

ENVIRONMENTAL ENRICHMENT IN RAINBOW TROUT: THE EFFECT OF RANDOMLY FIRED WATER INLETS

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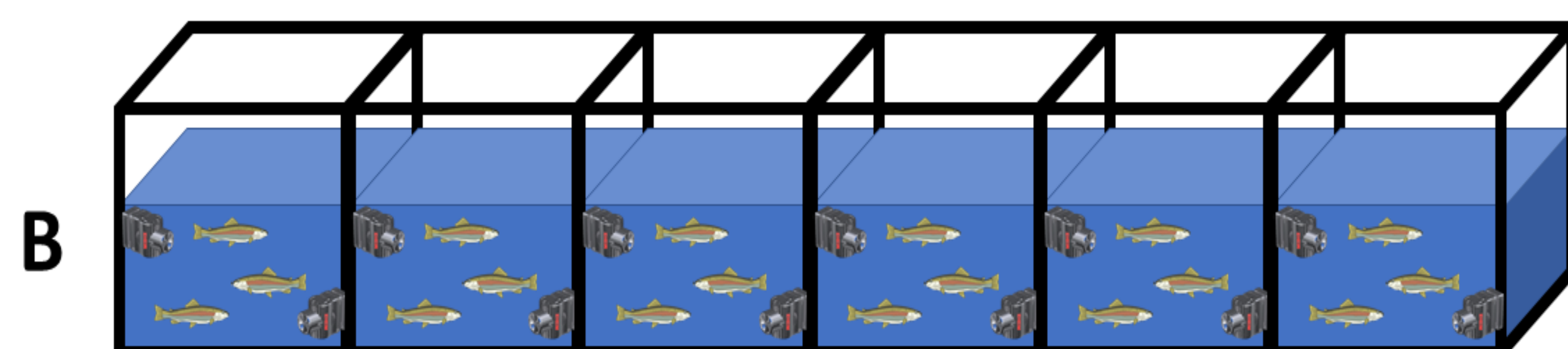
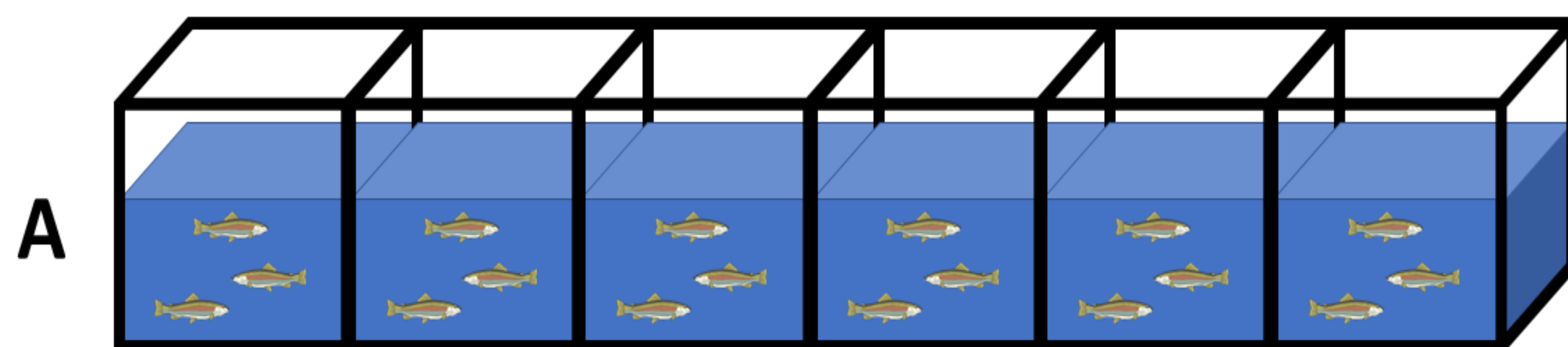


INTRODUCTION

Experiments in mammals have shown that environmental enrichment in cages can help decrease fear and aggression responses and help to lower stress levels. Less is known about the effect of environmental enrichment in fish. In most land-based aquaculture fish are raised in raceways or tanks that are rather barren and some efforts have been made to enrich the culture environment. However, adding objects into the tanks may cause problems due to abrasions or the possible accumulation of waste or bacteria which are hard to clean regularly. For that reason, water inlets or pumps seem to be a good alternative since they are easy to install and turn on and off automatically.

MATERIALS AND METHODS

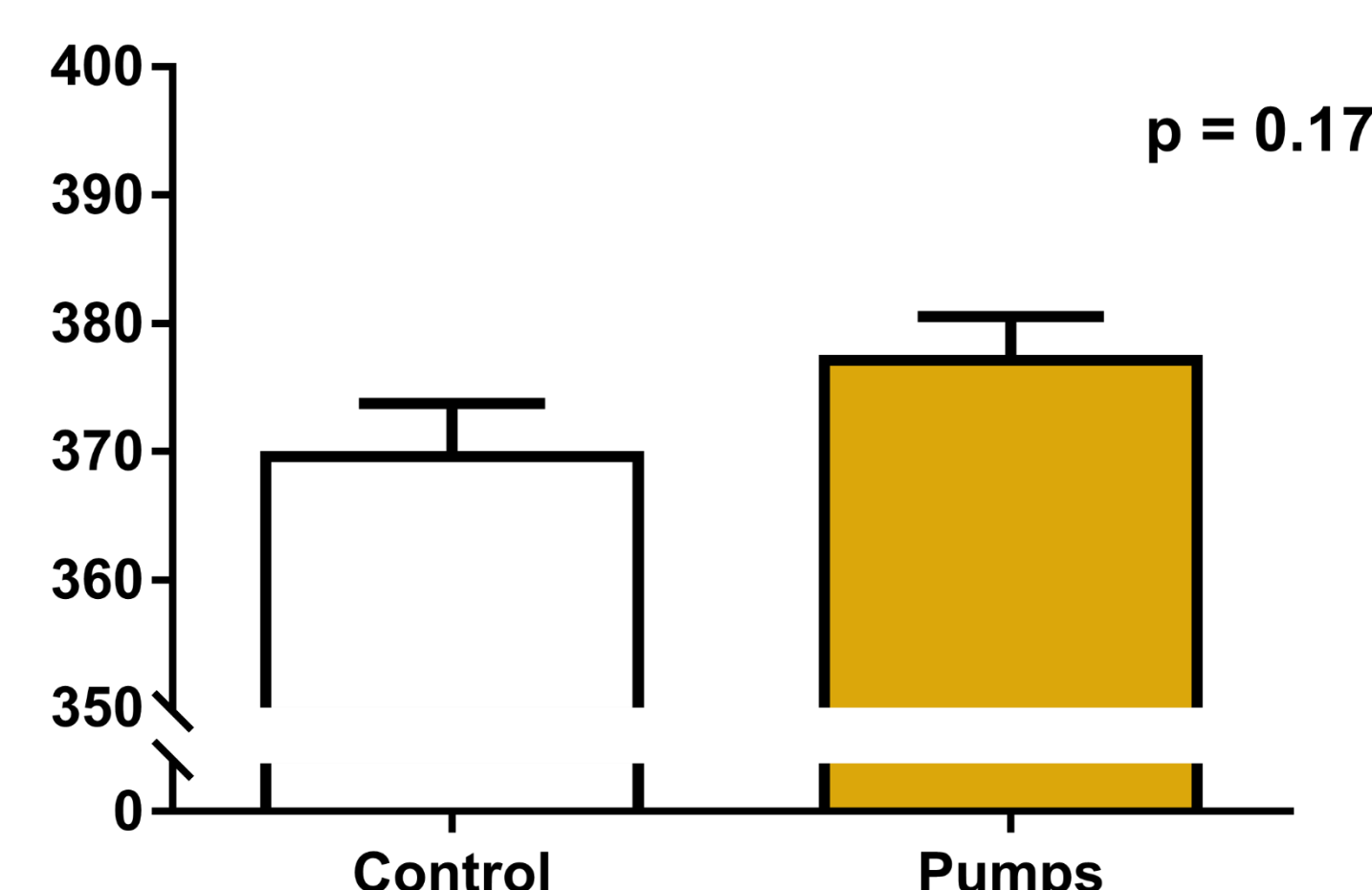
240 rainbow trout (live weight 374 ± 3.62 g)
12 cages (n=20 fish/cage)



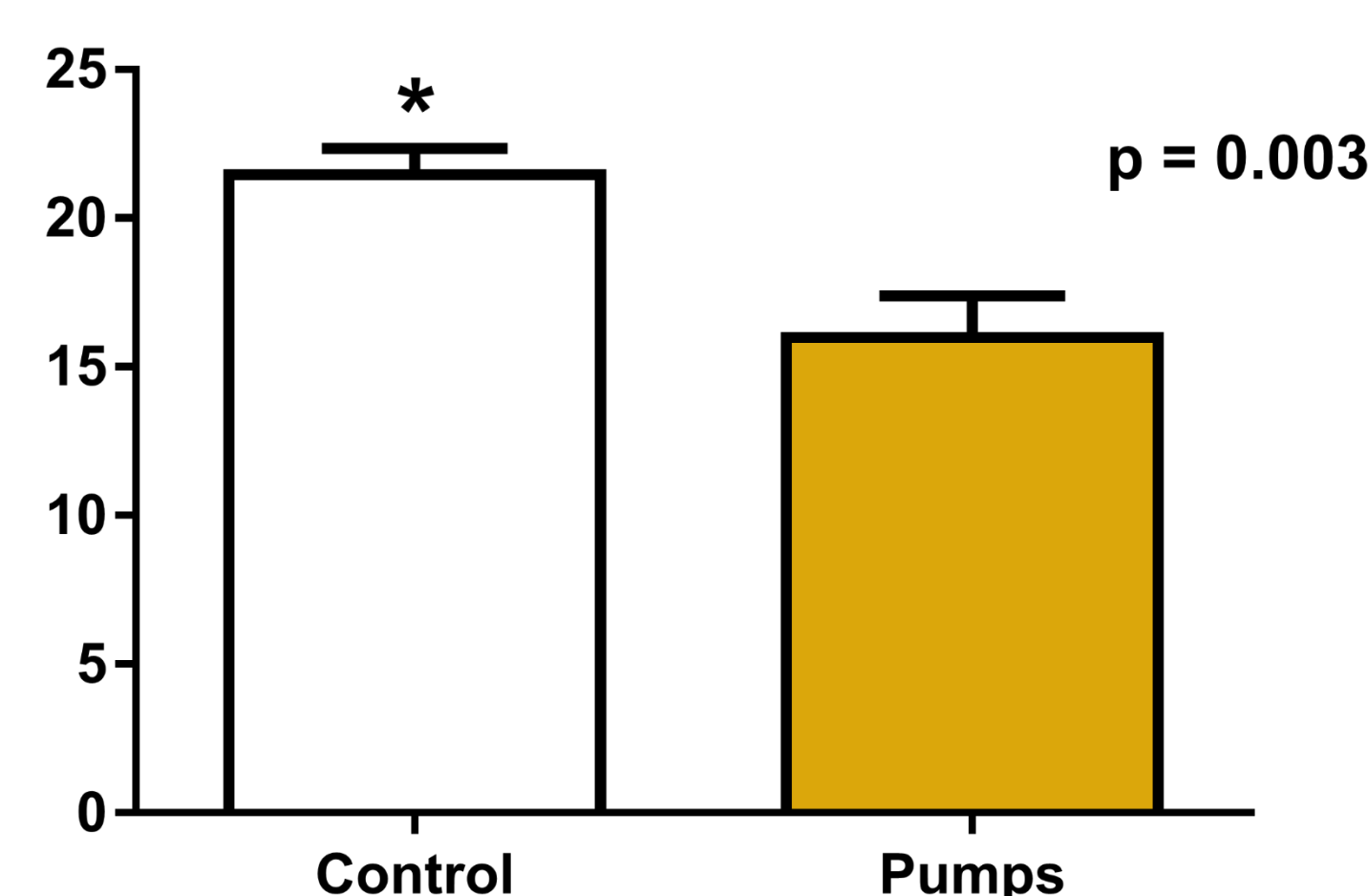
A) Control fish
B) Fish in enrichment cages with randomly fired water pumps

RESULTS

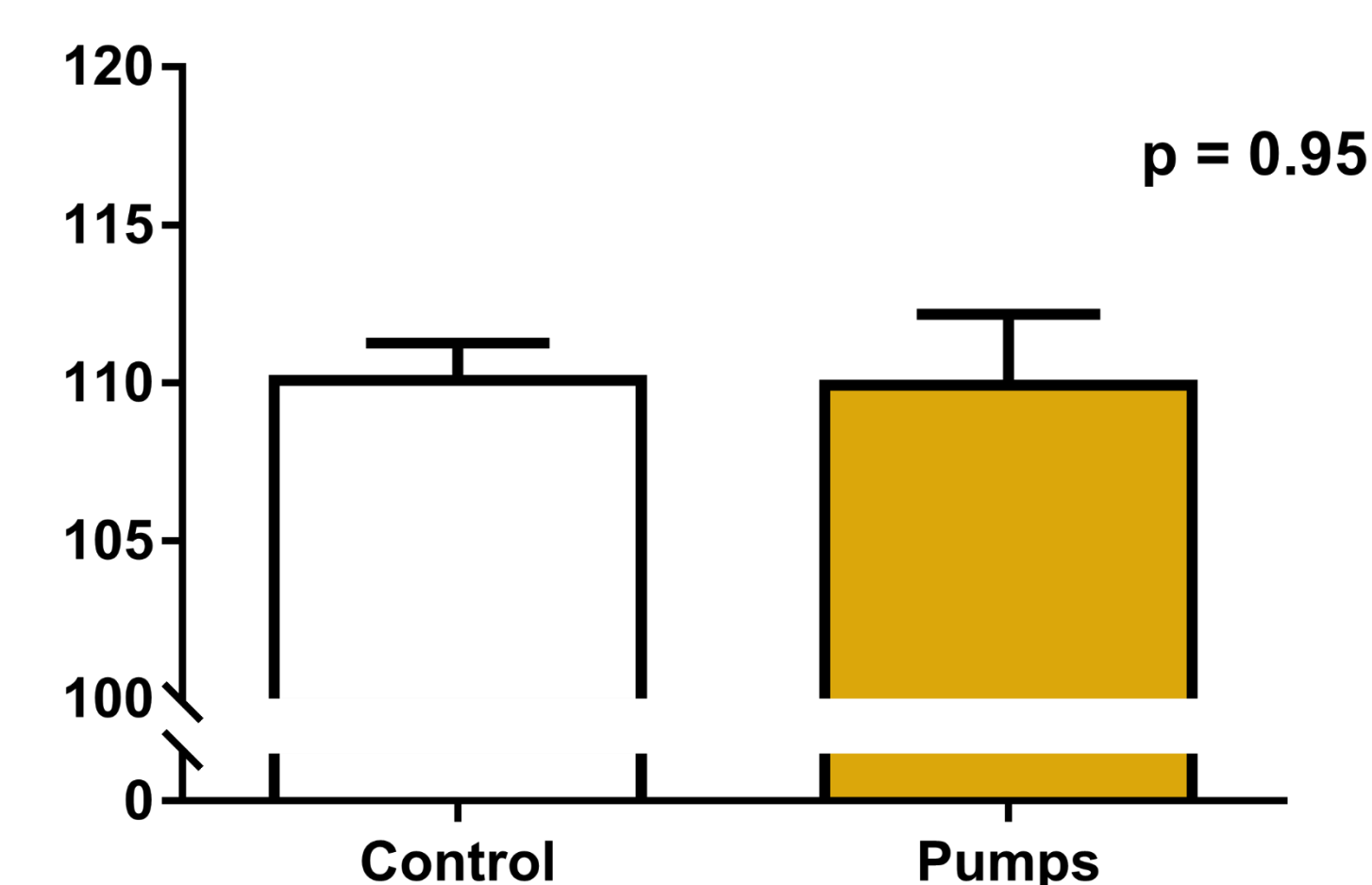
Slaughter weight (g)



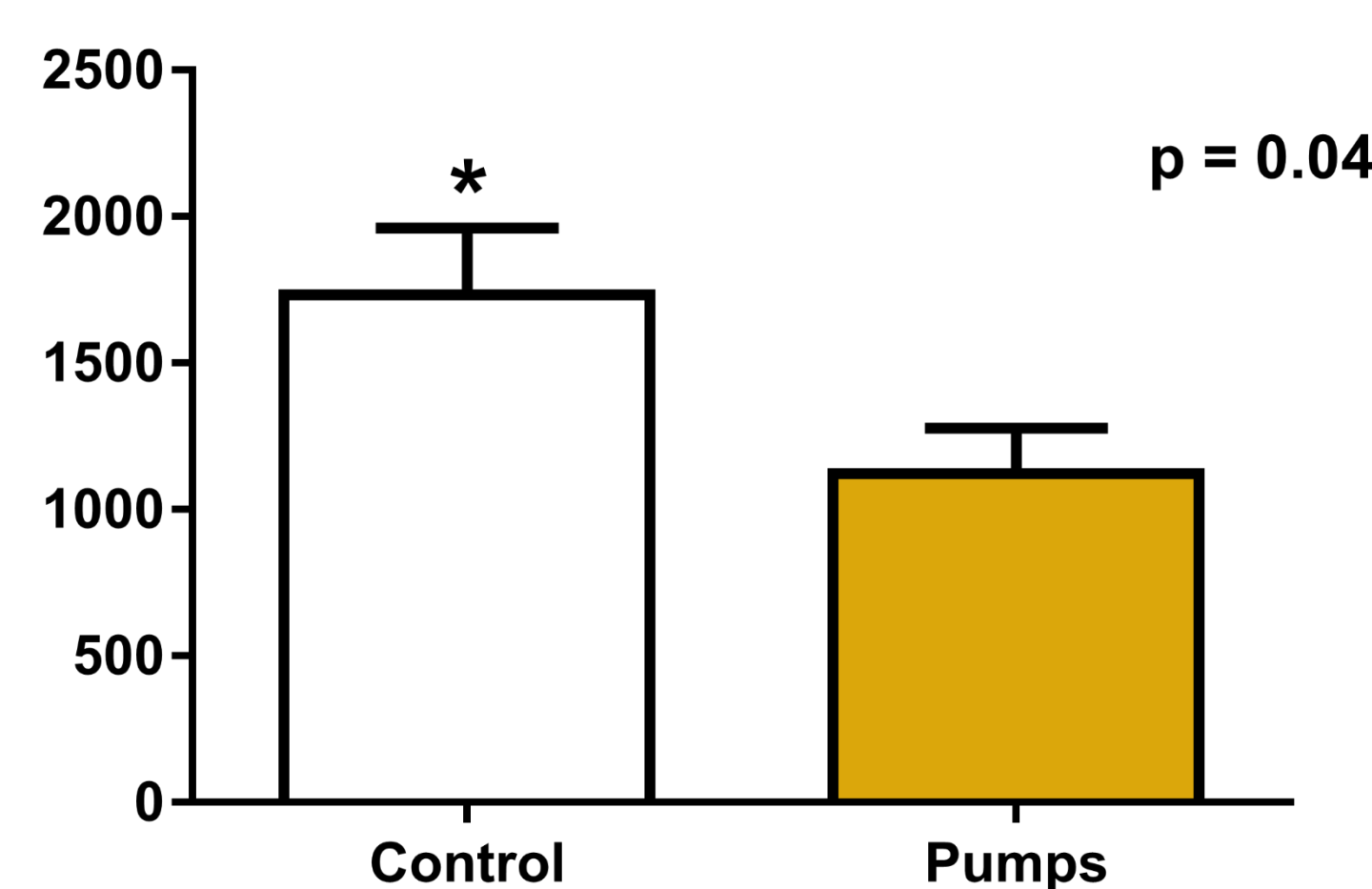
Cortisol (ng/ml)



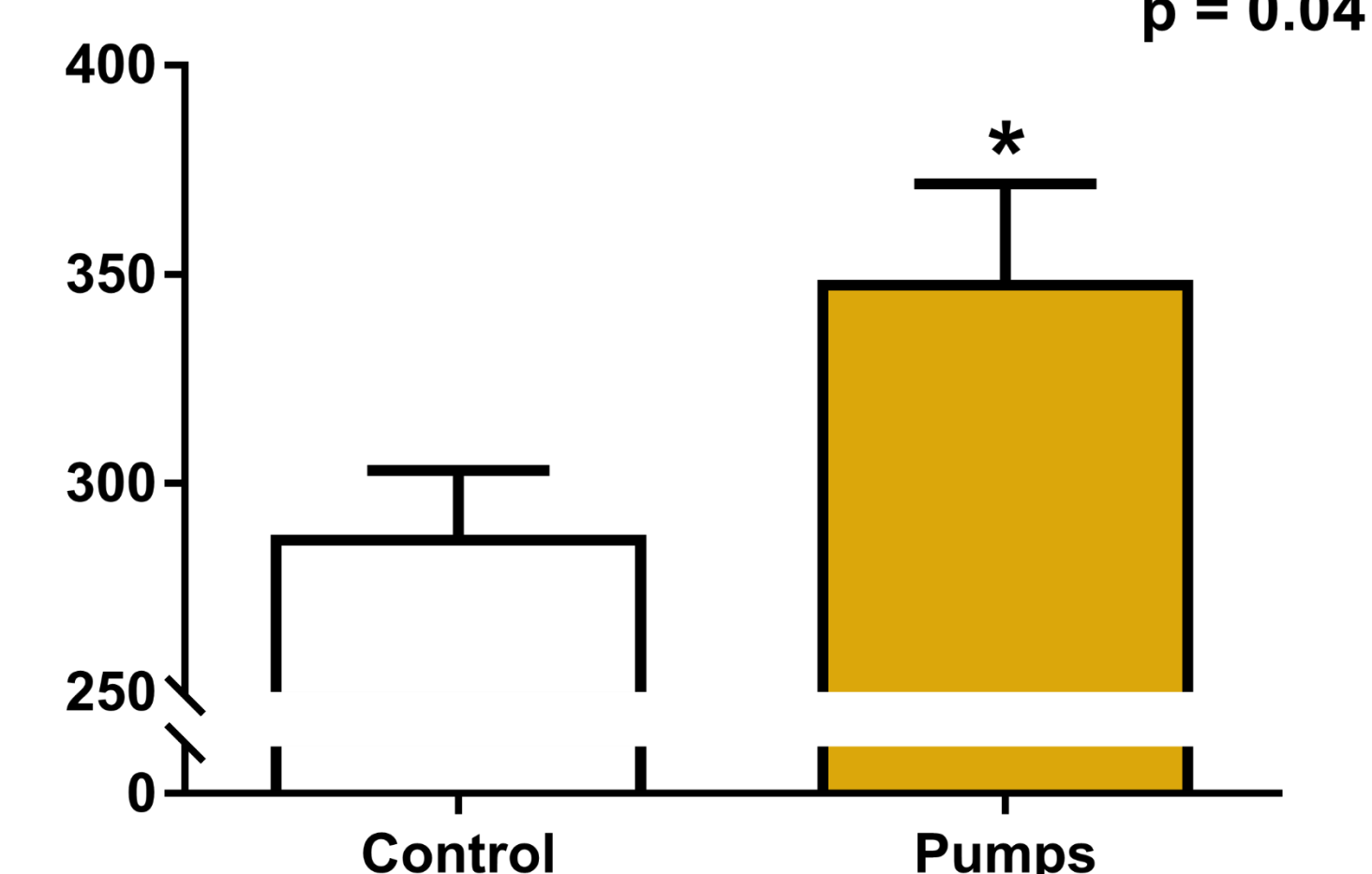
Glucose (mg/dl)



CPK (U/l)



Triglycerides (mg/dl)



CONCLUSIONS

Enriched fish had lower stress levels, which implies that inlets can help reduce stress, probably by increasing environmental variability and unpredictability. Uncertainty provides a beneficial psychological challenge and the rainbow trout seemed to have reacted to that stimulus in a positive way.

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