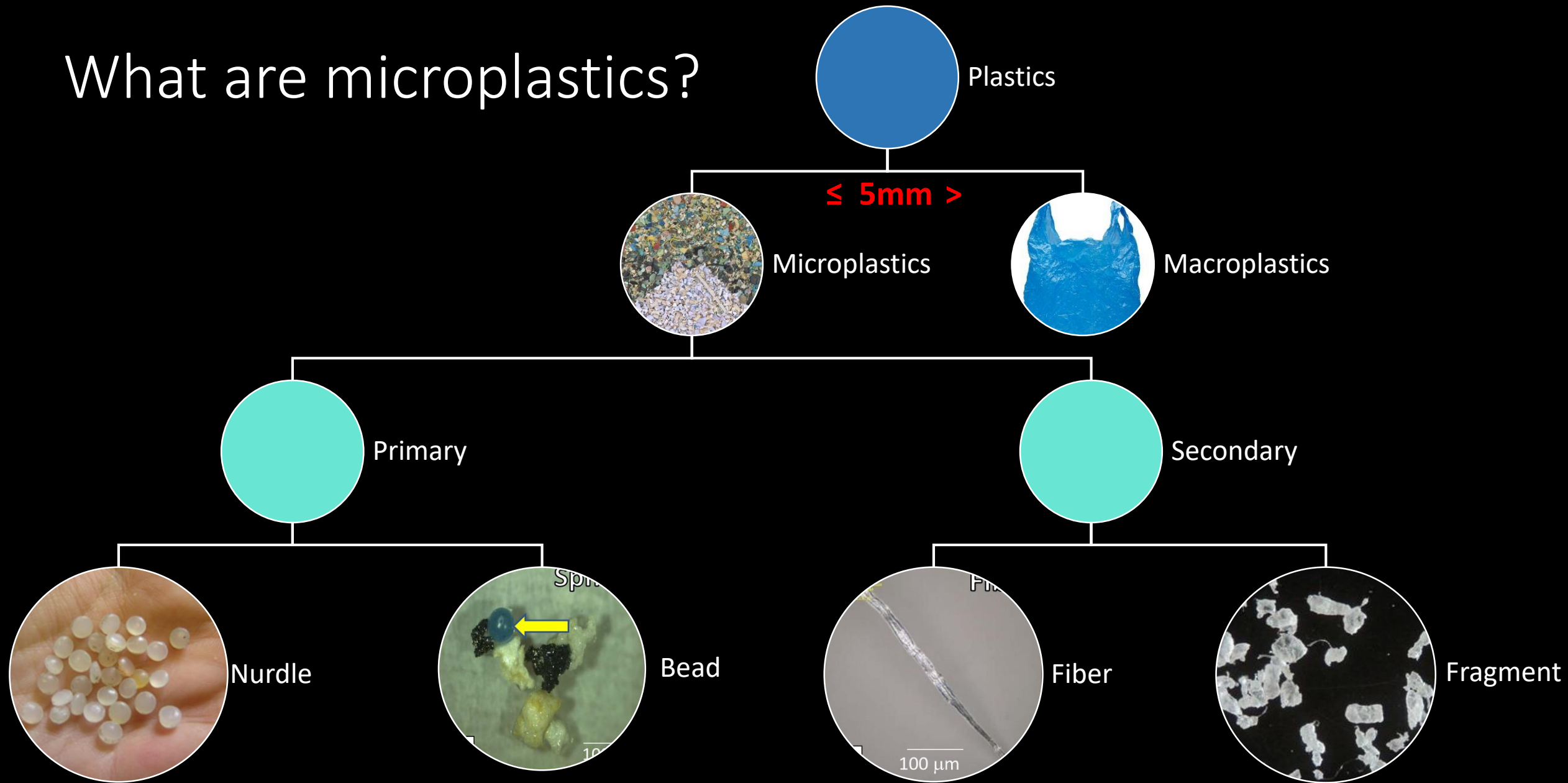


Quantifying microplastic pollution in *Crassostrea virginica* from the Indian River Lagoon

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Vincent Encomio⁴, Glenn Coldren⁵, David Fox Jr⁶, Lei Zhai⁶

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What are microplastics?



Mosquito Lagoon

- Waite et al. (2018) found record concentrations (16.5 MP/individual) of oysters from Mosquito Lagoon
 - 23.1 MP/liter of lagoon water
- Sussarellu et al.(2016) studies show oysters are negatively impacted by microplastics

Oyster Restoration in Mosquito Lagoon

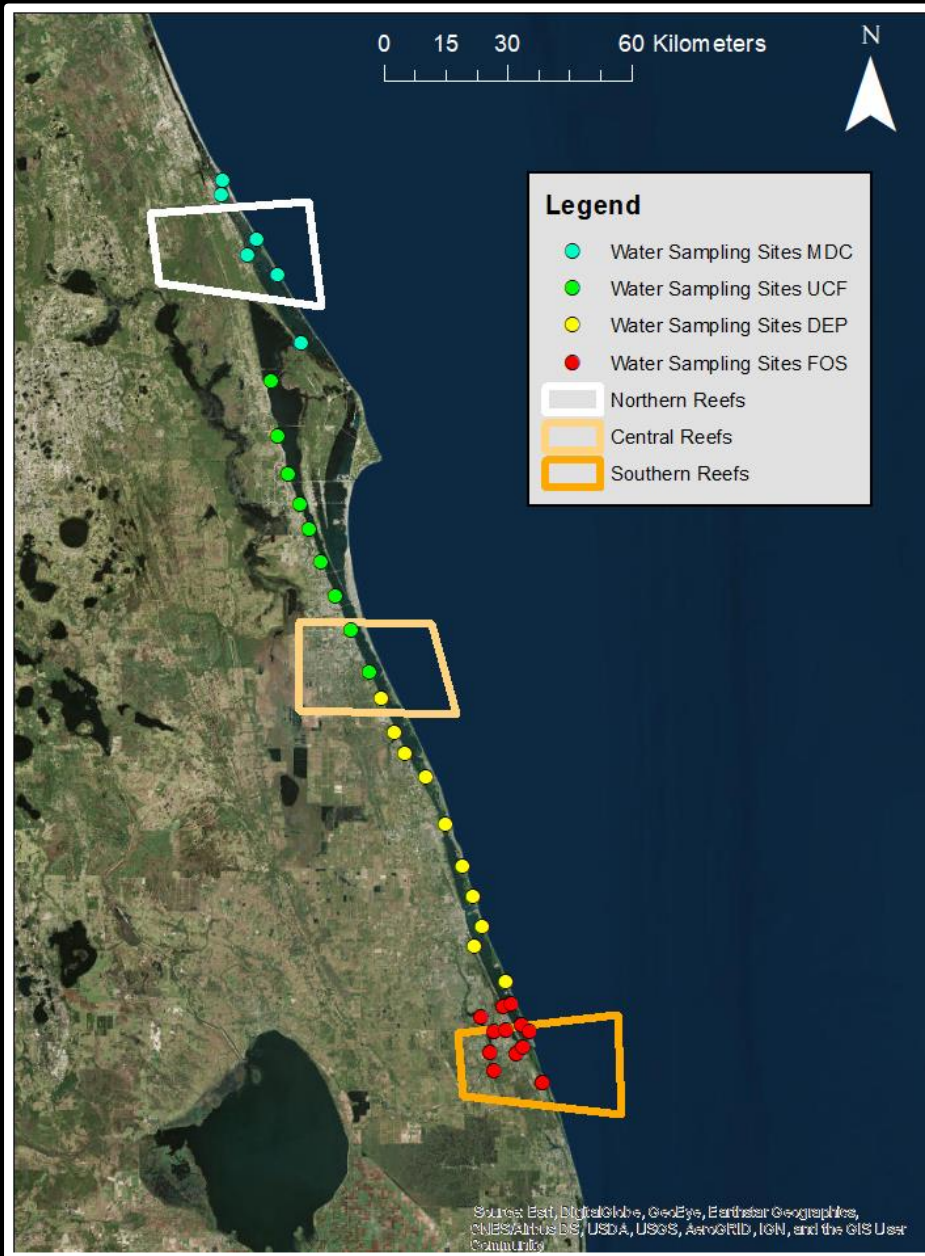
- 13 years
- 93 Reefs
- 3.5 acres



Expanding Questions

1. What is the importance of location and seasonality when sampling for microplastics in the IRL?
2. Are juvenile oysters as vulnerable to microplastic ingestion as adults?
3. Are juvenile and adult oysters able to excrete microplastics?





Sample Collections

12-month sampling schedule

- Monthly water samples
- Quarterly oyster samples

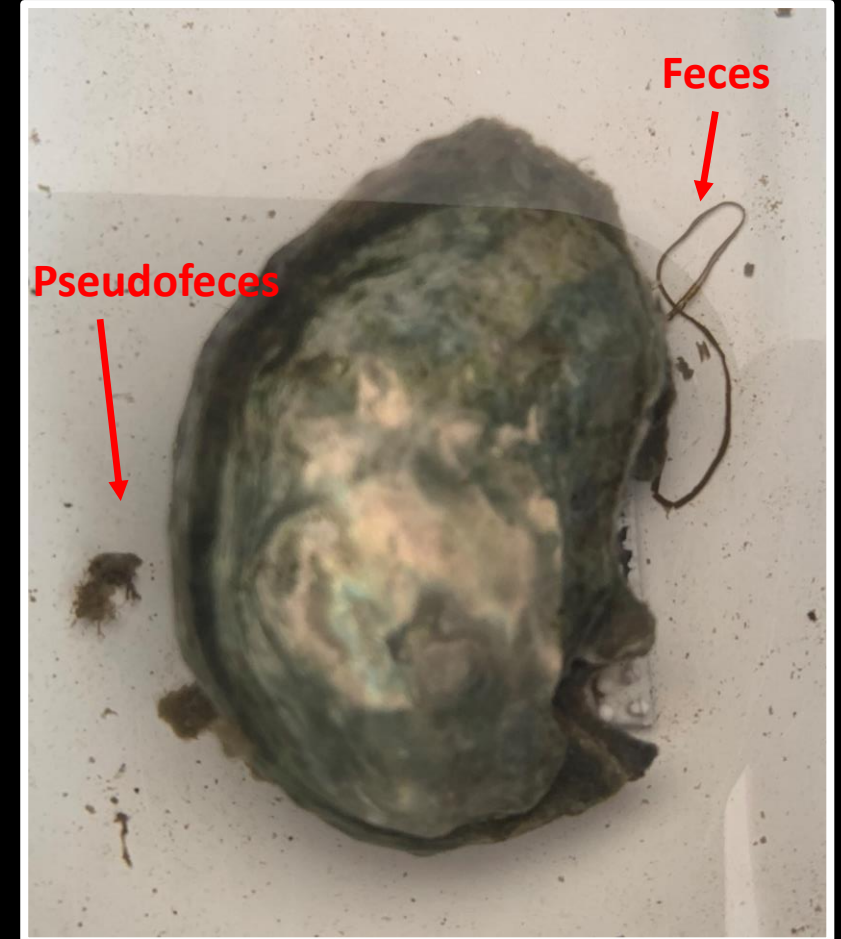


Progress Update

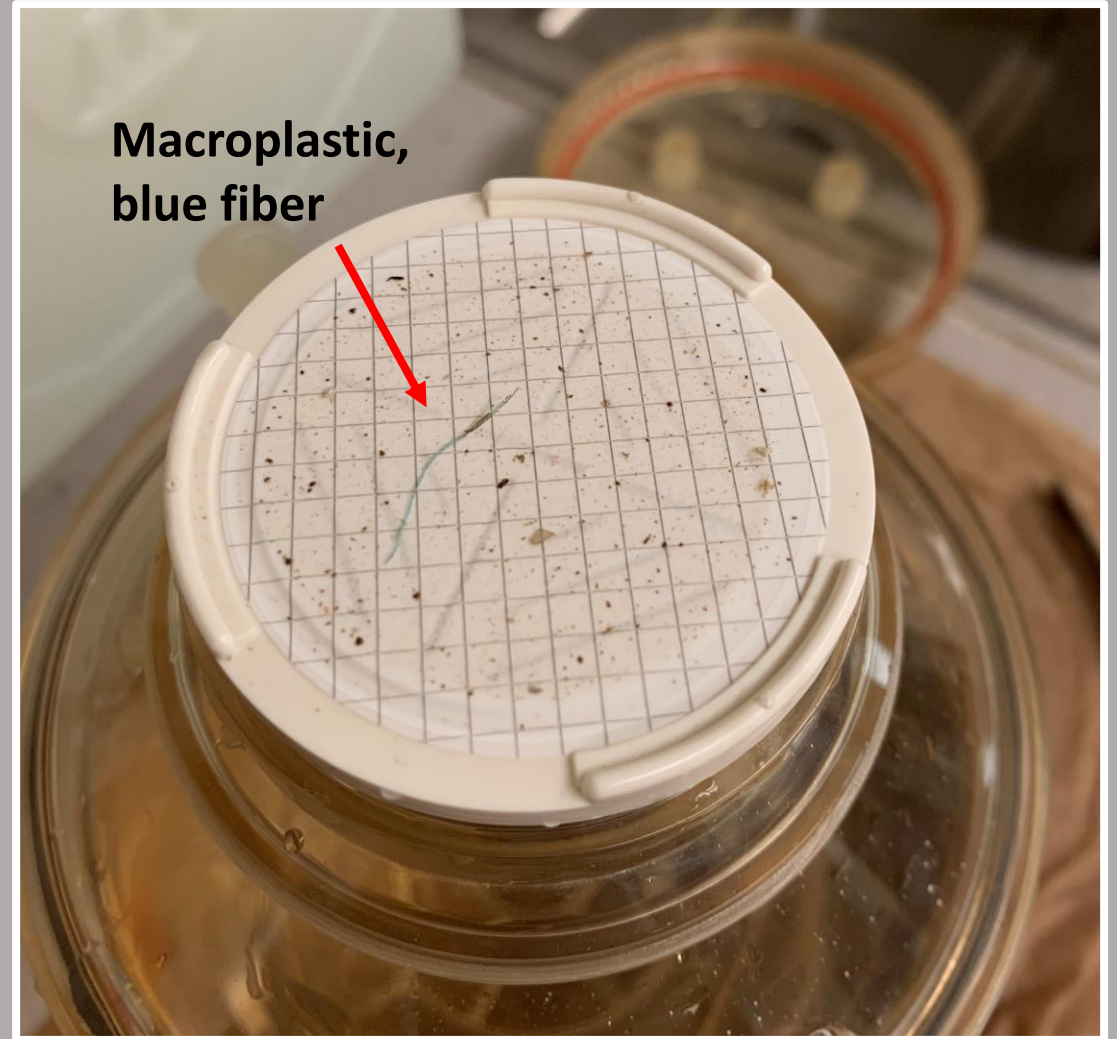
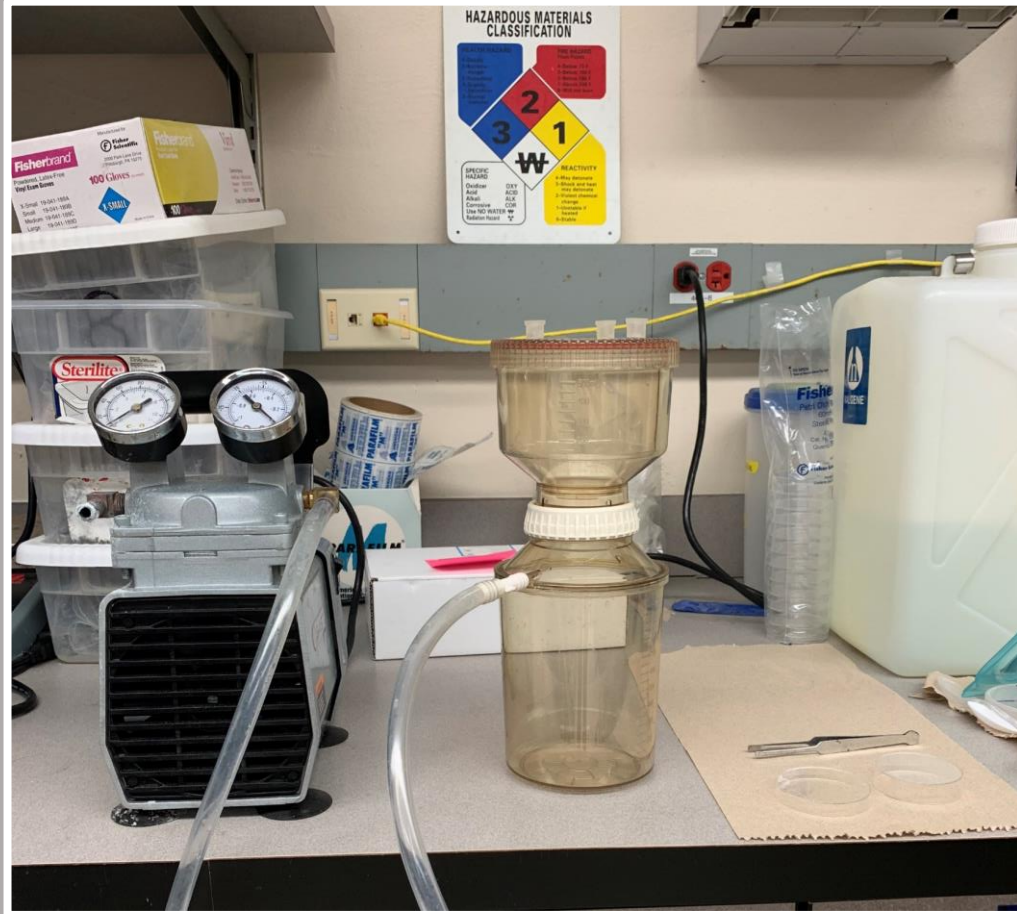


Sample Collections	Scheduled	Completed
Water Sampling		
March	3/2/19 - 3/5/19	10/6/18 - 10/9/18
April	4/6/19 - 4/9/19	11/3/18 - 11/6/18
May	5/4/19 - 5/7/19	12/1/18 - 12/4/18
June	6/1/19 - 6/4/19	1/5/19 - 1/8/19
July	7/6/19 - 7/9/19	2/2/19 - 2/5/19
August	8/3/19 - 8/6/19	8/3/19 - 8/6/19
September	9/7/19 - 9/10/19	9/7/19 - 9/10/19
October	10/5/19 - 10/8/19	10/5/19-10/8/19
November	11/2/19 - 11/5/19	TBA
December	12/7/19 - 12/10/19	TBA
January	1/4/20 - 1/7/20	TBA
February	2/1/20 - 2/4/20	TBA
Oyster Sampling		
1st Quarter	May-19	5/22/19, 5/26/19
2nd Quarter	Aug-19	8/20/19, 8/21/19
3rd Quarter	Nov-19	TBA
4th Quarter	Feb-20	TBA
Feces/Pseudofeces Sampling		
Feces/Pseudofeces	July 2019	7/15/19-7/18/19

3. Are juvenile and adult oysters able to excrete microplastics?

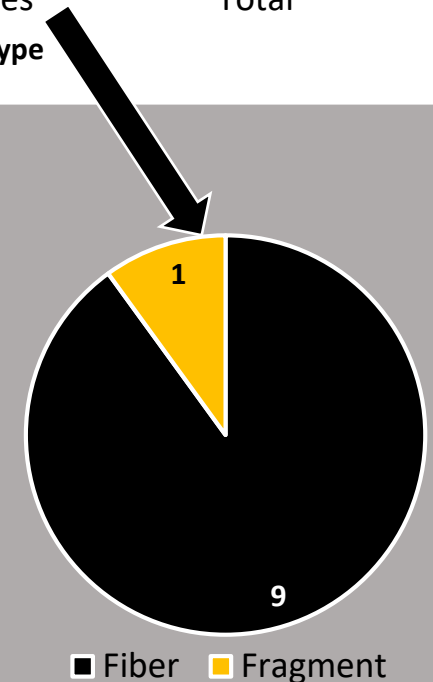
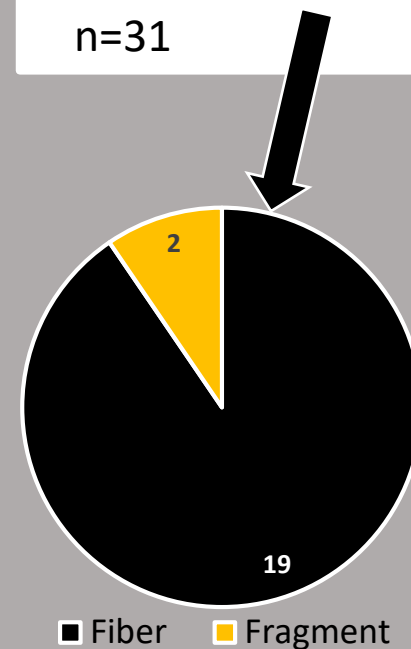
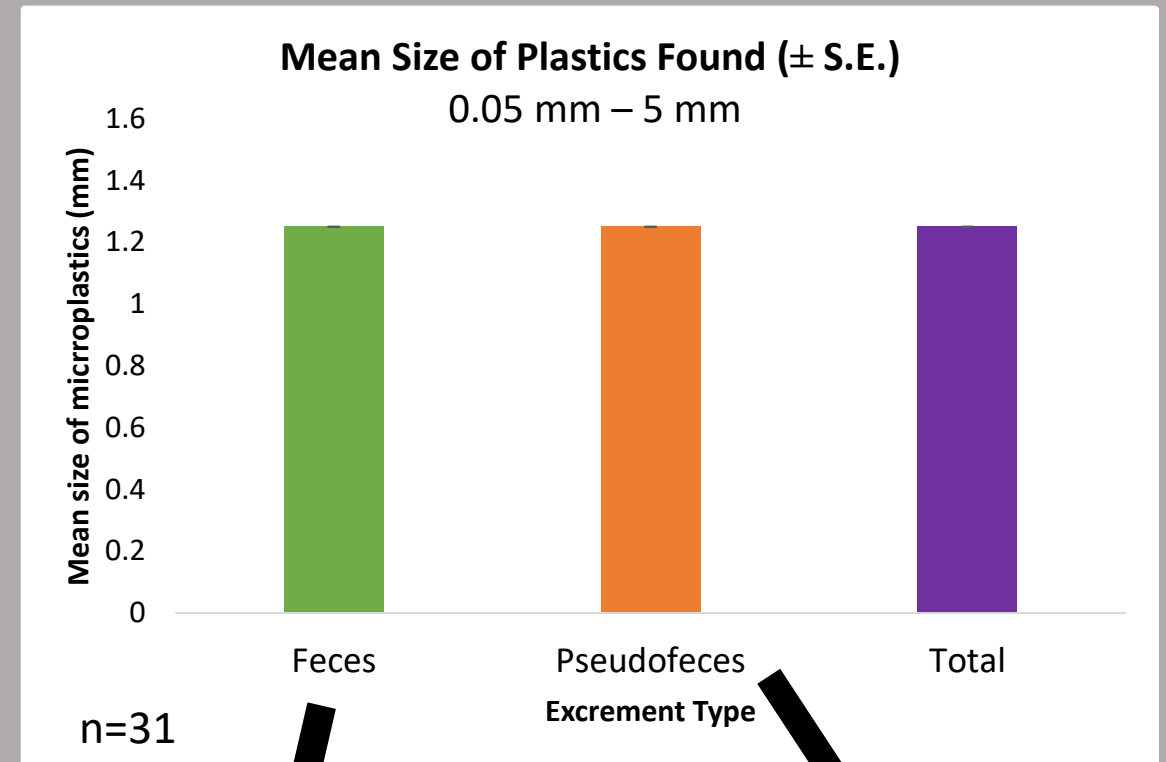
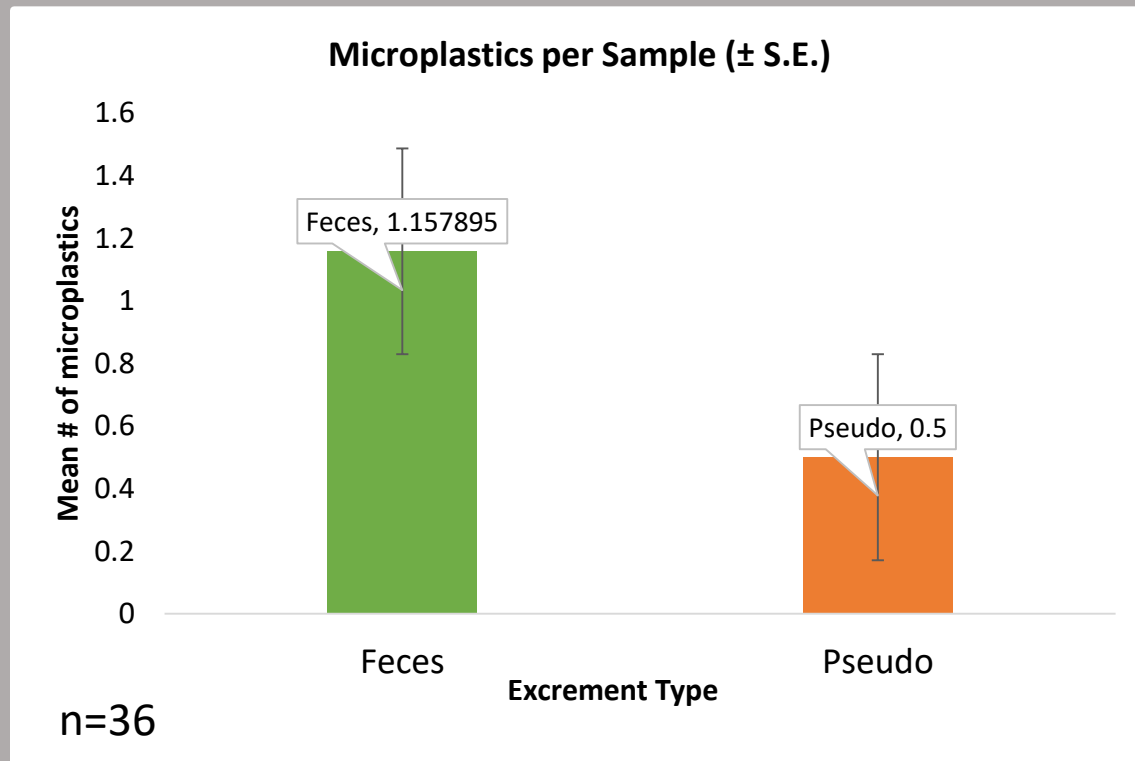


Sample Processing



Results

- Total microplastics found in...
 - Spat: 11
 - Adults: 20



Conclusions

- Microplastics are an anthropogenic threat to oysters
- Oysters are capable of excreting microplastics through both feces and pseudofeces
 - Microplastic cycling?

Next Steps

- Finish analyzing samples
- Inspect collected sediments on/near oyster reefs for microplastics?

Citizen Science & Social Media

Volunteer Count: 84

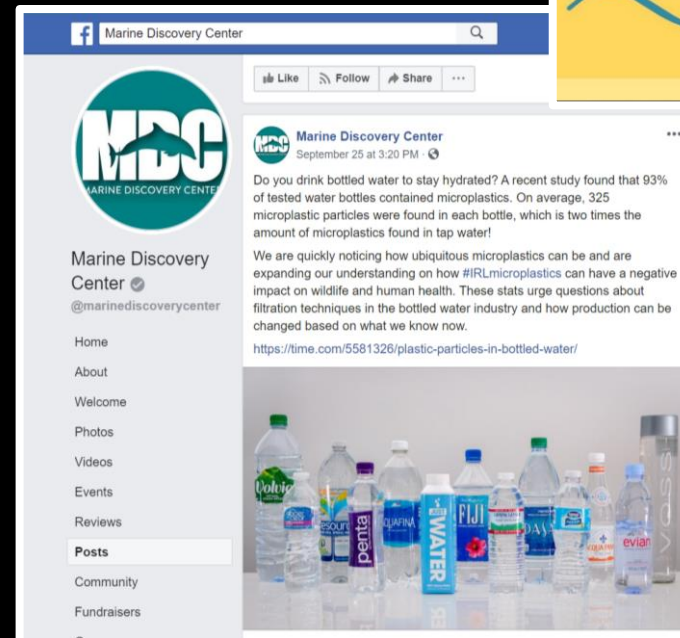
Hours Dedicated: 802

Weekly Social Media Posts

Coastal & Estuarine Ecology Lab

Friends of the Spoil Islands

Marine Discovery Center





Thank You!

#IRLmicroplastics

