The Perceptions of Community on The Role of Kijing Taiwan (*Anodonta woodiana*) in Freshwater Aquaculture Ponds

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Abstract

Kijing Taiwan (*Anodonta woodiana*) is one type of shellfish that live in freshwater, are filter feeders, have high endurance life, and exist in abundant number making Kijing Taiwan can be used as indicators of water pollution that can assist in purifying water. The study is descriptive qualitative, and data is obtained by measuring public perceptions using Likert scale. The later stage begins with determining the respondents. Respondents consist of 27 people from 76 citizen members of the UPR Source Mina fish seed producers and are over 30 years old. The results show that people tend to behave negatively towards Kijing Taiwan by removing and exterminating Kijing Taiwan en masse, as it has been assumed to reduce the cultivation of fish seed. They do not have enough knowledge about the role of Kijing Taiwan leading them to have the wrong perception on the role of Kijing Taiwan in aquaculture ponds. Formulating the strategic management of freshwater aquaculture waters must be done by proposing stakeholders to conduct public education and to convey the results of research on Kijing Taiwan, among other on the role of Kijing Taiwan to help early detection of pollution and as water purifier in aquaculture ponds naturally.

Keywords: Benefits of Kijing Taiwan, Public Perception

INTRODUCTION

Unit Pembenihan Rakyat (UPR) Sumber Mina Lestari is a regional center for the cultivation of freshwater fish. The area of 1.2 hectares is full of fish seed commodity, mostly tilapia, carp, and catfish. Not only fish seed that live in the cultivation area, there are also mollusks living inside the freshwater mussels. Kijing Taiwan (*Anodonta woodiana*) is one type of shellfish that live in freshwater. Kijing Taiwan is known as filter feeders of high durability and abundant in number. Kijing Taiwan can be used to address water pollution from pollutants including heavy metals. Thus, Kijing Taiwan can help in water purification business.

Kijing Taiwan is a sourcer of new protein of aquaculture commodity, because it gives large enough meat to eat. In addition, Kijing Taiwan serves as fish feed to improve the quality of gonads, to act as a biofilter and sewage eater, to produce freshwater pearls, to be used as medicine, and the shells can be used as raw material for the button industry [1].

Kijing Taiwan is commonly found in aquaculture ponds of Unit Pembenihan Rakyat Sumber Mina Lestari. The people throw Kijing Taiwan away because it is considered as a pest. Kijing Taiwan is considered to hinder the growth of farmed fish as it has been assumed to eat the food given for the fish. The farmers see the presence of Kijing Taiwan as to bring a negative and harmful impact on the environment. In this case, the public has not understood the role and benefits of Kijing Taiwan. The purpose of this study is to analyze public perception on the role of Kijing Taiwan for aquaculture ponds and analyze freshwater management strategies in Unit Pembenihan Rakyat Sumber Mina Lestari.

MATERIAL AND METHOD

The method used in determining public perception is using qualitative descriptive method with the distribution of questionnaires and interviews. Data from interviews with respondents will be analyzed descriptively and qualitatively using descriptive analysis. According to [2], descriptive analysis aims to describe accurately the properties of an individual, state, or symptom that exist in society. In this study, the descriptive analysis is done to describe the public perception on the role of Kijing Taiwan (*Anodonta woodiana*) in freshwater aquaculture environment of Unit Pembenihan Rakyat, Sumber Mina Lestari, Malang.

Data Collection

This study aims to obtain qualitative data by measuring public perception using Likert scale.

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Research Variable

The research variable includes internal factor, i.e. perception. Measurement of public perception using the answers from respondents using a Likert scale where the highest is 5 and for the lowest is 1. The alternatives are Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1) [3].

How to calculate the scores and the percentage is as follows:

Calculating the score

Score = frequency x weighting

Total score = total score of the rating scale of 1 to 5.

Calculating the percentage of score

The classification of score is based on the number the target respondents. For example, if the total number of respondents is 70, then:

The highest score = 70 x highest weight

= 70 x 5

= 350 (Strongly Agree)

Calculating the percentage of score as the way to classify score is done as follows:

Percentage of score = Total score x 100%
                          Highest score

Criteria for the interpretation of the score determined based on the percentage of rating by respondents can be seen in **Table 1**.
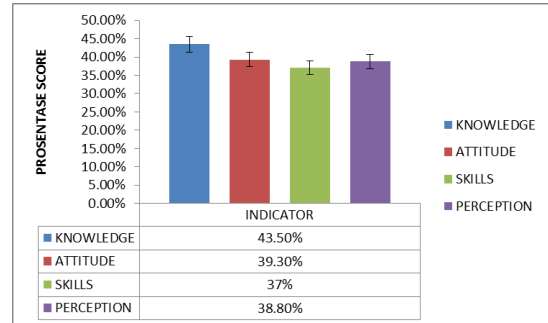
Tabel 1 Classification of Scores

Scores	Percentage	Category
1	0% - 20%	Very insufficient
2	21% - 40%	Insufficient
3	41% - 60%	Sufficient
4	61% - 80%	Good
5	81% - 100%	Very Good

RESULTS AND DISCUSSIONS

The reults of interviews with 27 farmers of tilapia fish whose ponds contained Kijing Taiwan are as follows: (1) The farmers have not been able to utilize abundant Kijing Taiwan in Unit Pembenihan Rakyat Sumber Mina Lestari; (2) Kijing Taiwan is considered pest for the cultivation of fish seed because it eats the food for the fish seed; (3) Kijing Taiwan has sharp shell that can cut the feet when farmers are harvesting the fish; (4) Kijing Taiwan grows fast and can spread quickly in other cultivation ponds;

and (5) Kijing Taiwan cannot be consumped as it can cause food poisoning.

Here is the chart on the percentage of scores. Percentage of scores on public knowledge is 43.50%, attitude is 39.30%, skill is of 37%, and perception is 38.80% (See Figure 1).

KNOWLEDGE	43.50%
ATTITUDE	39.30%
SKILLS	37%
PERCEPTION	38.80%

Figure 1 Indicators of Public Perception

Indicators of public perception formed can be described in detail, as follows:

Knowledge

Based on the results, in the study to determine the level of public knowledge four types of degrees of knowledge are used, i.e. knowing, understanding, analysis, and evaluation in order to be able to describe the level of public knowledge at Unit Pembenihan Rakyat Sumber Mina Lestari on the role of Kijing Taiwan role as a bio-indicator and water biofilter. The knowledge of the farmers belong to enough category with an average percentage of score of 43.50%, which mean that farmers' knowledge is good enough about the role of Kijing Taiwan as bio filters and bio-indicators. The result of the calculation of scores for each variable is illustrated in Figure 2.

It is known that the farmers know (A1) the role of Kijing Taiwan as much as 50%, the score is in the enough category; their understanding (A2) on the role of Kijing Taiwan is 43%, belonging to the enough category; their ability to analyze (A3) on the role of Kijing Taiwan is 40%, belonging to the poor category; and their ability to evaluate the role of Kijing Taiwan (A4) is 40%, belonging to the poor category.

According to [4], knowledge is the result of knowing and can occur after a person experiences an object. This occurs through human sensory organs, which are mostly derived from sight and hearing. Knowledge is important to the formation of a person's behavior. According [5], there are six degrees of knowledge, i.e. know, comprehension, application, analysis, synthesis, and evaluation.
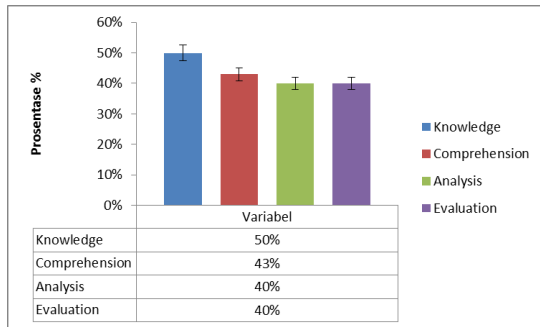
Figure 2 Public Knowledge

Attitude

Based on the results of the research, it is known that the attitude scores 39.30%, belonging to in the poor category. This indicate that the people less appreciate the abundant Kijing Taiwan in the aquaculture ponds that as in the daily lives Kijing Taiwan is disposed from the ponds.

It is known that people accept (B1) the existence of Kijing Taiwan by 33%, and the score is in the poor category. Public response to the presence and role of Kijing Taiwan (B2) scores 47%, belonging to the enough category. Public appraisal on the existence and role of Kijing Taiwan (B3) scores 37%, belonging to the poor category. Formation of lifestyle of the people with the existence of Kijing Taiwan (B4) scores 33%, belonging to the poor category. The result of the calculation of scores for each variable can be seen in Figure 3.
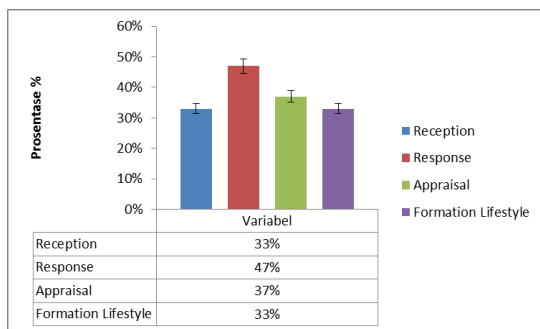

Figure 3 Public Attitudes

Attitude is a statement of evaluation, both pleasant and unpleasant towards objects, people, or events. It reflects how one sees events [6]. According to [7], attitude is a behavior that involves a person's tendency to react, to perceive against something and becomes a belief to determine what they want, underlying the tendency to act, operate, and think to face an object, idea, situation, and value. Attitude raises

motivation and character evaluation, which contains both pleasant and unpleasant values.

Skills

Skills show the level of utilization of Kijing Taiwan and score 37% meaning that the farmers less utilize the abundant Kijing Taiwan in the aquaculture ponds. The farmers of Unit Pembenihan Rakyat Sumber Mina Lestari have tried to use Kijing Taiwan as food source. However, the find that it cannot be eaten as it is poisonous. Until now, Kijing Taiwan cannot be utilized for other things because of limited skills and knowledge of the people. The result of the calculation of scores for each variable can be seen in Figure 4.
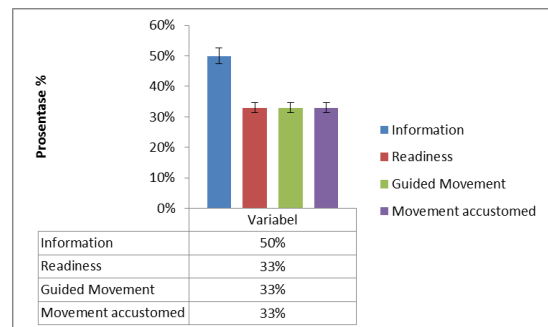

Figure 4 Public Skills

It is known that people are willing to seek and share information (C1) on the role of Kijing Taiwan, and it scores 50%, belonging to enough category. Community preparedness (C2) in response to the role of Kijing Taiwan is 33%,, belonging to the poor category. People's guided movement to find and share the skills (C3) to promote the use of Kijing Taiwan scores 33%, belonging to the poor category. Habitual movement (C4) of the community to get used to maximize the role of Kijing Taiwan is 33%, belonging to the poor category.

Skill is the ability to do things properly and correctly. This means that ability is the skill and potential one has since birth [8].

Perception

Perception of the public shows community's attitudes toward the existence of Kijing Taiwan and it scores 38.80%, meaning that the community pays less attention to the abundant existence of Taiwan Kijing in the aquaculture ponds. The farmers tend to behave negatively towards Kijing Taiwan by removing and destroying Kijing Taiwan en masse because it is considered pest in the aquatic environment of

aquaculture ponds. The people have enough awareness about the role of Kijing Taiwan, yet low skills and knowledge leading to the wrong perception towards Kijing Taiwan.

It is known that the level of public perception at Unit Pembenihan Rakyat Sumber Mina Lestari against ecological benefits is 50%, belonging to the enough category. The level of public perception at Unit Pembenihan Rakyat Sumber Mina Lestari against social benefits is 43%, belonging to the enough category. The level of public perception at Unit Pembenihan Rakyat Sumber Mina Lestari against the economic benefits is 23%, belonging to the poor category. The result of the calculation of scores for each variable can be seen in Figure 5.
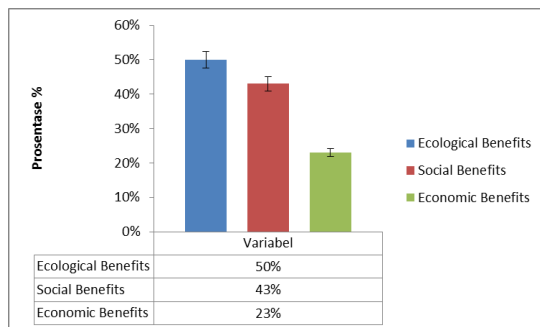

Ecological Benefits	50%
Social Benefits	43%
Economic Benefits	23%

Figure 5 Public Perception

Perception is defined as the process of organizing and interpreting human senses and impression in order to give meaning to the environment [6] or cognitive processes that people experience in understanding information about their environment through sight or hearing [9]. According to [10], perception is the result of relationship between human beings and the environment and then consciously processed influencing experiences, interests, attitudes, intelligence, and the result will affect behavior.

CONCLUSION

The results show that people tend to behave negatively towards Kijing Taiwan by removing and exterminating Kijing Taiwan en masse, as it has been assumed to reduce the cultivation of fish seed. They do not have enough knowledge about the role of Kijing Taiwan leading them to have the wrong perception on the role of Kijing Taiwan in aquaculture ponds.

SUGGESTION

Formulating the strategic management of freshwater aquaculture waters must be done by proposing stakeholders to conduct public education and to convey the results of research on Kijing Taiwan, among other on the role of Kijing Taiwan to help early detection of pollution and as water purifier in aquaculture ponds naturally.

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