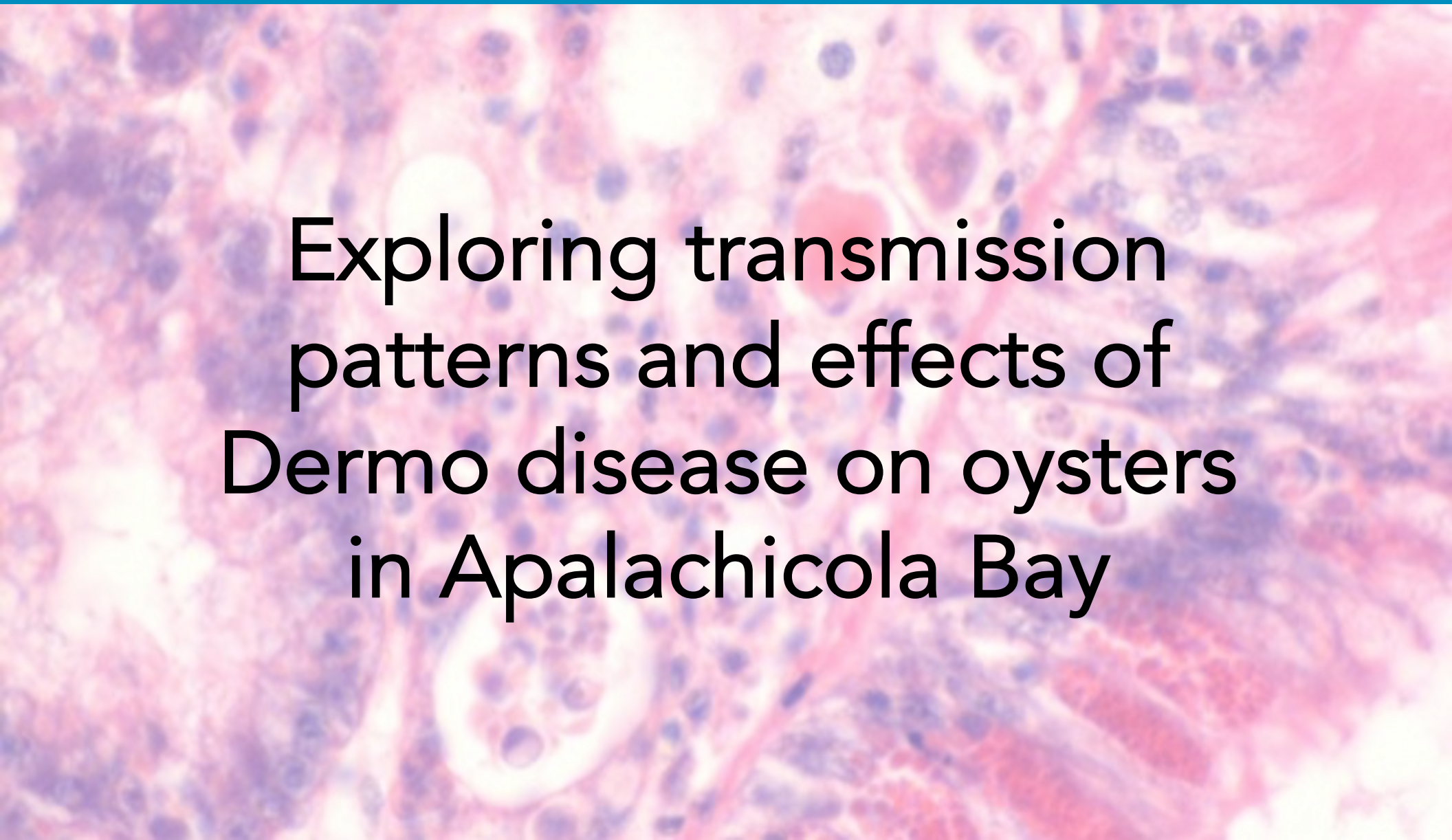
ABSI Science Advisory Board Meeting
December 14, 2022



Exploring transmission patterns and effects of Dermo disease on oysters in Apalachicola Bay

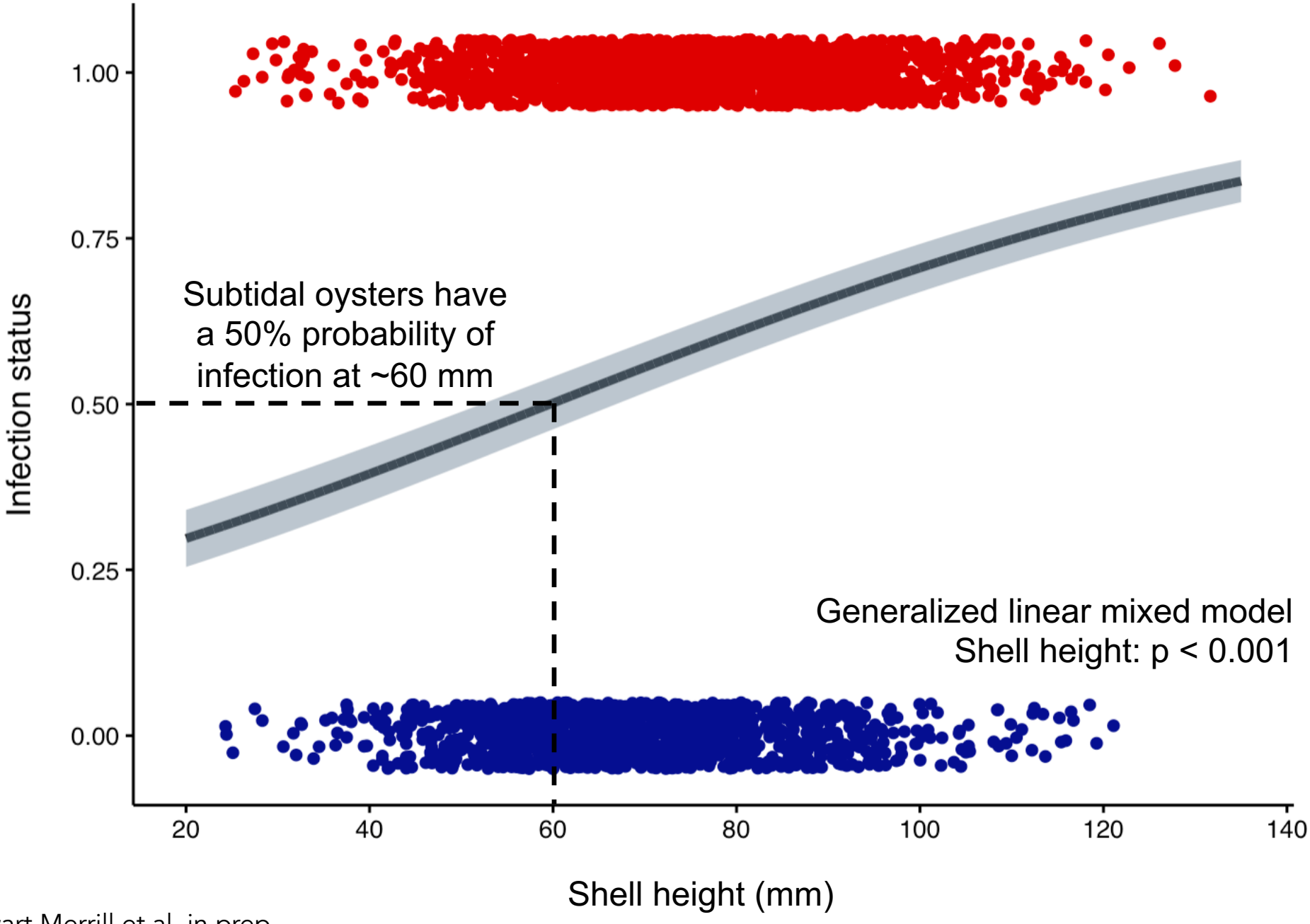
Dermo disease in Apalachicola Bay

FWC Dermo Dataset

- 4 years (2016, 2017, 2018, 2019)
- 13 sites (some better sampled than others)
- Monthly sampling targets 25 oysters per collection (~11 assessed per collection on average)

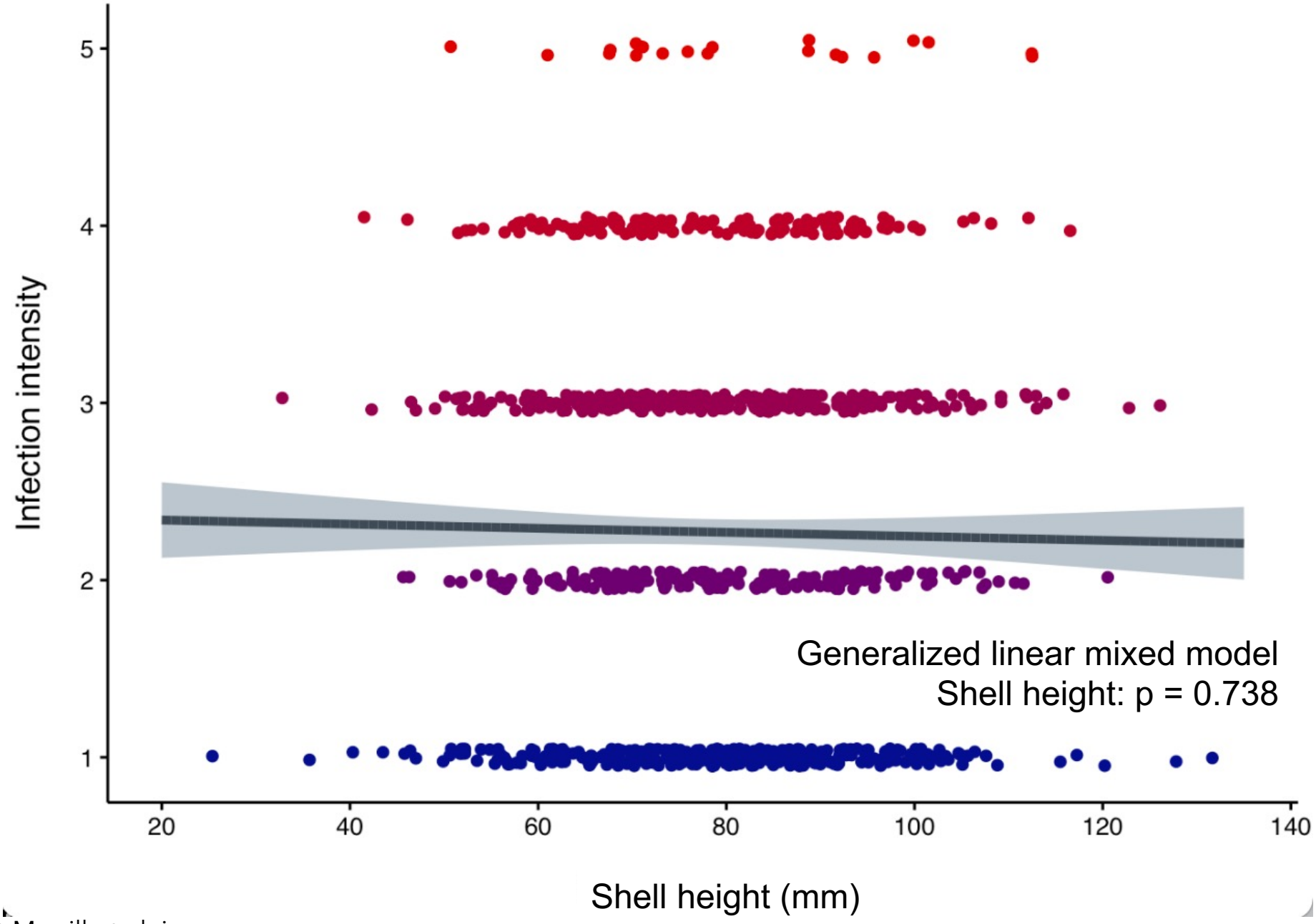
→ 3165 oysters collected and processed for Dermo

Classic pattern of size-dependent infection



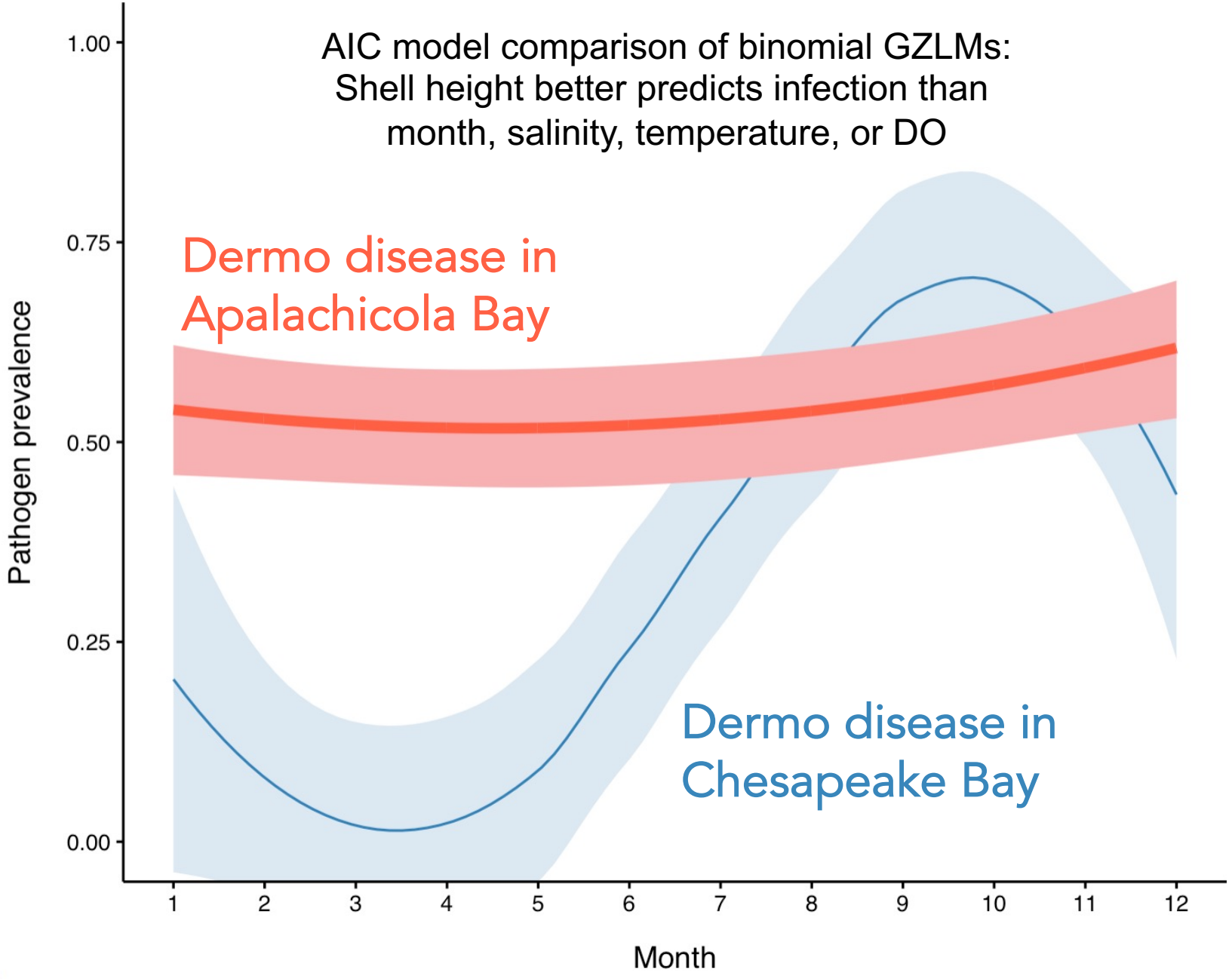
Stewart Merrill et al. in prep

...but not infection intensity



Stewart Merrill et al. in prep

Transmission appears to be continuous



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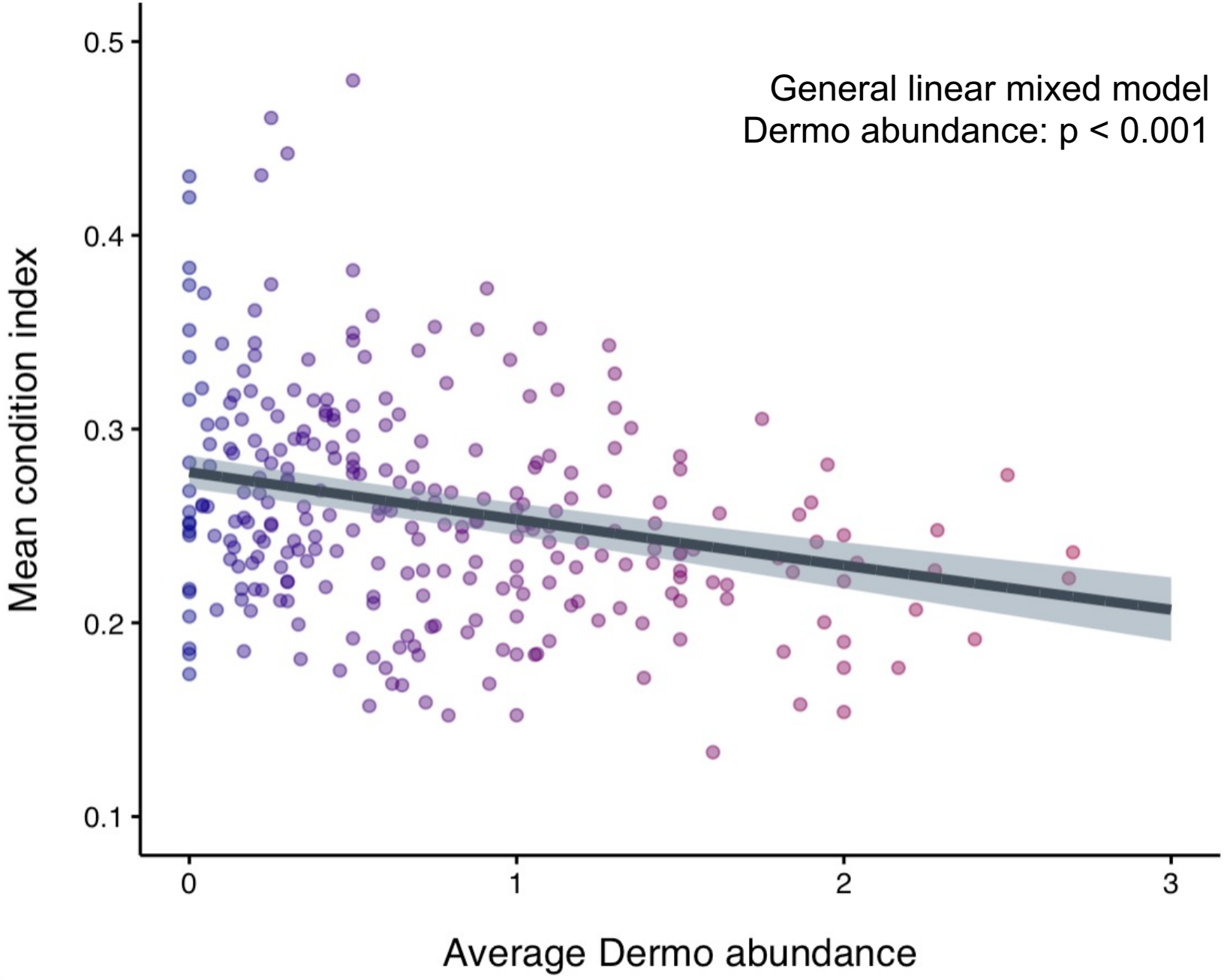
Associations with average condition



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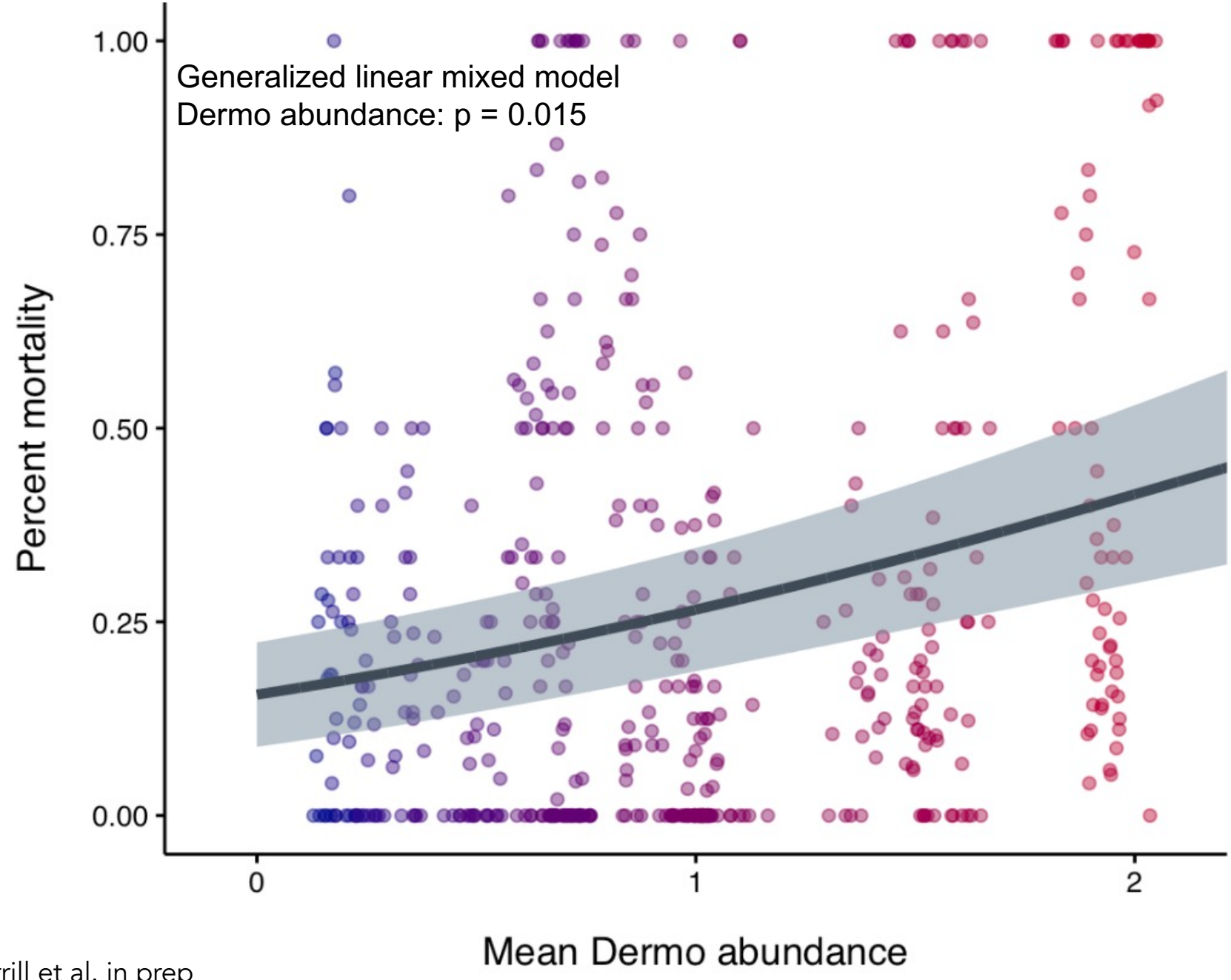
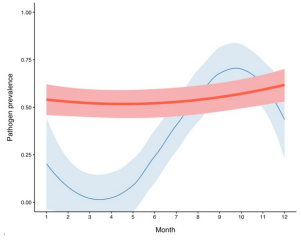
Associations with mortality

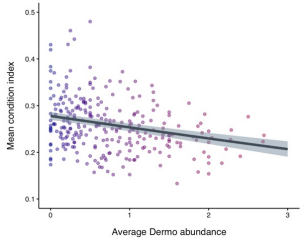


Stewart Merrill et al. in prep

Results recap



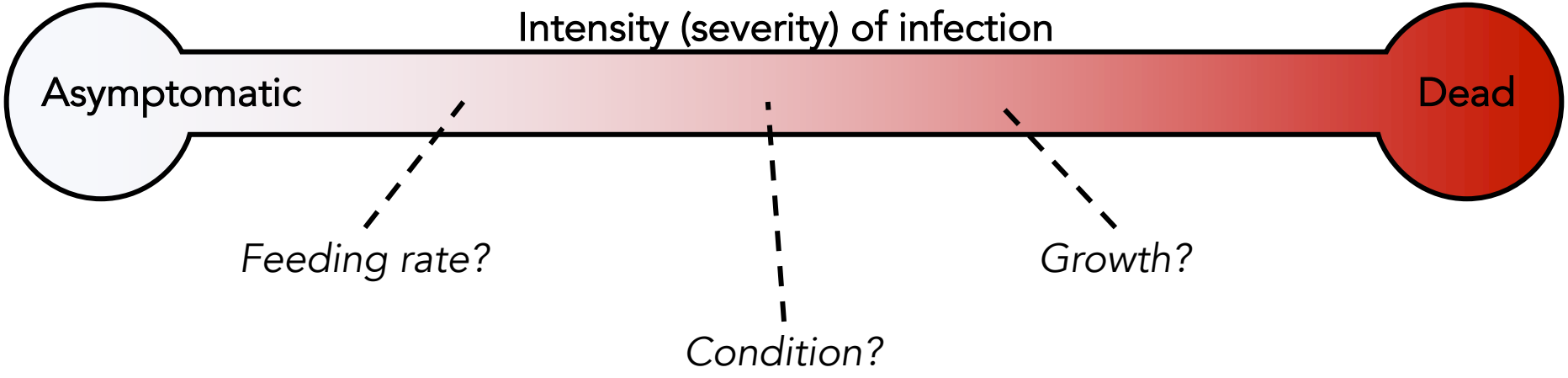
Transmission appears to be operating continuously, which makes it challenging to observe impacts on survival



Disease is associated with reduced condition and elevated mortality – but is this just correlational?

We need careful, mechanistic experiments that identify lethal and sublethal effects of disease

Spectrum of severity experiment

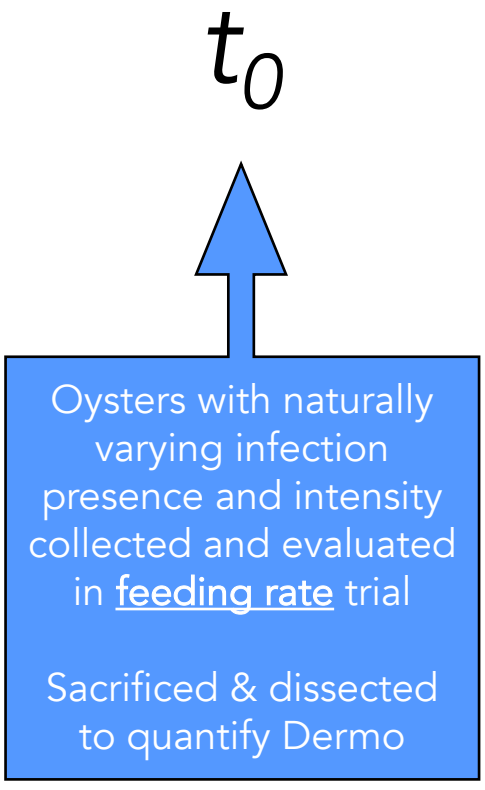


As intensity of infection increases,
which biological processes are impacted first?

Are functions lost or reduced linearly with infection severity?

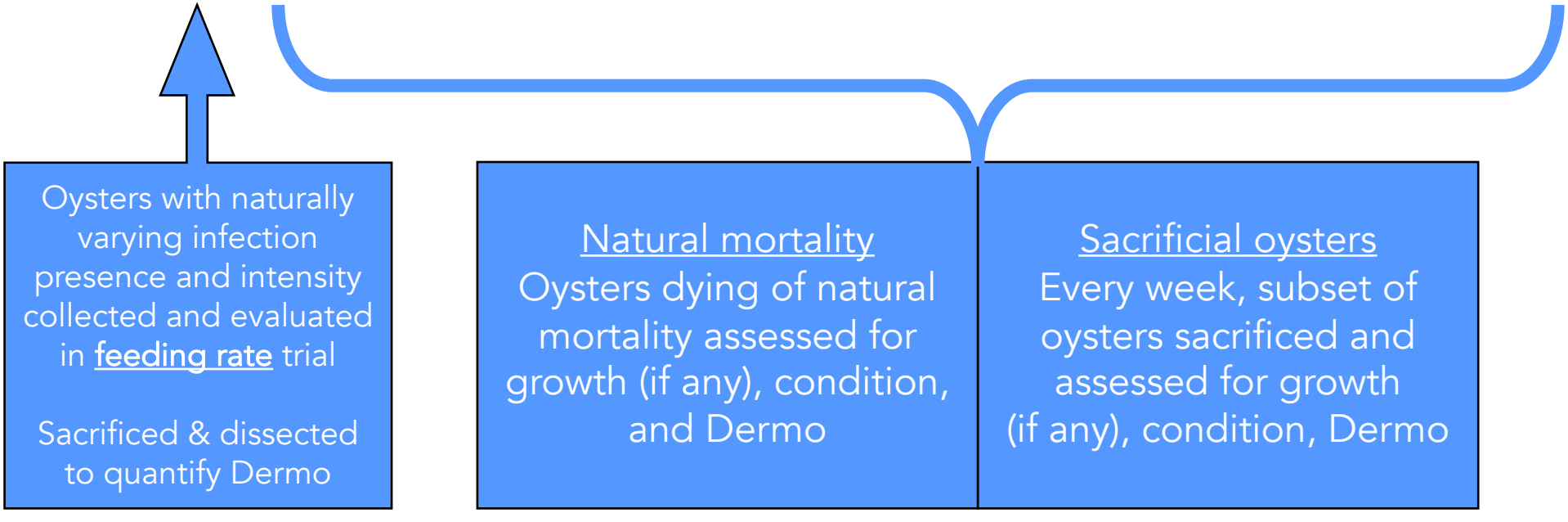
Or are there thresholds at which losses of function occur?

Spectrum of severity experiment



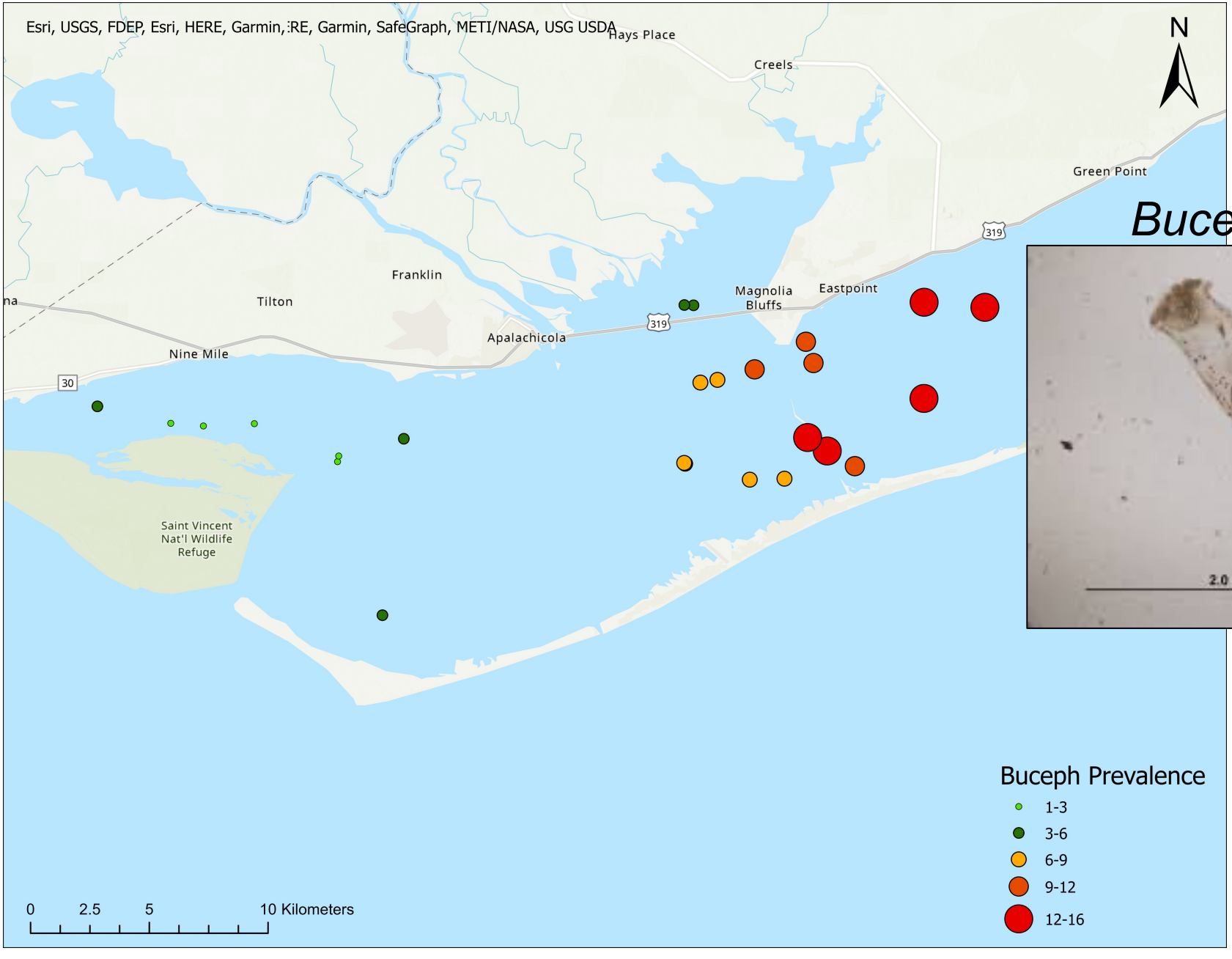
Spectrum of severity experiment

Additional oysters maintained at elevated temperatures for six weeks to encourage Dermo within-host replication



Build curves linking severity of infection to feeding rate, growth, condition, and survival

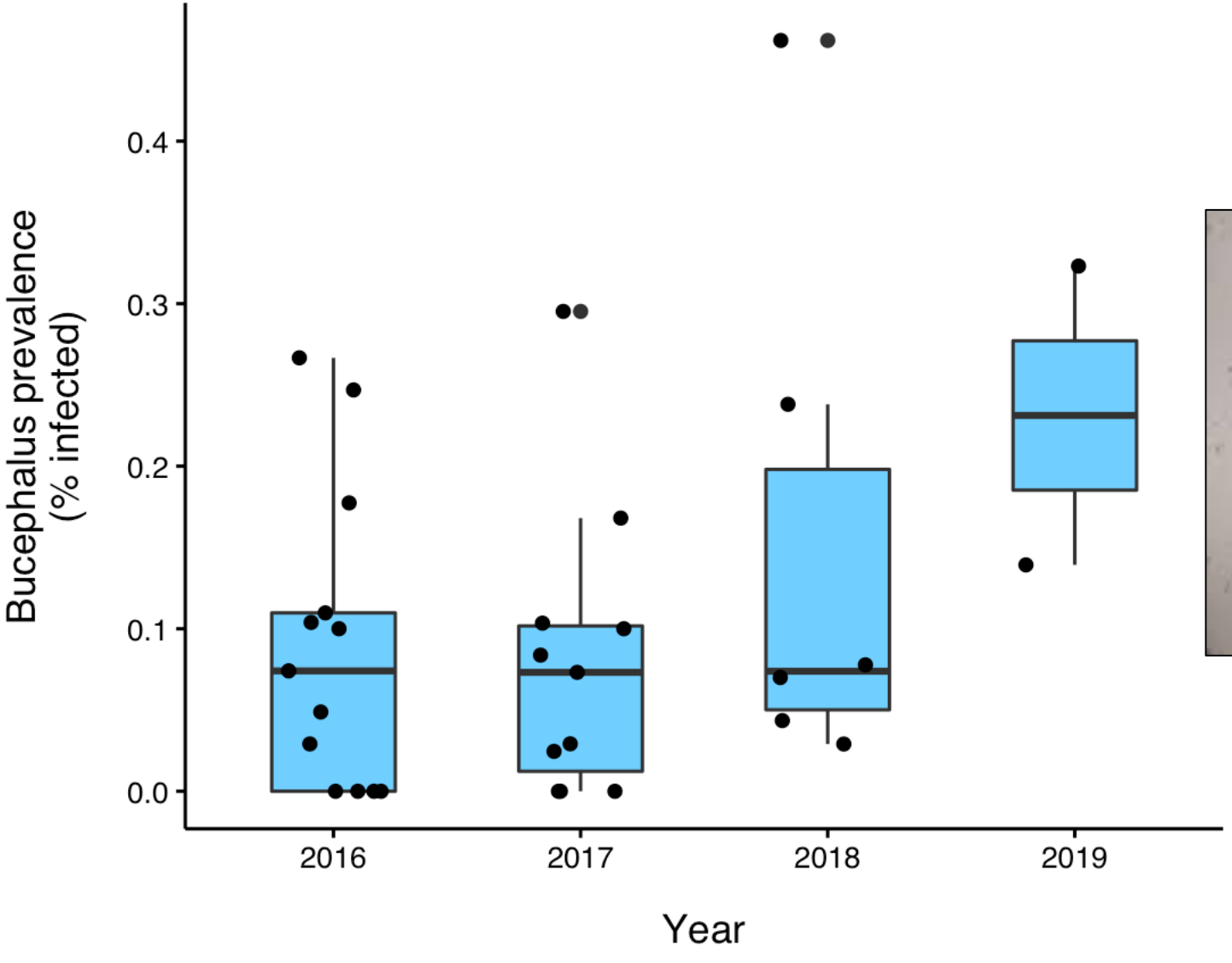
Castrators causing trouble



Bucephalus sp.

Lives in the oyster gonad and castrates the oyster – a spawning problem

Castrators causing trouble

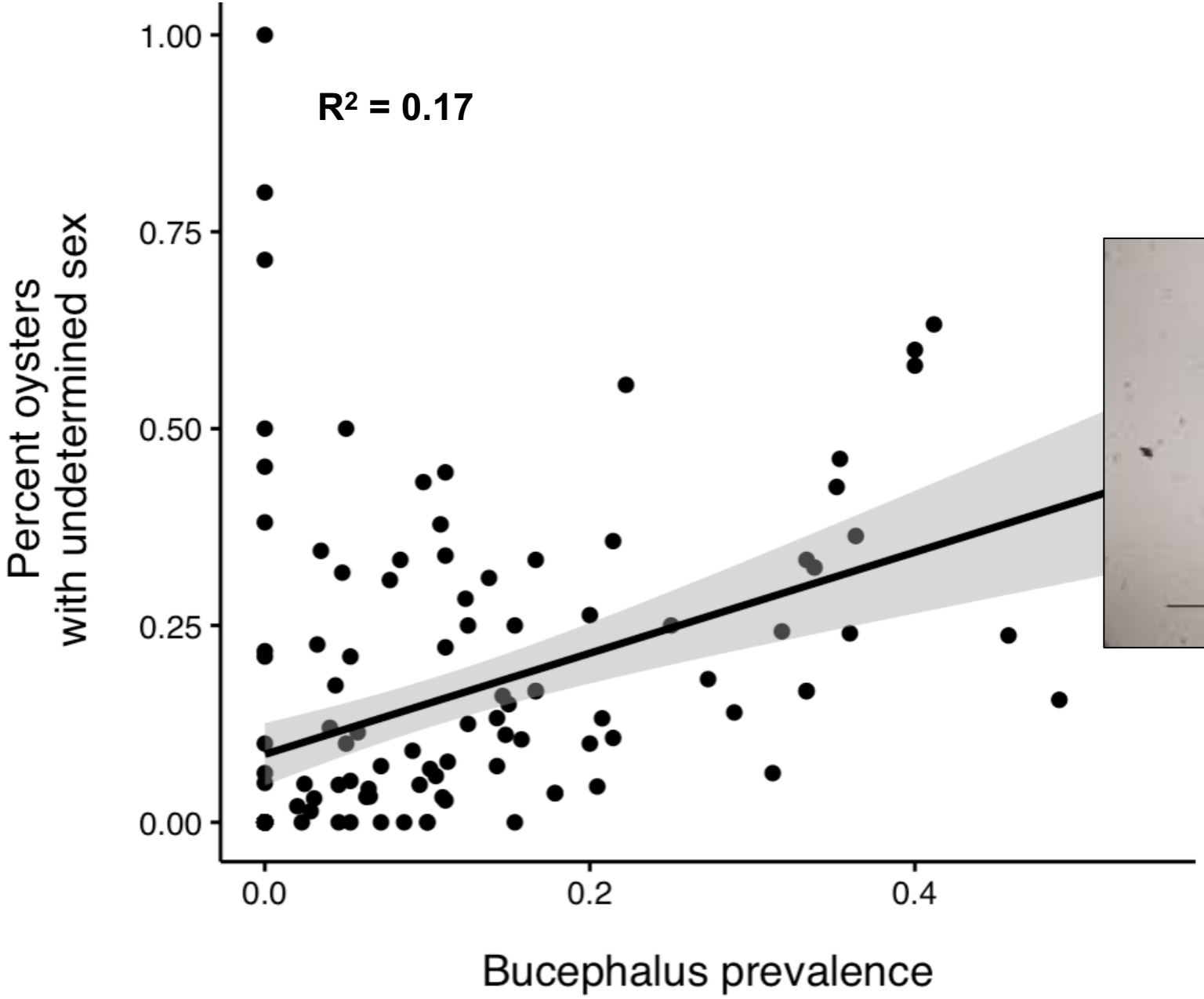


Bucephalus sp.

Lives in the oyster gonad and castrates the oyster – a spawning problem

Approximately 10% of collected oysters, on average, are infected

Castrators causing trouble



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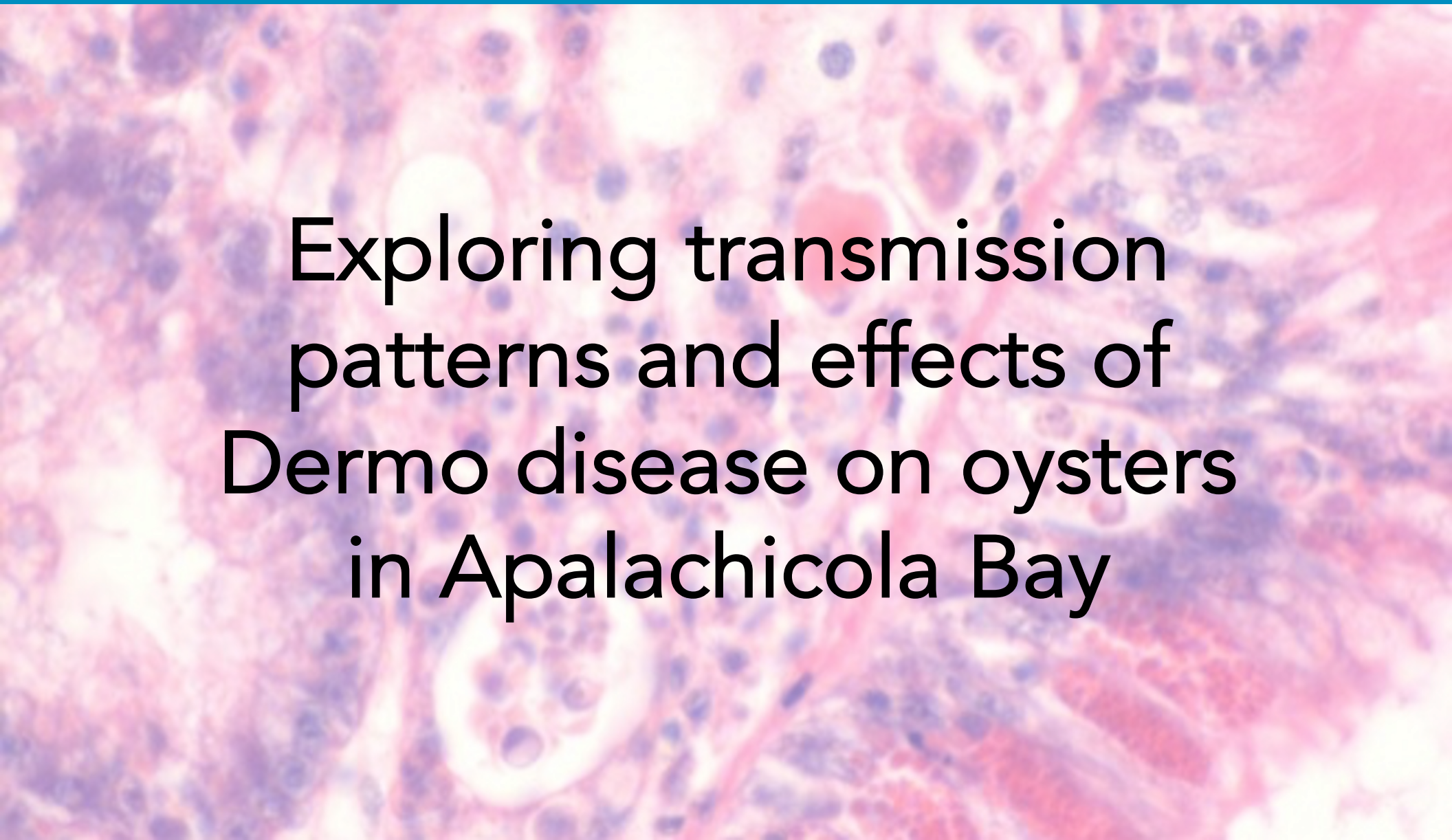

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