INTISARI

Endapan lumpur di dasar tambak merupakan permasalahan yang sering dihadapi oleh para pembudidaya udang. *Airlift pump* menjadi solusi untuk menyedot lumpur di dasar tambak. Tidak adanya komponen mekanis yang bergerak, membuat *airlift pump* dapat digunakan untuk memompa berbagai cairan yang korosif, abrasif atau bubur, berpasir atau asin, dan cairan kental seperti hidrokarbon di industri minyak (Hanafizadeh & Ghorbani, 2012). Penelitian ini menggunakan *airlift pump* jenis aerator, yang tingkat efisiensinya masih rendah.

Penelitian menggunakan metode eksperimental dengan variasi ketinggian pipa terendam 1 m dan variasi ketinggian pipa tidak terendam adalah 30 cm, 60 cm, 90 cm, 120 cm, dan 150 cm. Pipa yang digunakan adalah pipa overloop sebagai variasi letak nosel injeksi. Aerator dengan kapasitas 45 lpm dan tekanan 0,015 mpa digunakan sebagi sumber udara yang akan diinjeksikan. Sedangkan pipa *riser* utama menggunakan pipa bening berdiameter pipa ¾". Variabel yang divariasikan pada penelitian ini adalah (1) Rasio terendam (2) Penambahan pipa overloop.

Hasil penelitian ini adalah dengan memperbesar rasio terendam dan menambahkan pipa overloop akan memperbesar debit air yang dihasilkan. Untuk debit terbesar didapat pada rasio terendam 76,9% dengan debit 7,67 lpm. Penambahan pipa overloop akan mempengaruhi nilai efisiensi yang dihasilkan. Efisiensi tertingginya mencapai 3,69% yang didapat pada rasio teendam 62,5%

Kata kunci : *Airlift pump, aerator, pipa riser, rasio terendam, pipa overloop*

ABSTRACT

Pond shrimp farmers often face the problem of silt at the bottom of the pond. Suck up the sludge with diesel pumps is one way of handling it. Over time the pump can be exposed to corrosion and jammed with mud. Airlift pump can be a solution because it is simple and low in manufacture and maintenance, but the resulting efficiency is still lacking. The ratio of the injection nozzle submerged and layout is expected to increase the efficiency of the airlift pump by modifying the balance of the injection nozzle.

Research using experimental methods with a height variation submerged pipe 1 m and a height variation is not submerged pipe is 30 cm, 60 cm, 90 cm, 120 cm, and 150 cm. The capacity of the aerator 45 LPM and pressure of 0.015 MPa is used as a source of air to be injected. The main riser pipe using a transparent pipe diameter of ¾ ". The variables that varied in this study were (1) Ratio submerged (2) Addition of overloop pipe.

The results of this study will increase the result water discharge by increasing the ratio. The most significant clearance is obtained at the submerged ratio of 76.9%, with a discharge of 5.92 LPM for the nozzle on the ¾ "pipe and 7.67 LPM for the nozzle the 2" x ¾ "overloop pipe. Increasing the submerged ratio will also increase the efficiency value until it reaches the optimum value of 62.5% at both injection nozzles. The optimum efficiency values were 3.45% and 3.69%. The addition of an overloop pipe will increase the resulting water discharge at a high submerged ratio. The optimum discharge of the injection nozzle at a submerged ratio of 76.9% and 62.5% is located at the 2 "x ¾" overloop pipe nozzle, namely 7.67 LPM and 3.95 LPM. The optimum value of efficiency was obtained at a submerged ratio of 62.5% and 76.9%, with an overloop pipe injection nozzle of 2 "x ¾", namely 3.69% and 3.58%.

Keywords: *Airlift pump, aerator, overloop pipe, riser pipe, submerged ratio*