

Relation between the Decreased Mussels Biomass and Water Quality at Amagasaki Port, Osaka Bay, in 2010

Machi MIYOSHI¹, Ryoichi Yamanaka², Yasunori Kozuki², Tatsunori Ishida², **Fumiko Nogami²**, Hidemasa Matsumoto², Natsumi Yamaguchi², Chihiro Tanaka², Satoshi Ano², Yuta Mizuguchi² and Kotaro Goto³

¹Department of Mechanical Engineering, Tokushima Bunri University

²Department of Ecosystem Engineering, The University of Tokushima

³Japan Mikuniya Corporation

The invasive mussels attach to the surface of port breakwall at Amagasaki port, Osaka Bay. Generally, in summer season, these mussels drop out to the bottom and cause the decreasing water dissolved oxygen and become sediment worse. We have investigated about the fluctuation of attached biomass and dropped biomass since 2006. It was demonstrated that high temperature and low salinity occurs in July when the mussels attach, the mussels receive the influence and the mussels cause to drop out to the bottom. Therefore, the investigation was came in order to grasp water special quality.

The container was placed on the surface breakwater to measure a volume of dropped mussels at some stations of Amagasaki port. The volume of dropped mussels was 24 ~ 30 wet kg/m/day in July and August 2006, 2007. The volume was very few 0.1 wet kg/m/day in same season 2010, this corresponds to 1/300 of the ordinary year.

The relation between the decrease mussels biomass and water quality test was examined here. The result of vertical measurement temperature and salinity, the water temperature in July 2010 was 3°C higher than the ordinary year, salinity in this season was 10 psu lower than the ordinary year at the depth DL0 ~ -1m where the mussels attached primary. Because, the variability characteristics of air temperature, amount of insolation, rainfall were different in summer season 2010, it was considered water quality near the breakwall was changed to high temperature and low salinity. Especially, Amagasaki port is located in the large river estuaries Yodogawa, this port is the sensitive environment to the discharge of river water. According to the reported previously, when temperature reaches more than 26 °C, salinity contains less than 20 psu, the mussels decrease in strength of adhesion and drop out the bottom. Therefore, it was suggested the reason of decreasing mussels biomass was to occur high temperature and low salinity in July, the mussels were suppressed growth, the dropout period was accelerated earlier than the ordinary season.

Contact Information: Machi MIYOSHI, Department of Mechanical Engineering, Tokushima Bunri University, Sanuki, Kagawa, Japan, Phone: +81-87-894-5111, Email: haseda@fe.bunri-u.ac.jp