

# **Optimalisasi TPS Terpadu untuk Budidaya Ikan Air Tawar Berbasis Maggot BSF: Inovasi Ekonomi Sirkular Menuju Kemandirian Pangan dan Lingkungan Berkelanjutan di Desa Randuboto, Kecamatan Sidayu, Kabupaten Gresik**

## **(Integrated Temporary Waste Storage (TPS) for Freshwater Fish Culture based on BSF Maggots: A Circular Economy Innovation Toward Food Self-Sufficiency and Environmental Sustainability in Randuboto Village, Sidayu Sub-District, Gresik Regency)**

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### **ABSTRAK**

Desa Randuboto berpotensi besar dalam pengembangan budidaya ikan air tawar tetapi efisiensi produksi masih terkendala oleh tingginya biaya pakan. Pemanfaatan maggot Black Soldier Fly (BSF) melalui sistem TPS Terpadu menawarkan solusi biokonversi limbah organik menjadi sumber protein alternatif bernilai tinggi. Pelatihan penerapan TPS Terpadu berbasis maggot BSF dilaksanakan oleh tim dosen Fakultas Perikanan dan Ilmu Kelautan IPB untuk meningkatkan keterampilan masyarakat dalam pengolahan limbah dan produksi pakan mandiri yang berkelanjutan. Kegiatan dilakukan secara luring dengan materi mengenai teknik budidaya maggot, manajemen limbah organik, dan pemanfaatan maggot sebagai pakan ikan. Evaluasi melalui *pre-test* dan *post-test* menunjukkan adanya peningkatan pemahaman peserta secara signifikan. Penerapan teknologi ini diharapkan mampu menekan biaya produksi, meningkatkan efisiensi budidaya ikan air tawar, serta memberikan manfaat ekologis melalui pengurangan limbah organik. Program ini juga berkontribusi pada pencapaian tujuan pembangunan berkelanjutan, khususnya terkait ketahanan pangan, pengelolaan limbah, dan keberlanjutan lingkungan.

Kata kunci: ekonomi sirkular, limbah organik, maggot BSF, pakan ikan alternatif, tempat pengelolaan sampah terpadu

### **ABSTRACT**

Randuboto Village has good potential for the development of freshwater aquaculture; however, production efficiency remains limited by the high cost of feed. The utilization of Black Soldier Fly (BSF) maggot through an Integrated Waste Processing Site (TPS Terpadu) offers a bioconversion-based solution to transform organic waste into a high-value alternative protein source. A training program on the implementation of the TPS Terpadu system using BSF maggot was conducted by lecturers from the Faculty of Fisheries and Marine Science, IPB University, to enhance community skills in organic waste management and sustainable independent feed production. The activities were carried out offline and covered materials on maggot cultivation techniques, organic waste management, and the use of maggot as fish feed. Evaluation through pre-tests and post-tests showed a significant improvement in participants' understanding. The application of this technology is expected to reduce production costs, improve the efficiency of freshwater fish farming, and provide ecological benefits by reducing organic waste. This program also contributes to the achievement of sustainable development goals, particularly in food security, waste management, and environmental sustainability.

Keywords: alternative fish feed, BSF maggot, circular economy, integrated waste processing site, organic waste