

**STUDY OF WATER QUALITY CHANGES AND
GROWTH OF CULTURED EDIBLE OYSTERS
(*Crassostrea madrasensis*), CULTURE SITES AT
GAGEWADIYA AND KANDAKULIYA IN
PUTTLAM DISTRICT**

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
in partial fulfillment of the requirement of
the degree of
Bachelor of Science in Aquatic Resources Technology

by

HASINI INDRACHAPA WIJAYANANDA
Aquatic Resources Technology Degree Programme
Faculty of Animal Science and Export Agriculture
Uva Wellassa University

2014

Abstract

Global bivalve production from aquaculture has consistently increased over the years. Since Sri Lanka has vast natural resources and suitable environmental conditions for aquaculture, it has a great potential for develop and contribute to national fish and shellfish production. Although the bivalve industry is highly developed industry in East Asian region, finfish and shellfish, especially mollusk and sea cucumbers cultures are at very initial stage in Sri Lanka. Sustainable utilization of unexploited high demand finfish and shellfish species are a good alternative to develop the industry. The study was carried out to investigate the possibility to enhance *Crassostrea madrasensis* culture at Kandakuliya and Gagewadiya in Puttlam district, where the areas are blessed with natural oyster resource which are not used large scale at present. Relationship between variation of water quality parameters and growth performance of *Crassostrea madrasensis* and prevalence of toxic algae species which cause survival rates were compared in selected culture sites during 10 months (October 2013 to April 2014) period. Temperature, pH, salinity, transparency, depth, nutrients (nitrite, nitrate, phosphate) and unionized ammonia were studied in each site using, glass mercury thermometer, Hach portable pH meter, refractrometer, secchi disk and DR-4000U spectrophotometer according to standard procedures separately. Statistically there were no significant difference ($P \text{ value} \geq 0.05$) in temperature, pH, transparency, depth, nutrients (nitrite, nitrate, and phosphate) and unionized ammonia in two sites except salinity. There were no significant difference ($P \text{ value} \geq 0.05$) in growth (length and width increasing) of *C. madrasensis* in both sites. Although there were no statistically significant ($P \text{ value} \geq 0.05$) difference between growths in two sites, oysters in Gagewadiya site have shown slightly higher growth rate when compared with Kandakuliya. Further there were significant relationship ($P \text{ value} \leq 0.05$) between length of *C. madrasensis* and nitrate, temperature, transparency and depth. There were no significant relationship ($P \text{ value} \geq 0.05$) between length and nitrate, phosphate, salinity, unionized ammonia and pH. There were significant relationship ($P \text{ value} \leq 0.05$) between width of *C. madrasensis* and nitrate, temperature, transparency and there were no significant relationship ($P \text{ value} \geq 0.05$) between width and nitrite, phosphate, salinity, unionized ammonia and pH. Both sites were free from toxic algae and water quality parameters were varied between acceptable range for *C. madrasensis* survival

madrasensis survival and growth .Therefore the two sites can be recommend to establish and enhance *C. madrasensis* commercial culture.