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Perceptions of fishermen communities against the establishment of conservation areas in Pongok Island, South Bangka

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Abstract. Pongok Island has the potential of coastal ecosystems, namely mangrove, seagrass, and coral reef. Recently, increasing use of bombs and potassium in fishing can be destructive hence the ecosystems need to be conserved in order to be utilized sustainably. The management in question is the establishment of a conservation area that involves fishing communities so that an assessment of the community's perception of the determination of conservation areas is needed. This study aims to determine the perception of fishing communities towards the establishment of conservation areas in Pongok Island, South Bangka Regency, Bangka Belitung Province, Republic of Indonesia. The selection of respondents was done by using purposive sampling. Data analysis used is descriptive analysis to explain the perception of the fishing community towards the determination of conservation areas. The results of the study show that public perception is quite good because the highest percentage of assessment level is found in the assessment criteria of agree and strongly agree. The community perception on establisment of concervation areas is a high with the level of strongly agree criteria of 34.418% and 55.105% agree criteria and low rating on appraisal criteria are sufficient to agree at 8.827% and disagree at 1.650%.

Keywords: conservation, ecology, fishermen community, perception

1. Introduction

Pongok Island is one of the islands in Bangka Belitung Province which has mangrove, fish, coral reef and seagrass resource potential. Not only potential, but it also has environmental problems, such as the use of bombs and potassium, as well as other problems that exist in the environment. Regarding the problems and potential in Pongok Island, it is necessary to have proper management to preserve the potential of mangrove resources, seagrass, coral reefs and fish and to minimize or eliminate environmental problems that can damage these resources. One of the proper managements is the establishment of a conservation area that involves the community. Community involvement must be accompanied by community support for the establishment of conservation areas. Therefore, before the establishment of a conservation area, an assessment of the community's perception of the establishment of a conservation area must first be carried out. With the existence of a conservation area, it is expected that the natural resources on the island can be sustained and utilized sustainably. This research was conducted to determine the community's perception of the determination of conservation areas.

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2. Methods

This research was conducted in December 2014, in Pongok Island, Pongok Islands District, South Bangka Regency, Bangka Belitung Province of Republic of Indonesia. The tools and materials used in this study were questionnaires to obtain primary data from fishermen and secondary data obtained from the 2013 Pongok Village Profile Data and the Regional Bangka Regency Conservation Area Preparation Report (Local Marine Protected Area). The variables studied were knowledge of conservation, community opinion on conservation approvals, namely conservation of mangroves, coral reefs, seagrasses, and fish protection areas.

This research used a survey method, where the information was obtained from a group of people [1]. Other supporting data, such as data on the general condition of the island, were obtained from the Village Office of Pongok Island.

The data needed in this study were:
1. Primary data obtained from the results of filling out the questionnaire
2. Secondary data obtained from Pongok Island Village Profile Data and Report of the South Bangka Marine Protected Area

The selection of respondents was carried out by purposive sampling method, namely the taking of sample members based on the researchers' considerations to find out the community's perception [2].

Determination of the number of samples in this study was carried out by calculating the population of the Pongok Island fishing community, amounting to 582 people (Source: Pongok Village Profile Data).

Sampling based on formula (1) [3] is as follows:

$$n = \frac{N.Z^2.0{,}25}{[d^2(N-1)] + [Z^2.0.25]} \quad (1)$$

Notes:
n : Number of samples
N : Total population
1 : Constants
0.25 : Constants
d : Percent of inaccuracy (e: 10%)
Z : 90% truth level in table Z (Z value: 1.29)

The number of population is 582, so the number of respondents taken was 39 people. Data analysis used in this study is a descriptive analysis method to provide a more detailed picture of perception and a phenomenon or phenomenon related to perception. The final results of this study are patterns regarding the phenomena being discussed [4].

The assessment level of the assessment criteria of strongly agree, agree, simply agree, and disagree with the perception as a whole can be known using the intervals in table 1.

Table 1. Overall perception assessment rate intervals.

No	Interval (Score)	Rating Level
1.	0 - 741	Low
2.	742 – 1,482	Enough
3.	1,483 – 2,223	Medium
4.	2,224 – 2,964	Very High

Notes:
Number of respondents = 39
Statement number = 19
Minimum total value = 1 x 39 x 19 = 741
Maximum total value = 4 x 39 x 19 = 2,964
Number of intervals = $\frac{Total\ maximum\ value}{Total\ minimum\ value}$ = 4

Difference value interval = $\frac{Maximum\ total\ value}{Total\ interval} = 741$

3. Results and Discussion

3.1. Community perception of knowledge about conservation areas
The results of the questionnaire about community perceptions of knowledge about conservation found that the smallest percentage of assessment was found in the well-knowing rating criteria, which was 0%, while the largest percentage of valuation was found in the assessment criteria of not knowing that was 41.026% as shown in figure 1.

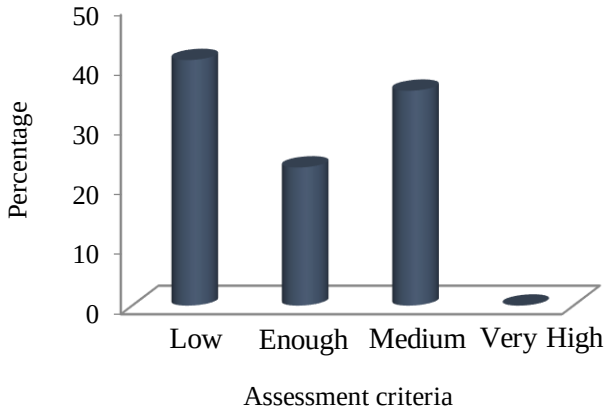

Figure 1. Community perception of knowledge on conservation areas establishment.

Community perceptions of knowledge about conservation indicate that fishermen communities generally do not know the term 'conservation'. This is caused by the level of education, insight, community participation in information dissemination or meetings about conservation, as well as the number or absence of programs from the government or agencies related to the knowledge about conservation. Respondents interviewed had a low level of education because 56.41% of the respondents only graduated from elementary schools. This causes a lack of knowledge about conservation because the low level of education causes people to not have much insight and experience to know the term of conservation. Moreover, the community has never participated in information dissemination or events related to conservation and the lack of government programs on conservation that involve the community as participants or listeners in the activity.

Respondents who know and know enough about conservation due to education are of a higher level than respondents whose education is only up to elementary school. Respondents who know the term of conservation are those who have a high enough level of education, which are high school, junior high school, and there is one respondent who graduated from college. This higher education causes higher insight and experience and knowledge of conservation. Respondents who have a higher education are often involved if there are programs or activities in the village about conservation. This will increase people's insight and knowledge about conservation. Activities related to conservation were once carried out by the local government and students from Gadjah Mada University who also provided

information dissemination about conservation, but these activities did not involve all fishermen, so that information about conservation could only be known by a few fishermen.

3.2. Community perception of conservation approval

The results of the fishermen's questionnaire on community perceptions regarding the approval of the existence of a conservation area found that the largest percentage of valuation was found in the agreeing criteria, namely 66.667%, while the smallest was found in the disagreeing criteria which was 2.564% as shown in figure 2.

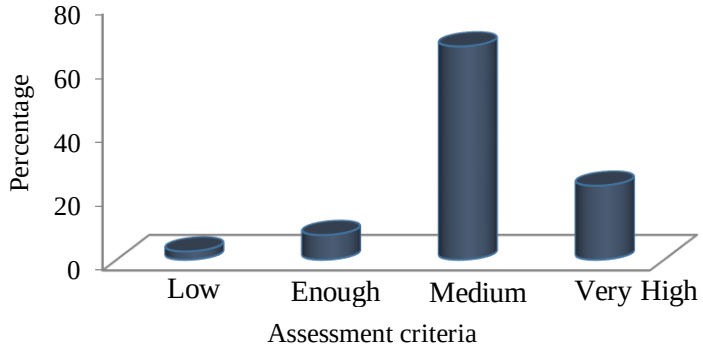

Figure 2. Community perception towards the approval of conservation area establishment.

Community perceptions regarding the approval of the existence of a conservation area are known that 66.667% of the people agreed, and the disagreement rating was 2.564%. People agreed because the observations were made by the community on the conservation objects that are perceived objects. The community saw that coral reefs had experienced a decrease in the area caused by the use of bombs and potassium, mangroves experienced a decrease in the area because a few years ago people took mangroves as materials for firewood and boat building, etc., and all of them causes declining catches, which impacted fishermen's income. Knowledge of the conditions of these resources made the community started to think to overcome these problems, so that after the community is simply given a stimulus about the definition of conservation, the community responds that conservation is one of the efforts to overcome the problems in Pongok Island.

Community knowledge about conservation is very minimal, but that underlies the community's thinking to approve the existence of conservation, namely the condition of mangrove resources, coral reefs, and fish that require management that is considered beneficial for the resource itself and the community. Communities that do not approve of conservation are caused by very few knowledge about the resources to be conserved, and the assumption that conservation is not necessarily beneficial for them.

3.3. Community perception of approval of coral reef conservation

The results of the questionnaire on community perceptions of the approval of coral reef conservation found that the entire community supported the existence of coral reef conservation. This can be seen from the percentage of people who agreed of 64.103%, who strongly agree of 35.897%, and those who disagree are 0%, as shown in figure 3.

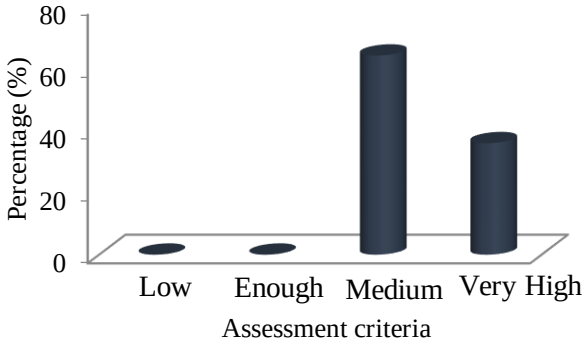

Figure 3. Community perception of approval to establish coral reef conservation area.

The results of the questionnaire on community perceptions of the approval of coral reef conservation found that the community all supported the existence of coral reef conservation. This can be seen from the percentage of people who agree is 64.103%, who strongly agree is 35.897%, and those who disagree are 0%. This shows the community hopes for the conservation of coral reefs because they realize that coral reefs are very important to support fish catches and they know the functions of coral reefs, one of which is the habitat of fish. The community saw a decrease in coral reef area even though the decline was not significant. This is due to the use of potassium and bombs that can damage the reef, so that fish catches are reduced. Therefore, it is necessary to protect coral reefs so that the preservation of coral reefs is maintained.

Some respondents said, "Indeed, coral reefs in Pongok Island are still good, but they decreased, so that protection must be carried out. If there is no protection, then the use of bombs and potassium still continues, one day the coral reefs will be destroyed. Consequently, fishermen's income will decrease.". Other respondents said, "Coral reefs are home for the fish, so if coral reefs are destroyed, the fish will lose their homes."

3.4. Community perception of seagrass conservation approval

The results of the questionnaire about community perceptions of seagrass conservation approval as shown in figure 4, found that the highest percentage was in the agree criteria, namely 46.154%, highly agree of 17.95%, and disagree of 0%.

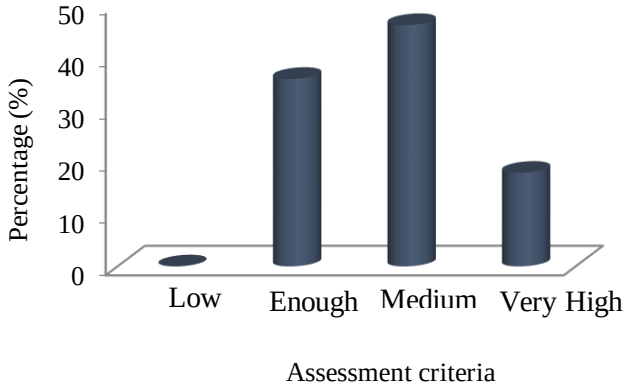

Figure 4. Community perception of approval to establish seagrass conservation area.

In overall, the community agrees to the conservation of seagrass. This approval is because some people know the function and importance of seagrass for fish life. The community considers that in addition to coral reefs, seagrass also functions as fish dwellings. Although most of the people do not

know the seagrass function, they know that there must be other functions and uses of seagrass that they do not know yet. Some respondents also thought that seagrass in Pongok Island was still very good because there was no potential for damage to seagrasses, therefore, to maintain its sustainability and better conditions, it was necessary to protect seagrasses.

3.5. Community perception of mangrove conservation approval

The results of the questionnaire on community perceptions of mangrove conservation approvals found that the highest percentage of assessment was found in the highly agree assessment criteria, which is 51.282%, then the agreed percentage was 48.718% as seen in figure 5.

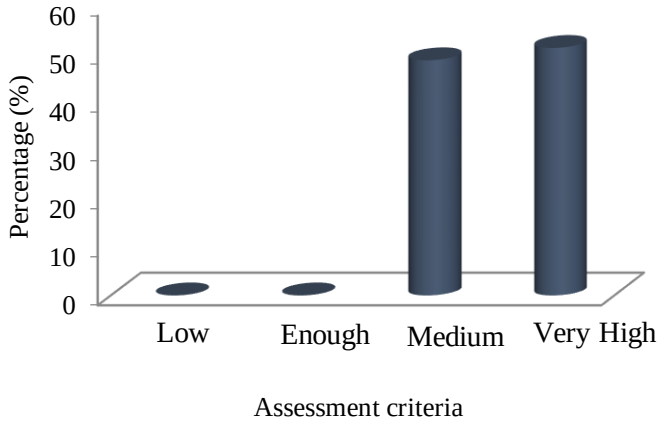

Figure 5. Community perception of approval to establish mangrove conservation area.

The results of questionnaires about community perceptions of mangrove conservation approval show that the community has a good view and high support for mangrove conservation. This is caused by public awareness on the importance of mangroves. The community realizes that mangroves are very important to protect because their function can resist abrasion of the beach and as the habitat for biota, such as mangrove crabs.

Respondents said that the condition of mangroves in Pongok Island was good, but experienced a decrease in numbers because a few years ago before the use of gas stove and oil stove, people took mangrove wood as fuel. Not only used for firewood, mangrove wood is also used as a material for boat building and others, but it is no longer found in the present although there may still be those that take mangroves, but at least not cut down in large numbers. Therefore, it is very important to conserve mangroves to avoid abrasion, the abundance of biota such as mangrove crabs is high, and the sustainability of mangroves is maintained.

3.6. Community perception of fish protection agreements in conservation areas

The results of the questionnaire about community perceptions of the approval of fish protection in the conservation area in figure 6, it was found that the highest percentage of assessment was found in the agree assessment criteria, namely 53.864% while the lowest was found in the disagree assessment criteria of 2.564%.

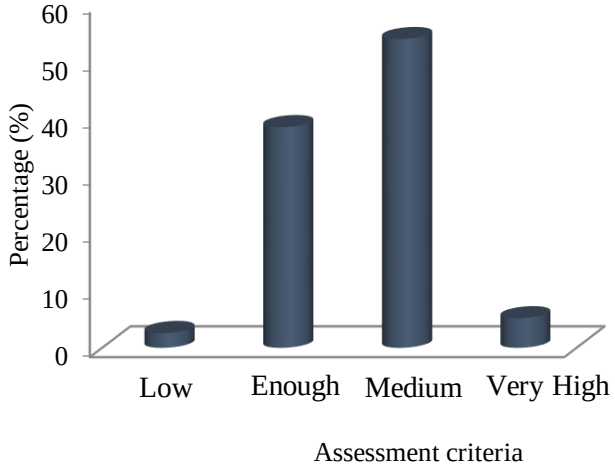

Figure 6. Community perception of approval to establish fish protection in conservation area.

The public perception of the approval of fish protection in the conservation area found that the highest was in the agree criteria, which is 53.864%, while the lowest was in the disagree criteria, which is 2.564%. The disagreement came from the concern on income security should fish protection areas are established. Such concern was due to the stipulation of fish conservation area establishment that would make them unable to catch fish in the protected area. Those who agreed are of opinion that the fish protection will guarantee the availability of resources. As a result, the catch will increase. If the fish that are not yet suitable for capture are protected, then when the protected fish are fit to catch, they will provide catches that can be sold at a high value because of their size and weight are larger.

People also feel a decrease in catches, this is seen from the decrease in the amount of income. For fishermen who use fishing gear, their income ranges from Rp700,000 to Rp1,500,000. But they often get Rp700,000, while Rp1,500,000 can be said to be rarely obtained by fishing fishermen, and when compared to some time ago before the use of bombs and potassium, fishing rod fishermen rarely get Rp700,000. Fishermen who use fishing gear of cage (bubu) have an income ranging from Rp1,500,000 to Rp2,000,000. Using cage fishing gear, the revenues and charts are bigger because in cage fishing gear, the fish catches are fish with high economic value, such as tiger grouper, while the income chart is relatively high because there are several tools used, for instance lights so that the attractiveness of fish is higher than fish those who are attracted by light will be lifted using a net so that the catch is more than the fishermen who use fishing by fishhook. Income of fishermen who use bubu, fishhook, chart fishing gear decreased. This is because the problem of fishing using bombs and potassium, which has damaged corals and reduced the number of fish in the reef area as a result of fish catches, have decreased and fishermen's income has also decreased.

3.7. Overall community perception

The results of the overall questionnaire on the assessment of the perception of the fishing community in Pongok Island related to the determination of conservation areas can be seen in table 2. The highest percentage is found in the agree assessment criteria, namely 55.105% with a high enough assessment rate while the lowest assessment percentage is found in the disagree criteria of 1.650% with a low rating.

Table 2. Evaluation level of each overall perception assessment criteria.

No.	Total score	Percentage	Level	Criteria
1	Strongly agree	772	34.41	High enough
2	Agree	1236	55.10	High enough
3	Simply agree	198	8.83	Low
4	Disagree	37	1.65	Low
	Total:	2243	100	

Table 2 shows that the highest percentage is found in the agree criteria, namely 55.105% and is included in a fairly high level, meaning that from the overall perception questions, the community prefers to agree to the establishment of the conservation area. The assessment criteria of strongly agreed also to be at a high enough level, meaning that in addition to some communities who agreed, there were 34.418% of the people who strongly agreed to the establishment of a conservation area. This criterion is classified as a fairly high level because quite a lot of respondents gave an assessment of strongly agree to all perception questions. The lowest assessment level is found in the evaluation criteria, which is enough to agree and disagree, where the percentage of moderates is 8.828%, and those who disagree are 1.650%. This means that only a few respondents who give an assessment of simply agree and disagree. The assessment level of the two assessment criteria is low, and this means that the community has a positive perception, a good perception of the existence of a conservation area because the assessment agrees enough while does not agree to include a low level.

The assessment criteria agree and strongly agree with the high level of assessment, in general, indicating that the community's perception of the conservation area is quite good, and the community expects the establishment of a conservation area. This is proven in several supporting statements of the respondents who stated the need for the establishment of conservation areas because of the condition of mangrove resources, coral reefs, seagrasses, and fish that must be preserved. This is added with the respondent's statement that the existence of conservation will guarantee the availability of resources. As a result, the resources conserved will provide economic benefits for the lives of fishermen. Because of this thought, there is a fairly good perception of the establishment of conservation areas.

The evaluation criteria of simply agree and disagree with the low assessment level indicating that the community prefers to establish a conservation area even though in the results there are several respondents who do not approve the establishment of a conservation area. Respondents who did not approve this, in general, were caused by a lack of knowledge about conservation caused by education and minimal experience.

In general, the level of perception is caused by many factors, such as experiences, education, external information, and the condition of the perceived object. It was also explained by Sherif and Houland in their socio-valuation theory that individuals form important situations for themselves in choosing or determining something and giving responses to objects encountered and observed in their social interactions. Therefore, in assessing humans making or making comparisons between various alternatives and one alternative is an internal reference or standard compiled by individuals to assess stimuli that come from outside. The formation of internal standards is influenced by the experience of the individual concerned with the stimuli that exist in the surrounding environment.

Assessment of strongly agree, agree, simply agree, and disagree is a separate assessment by the community by looking at the conditions and realities that exist on Pongok Island. This condition can be known by respondents because the average respondent is a community that has been settled in the area since there were only 17.95% of the people who are migrants but have long lived in Pongok Island for more than 6 years. The length of stay makes people know the reality that exists in their environment. The reality in question is the problem of environmentally unfriendly fishing, lack of information and activities from the local governments related to conservation, lack of involvement of fishing communities in activities related to conservation, lack of conservation knowledge which ultimately forms its perception in the minds of rural communities Pongok Island. These stimuli are what is meant by Sherif and Hovland in their social valuation theory, which explains that in assessing these individuals, they observe things or facts that exist, so that it affects the formation of perception in the individual.

4. Conclusions

The results of this research showed that the perception and attitudes of the fishing community towards the establishment of conservation areas is quite good because the community provides a high level of assessment on the strongly agree criteria of 34.418% and 55.105% agree and low rating on appraisal

criteria are sufficient to agree at 8.827% and disagree at 1.650%. For this reason, it is expected that there will be more knowledge about conservation and functions, the importance of seagrasses, coral reefs, mangroves through socialization or other activities related to them, both from the local government, as well as related institutions or agencies and the enforcement of local government regulations on prohibition of the use of non-environmentally friendly fishing methods, such as bombs and potassium, as well as increased supervision of the operation of these rules.

Acknowledgment

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References

[1] Kountur R 2007 *Research Methods for Thesis and Thesis Research* (Jakarta: PPM Management)
[2] Ayunita D and Dwi T 2012 Analysis of perception and participation of coastal communities in the management of Ujungnegoro MPA in Batang District *J. Teach. Staff Fac. Fish. Mar. Sci.* **1** (9) 117-124
[3] Budiman R A, Saam Z and Thamrin 2013 Community participation and perception in efforts to maintain the environment and maintain clean city predicate *J. Ilmu Lingkungan* **7** 103-105
[4] Prasetyo B and Miftahul J 2006 *Quantitative Research Methods: Theories and Applications* (Jakarta: PT Rajagrafindo Persada)