The Effects of Light, Feed Type, Artificial Substrate and Stocking Density of Larval Lingcod *Ophiodon elongatus* Cultured in Floating Bags

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The lingcod is a valuable commercial and sports fish which has declined in number across its range from California to Alaska. Due to its popularity and declining numbers lingcod are considered a good candidate for enhancement. The bottleneck with lingcod enhancement, as with many other marine fish species, is the production of juveniles. We investigated the use of floating bag culture systems to rear lingcod larvae in two parallel studies at the Manchester Research Station. The first study investigated the effects of light and feed type on growth and survival. The second study tested effects of floating structure and stocking density.

In the first study, each bag was stocked with 5000 larvae. Two feeding regimes at two light levels were tested. In treatment 1, enriched *Artemia* nauplii were fed to larvae in 6 culture bags, with 3 devoted to each light level (shaded vs open). Treatment 2 involved 6 culture bags with 3 devoted to each light level, fed a combination of wild zooplankton and enriched *Artemia*.

In the second study each bag was stocked with 500 larvae and fed enriched *Artemia* nauplii. Two treatments, one with floating substrate and one without were tested with two replicates per treatment. All bags were fed the same number of prey items per day, starting at initial prey densities of 500/l.

Results showed larval survival was significantly greater in bags without artificial substrate.

Also survival of lingcod larvae was greater at low stocking densities (.04 larvae/liter) compared to high stocking densities (.5 larvae/liter). There was no significant difference in survival of lingcod larvae comparing light and feed type.