Dead in the Water: Investigating Microbial Links to Mortalities in Eastern Oysters (*Crassostrea virginica*)

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Sudden Unusual Mortality Syndrome (SUMS)

Rapid, large-scale die offs (30-90%)

Occurs during peak reproductive season

No obvious pathology or cause

Oysters near market-size

Triploid and diploid oysters affected

Homogenization
(Per 1g tissue)

9mL of ASW (20 ppt, pH 7.7)
Blended for 30 seconds

Antibiotic Treatment
(Per 10mL)

100 µL Pen-Strep and 50 µL
(50 mg/ml) Gentamicin

Heat Treatment

Aliquot 1.5 mL microtubes
Heated at 60 C for 30 minutes

Eukaryotes,
Bacteria, Viruses
45 µm

Bacteria and
Viruses
0.45 µm

Viruses
0.2 µm

Injecting 100 µL of homogenate into the adductor muscle.

Adductor Muscle

Now we wait!

- Flow-through sea-water system
- Monitor survival in AM/PM daily
- Record water quality
- Keep them clean and happy!

Survival Results

ASW: Control

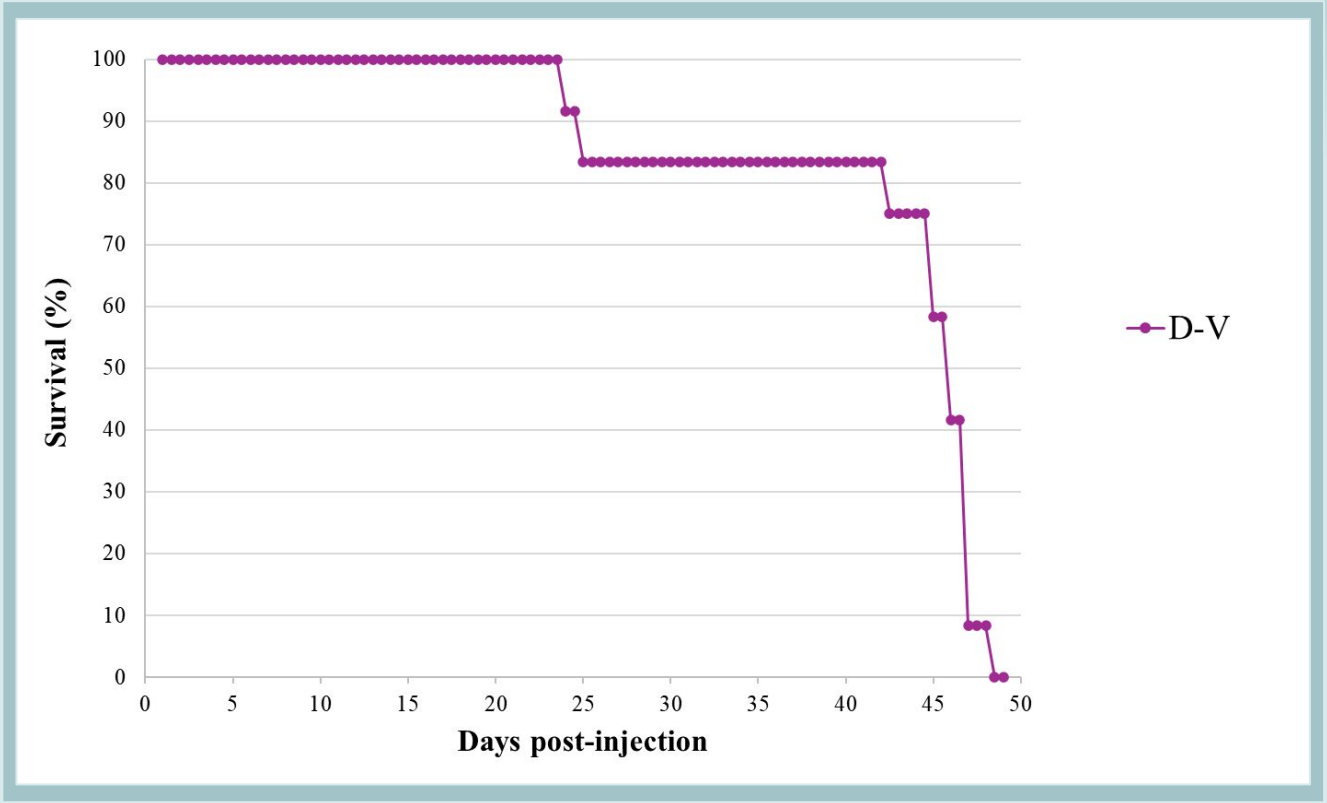
D: Dead

H: Healthy

E: Eukaryote

B: Bacteria

V: Virus



What We've Learned

- Viral treatment most closely mirrored SUMS event patterns
- Potential viral component

Ongoing Challenges

- Storing homogenate
- No baseline for "healthy" oysters
- Difficult to reproduce

Future Directions

- Repeat and refine trials
- Narrow treatments with more replicates
- Study immune assay data

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