

COMPARISON OF INTRA AND EXTRACELLULAR
DIARRHETIC SHELLFISH TOXINS AND PECTENOTOXINS
IN THE YORK RIVER FROM 2018-2022

Vanessa Strohm

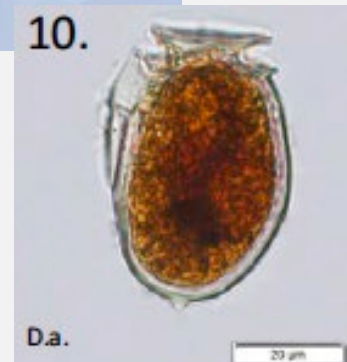
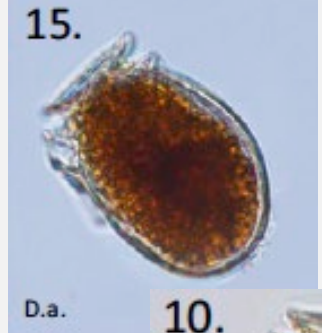
HAB Task Force Meeting

February 24th, 2023

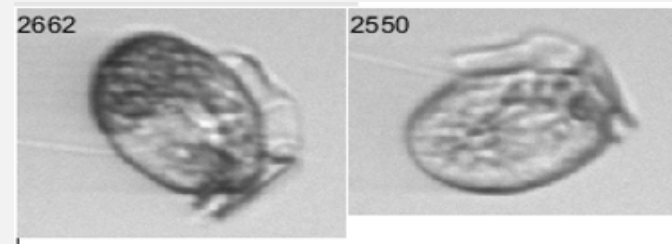
DINOPHYSIS AND TOXINS

- Mixotrophic dinoflagellate that has been identified on all U.S. coasts
- Causative organism of **Diarrhetic Shellfish Poisoning (DSP)** in humans
 - Diarrhetic Shellfish Toxins (DSTs – okadaic acid, dinophysistoxins): pose a risk to human health (Reguera et al. 2014)
 - Pectenotoxins (PTXs): human impacts still debated but may impact shellfish health (Gaillard et al. 2020, Pease et al. 2022)
- No shellfish bed closures or blooms since 2002 precautionary closure, but *Dinophysis* has retained its presence in the Bay

Wolny et al. 2020



Dinophysis sp. feeding on *M. rubrum*



Imaging FlowCytobot (IFCB) -acquired images of *Dinophysis* from the York River.



Sampling off the VIMS Pier

SPATTs



- Deployed for ~ 2 weeks at a time
- Extracted and run on LC/MS using multi-tox method
- Data compiled for 2018-2022 for Diarrhetic Shellfish Toxins (DSTs) and Pectenotoxin-2 (PTX2)



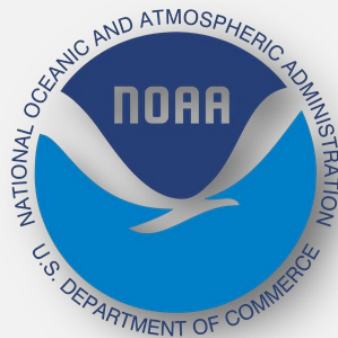
Sieved samples



- 8L water samples collected off the pier
- Sample is 15 μ m sieved down to ~45mL
- Sample extracted and run on LC/MS
- Data compiled for 2018-2022 for Diarrhetic Shellfish Toxins (DSTs) and Pectenotoxin-2 (PTX2)

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ECO HAB 19

