



Clownfish raised in Ileana Clavijo's lab. Juvenile behavioral research by Aaron Watson for his honors thesis.

On Being the Most Popular Fish in the Tank

The ornamental trade industry is a growing industry handling over \$900 million annually in the sale and transport of hundreds of species of fish and marine invertebrates for aquariums, hobbyists and enthusiasts. The majority of the animals that enter the trade are collected directly from the wild, which is putting a higher and higher price tag on the hobby and is beginning to have vastly negative effects on coral reefs. Growing concern for the environment has propelled a new side of the industry: aquaculture of desired species. Culture of these animals can greatly reduce the cost to the consumer and curb some of the destruction and degradation to one of the world's most popular and fragile ecosystems.

Determining the optimal density for growing fish to marketable size is valuable information for the ornamental trade industry. Juvenile (30-71 days-old) *Amphiprion ocellaris*, known as the *ocellaris* clownfish, were stocked at three different densities. Tanks containing six, 12 and 24 fish were monitored for growth

and agonistic behavioral differences to identify an optimal stocking density for growing fish to market size.

Growth rates were not significantly different for this age group based on total length as measured at the beginning and end of each trial. The overall frequency of agonistic behaviors was found to be significantly higher at the lowest density. Mean frequencies of approaches, nips and face-offs were significantly higher at the lowest density while there was no significant difference among the frequencies of chases or circling behaviors. A previously undescribed behavior involving two individuals vibrating along their lengths while parallel was observed during this study and called "parallel vibration." This behavior exhibited no significant difference in frequency among the densities.

Optimal density for this age group could not be determined from this study, although these results show that agonistic behaviors are minimized at higher densities and growth rates are not affected at these densities.