

C726098 : MAJOR MARINE SCIENCE

KEY WORD: *Crassostrea lugubris* / OYSTER / SELECTION / HERITABILITY / ENVIRONMENT

ESTIMATION OF HERITABILITY ON GROWTH OF OYSTER *Crassostrea lugubris*, SOWERBY 1871 BY SIB ANALYSIS. THESIS ADVISOR : ASSO. PROF. PADERMSAK JARAYABHAND, Ph.D. 92 pp. ISBN 974-636-612-2.

Heritabilities for growth rate of oyster, *Crassostrea lugubris*, hatchery produced in May 1996 were estimated by sib analysis. Two groups of oysters consisting of 27 fullsib families (10 males and 27 females) were obtained. Each fullsib families were separately nursed up to 1.5 cm. in shell length. Oysters were then tagged individually and were grown together in twenty-four 40x40 cm² nets at a density of 80 individual/net. Two grow out systems were used i.e. (1) in raceway which represent a semi-intensive system and (2) under farm condition which represent a conventional system. Individual growth rate data in term of shell width and shell length were analyzed for various variance components. Then, heritabilities were calculated at the age of 150, 180 and 210 days. Genotypic correlations, environmental correlations and phenotypic correlations between shell width and shell length as well as phenotypic correlations of shell width and shell length under the two grow out systems at 210 days were also calculated.

Heritabilities estimated under the raceway system were 0.34±0.115, 0.39±0.121 and 0.36±0.171 for shell width and 0.26±0.079, 0.34±0.100 and 0.33±0.100 for shell length at 150, 180 and 210 days, respectively. Under the farm system, estimated heritabilities were 0.21±0.078, 0.29±0.136 and 0.26±0.131 for shell width and equal 0.32±0.117, 0.27±0.139 and 0.27±0.148 for shell length at 150, 180 and 210 days, respectively.

Genotypic correlations, environmental correlations and phenotypic correlations between shell width and shell length at age 210 days were 0.97 and 0.55; 1.14 and 1.79; and 0.82 and 0.89 under the raceway system and the farm system, respectively. Phenotypic correlation between oyster grow in the raceway and in the farm system based on shell width and shell length were 0.61±0.148 and 0.74±0.122, respectively.

From this study, it is concluded that selection based on either shell width or shell length can be used to increase production efficiency of this oyster species. With the obtained heritabilities estimated at age 210 days and 10% selected proportion, it is expected that 11% in shell width and shell length can be increased per generation under the raceway system. Under the farm system, 8% increase in shell width per generation and 10% increase in shell length per generation can also be expected.

ภาควิชา..... วิทยาศาสตร์ทางทะเล

ลายมือชื่อนิสิต.....

สาขาวิชา..... วิทยาศาสตร์ทางทะเล

ลายมือชื่ออาจารย์ที่ปรึกษา.....

ปีการศึกษา..... 2539

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....