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FISH APARTMENT AS A SOLUTION FOR INCREASING FISH CATCH IN PACITAN WATER, EAST JAVA**Ledhyane Ika Harlyan^{1*}, Syarifah Hikmah Julinda Sari², Defri Yona³**^{1,2,3} Fakultas Perikanan dan Ilmu Kelautan

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ABSTRACT

Fish apartment is a device used by fishermen for aggregating and locating their fish target. Problem arised from apartments managed by local fishermen locals are not as many that managed by fisherman andon. Besides, the fish apartment used is conctructed by using toxic material (dioxin compound) which is caused several environmental problems. Therefore, creating community services by using fish apartment made from Plastic Polypropilen (PP) and controlled by community group, those problems are accomplished. This is beneficial for increasing community involvement for their environment through this joint activities to create fish apartment which later used for increasing fish catch in order to enhance public welfare.

Methods used for this activity arranged as four stage. First, developing the Tawangarsi community group (POKMASWAS Tawangarsi) and Tawangarsi business group (KUB Tawangarsi). Second, generating workshop on designing and determining potential location of fish apartment. Third, producing fish apartment, and the last is setting fish apartment. The series of activities lasted in seven months from May to November 2016.

KEYWORDS***Fish apartment, Pacitan, Plastic Polypropilen, fish catch*****INTRODUCTION**

Tamperan fishing port (PPP Tamperan) located in Pacitan has established since 29 December 2007. This condition causes a high fishing operation especially for purse seine¹ fisheries. It showed that there is an increase in the number of Andon fishermen who are originally from Prigi, Muncar, and Sulawesi. They do fishing activity and put the catches in PPP Tamperan. As state by [1] and [2], the number of local fishermen is 13% of total fishermen landing their catch in PPP Tamperan.

In purse seine fishery in Pacitan waters, the presence of fish apartment as auxiliary equipment is getting higher time to time. This

device is funcrion as fish aggregating devices so that fish target will be concentrated in a certain location. This will be beneficial for minimizing operational cost and enchancing fish catches. According to [3], fishing effectiveness of purse seine will increase about 90.53% by using fish apartment.

Problems arised as the ownership of fish apartment is more dominated by andon fishermen than local fishermen. Andon

¹ Purse seine is an active fishing gear operated by encircling the purse net towards fish schooling in order to gather catch into fishing vessel.

fishermen own more fish apartments and managed their fish apartments without confirming it to the local government. This condition resulted in several conflicts between andon and local fishermen since 2004. In 2011, there was a conflict where lost 11 units of fish apartment owned by andon fishermen. The root problem is because the number of fish apartment managed by local government is not as many that of managed by andon fishermen.

Tawang Sari community group (POKMASWAS Tawang Sari) and Tawang Sari small business group (KUB Tawang Sari) as part of local fishermen have a high expectation to be facilitated a fish apartment in order to increase their catches.

From environment point of view, fish apartment operated in Pacitan water are made from used tires which is a toxic material (dioxin compound). According to Department of Fisheries and Marine Affairs, the use of this material had been banned since it will cause potentially contamination on marine organism and human who often consume it.

Based on these facts, through community service activities have been fabricated apartments fish by local people using more environmentally friendly materials, namely plastic polypropilen (PP). The apartment itself is a tool for collecting fish which is functioned to concentrate the fish so that it will facilitate the operational activities of purse seine. In addition, these tools have ecological functions as a place of eggs, larvae, and juvenile fish to grow.

The design and operation of apartment activity of making these fish involves the local community to build a sense of ownership over the apartment the fish. Utilization of the results of the operation of apartment fish also involves the role of Community Monitoring Group (Pokwasmas) whose members are local fishermen, so that conflicts can be minimized.

MATERIALS AND METHODS

The series of fish apartment was held in Pacitan water. There were several stages that have to accomplish. The first stage of

development of the joint Business Group Tawang Sari and Pokwasmas Tawang Sari, the second stage is the design manufacture and installation workshop and the selection of potential location apartment mounting fish. Furthermore, the third stage of this activity is the production of fish apartment, the fourth stage of the installation of the apartment fish, the fifth stage of the evaluation programme. The programmes are being implemented for 8 months, namely from March – September 2016.

Stages production of fish apartment can be simply explained as follows:

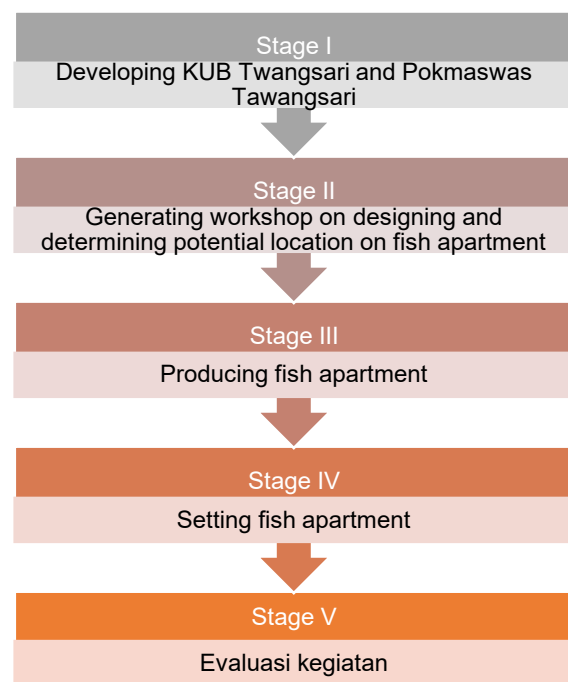


Figure 1. Production of fish apartment

The detailed of these stages are as follows:

1. Developing fishermen group
 - Group fishermen who are partners are Business Group Tawang Sari and Pokwasmas Tawang Sari is located not far from the PPP Tamperan. In the presence of four apartment units fish in one location, there will be somethings that need to be noted, as follows:
 - a. Production
 - One piece of fish produces apartment unit is made is managed and supervised by KUB Tawang Sari and Pokwasmas Tawang Sari

- b. Arrange organization management
Management of fish four apartment units was submitted on Tawang Sari KUB, for further operation of the trip itinerary setting purse seine
- c. Supervision
Supervision will be carried out by POKWASMAS Tawang Sari and controlled by the Department of Fisheries and Marine Resources Pacitan Regency

2. Generating workshop on designing and determining potential location of fish apartment. At this stage, the workshop design and manufacture as well as installation techniques apartment fish were conducted. In this activity it was carried out the transfer of technology in the manufacture and installation of fish apartments. Discussion on material selection and the apartment size fish were also conducted with both partners. In addition, in this stage KUB also informed method of determining the location of the installation is based on the result of measurements of water quality in accordance with the target catch of fish habitat.

3. Producing fish apartment

3.1 Material

Materials and tool used in the production of fish apartment in the waters of Pacitan consist of a set of materials and equipment as follows:

Main Raw Material:

- a) Plastic polypropilen diamete of 4 mm
- b) Cement cast
- c) Cans
- d) Bamboo
- e) Net
- f) Nylon rope
- g) Galvanized wire
- h) Paku

Work equipment fixed:

- a) Cetok
- b) Scissors
- c) Knives
- d) Welding Equipment
- e) GPS

f) Water quality Equipment:

- 1. pH meter
- 2. DO meter
- 3. Refraktometer

3.2 Methods

Making fish apartment starts with creating a partition that almost all of the material is plastic PP. PP have been selected for easily available and can be produced in the desired amount, relatively safe, waterproof, durable and relative to humans and the environment (Bambang et al., 2011). For technical to use a fruit basket with a size of 20 cm (Detail apartments fish can be found in Figure 2 and 3).

Construction of apartment fish and consists of a framework, shelter, and sinker. Framework is a component composed of a series of plastic partition. This partition will serve as a refuge for eggs, larvae and juvenile fish, as well as will serve also for collecting fish in certain sizes.

Shelter is a component made of chunks or pieces of rope nets as media attachment of eggs, larvae, and juvenile fish. Ballast is a component made Daric or cement that will function as a stabilizer so that the frame of the apartments can stand upright and do not move because of the current.



Figure 2. Sub-part of fish apartment design

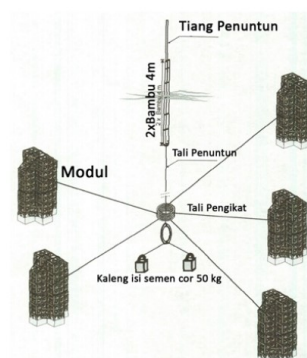


Figure 3. Several units of fish apartment

RESULT AND DISCUSSION

The process of creating and managing involve almost all members of KUB Tawang Sari fishermen. At the end, the supervision will be coordinated by Pokmaswas Tawang Sari and controlled by the Department of Fisheries and Marine Pacitan. Here is the documentaion and dissemination workshop apartments fish in the waters Pacitan.

Making apartment own fish will be led by Mr. Sukatlan as Chairman Pokmaswas Tawang Sari began July 12 – 23, 2016. Here is the documentation of the making of the fish apartments. Below is the method of joining all baskets.



Figure 4. A unit of fish apartments

Figure 4 shows the volume of the unit apartments fish. One apartment unit consists of three piles of fish baskets, where in each pile consist of eight baskets. In order to create spaces that can be used as a fish rearing area (nursery ground), on each side of the basket used by the hole.

Location of the apartment of fish is a location that has a fairly strong currents. According to the local government, several times FADs were installed at that location drifting. Here is a picture of mounting a weight on the apartment units fish:



Figure 5. Setting the sinker to the fish apartment

The condition is possible due to lack of ballast in each unit FADs/apartments fish. Therefore, in the manufacture of fish apartment is equipped with a ballast which is believe to be quite capable of overcoming the current is quite strong.



Figure 6. Four units of fish apartment

The next stage is the stage of the drownings of four apartment units fish. On July 28, 2016 has been done four unit apartment sinker fish with the help of two fleets used boats trolling fishermen (Figure 6). Here are some of the documentation related to these activities.

Apartment drownings process fish also involving the Marine and Fisheries Agency Pacitan. This is because the impact will be gained from the installation of the apartment of fish in the territorial waters of Pacitan. This will increase fishing activities for local fishermen and add a conservation site in the long term.

CONCLUSIONS

The presence of fish apartments in Pacitan water will be beneficial for enhancing fish catches. By using a new design of fish apartment which made from PP will be also a way to eschew the impact of used tires as a cause of marine pollutants.

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