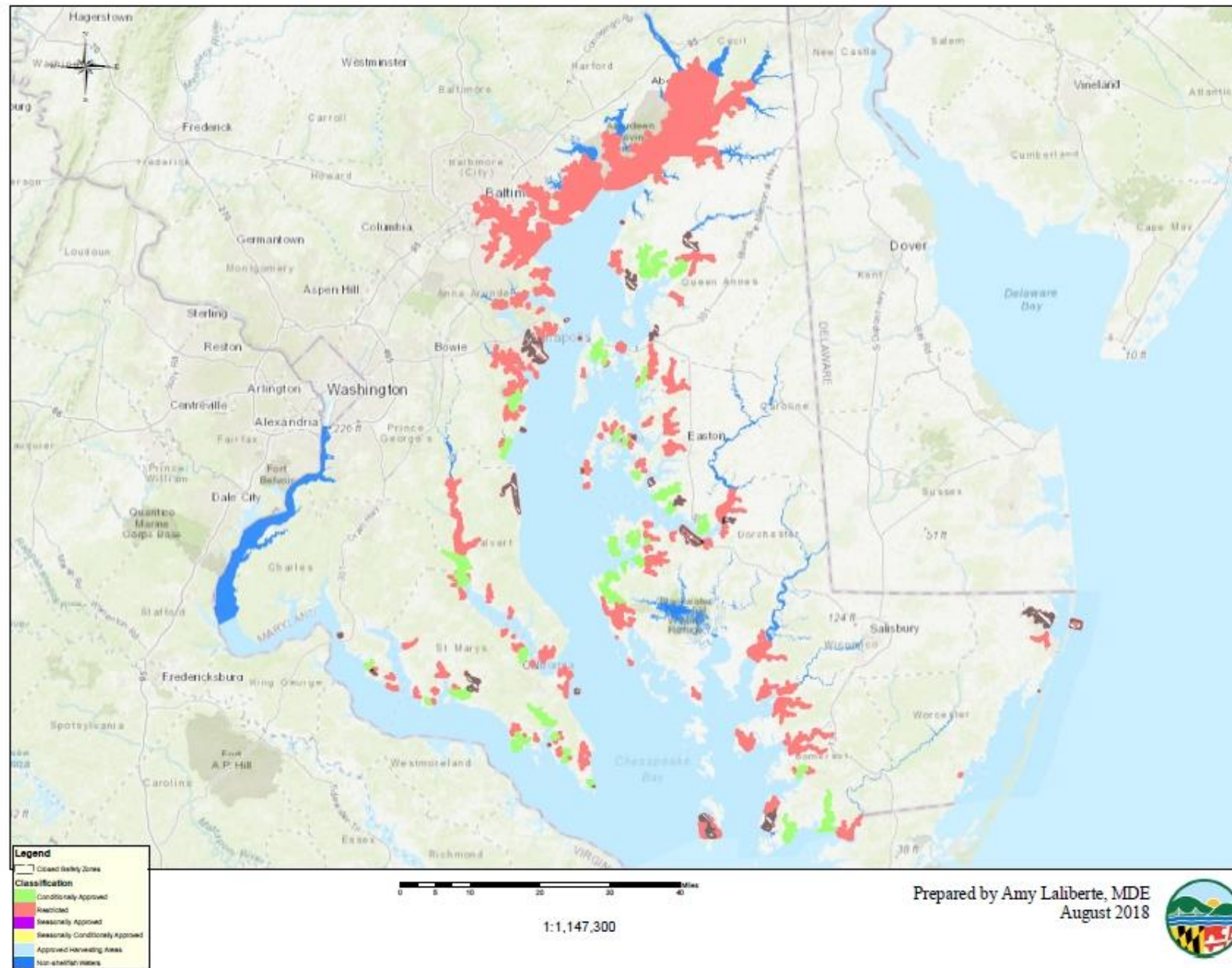


## Maryland Shellfish Harvesting Waters





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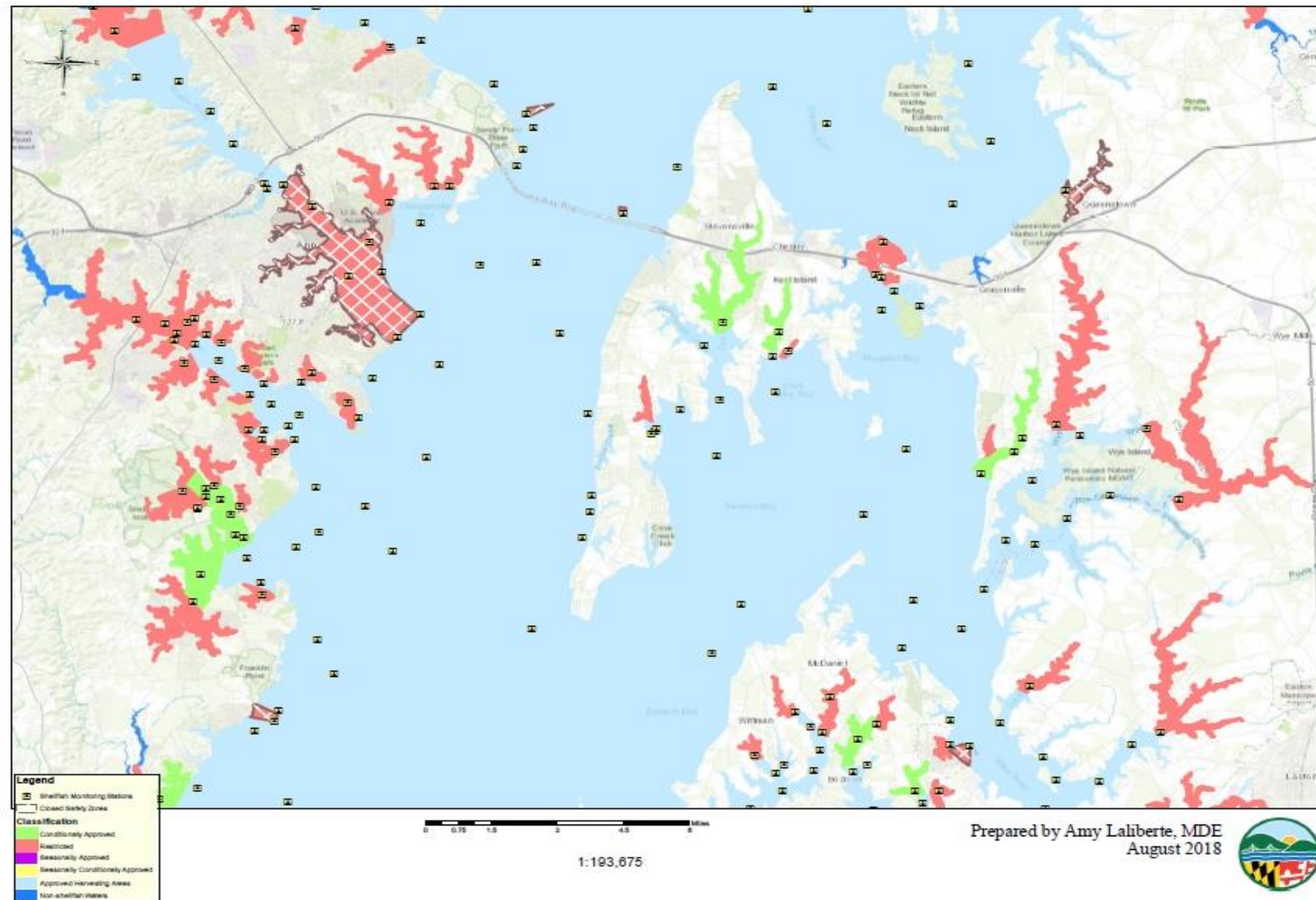


Prepared by Amy Laliberte, MDE  
August 2018





## Maryland Shellfish Harvesting Waters





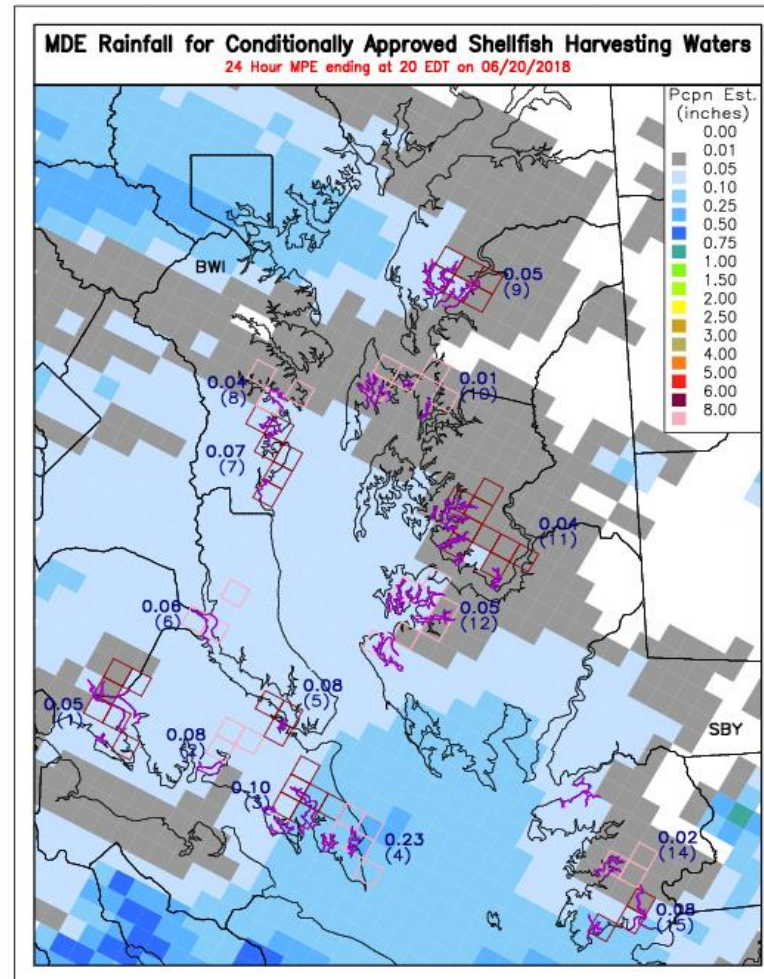
# SHELLFISH WATER QUALITY

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- NSSP/MDE Standard /Fecal Coliform Standard
- **Approved:** (direct harvesting permitted)  
Median <14 MPN/100ml 90th Percentile <49
- **Conditionally Approved** (direct harvesting permitted only as outlined under heading Shellfish Water Classification below):  
For conditionally approved Median <14 MPN/100 ml and no more than 10% can exceed 49 when the area is in the open status.
- **Restricted:** (relay required)  
Median <88 MPN/100ml 90th Percentile <300
- **Prohibited:** (no growing or harvest permitted)  
Median >88 MPN/100ml 90th Percentile >300 or an area that has a high risk for human pathogens to be present.
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# METEOROLOGICAL SURVEYS







# HYDROGRAPHIC SURVEYS

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# HYDROGRAPHIC SURVEYS

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- Dye tracer studies to determine closed safety zones around WWTP.
- Time of travel, tidal dispersion, and dilution dynamics.



# HAB SURVIELLANCE

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# AN INDUSTRY IN TRANSITION

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# SHELLFISH AQUACULTURE

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# SHELLFISH AQUACULTURE

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# SHELLFISH AQUACULTURE

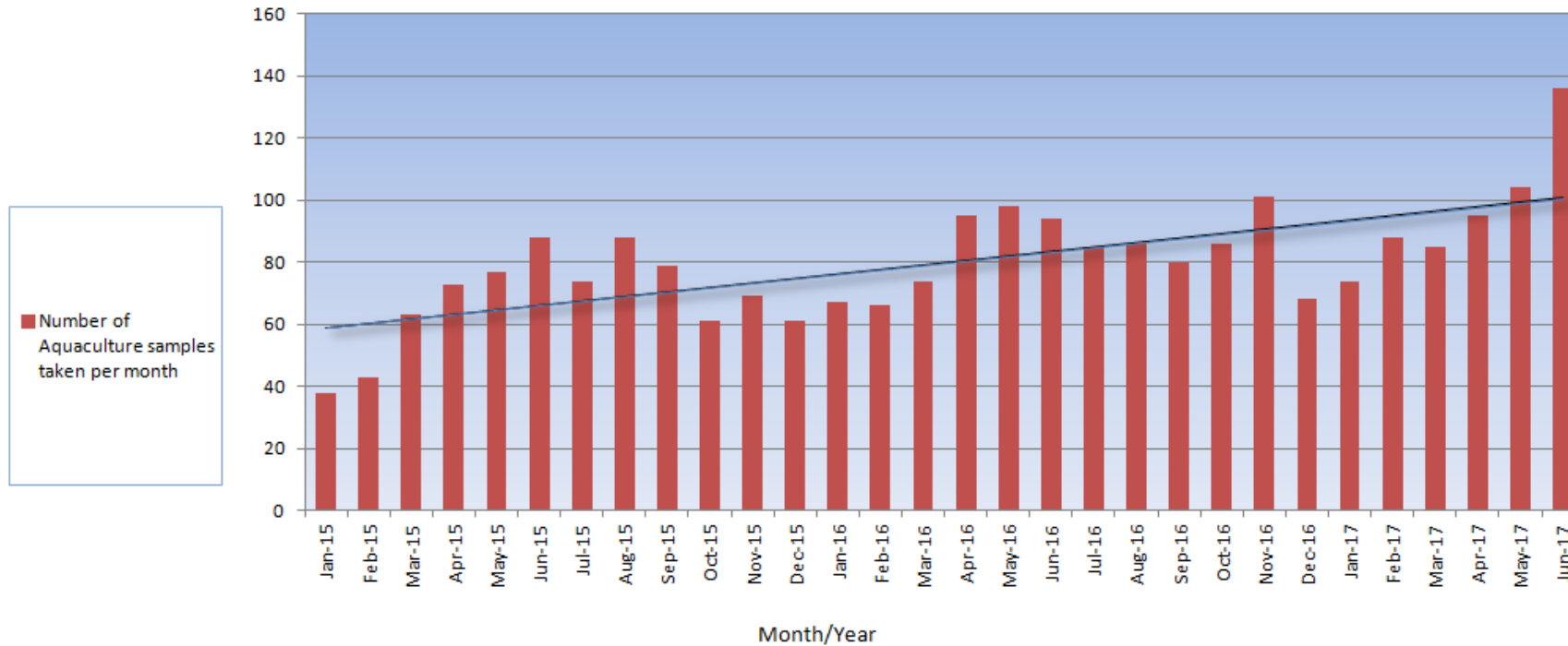
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# SHELLFISH AQUACULTURE

Number of Aquaculture Samples taken per month





# PROTECTING PUBLIC HEALTH

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- The decision making thresholds with regards to shellfish and public health is by most terms measured in # of illnesses.
- Agents of concern include but not limited to Vibrios, Norovirus, Salmonella, Hepatitis and other HAB related toxins.
- Partners in research with many past and present-UMD, UMES, Salisbury Univ., UMBC.





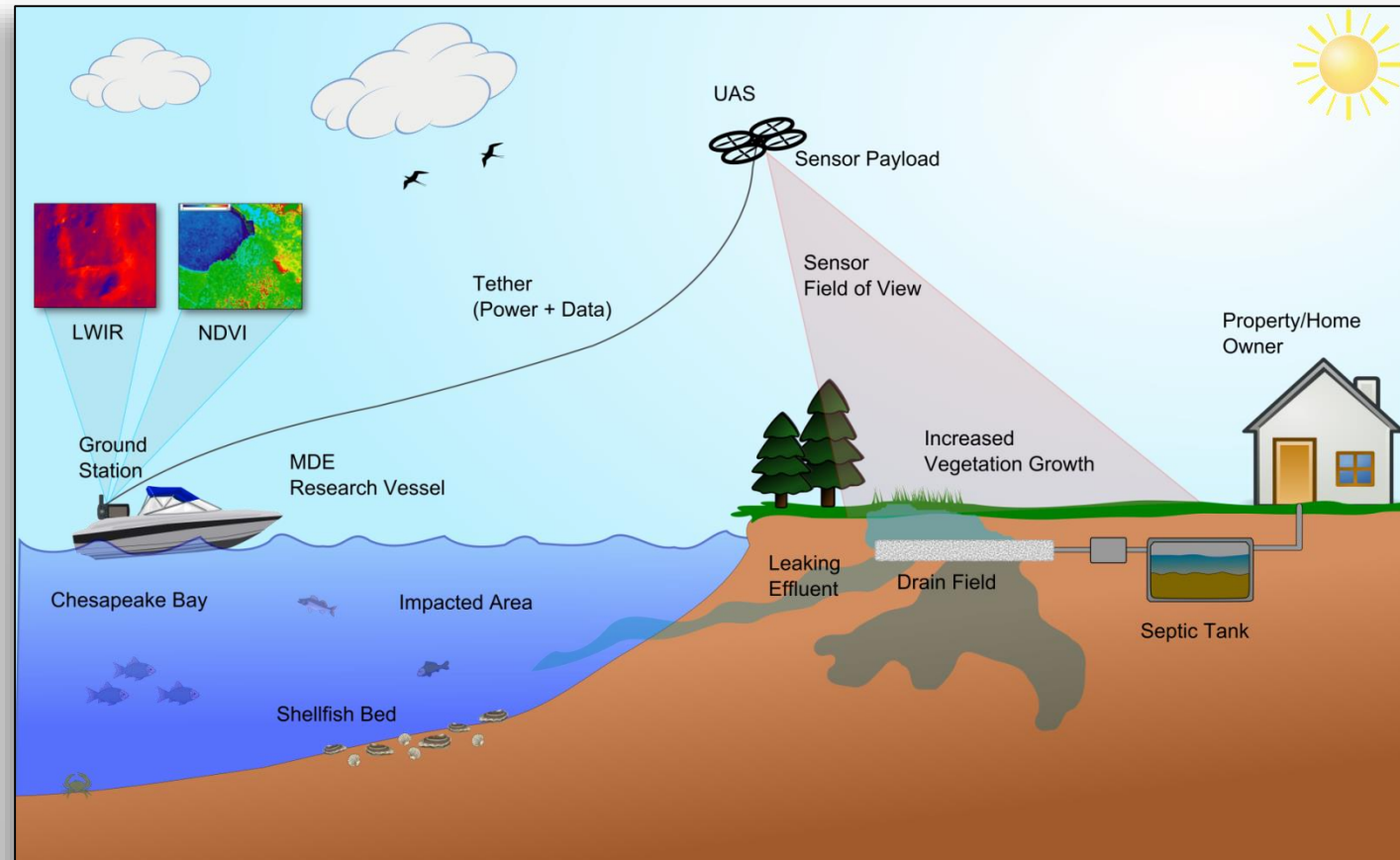
# FUTURE TOOLS

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- POLLUTION SOURCE DETECTION TOOLS
- ENHANCED HAB SURVEILLANCE SYSTEMS
- INTEGRATED MULTI PLATFORM ENVIRONMENTAL MONITORING SYSTEM



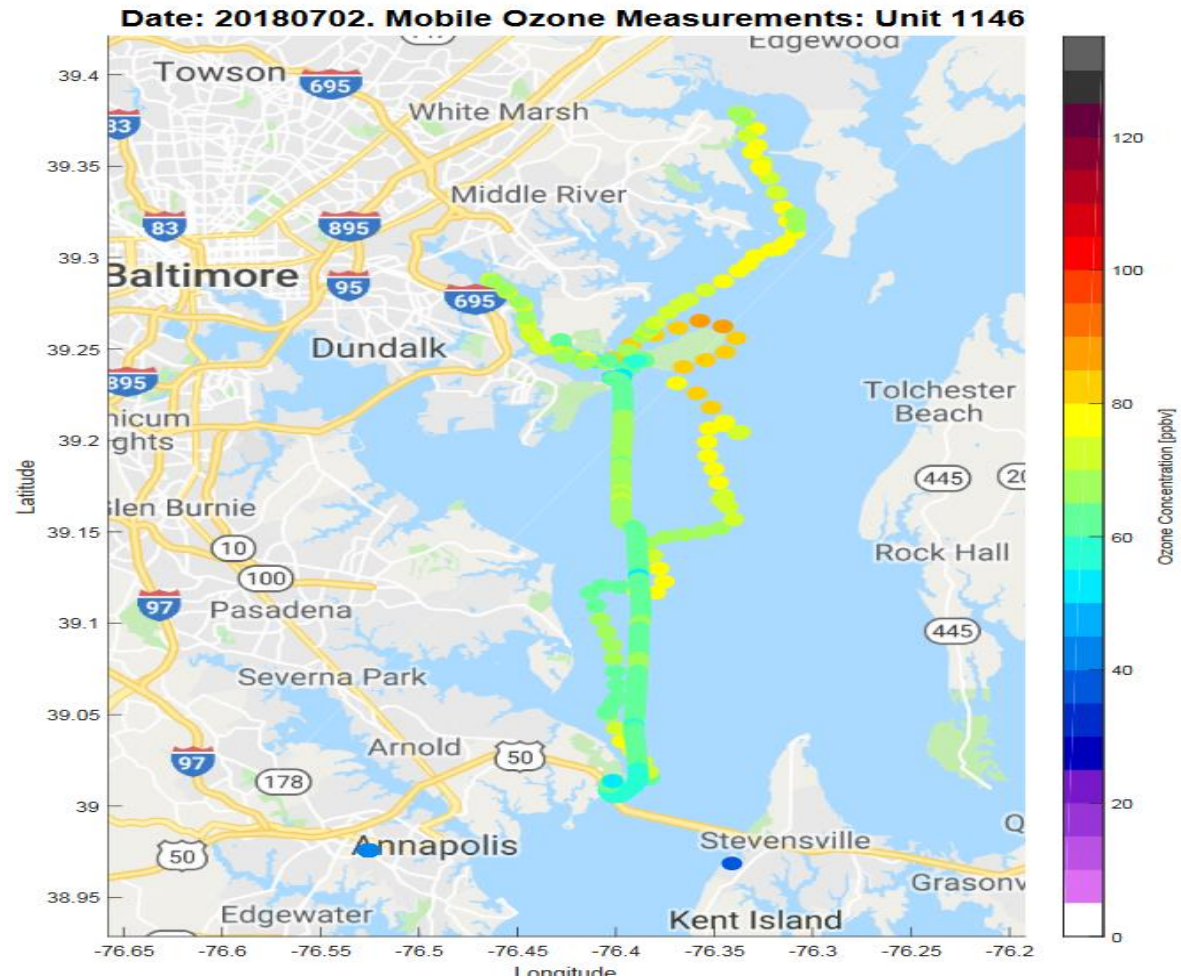
# POLLUTION SOURCE DETECTION





# PROJECT SUPPORT

## OWLETS 2







## PROJECT SUPPORT

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- Let us help you help us!!!
- Staff deployed in Chesapeake Bay, coastal bays, and Atlantic Ocean.
- Boats equipped with GPS, WIFI, Multiparameter WQ Instrumentation.
- Tier 3 Data Quality.
- Robust database/AWQMS



# SEDIMENT PLUME IMAGE

3/15/18

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- Used for Kent Island Turbidity Study



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## CONTACT INFORMATION

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