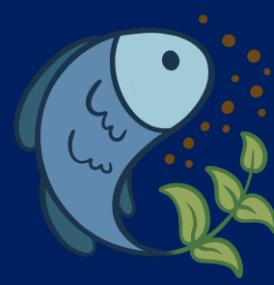


Small Worms Big Impact: Microworms as a Replacement For Marine Rotifers in Fish Larval Culture



Jessica Robinson*, Michal Wojno, and Karolina Kwasek
Department of Biological Sciences, University of New Hampshire, Durham, NH 03824



Introduction

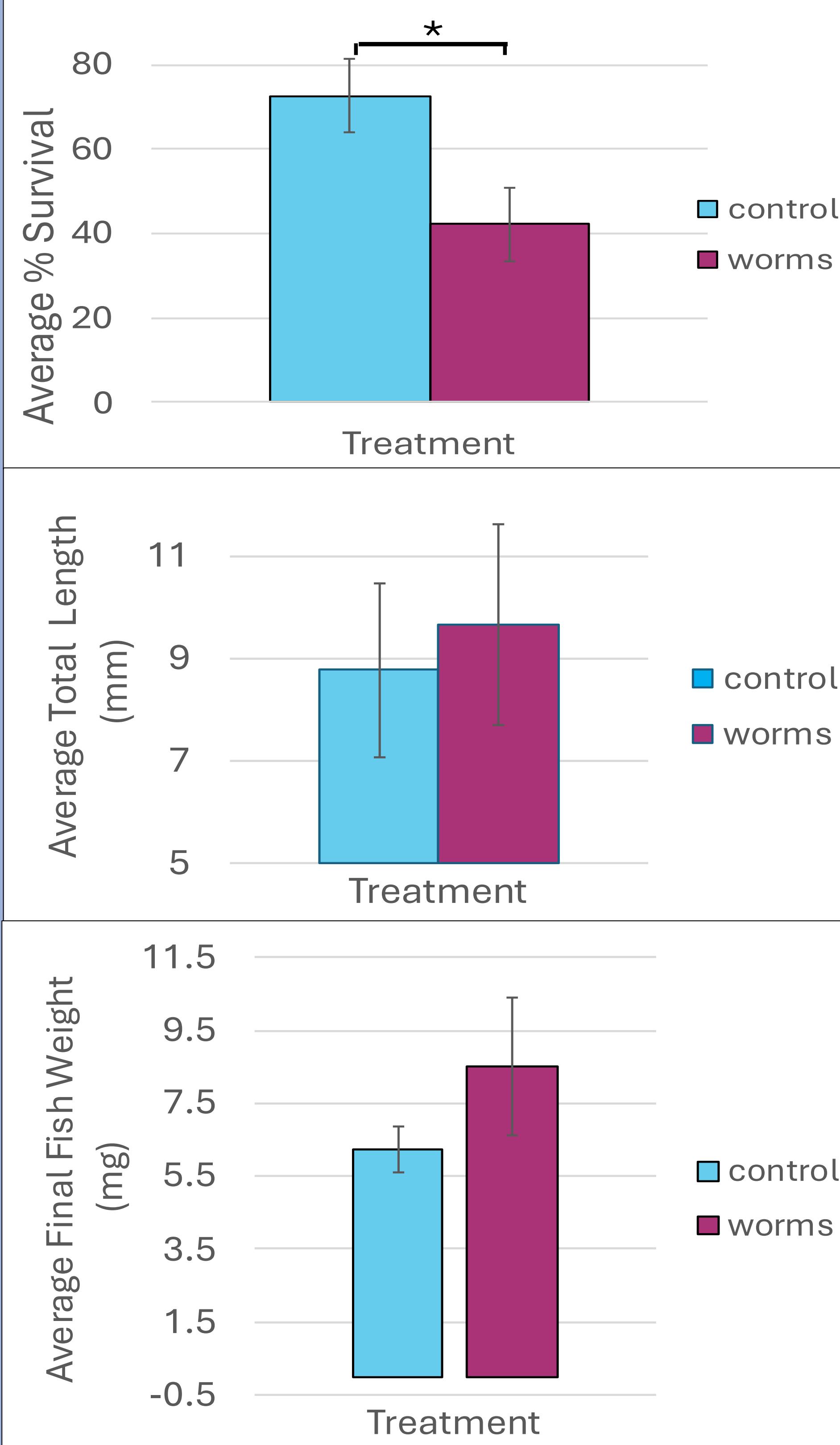
- Marine rotifers (*Brachionus plicatilis*) have traditionally been used in fish larvae culture due their small size and dense nutritional value
- Rotifer culture presents challenges
 - Skill needed to maintain
 - Expensive
 - Unpredictable nature
- Potential live food organism alternative are microworms (*Panagrellus* sp.)
- Microworms are...
 - Widely available
 - Low cost
 - Easy to culture and maintain

This study aims to identify if microworms are an effective first feeding alternative to marine rotifers in zebrafish *Danio rerio* culture.

Methodology

- 3 days post hatch (dph) larval zebrafish were randomly stocked into 4.5-liter tanks with 150 larvae per tank.
- Each tank was randomly assigned one of two treatments in triplicate:
 - 1) larvae fed following the traditional approach that utilizes rotifers at first feeding (control)
 - 2) larvae fed microworms at first feeding instead of rotifers ("worms")
- 3 to 6 dph - rotifers or microworms were offered at first feeding
- 7 to 11 dph - both groups started their transition to *Artemia* nauplii.
- 12 to 16 dph - *Artemia* nauplii only were offered

Results



Conclusions

At 17dph there were...

- No significant differences in average final weight per fish ($p > 0.05$)
- No significant differences in average total length per fish between treatment groups ($p > 0.05$)
- A significant difference in survival between groups ($p < 0.05$)

This study found that microworms could be used as a replacement for rotifers at first feeding. Both groups exhibited hunting behavior and there was visible evidence larvae were consuming microworms. Although survival rates were lower than traditional rearing methods, the overall survival rate (above 40%) was acceptable (Allen et al 2015,). When rearing zebrafish with minimal resources this method could be implemented as microworms save on costs, manpower, and skills that rotifer cultures require. The ease of culture and cost effectiveness makes microworms a feasible live food option that could be implemented in current larvae culture protocols.

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Acknowledgments

I would like to thank my co-authors and lab mates for your continued support. I would also like to thank the Department of Biological sciences, the School of Marine Sciences and well as the UNH Graduate School.

