

Application of the VGPM model in order to estimate primary production for marine aquaculture assessment

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Abstract

The food chain of all living things depends on the early production, and it also forms the basis of the biological basis of each body of the water. The purpose of this study was to estimate the primary production with two field methods (monthly sampling at Three depths of 5,10 and 15 meters) and Remote sensing(using the VGPM algorithm) in order to select the evaluation of aquaculture industry in Caspian coastal ecosystem in Ghehrbaran region. The model input of the VGPM algorithm is sea surface temperature, photosynthetic active radiation, chlorophyll, optimum carbon fixation, optical depth and day length. The results of the primary production were derived from the measure of the least amount of primary production in the January month, when the optical depth, and the temperature and photosynthetic active radiation showed low, and the highest primary production in the October month (2.16 grams of carbon per square meter of day), the field measurements of primary production in July were the lowest The amount (0.05 grams of carbon / m² of day) and in November is the highest (1.46 grams of carbon per square meter of day) .

key words: VGPM model, field data, Gohrabaran area, aquaculture, satellite data