

Understanding oyster recruitment, growth, and survival at a Harlem River living shoreline site

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OYSTER CASTLES

Oysters provide:

- Natural water filtration
- Natural breakwaters that protect shorelines
- Nitrogen removal and sequestration

WHY HARLEM RIVER?

NYC waterways are susceptible to:

- Overfishing
- Water quality degradation
- Shoreline erosion due to storms and boat wakes
- Coastal development and dredging
- Toxic algae blooms

AIM : To collect data revealing the ideal oyster castle design for oysters in the Harlem River

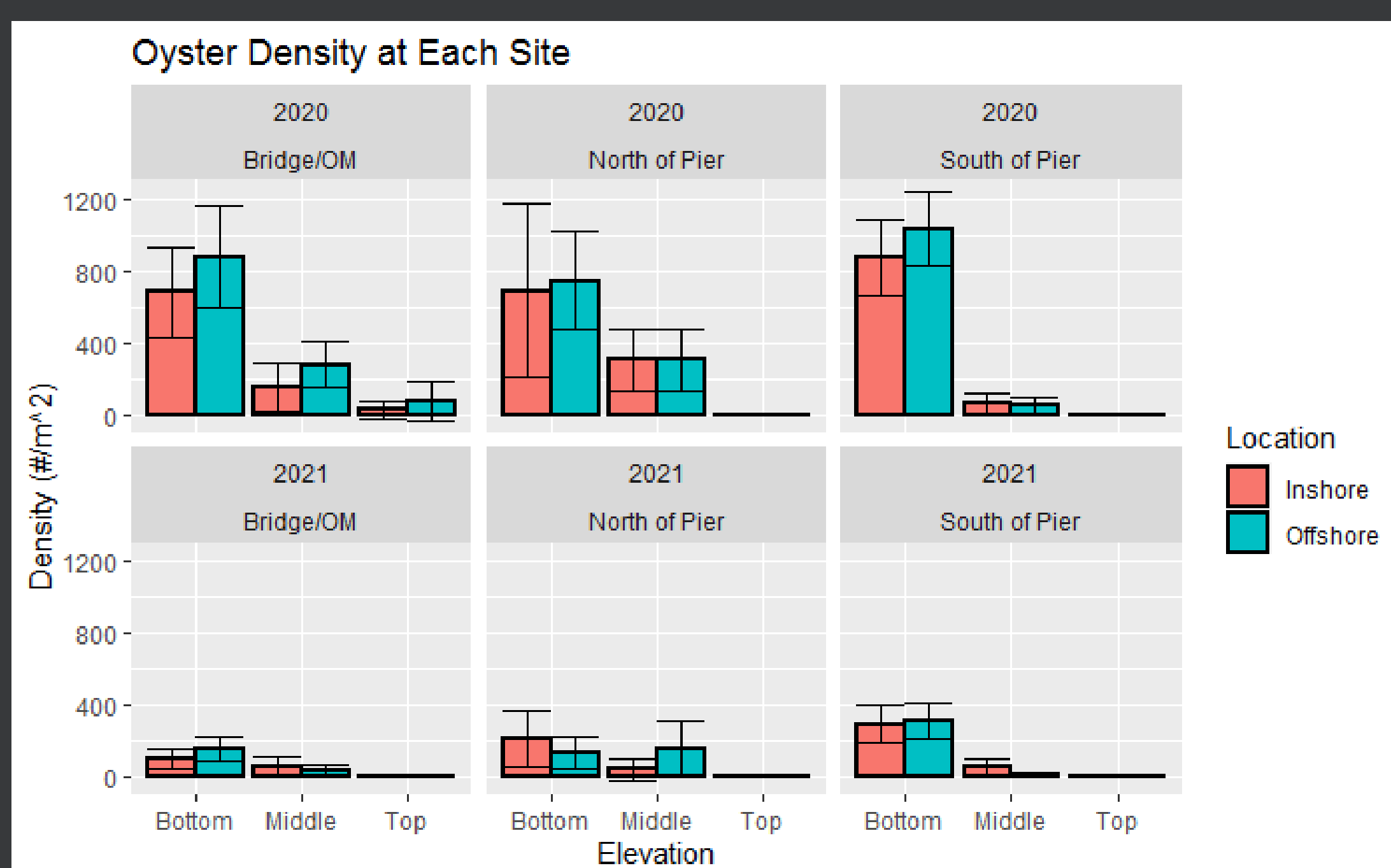
METHODS

- Analyze data set from 43 oyster castles along 3 locations on Sherman Creek
- Collect Density, % Mortality, and Shell Height of oysters attached to oyster castles



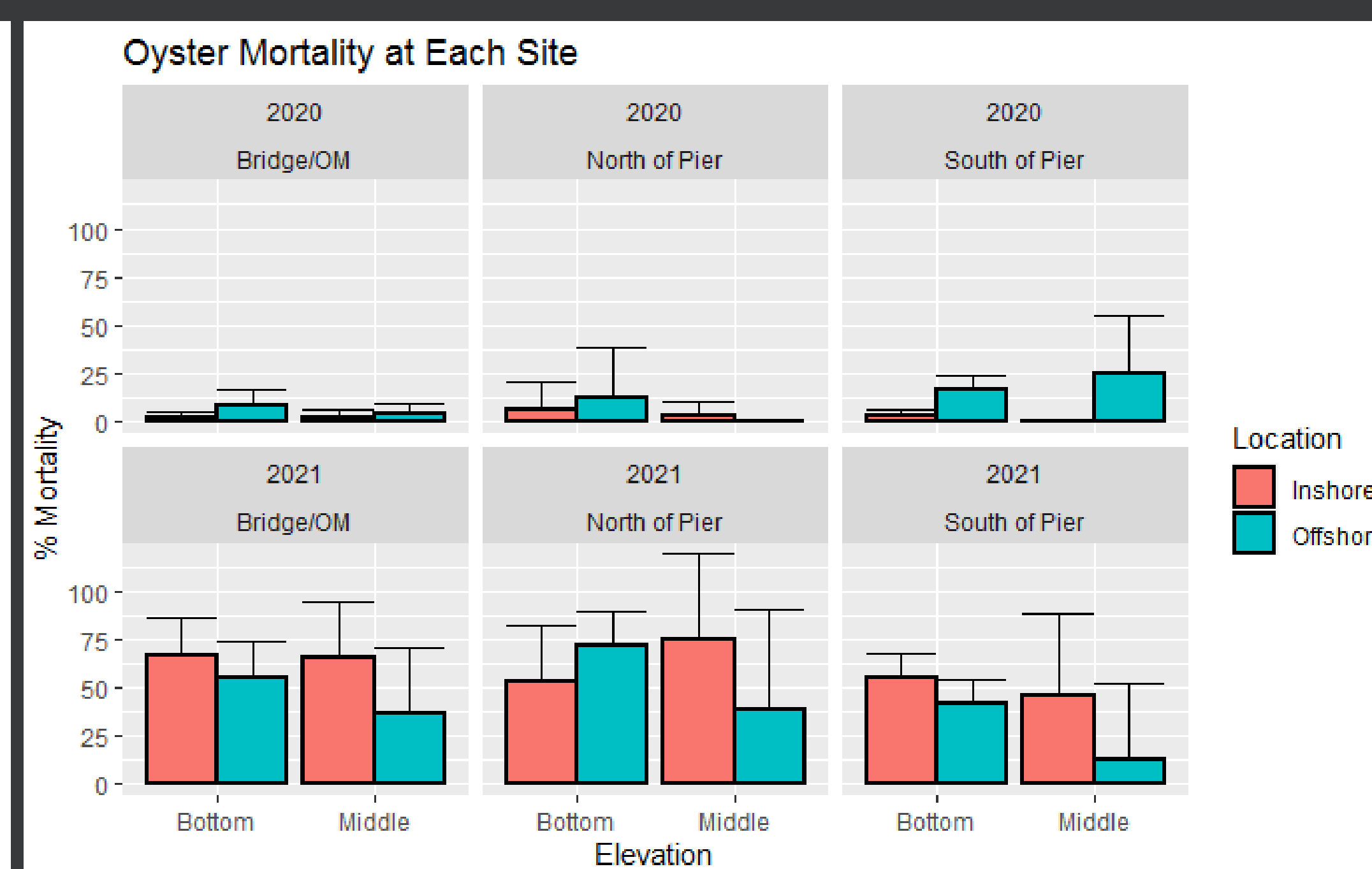
RESULTS

DENSITY



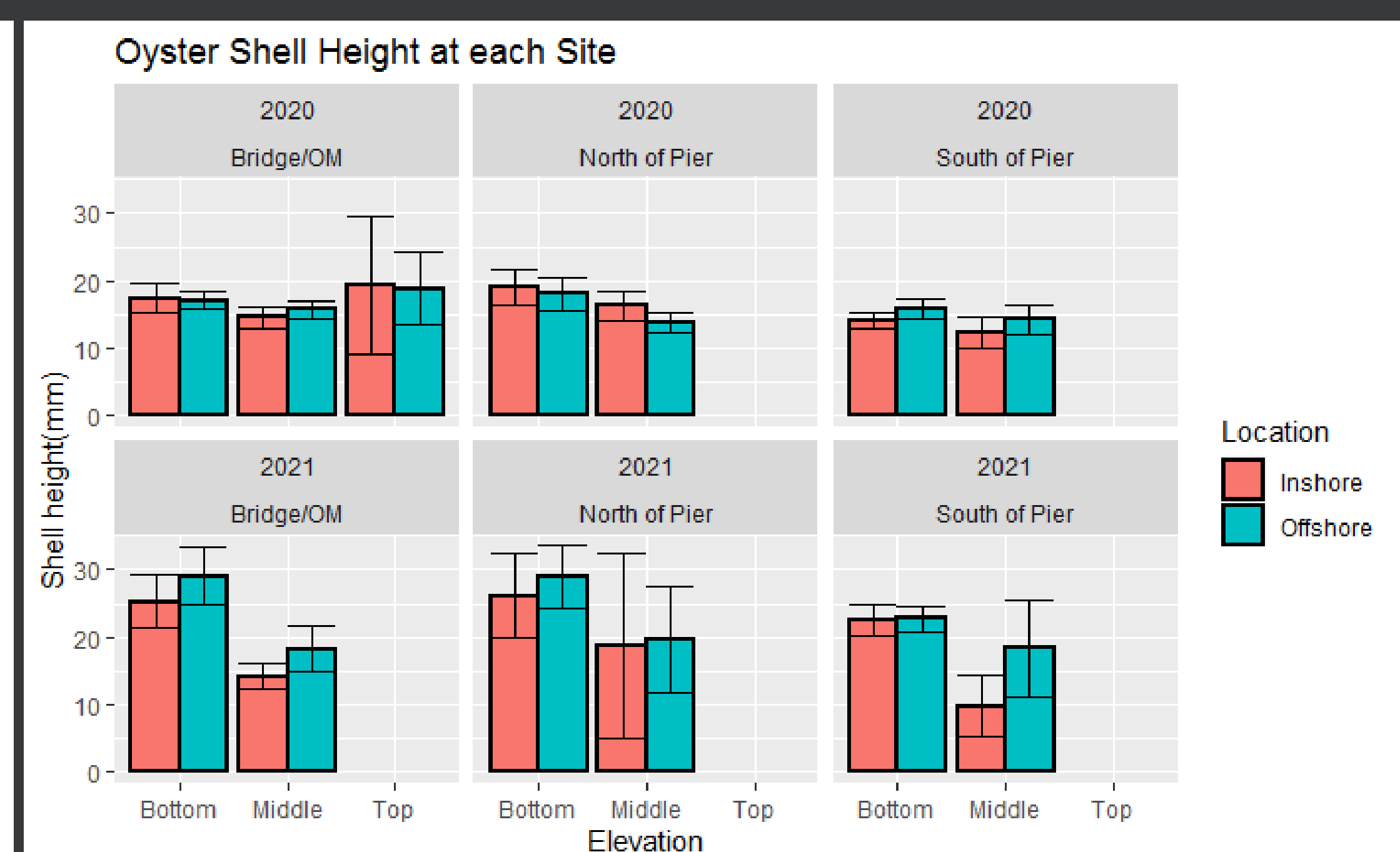
- Bottom tier of oyster castles had highest density likely due to longest exposure to water for spat recruitment and feeding
- Density was lower in 2021

MORTALITY RATE



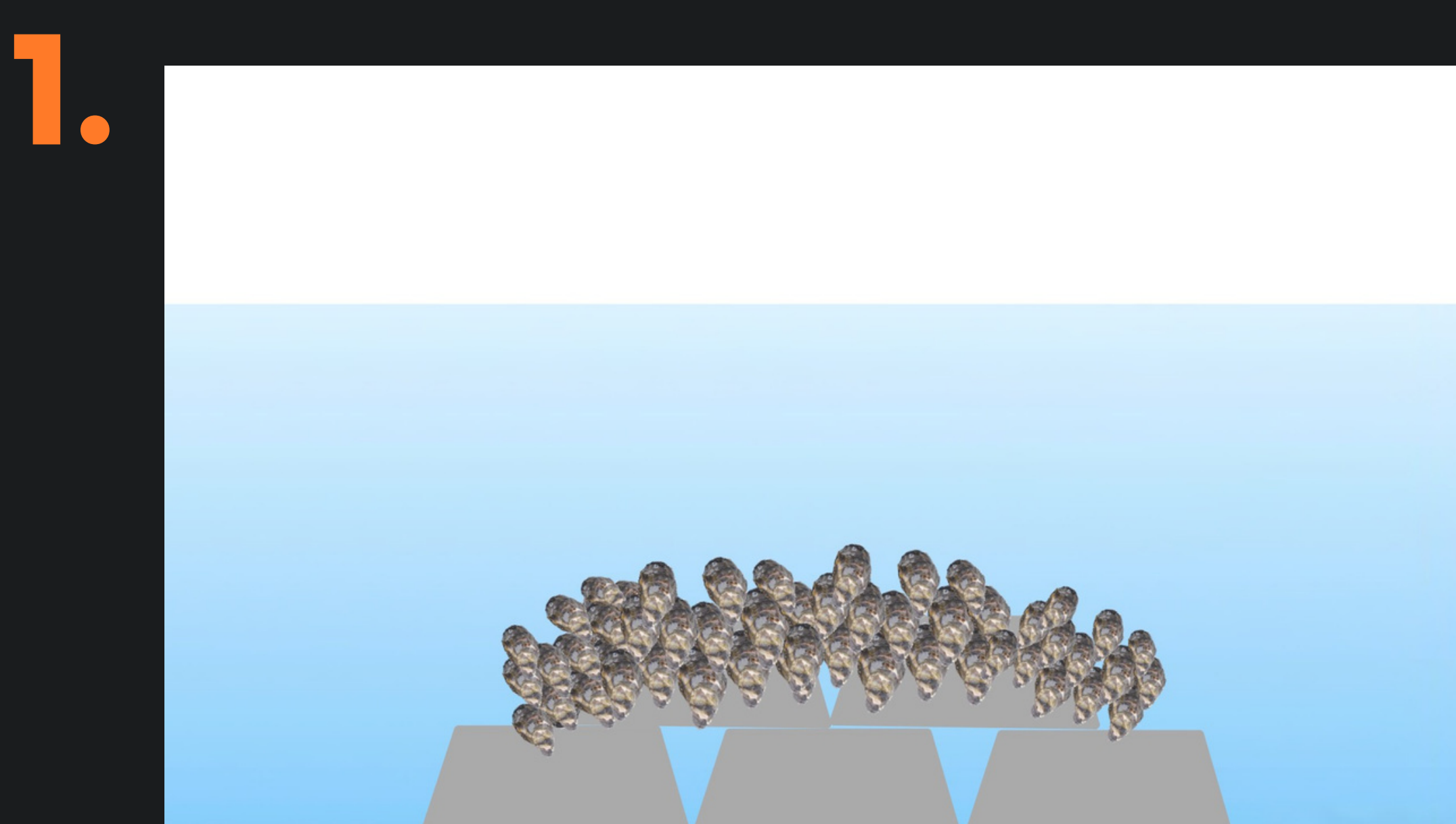
- Greater % mortality was observed in 2021 likely due to predation, disease (i.e. Dermo disease or MSX disease), weather changes, fluctuating salinity and accelerated sedimentation

SHELL HEIGHT

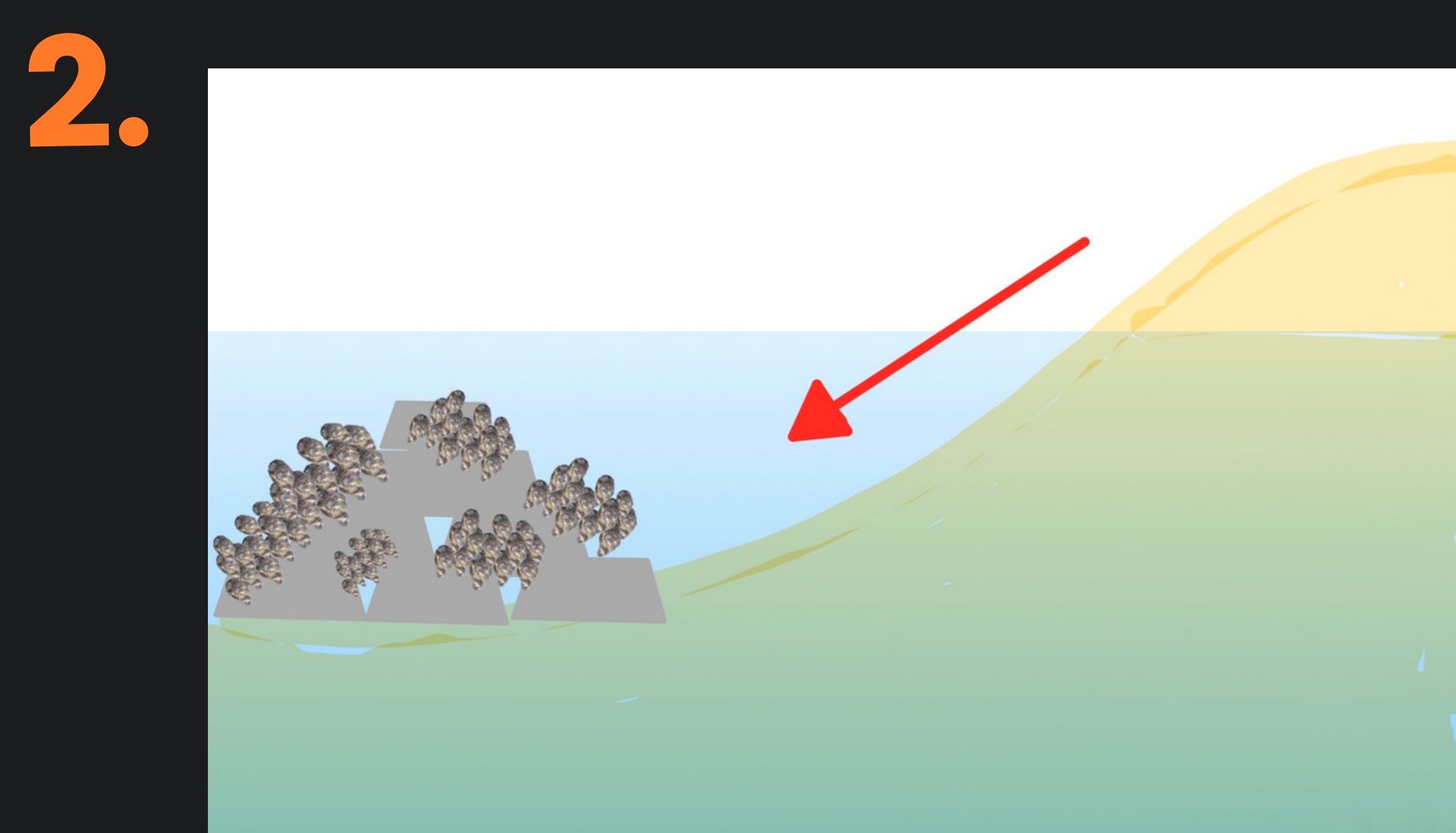


- Comparing shell heights from 2020 and 2021, we observed greatest growth in bottom tier likely due to easier access to water for feeding

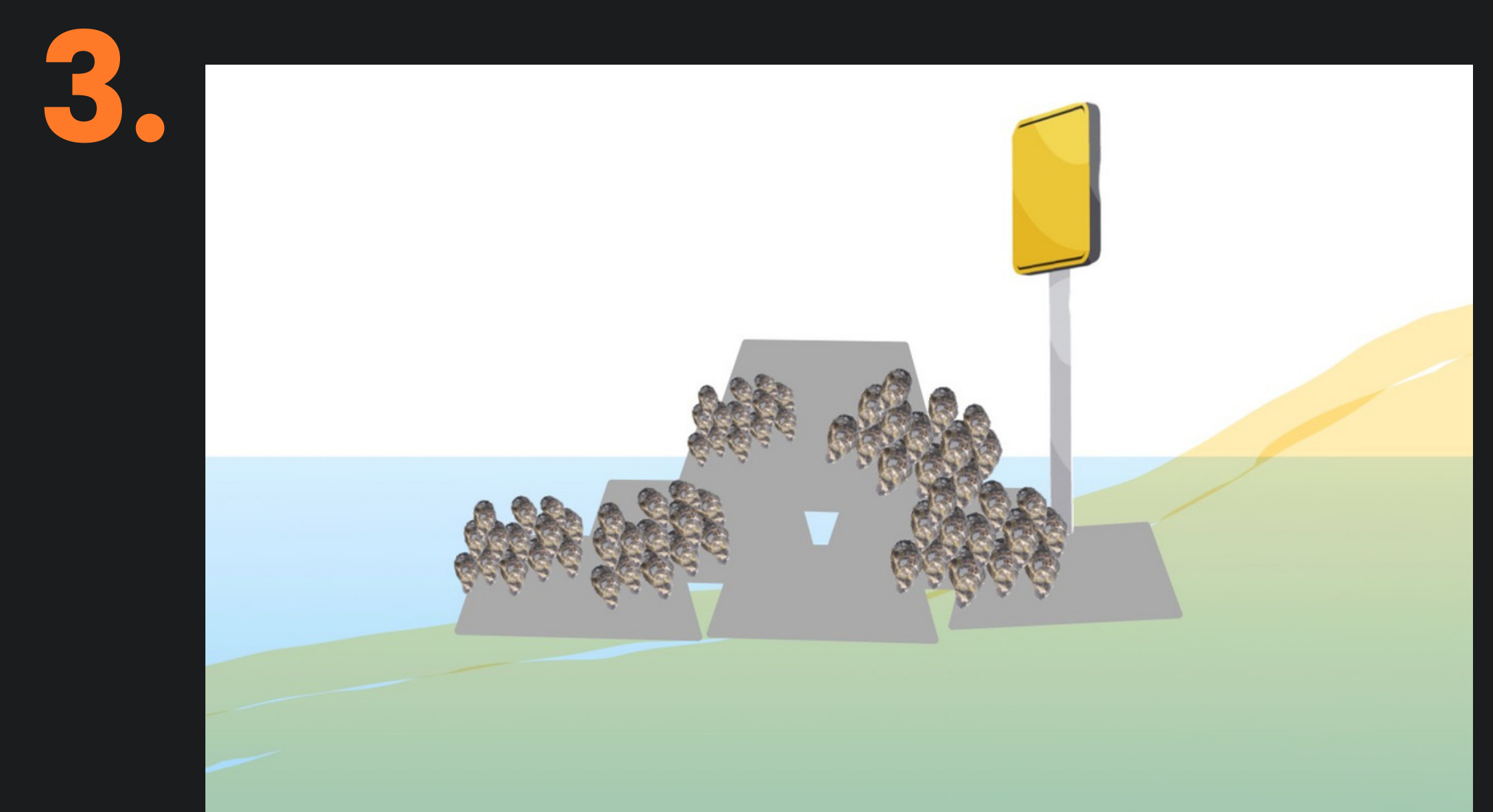
Future Structural Implications



- Reduce number of tiers on oyster castle
 - Increase ground coverage instead of vertical height



- Move oyster castles further away from the shore
 - Water depth covering bottom tier at low tide



- Increase signage to minimize human interference