The flux of microplastics from the water column to the sediment via the Eastern Oyster

Dr. Branco, Elena, Eliana Green, Theresa Trelles

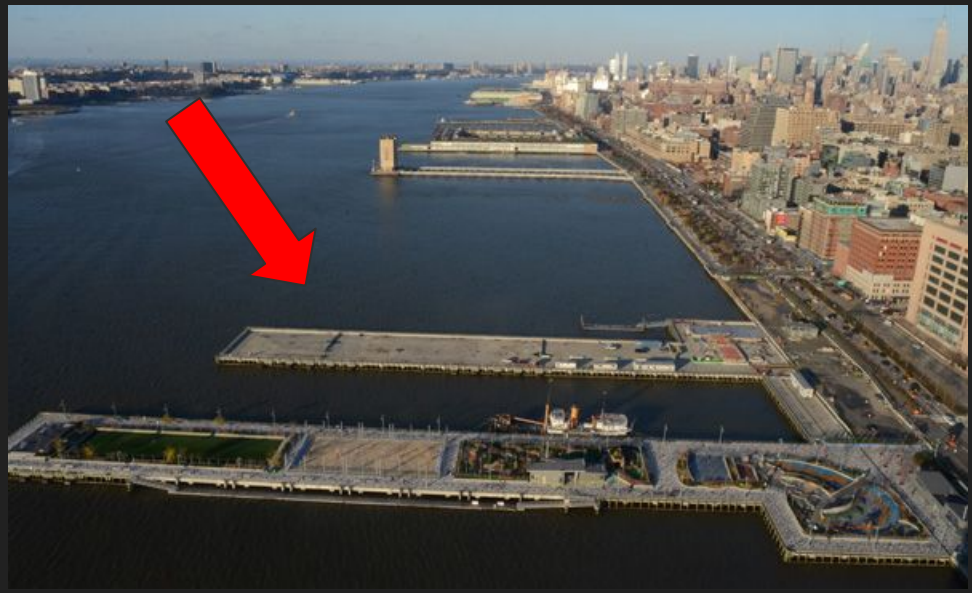
Microplastics

- What are microplastics?
- Primary vs. Secondary
- 6 Main Categories:
  - Microfibers
  - Fragments
  - Nurdles
  - Microbeads
  - Line
  - Foam
- Water treatment Systems

FINDING PLASTIC

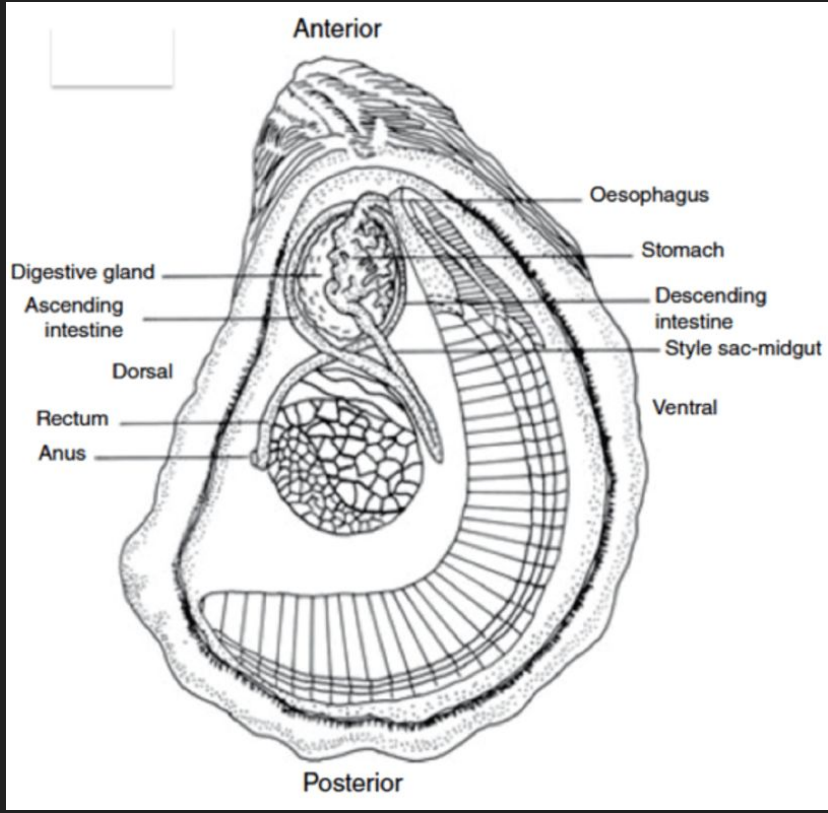
Background, Hudson River

- Highly urbanized river
- Tidal estuary, rich in biodiversity
- Sample sites are located downstream, where the river discharges into the Atlantic Ocean

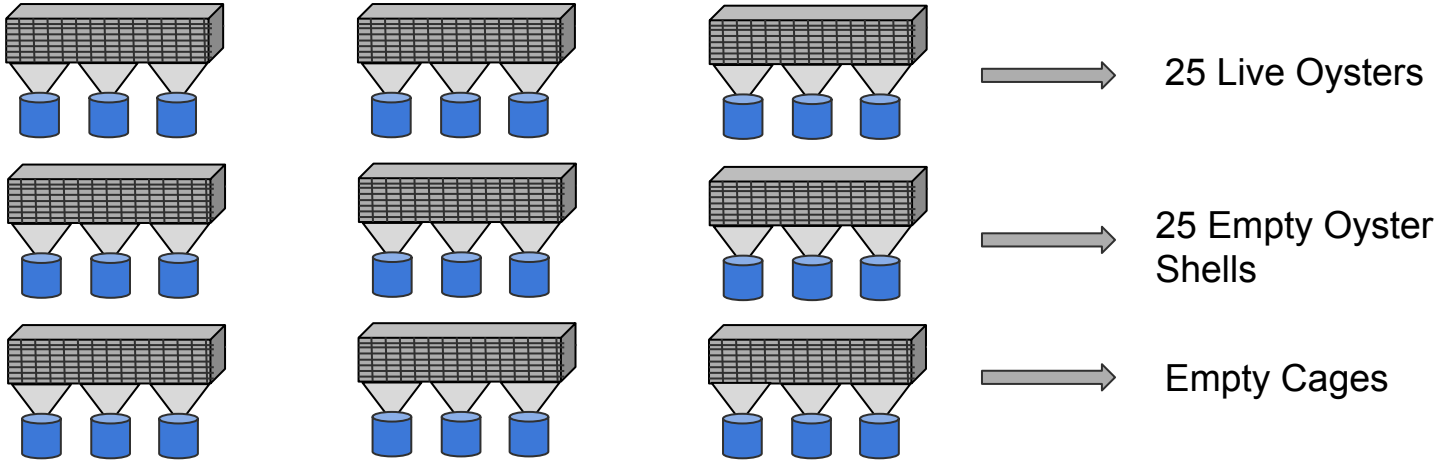


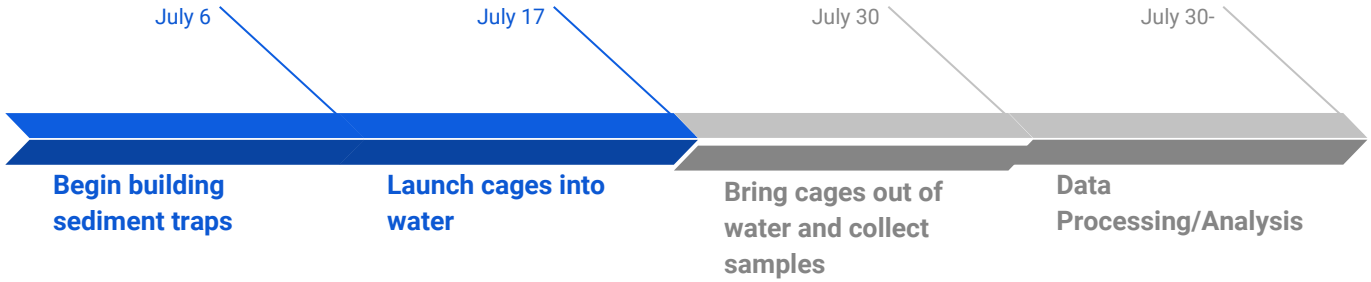
Why Oysters?

- Commercial importance/economic value
- Ecologically valuable
- Feces vs. pseudofeces



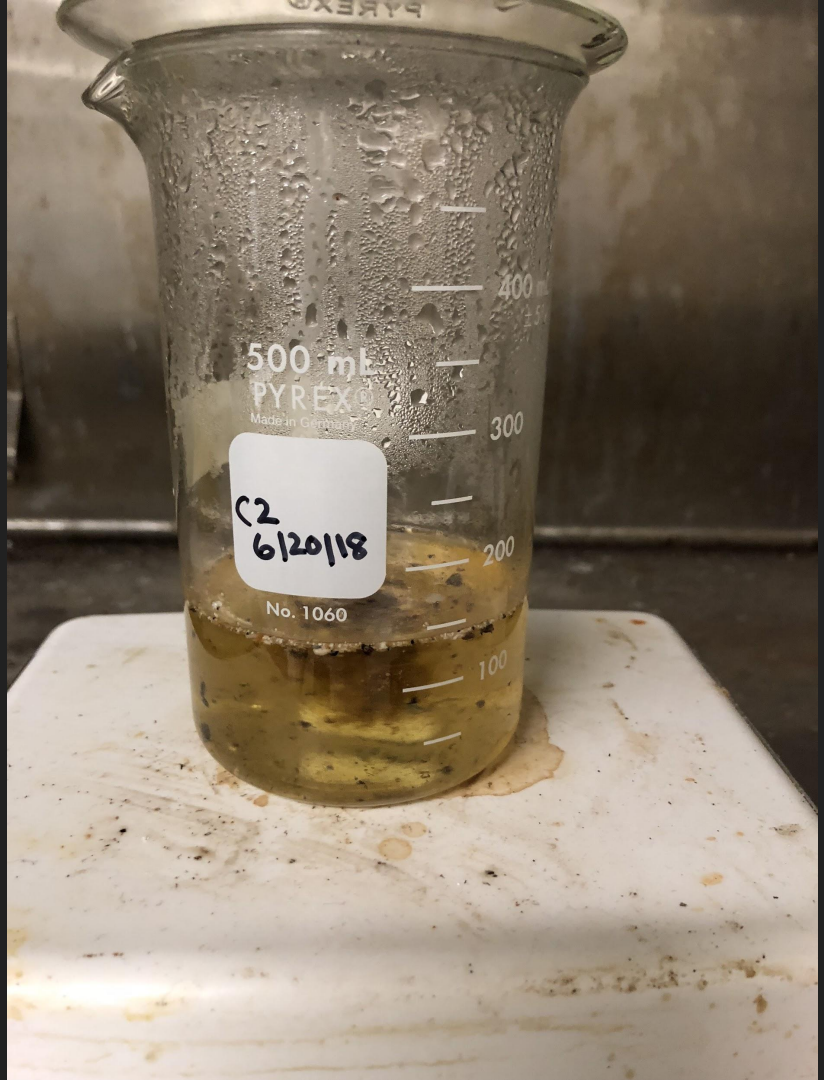
Experimental Design





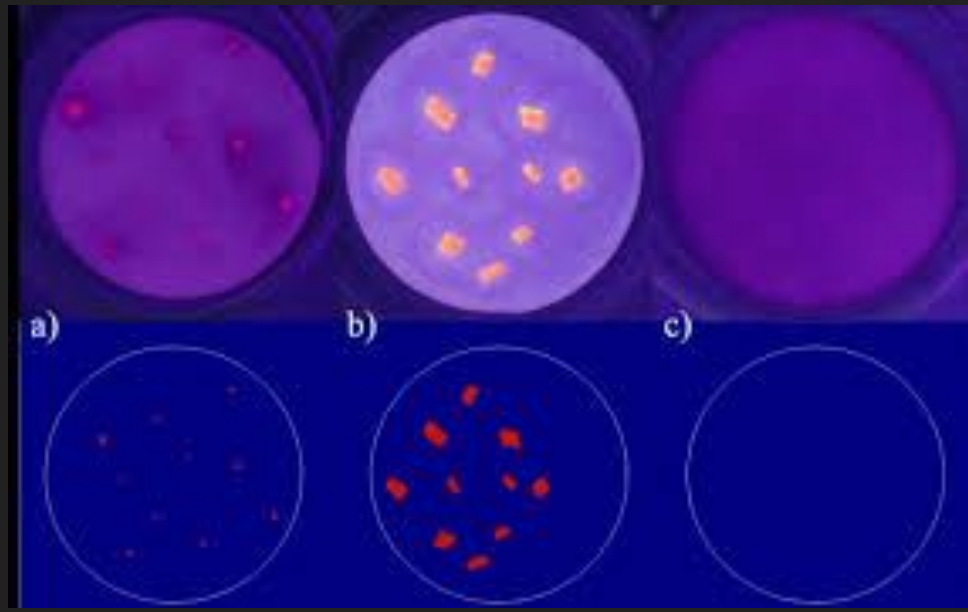
Sample Processing

- Wet Peroxide Oxidation
- Nile Red Staining



Data Analysis

- We will use a one-way ANOVA test
- Nile Red Staining Method
- Goal is to examine microplastics <300 microns since this is what the oysters will mostly be consuming

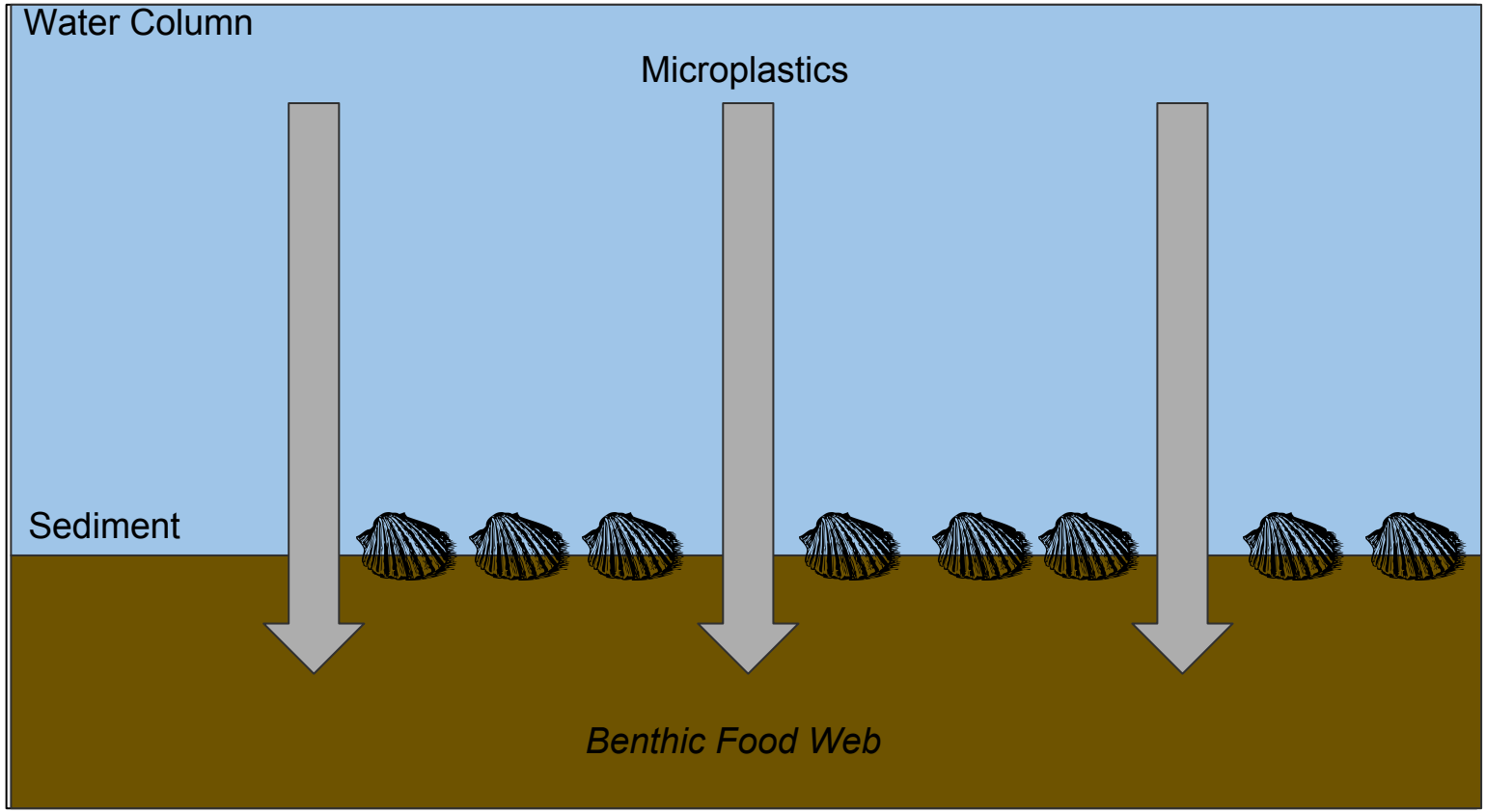


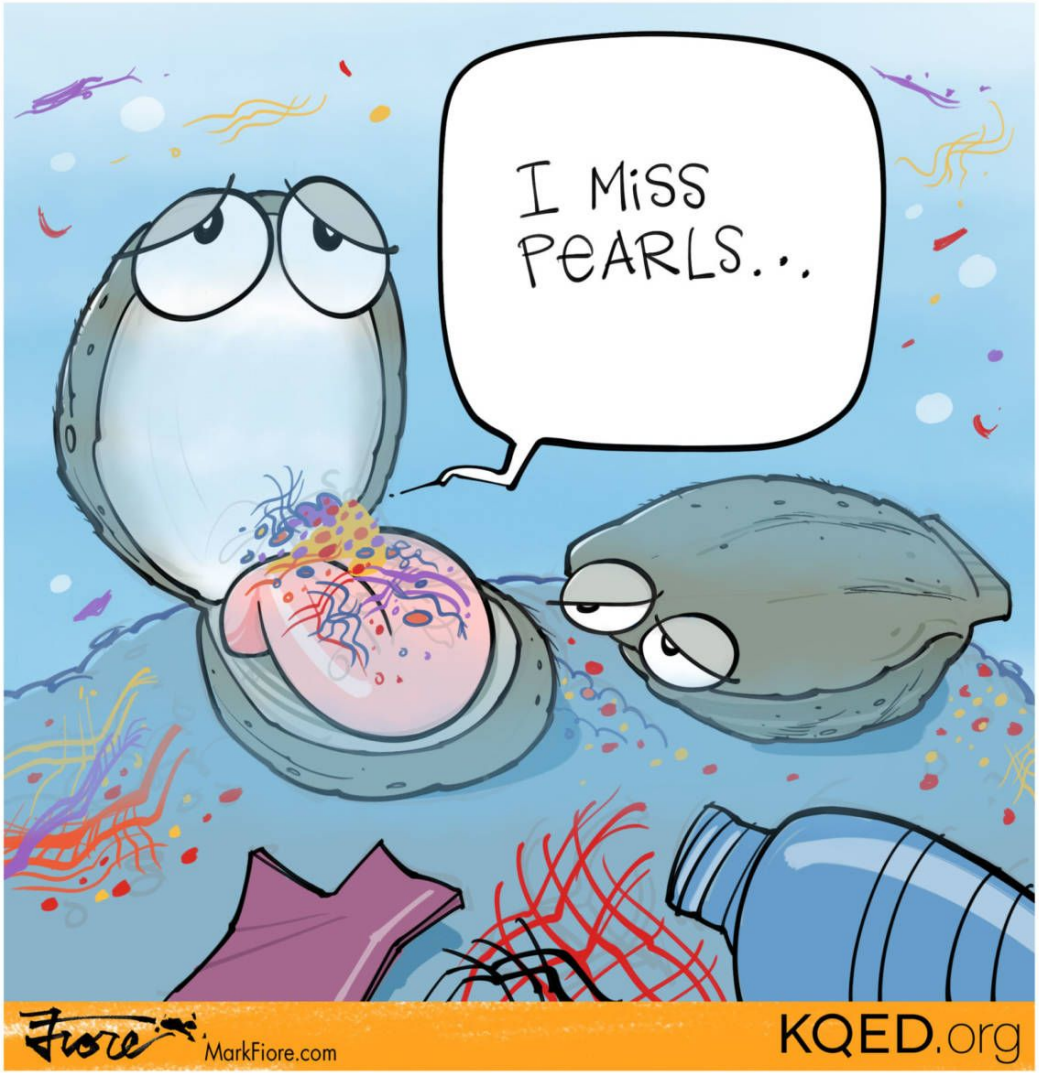
Expected Results

50 gallons／day x 3.7851 liters ／ gallon = 189.25 liters／day
8.7 gallons ／ day x 3.785/1 = 32.92 liters/day
An oyster filters on average 100 liters per day

17.3 microplastics per cubic meter in Chicago River
One cubic meter=1000L
17.3 mp／1000L x100L／Day= **1.73mp/day per oyster**
1.73 x 25 = **43.25 microplastics per cage**
43.25 x 14 = **605.5 microplastics per cage in 14 days**

Importance




I MiSS PeARLS...
Fiore
MarkFiore.com
KQED.org