The Effects of *Sargassum* on *Avicennia* Seedling Growth

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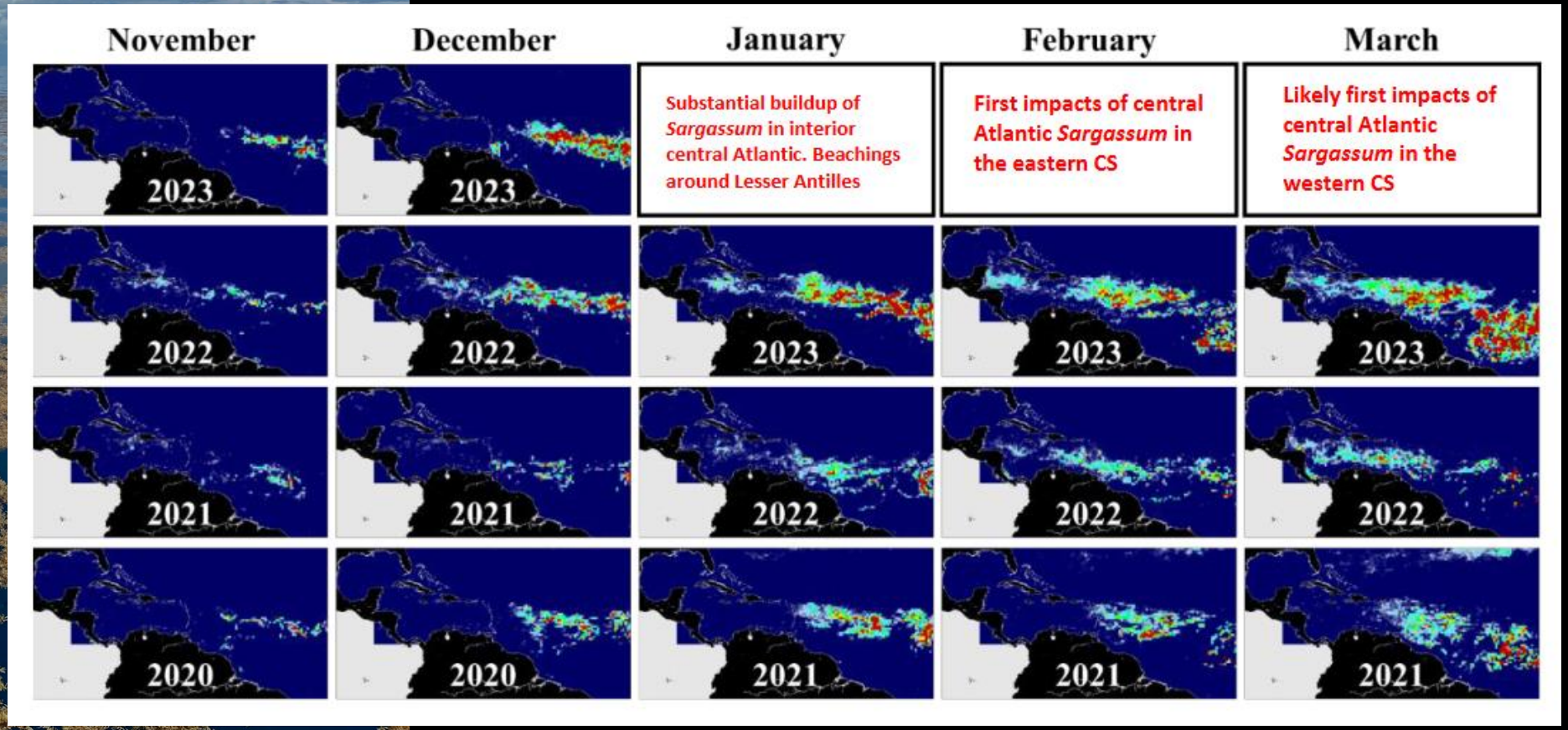
2024 CHIMMP Workshop

Sargassum proliferation has been unprecedented since 2011.

Wang et al. 2019



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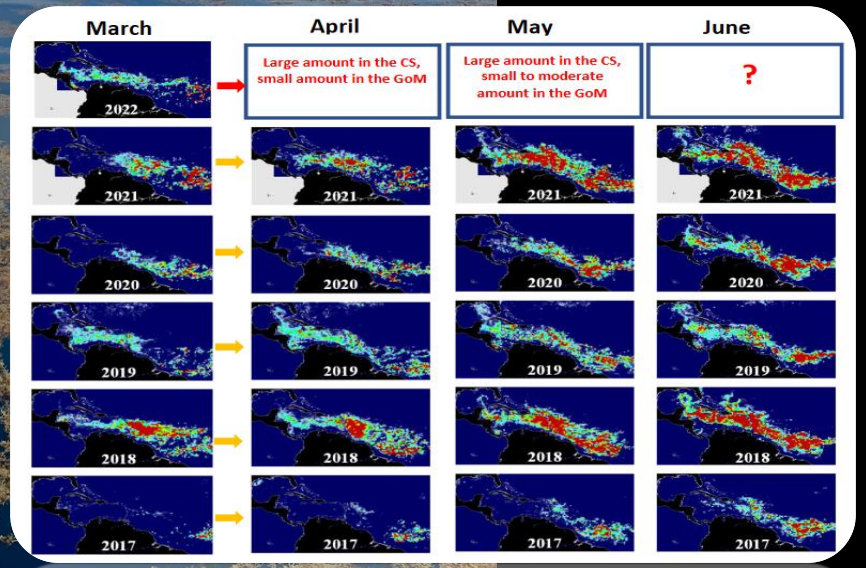
The increase in *Sargassum* density and aerial extent poses a major threat to the economy and public health.



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Credit: Benedicte Desrus/Sipa USA/Newscom

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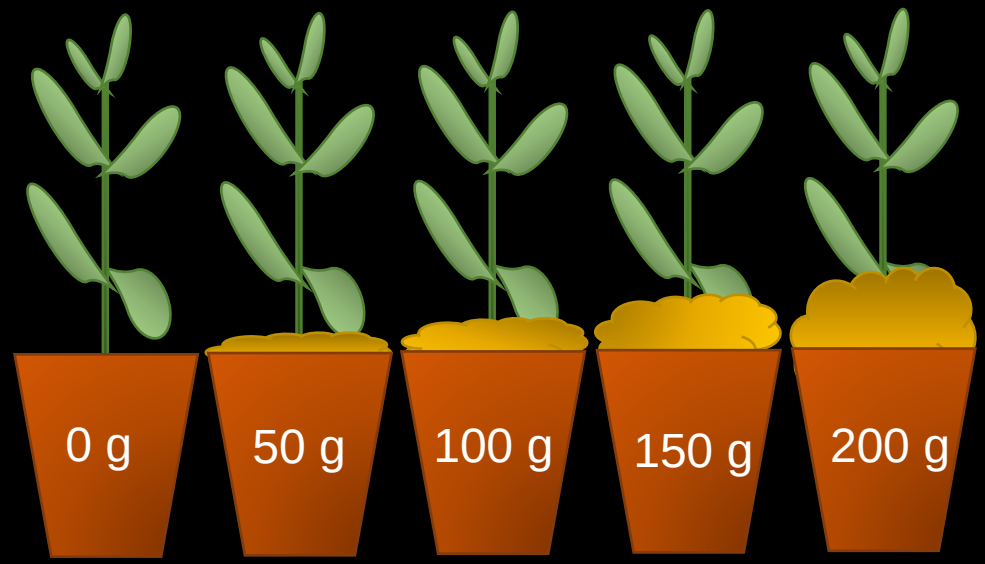
Does *Sargassum* act as a nutrient subsidy to mangrove growth?

Indian River Lagoon, Stuart FL

Florida Oceanographic Society

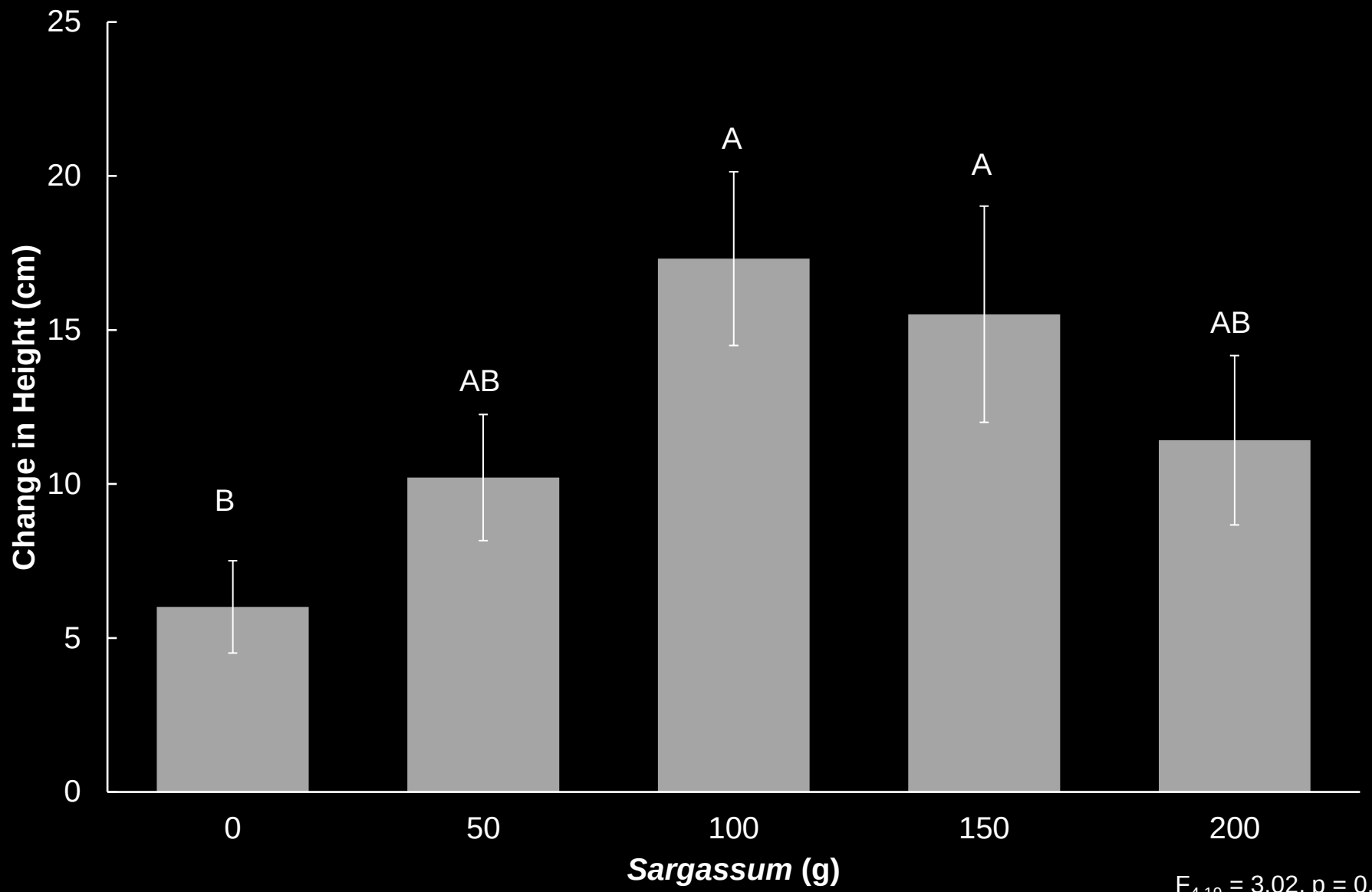
2022



Avicennia germinans seedlings + *Sargassum spp.* on soil surface (n = 5)

Growth measurements [height, internode (#), leaf (#), branching (#)]

Harvest for biomass



$F_{4,19} = 3.02, p = 0.04$

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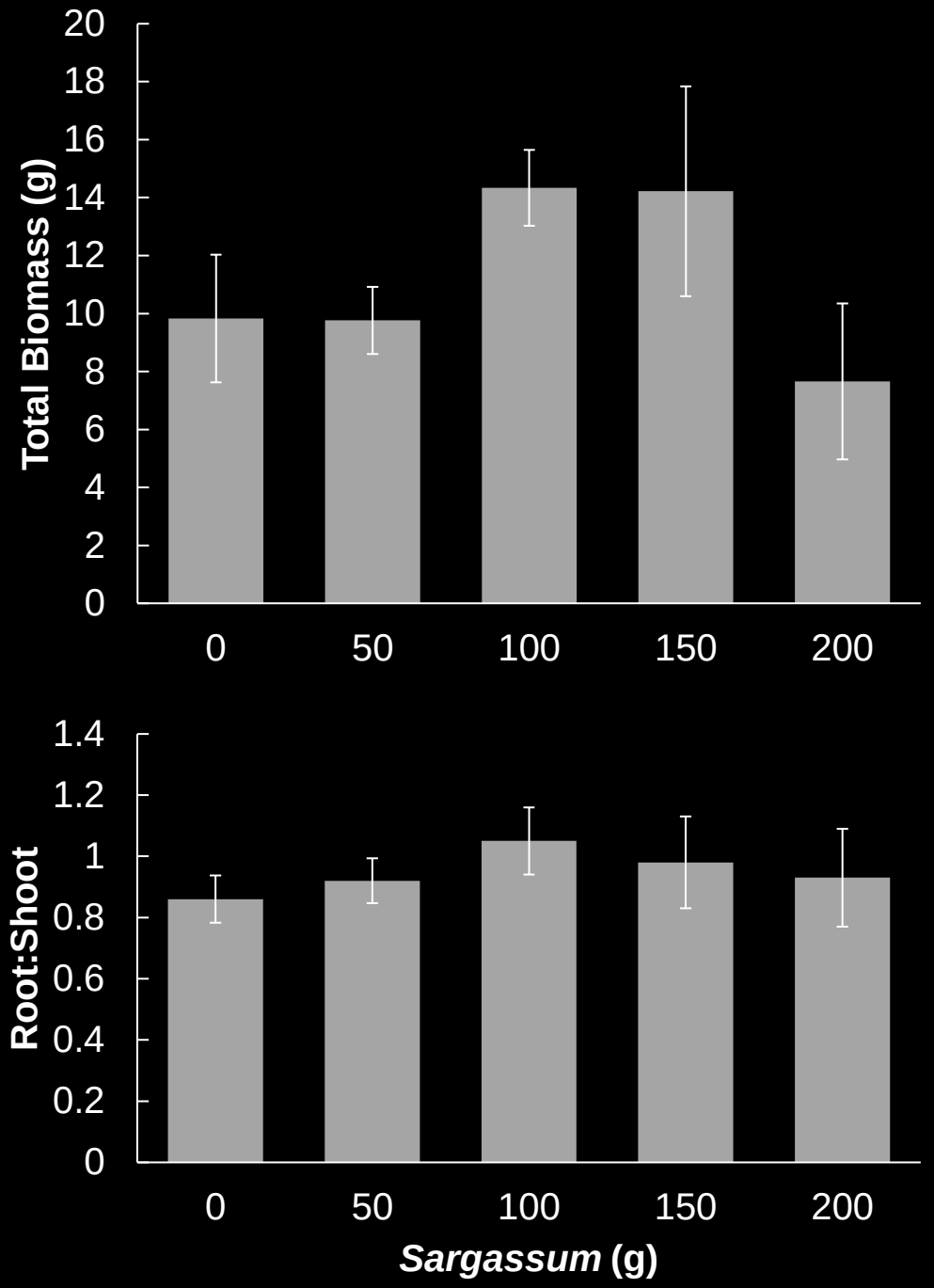

$F_{4,19} = 1.57$, $p = 0.22$

$F_{4,19} = 0.40$, $p = 0.80$


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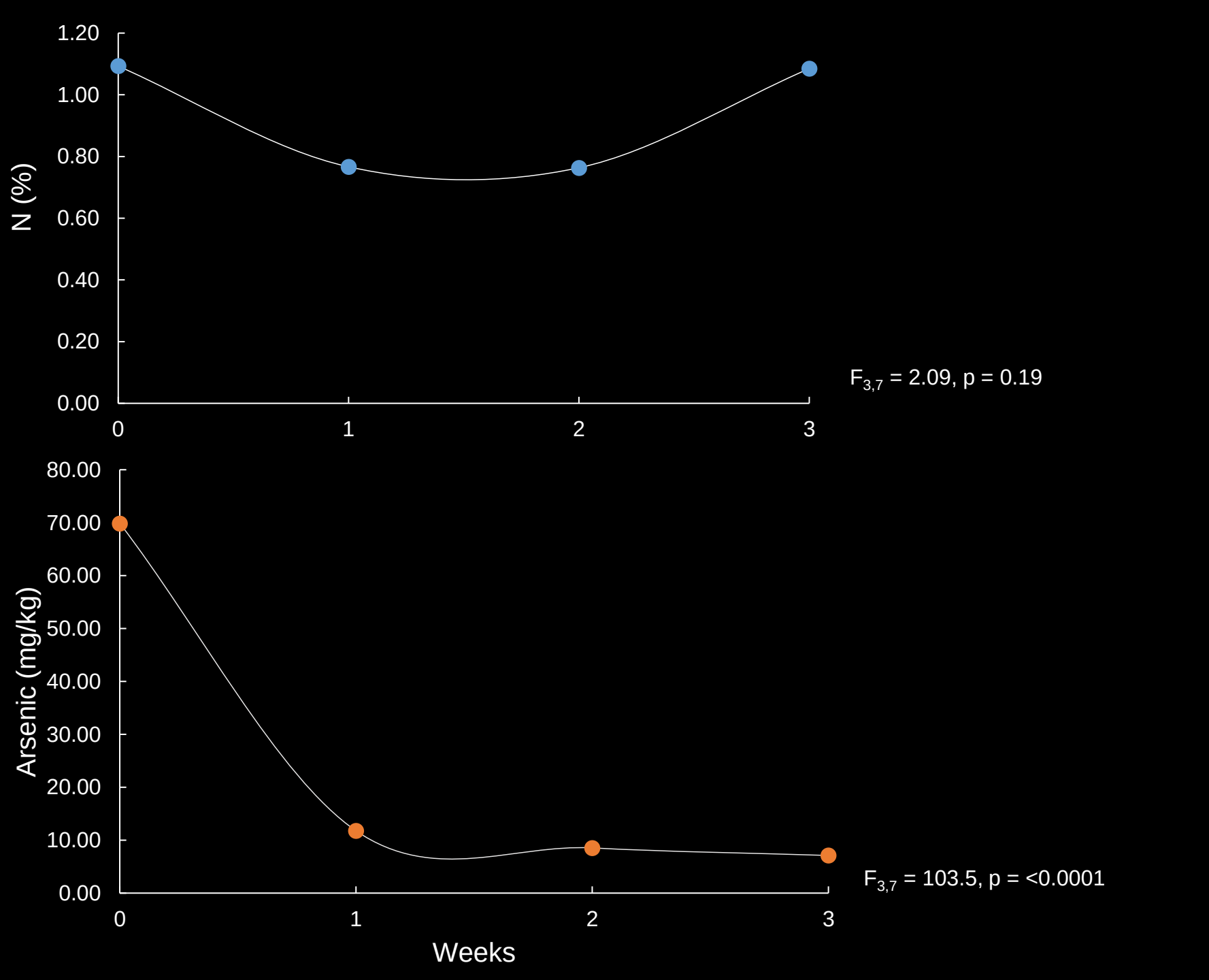
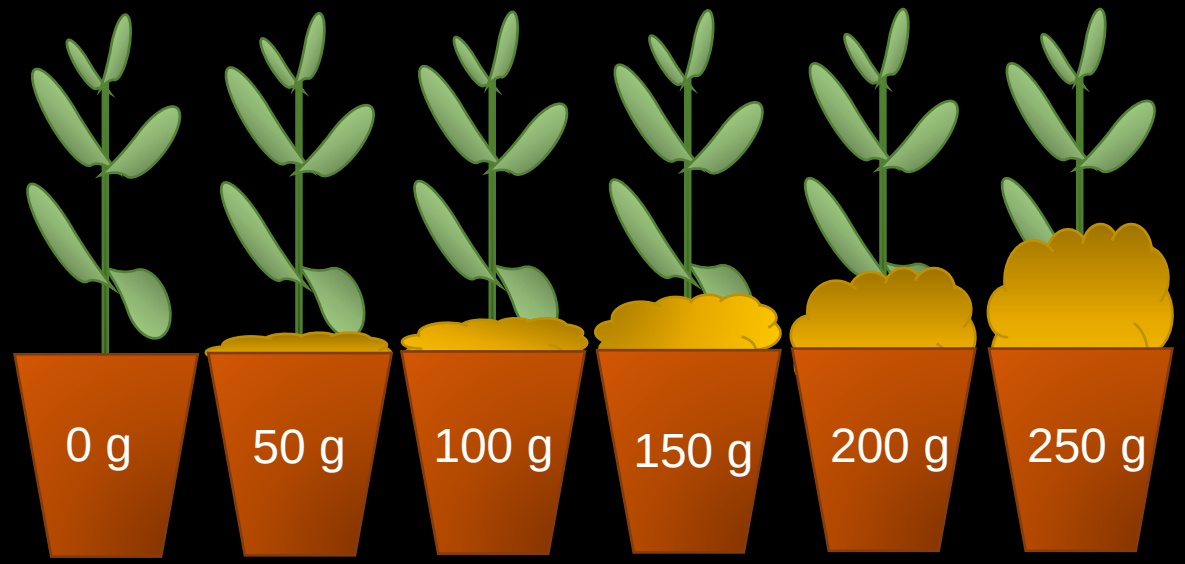

1.20
1.00
0.80
0.60
0.40
0.20
0.00
N (%)
0
1
2
3
$F_{3,7}$ = 2.09, p = 0.19
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Arsenic (mg/kg)
0
1
2
3
Weeks
$F_{3,7}$ = 103.5, p = <0.0001

2023



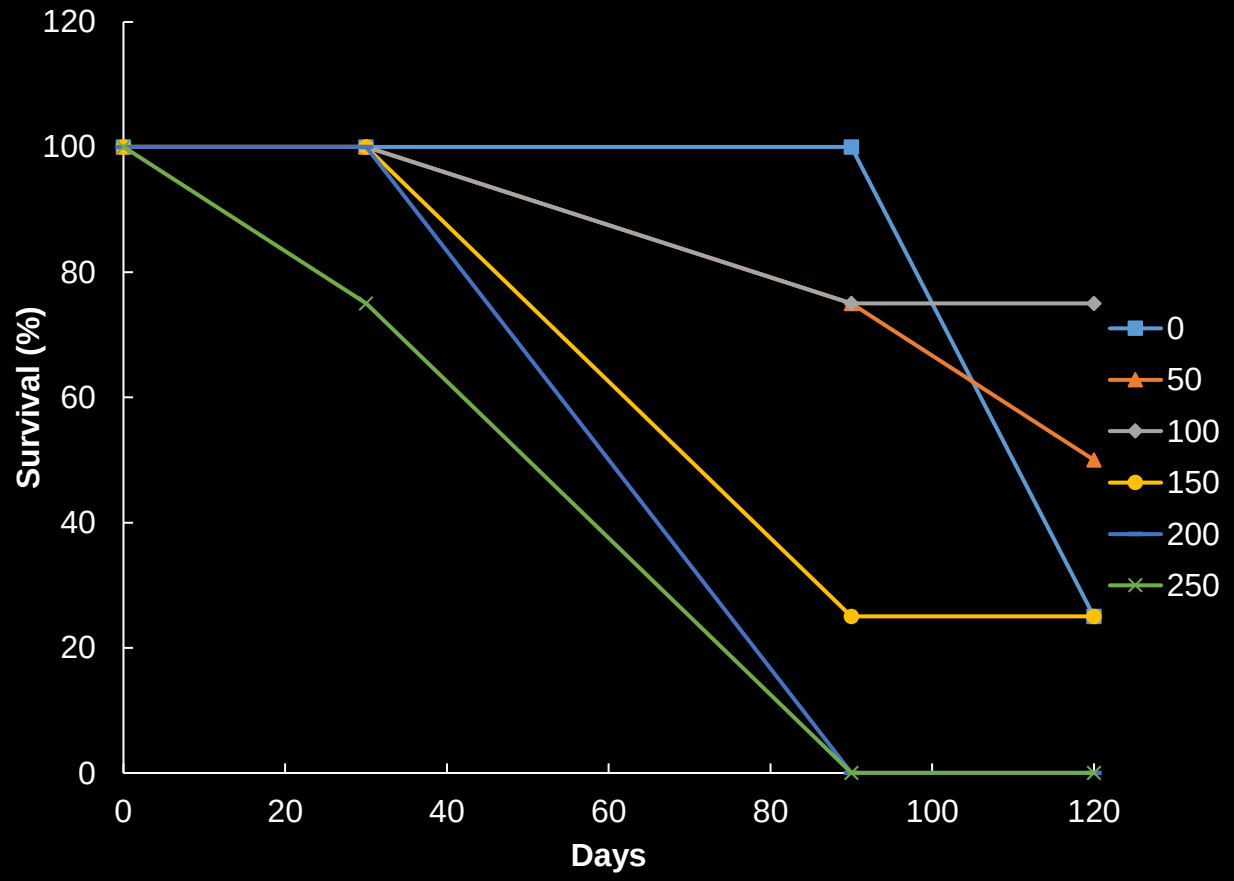
Sargassum addition every month for 5 months

Pulsed *Sargassum spp.* on soil surface (n = 4)

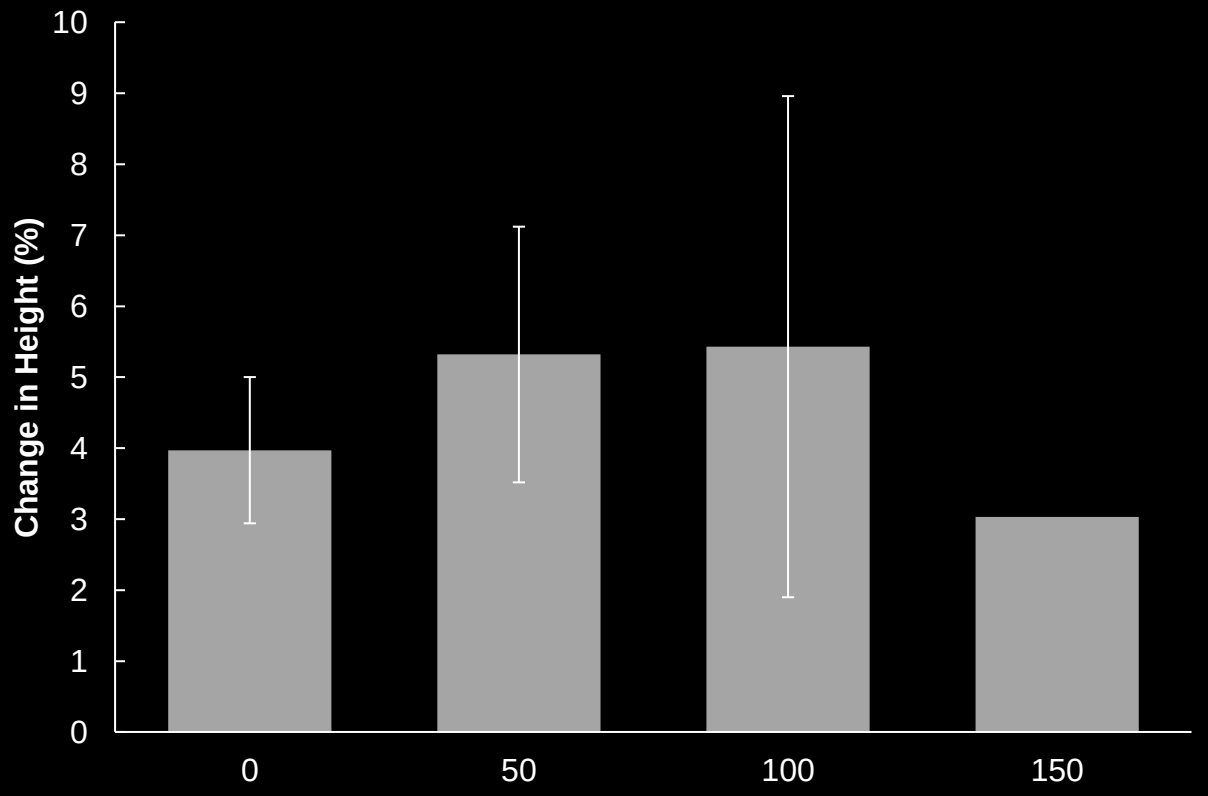
Growth measurements

Harvest for biomass

Mortality of 17 plants at 120 days



Log-rank test: p = 0.018



$F_{3,7} = 0.17$, p = 0.91

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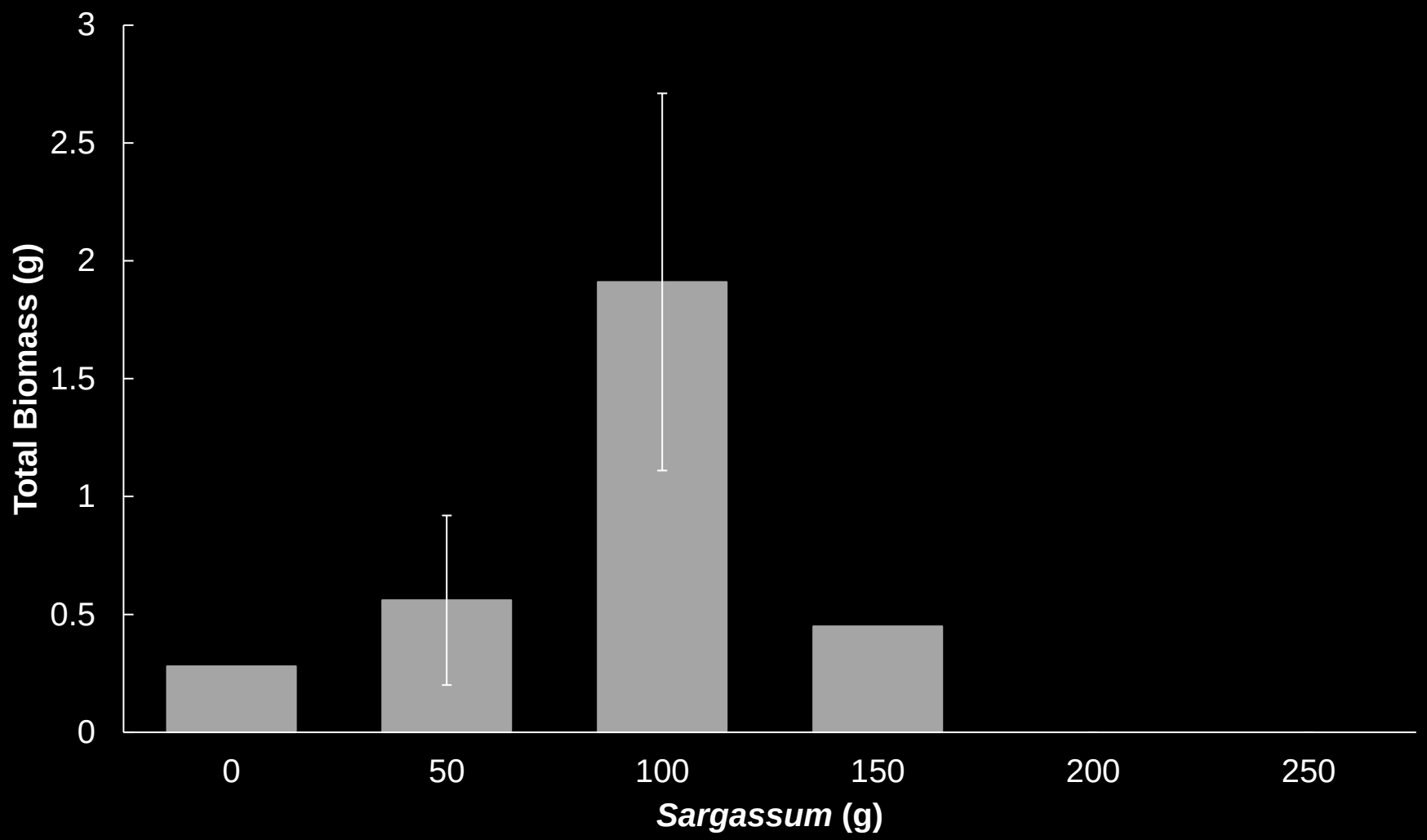

$F_{5,18} = 3.25$, $p = 0.08$

Conclusions & Questions

- Does *Sargassum* act as a nutrient subsidy to mangrove growth?
  - More research is necessary
  - To the graduate students: Projects don't always go as planned! Don't be discouraged
- This work has implications for mangrove restoration and will be continued.
- Contact lsimpson@floridaocean.org with any questions.