

Study on the carrying capacity of marine ascidian *Styela clava* farm in Jindong waters, Jinhae Bay

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The maintenance of life in animals is a result of sustainable intake of energy from the environment, the biomass of marine filter feed organisms may be favorably restricted within the affordable energy, i.e. the amount of food in the ambient waters. Since marine ascidian, *styela clava*, is a filter feeding organism, the theoretical biomass might not exceed the intake, which might include information for the energy demand of the animal.

Several presumptions were applied for this computation. The protoplasmic production in the waters was calculated from primary production of the waters. Regional coefficient was a ratio of protoplasmic production between theoretical food production and practical farm production in unit area, which indicate food conversion efficiency to body, i.e. growth. Hydraulic area, including both the substantial area of the waters and the tidal fluxes, was considered as maximum farm area and further divided by regional coefficient as Maximum Acceptable Ecological Farming Area (MAEA).

MAEA of marine ascidian, *Styela clava*, in Jindong Waters was deducted from the primary production of the waters as below:

- (1) For a reasonable growth and fatness, marine ascidian, *Styela clava*, required more than 7 times functional water area than the substantial farming area.
- (2) Although MAEA in Jindong Waters was deducted to 320 ha, a substantial farming area should be considered within Allowable Ecological Farm Area, which considered as 70% of the MAEA.