

# Setting the Mood: Background Color and Guppy Mate Choice

Haley Schmid, Michael Thompson, Easton Smith, and Dr. Kim Sullivan

## Introduction:

- There are two prevalent forms of sexual selection in the animals: Male-Male Competition and Female Choice
- Guppies (*Poecilia reticulata*) have been shown to demonstrate Female Choice
- Environmental factors, such as background color, have been shown to affect female interest in specific males
- Guppies tend to show interest in the color orange and we predicted that females would show a preference for males on an orange background

## Methods:

- Obtained two tanks, placed one female in one, and three males in the other
- Separated the males and assigned colored backgrounds
- We tested orange, pink, and neutral backgrounds
- A different female was used in every trial and males were switched every 10 trials (approximately)
- Behavior of the female was observed in two minute intervals, recording time spent near each male
- Times were recorded and averaged out of 120 seconds, with non-interest recorded as the difference.

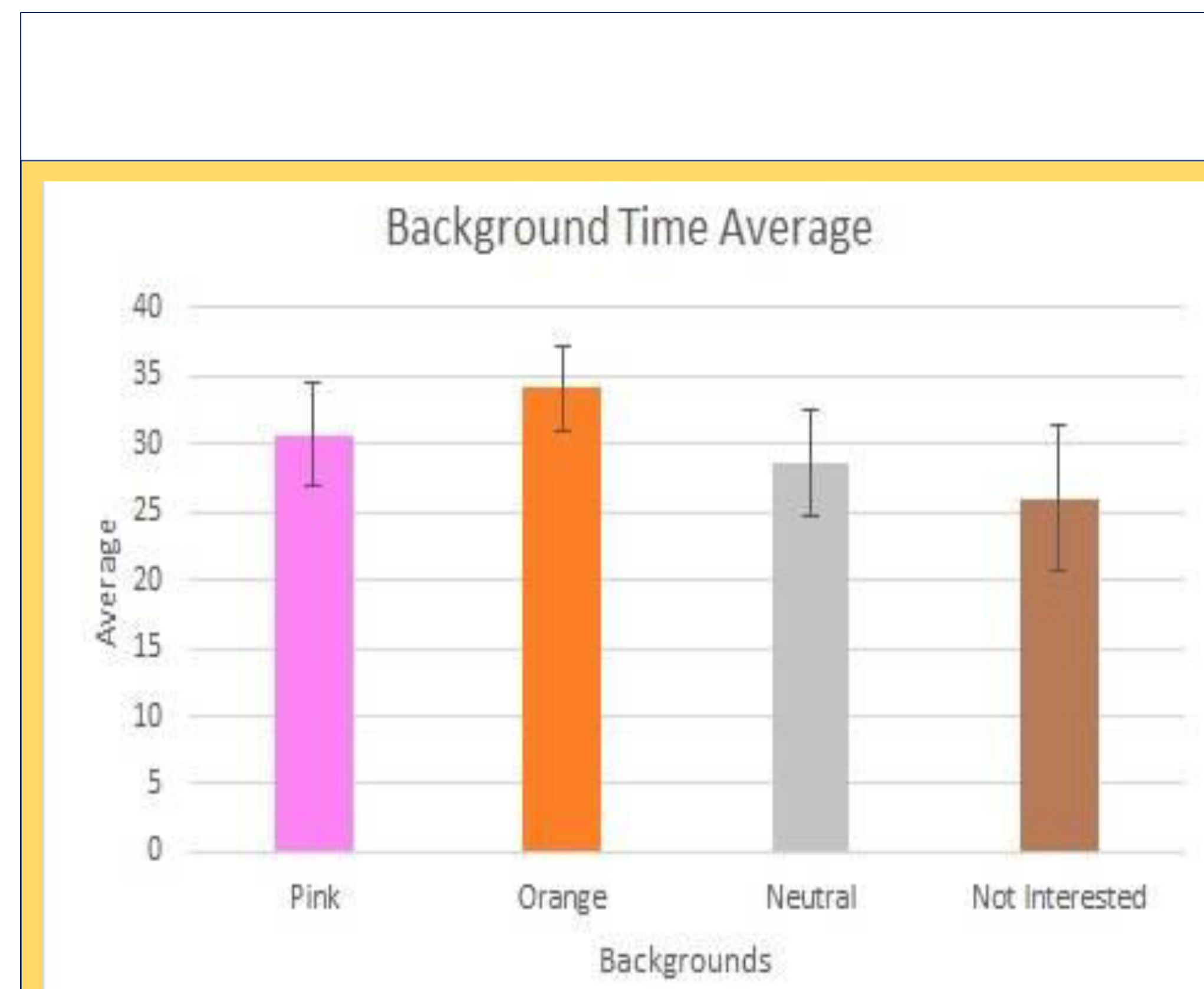


Figure 1: Averages of background, Pink = 30.73, Orange = 34.1, neutral = 28.6, Not interested = 26 colors and the time the females were not interested. Standard errors included in graph

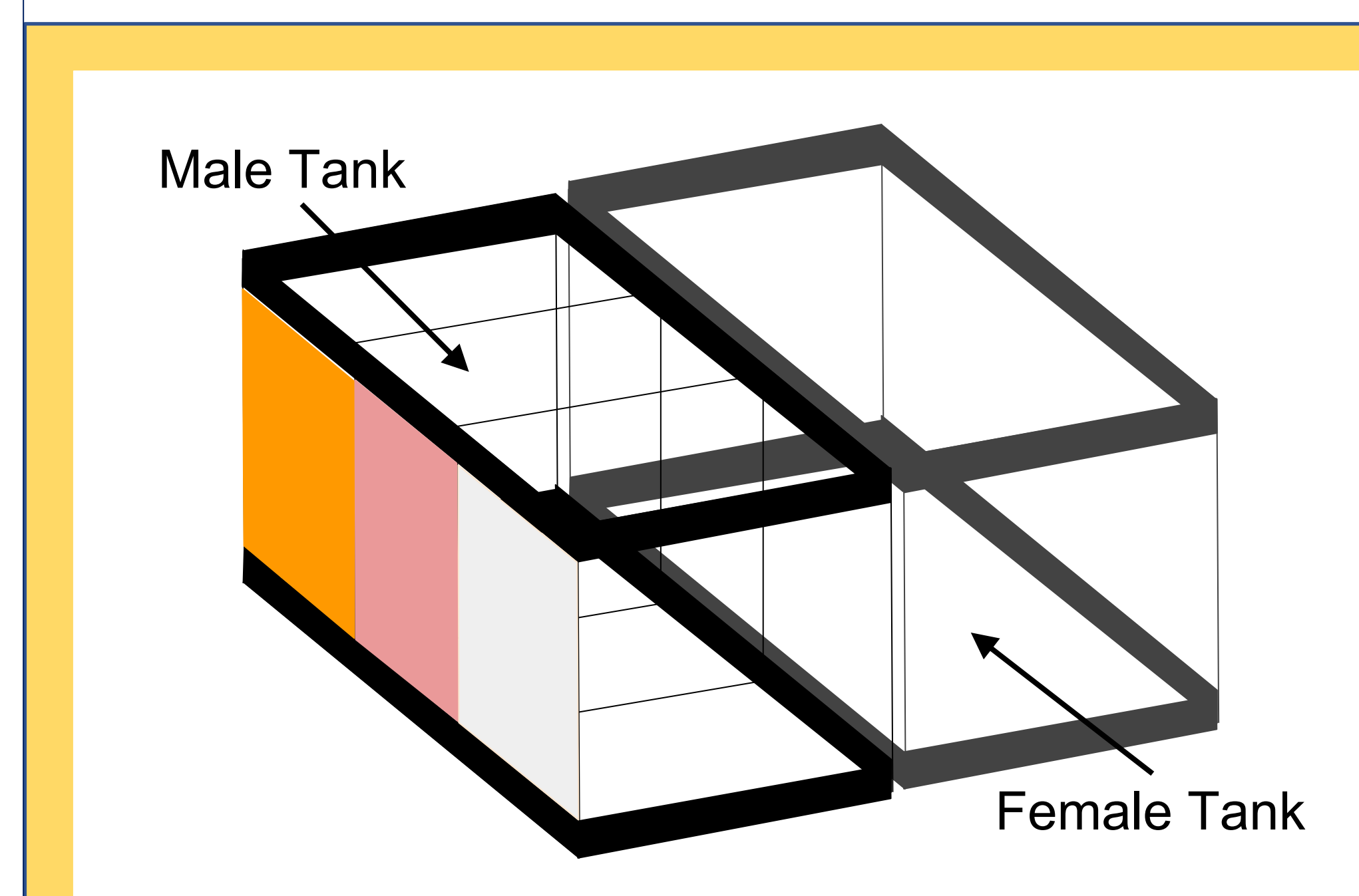


Figure 2: Tank setup, divided 3 males with glass panes, and the female in her own tank.

## Results:

- Our findings indicate that there is no female preference for males in tanks with an orange background.
- we ran an Analysis of Variance (ANVOA) between our backgrounds ( $F = 0.668$ ,  $P = 0.574$ ). Our alpha was  $.05 < P$  so we cannot reject our Null Hypothesis.
- Our hypothesis was rejected but changes to testing and a larger sample size could be used to find a better method and new hypothesis.

## Conclusion:

- Our study failed to demonstrate that females selected males based on the background color.
- Future testing should include a different set of colors paired with orange to determine a preference for orange background in female guppies
- Further consideration should be given to contrast between male body color and the color of the background

## Acknowledgements:

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- Special thanks to Dr. Kim Sullivan for overseeing and advising on the project
- Nordell, Shawn. Valone, Thomas. Animal Behavior 2nd edition, Oxford University Press, 2017
- Guppy Picture: How to Identify Male and Female Guppies, wikiHow (not actual guppies but picture found online)