



Does Diet Affect Growth in Juvenile Lingcod?

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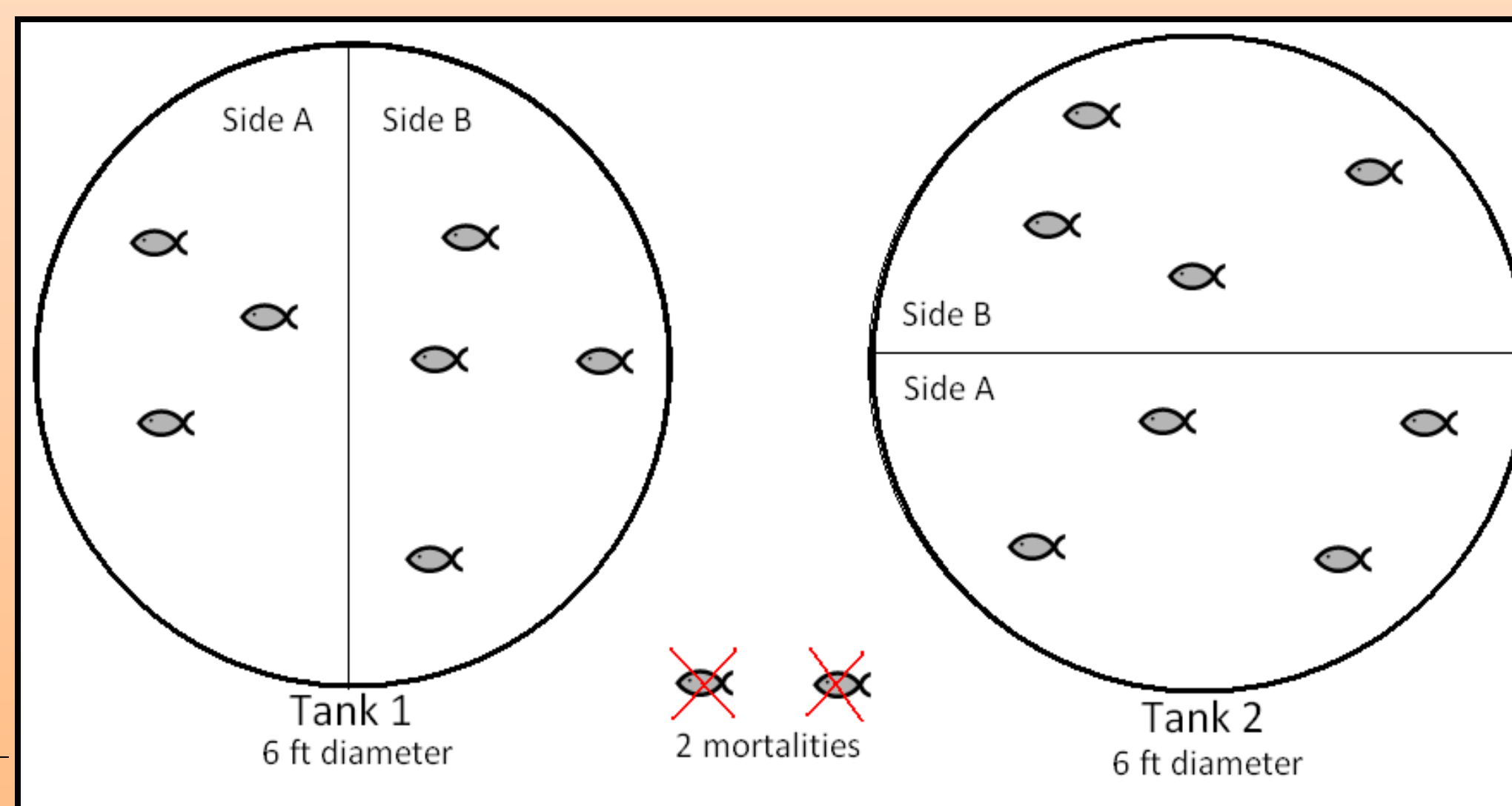
Initial objectives:

- Record growth rates of juvenile lingcod on different diets (squid and sardine)
- Determine if hemocyanin will cause lingcod skin and muscle pigmentation will take on a blue/green pigmentation
 - Hemocyanin is a copper-based binding molecule in the blood of crustaceans and some invertebrates. We know that lingcod change color, but reasons why are unclear. We plan to test if the hemocyanin in squid will affect the overall color change.
- Observe the acclimation process as the juvenile lingcod adjust to an artificial environment

From ocean to tanks: the acclimation methods

- A total of 14 fish were used in the experiment
 - 16 fish were used initially but there were 2 mortalities over time
- “Base line” pictures taken of fish (will be used for comparison on future photos.)
- Fish measured and weighed once a month
- Tanks/water/fish checked on a daily basis
- Fish tagged with “Floy” tags
- Fish fed every three days.
 - All lingcod were fed only a fish based diet until all were eating regularly

Tank 1: Sardine Treatment
Tank 2: Squid Treatment



Team Lingcod!



Lingcod (*ophiodon elongatus*)



Measuring fish



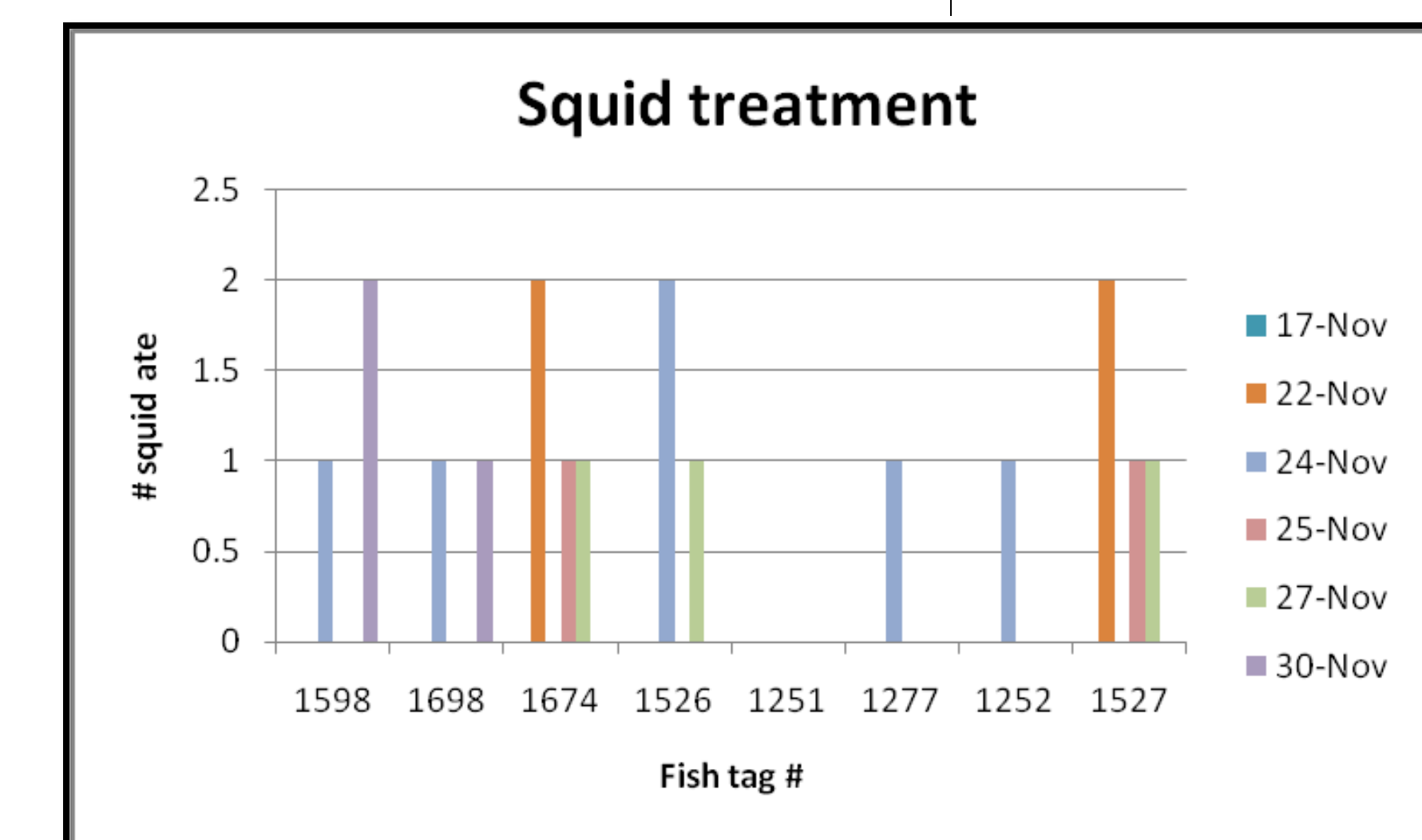
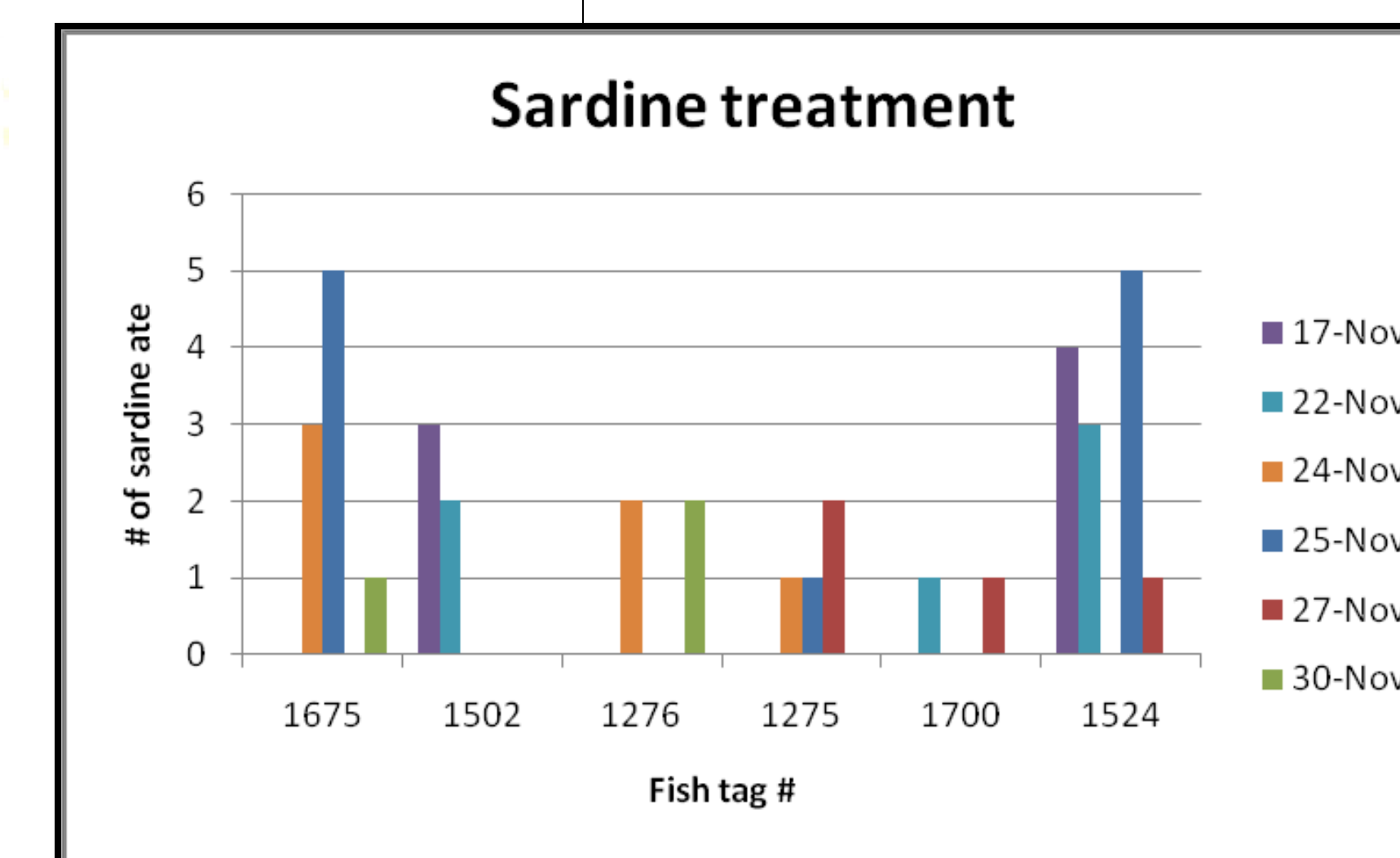
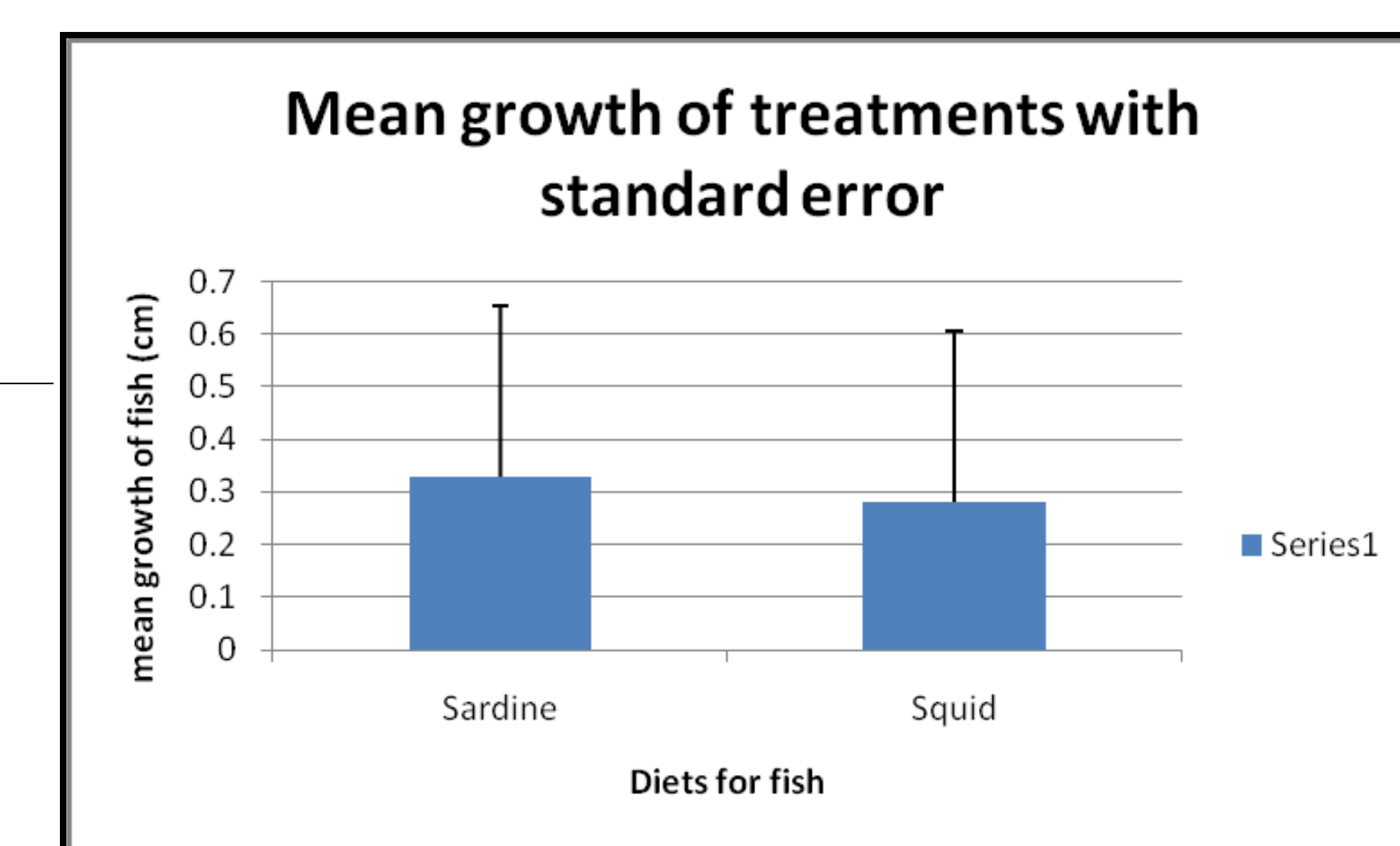
Baseline picture



Floy tagging

Results so far

Lingcod took longer than we thought to acclimate. November 17 began feeding treatments. Sardine treatment yielded an average growth (\pm SE) of 0.333 ± 0.327 . $0.327/5$ weeks = 0.0654 cm a week. Squid treatment resulted in an average growth (\pm SE) of 0.375 ± 0.283 . $0.283/5$ weeks = 0.0566 cm a week. There was no significant difference in means (p-value 0.920). Results concerning hemocyanin will be gathered in February.



Now to focus on the future:

Some things we noted while acclimating fish: A hierarchical structure among feeding fish was observed. Larger lingcod ate more than smaller and occasionally charged smaller fish away from suitable substrate. Lingcod in PVC pipe also ate more food. Handling fish caused stress and induced vomiting and confounded results. Fish do not eat for days after handling. After some complications in acclimatizing juvenile lingcod to the tank environment, we will now focus exclusively on administering the experiment, which will continue until February of 2010.

We are interested to see if diet can affect color of our fish from controlled tank one (sardine) and experimental tank two (squid) diets. We are hypothesizing that the hemocyanin in the squid blood will result in our fish turning blue-green. Outcomes will be assessed using a comparison of post-treatment sampling photos with baseline photos taken at start of experiment.

References:

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Acknowledgements

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