

Sea Turtle Response to Airborne Sargassum Odors

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Background:

- Sea turtles can detect airborne odors, spending an increased amount of time with their nares out of water when exposed to an odorant of interest (1,2)
- Juvenile sea turtles spend the first years of their life navigating the Atlantic Ocean and Sargasso Sea (3,4)
- Sargassum mats are important habitats and source of food for many marine animals (5)

Do juvenile sea turtles respond to airborne sargassum odors?

Results:

Sea turtles took more breaths when exposed to sargassum than when exposed to control scents.

The response to the sargassum odor is significant when compared to the response to the distilled water, with a p-value of 0.0004

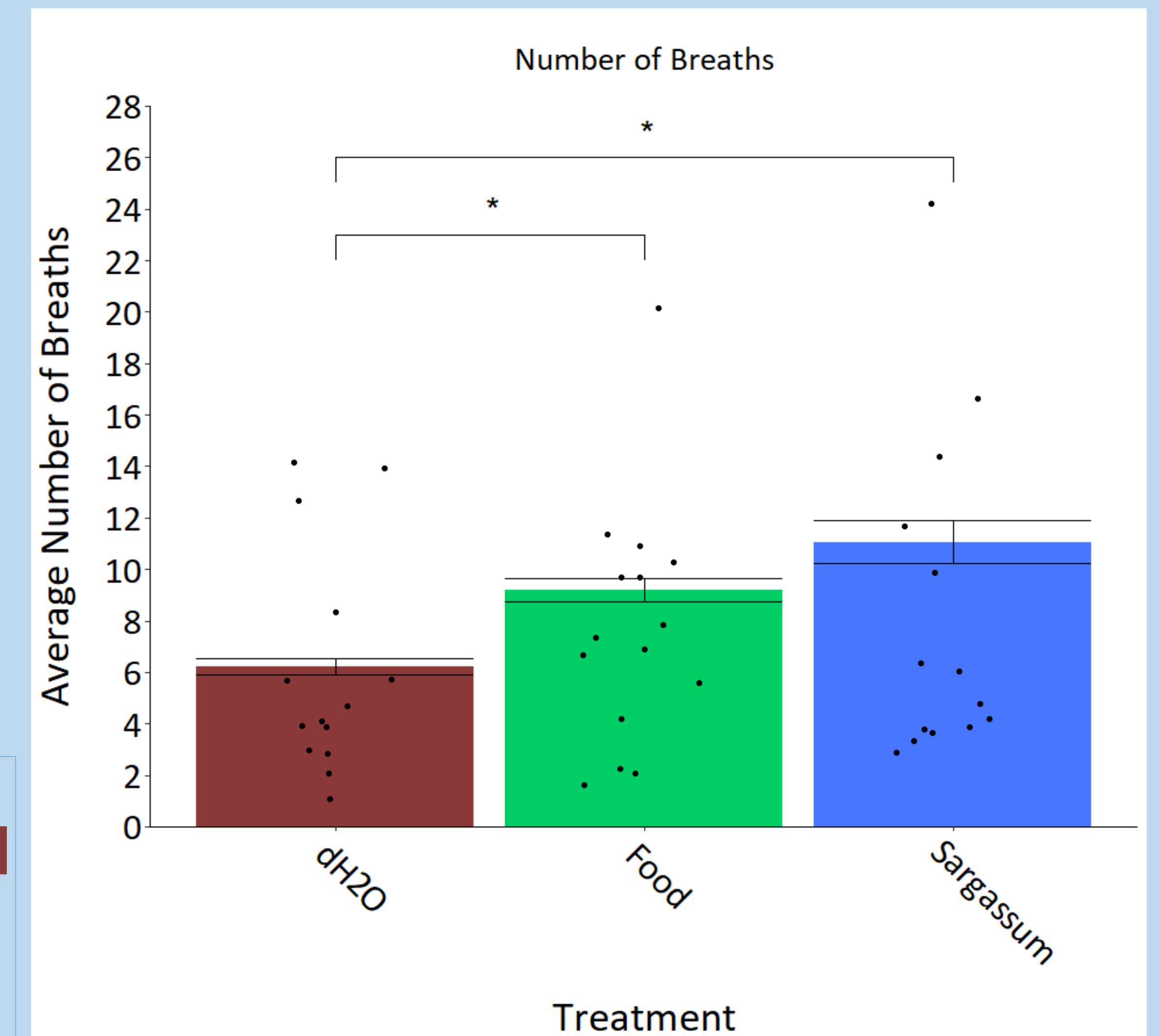


Fig 5: Number of Breaths Taken

Conclusions:

- The sea turtles spent more time with their nares out of water when exposed to sargassum and food odors than when they were exposed to distilled water odors
- These data suggest that sea turtles respond to the airborne scent of sargassum
- The sea turtles could potentially be using these cues to find shelter, food, or determine other environmental cues

Methods:

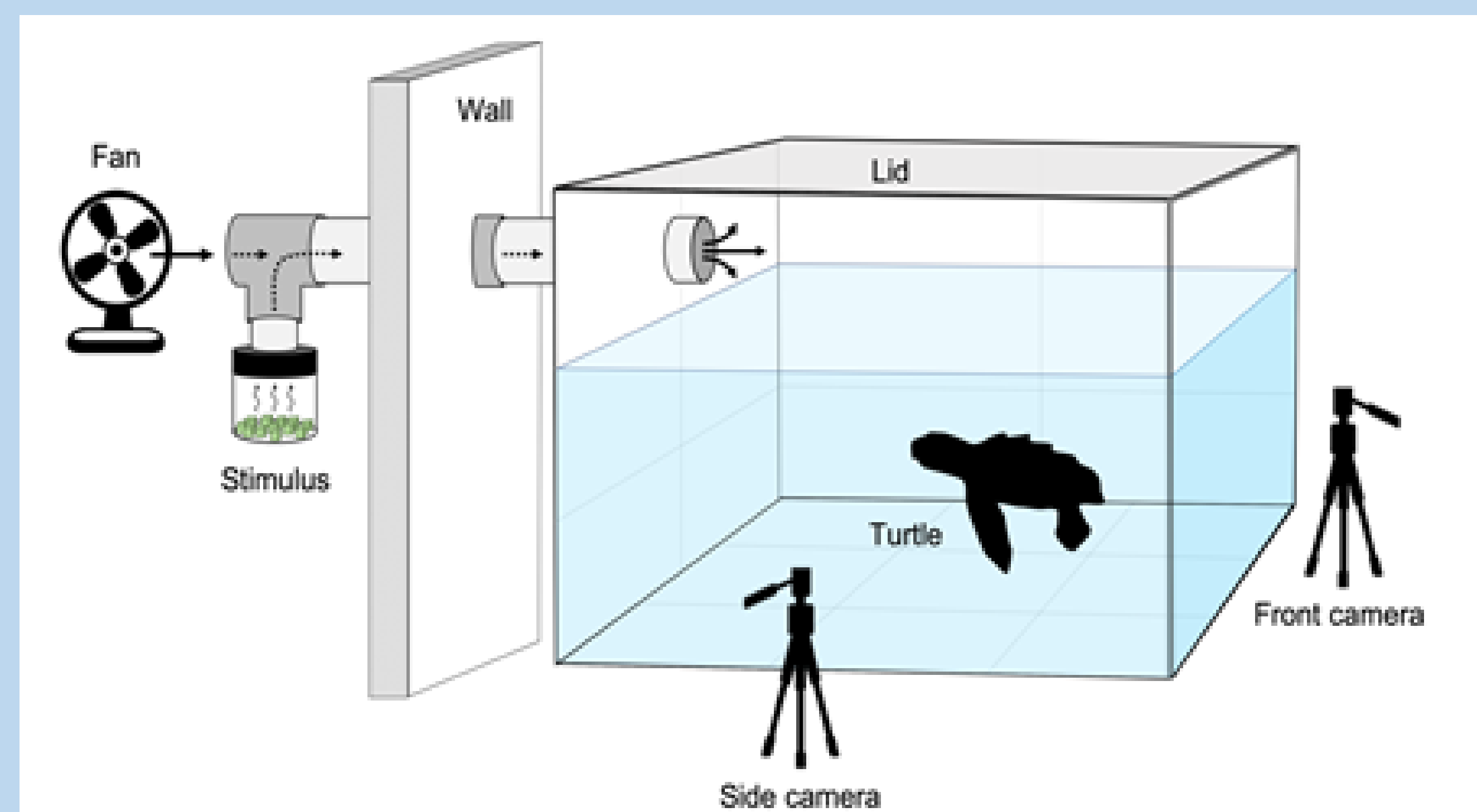


Fig 1: Experimental Setup

Negative Control: Distilled Water
 Positive Control: Food
 Experimental Scent: Sargassum



Fig 3: Sargassum



Fig 2: Turtle in experimental tank

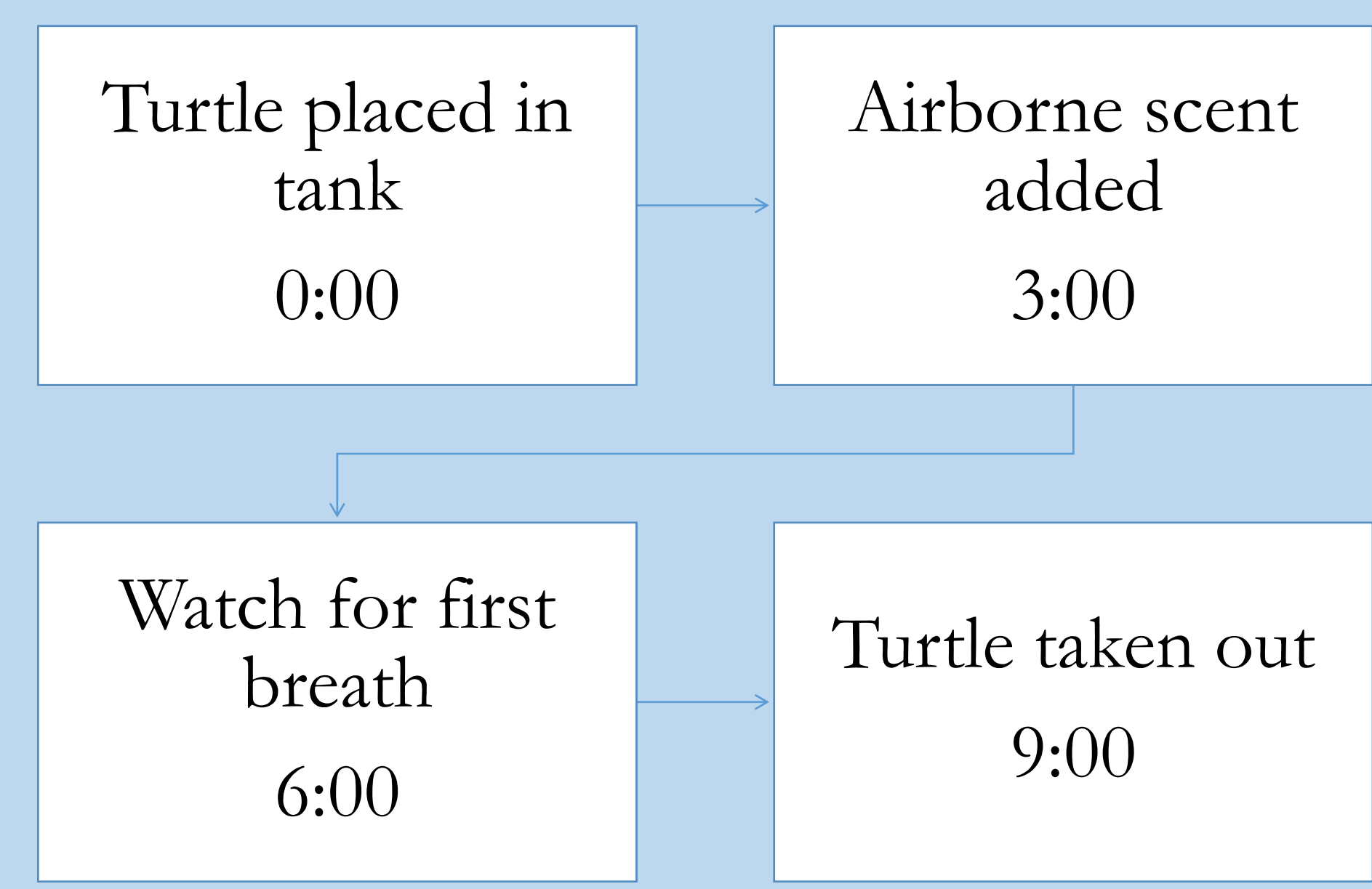


Fig 4: Timeline of trials

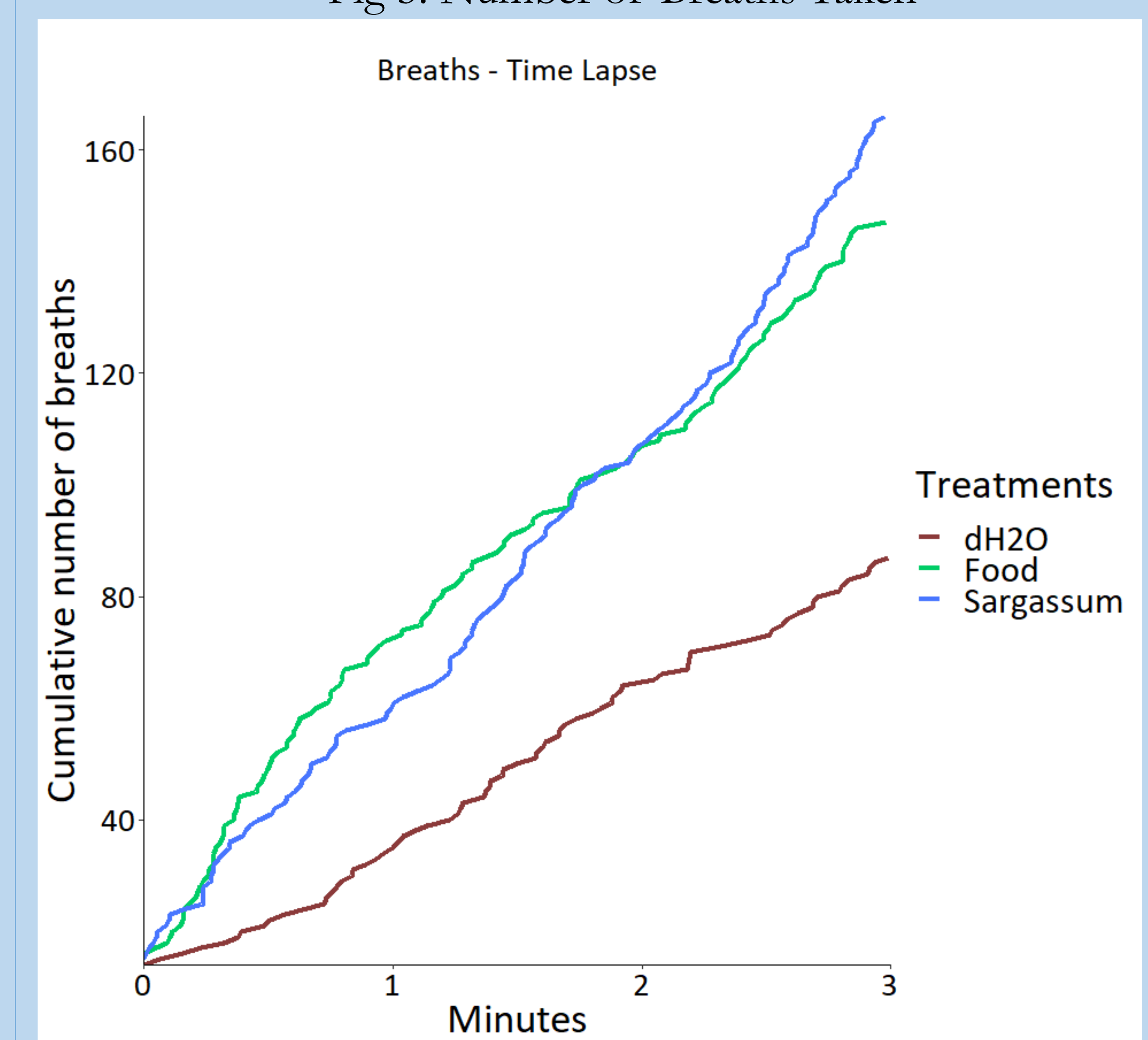


Fig 6: Time Lapse of Number of Breaths Taken- in Minutes

Future Work:

- A follow-up study will be conducted during the summer of 2020, analyzing the response of sea turtles to waterborne sargassum odors
- It is hypothesized that the sea turtles will also respond to the waterborne odors of sargassum, which could indicate that they use the scent of sargassum to determine ideal habitats

References: 1. Endres *et al.* (2012) 2. Endres and Lohmann, *et al.* (2012) 3. Mansfield *et al.* (2014) 4. Bjorndal *et al.* (2000) 5. Witherington *et al.* (2012)
 Special thanks to Dr. C. Lohmann for input on the experimental design.