Acute toxicity of Thickslick 6535 to Atlantic shallow-water corals

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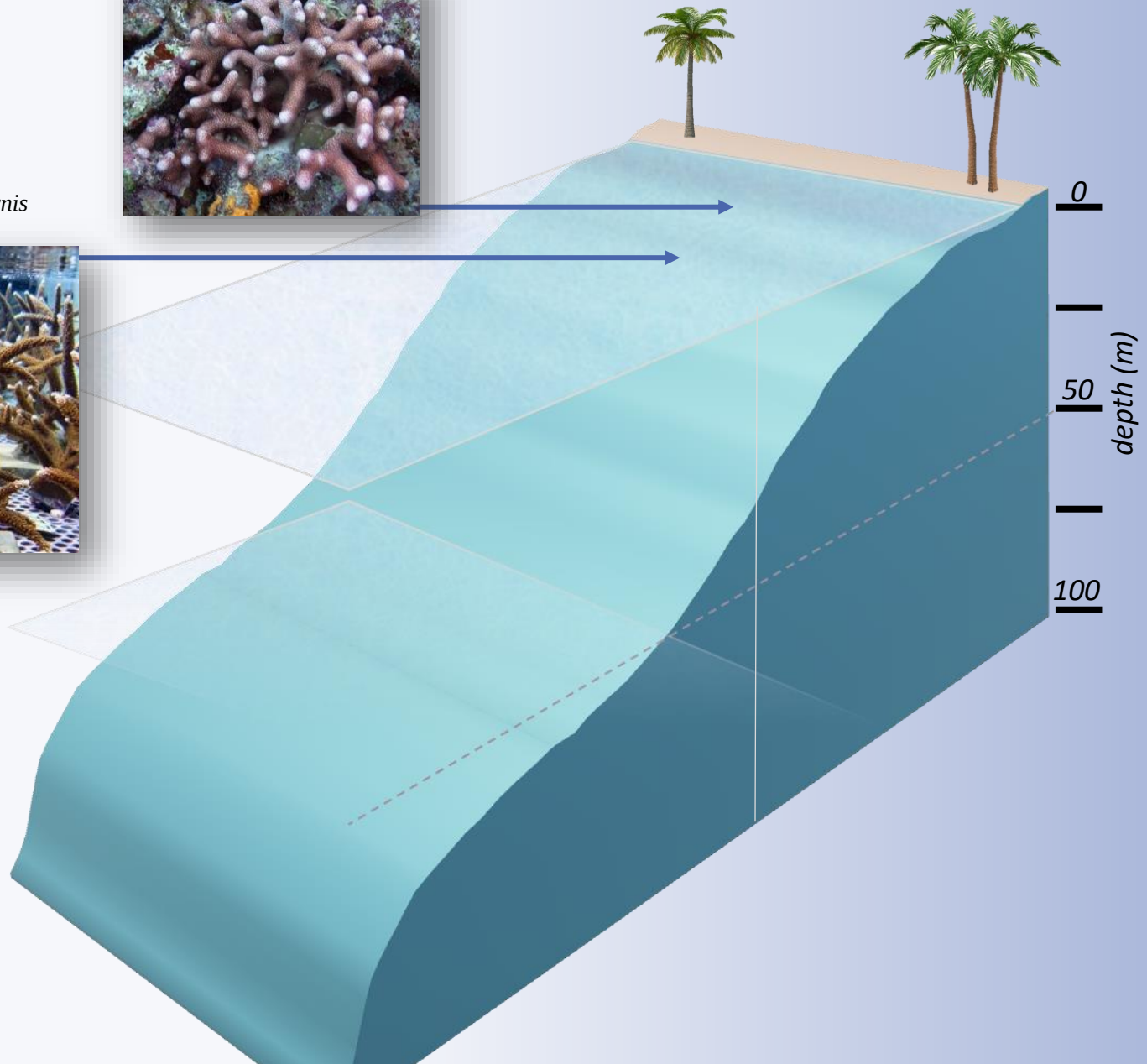
Photo credit: NSU

Test species

- Two species of shallow-water hermatypic corals (typically occur in <5 m depth)
- *Acropora cervicornis* (Atlantic staghorn coral) is an ESA-listed endangered species

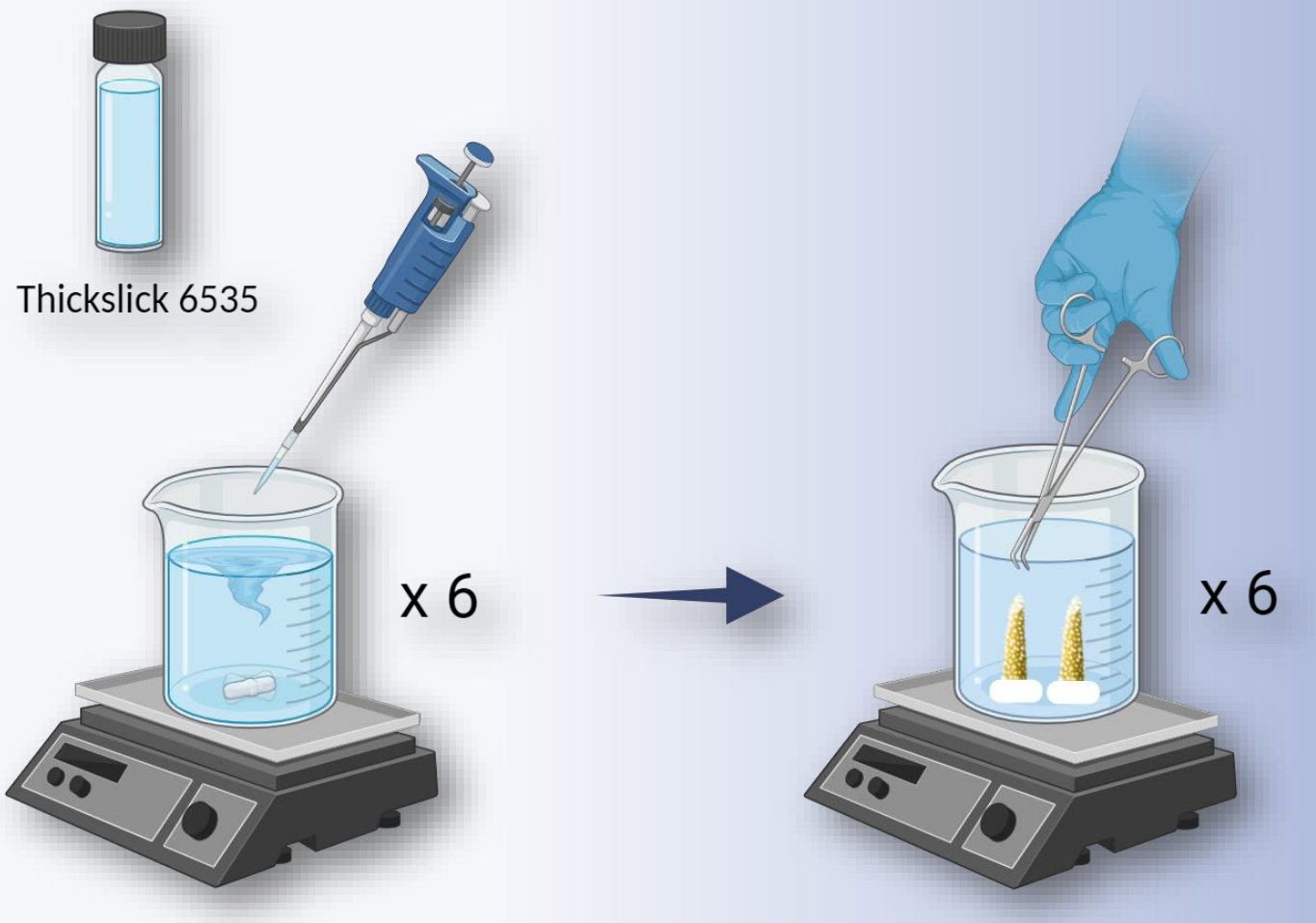
Porites divaricata,
1-3 m depth

Acropora cervicornis
1-10 m depth



Exposure design

- 96-hour exposures
  - Negative (seawater) control
  - 5 test concentrations
  - 6 replicates per test concentration
  - 2 corals per test replicate



Daily 100% renewal

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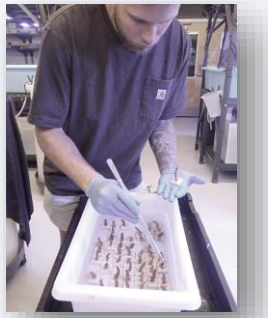
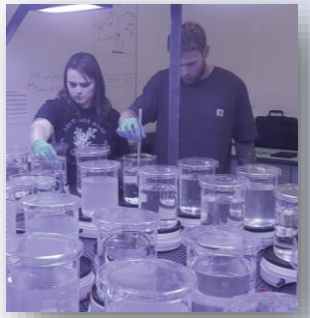
Coral assessment





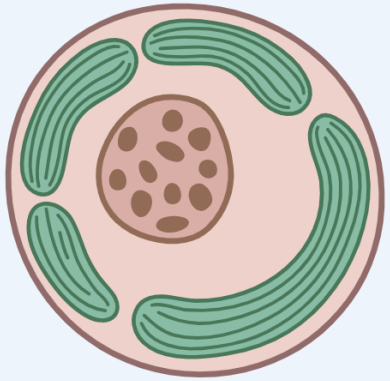
Mortality (LC50)

Physical changes (coral condition) ($EC50_{Condition}$)

- polyp behavior
- mucus production
- changes in coloration
- tissue swelling or thinning

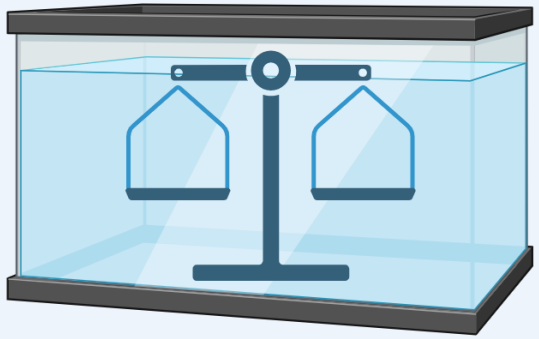
- Hourly for first 12 h, then @ 24, 48, 72 & 96 h, weekly during recovery

Photosynthetic efficiency (PAM) ($IC50_{Photo}$)



- T0 and T96, then weekly during recovery

Growth rate (buoyant weight) ($IC50_{Growth}$)



- T0 and T96, then weekly during recovery

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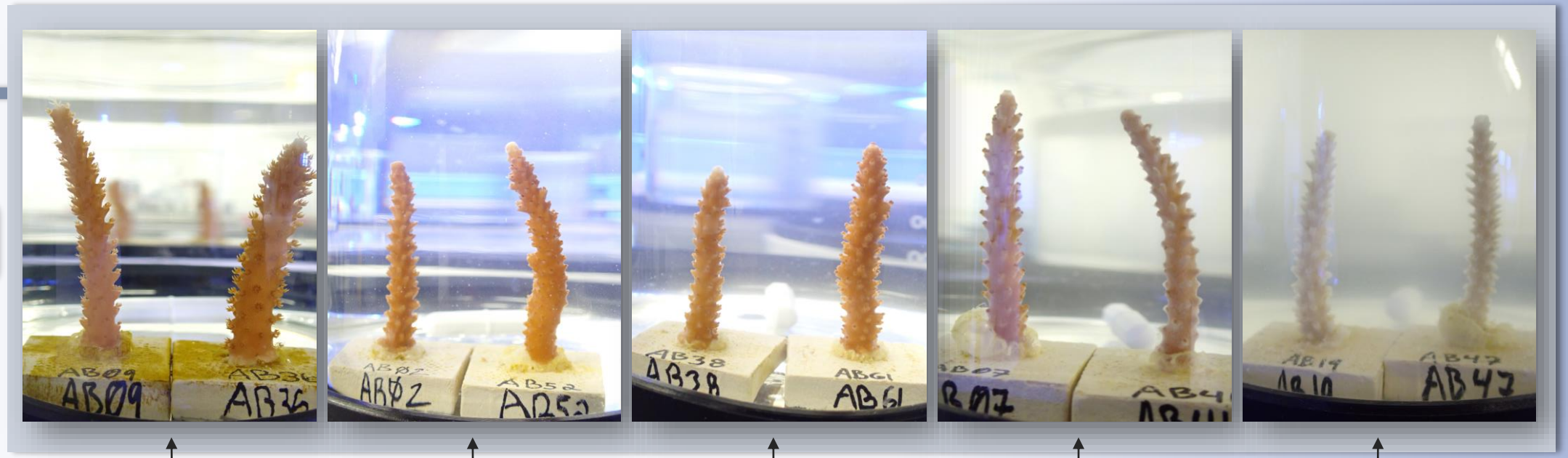
Results

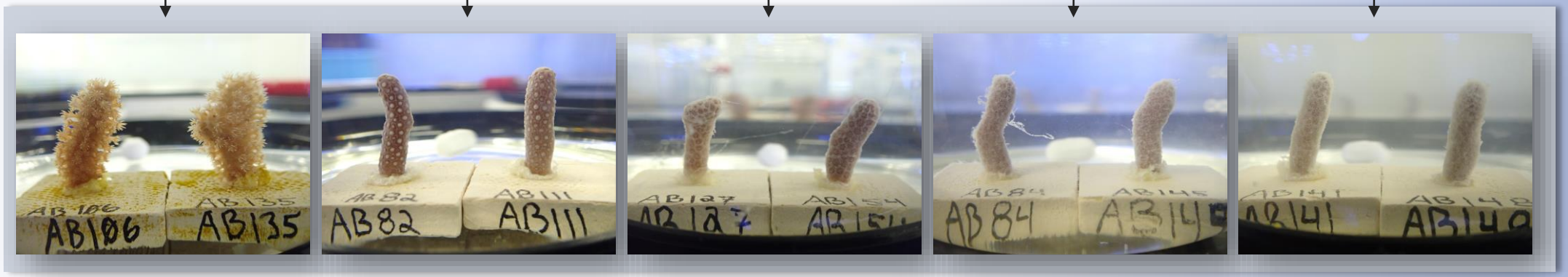
Acropora cervicornis



@ 96 h

Control | 75 mg/L | 150 mg/L | 300 mg/L | 600 mg/L

Porites divaricata



Results

Acropora cervicornis

Porites divaricata

	Acropora cervicornis NOEC	*Acropora cervicornis* LOEC	*Acropora cervicornis* 96-h	*Porites divaricata* NOEC	*Porites divaricata* LOEC	*Porites divaricata* 96-h
Mortality (LC50)	300 mg/L	600 mg/L	285 mg/L	300 mg/L	600 mg/L	330 mg/L
Physical changes (coral condition) ($EC50_{Condition}$)	150 mg/L	300 mg/L	194 mg/L	150 mg/L	300 mg/L	106 mg/L
Photosynthetic efficiency (PAM) ($IC50_{Photo}$)	150 mg/L	300 mg/L	610 mg/L	300 mg/L	600 mg/L	838 mg/L

All thresholds >10 mg/L

Thank you

The Herder Working Group

Oil Spill Response

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Questions?