Knowledge and Attitude of Children Fishers in Pankep District, South Sulawesi Towards the Practice of Fishing with Destructive Fishing

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Abstract. The potential of marine resources in Indonesia is under threat of destructive fishing or fishing that destroys marine ecosystems. Most of the small fishermen use fishing gear that destroys the sustainability of the aquatic ecosystem. Therefore, researchers developed the LESS training model as an anticipatory effort to reduce illegal fishing activities in Indonesia. Implementation of the LESS model training for fishermen's children in Pangkep Regency, South Sulawesi. This training aims to increase the knowledge of fishermen's children on marine ecosystems, fishing gear and law enforcement. Researchers recruited 50 fisherman children to be trained as a test of the effectiveness of the LESS model. The results of the test of the knowledge and attitudes of the children of fishermen about marine ecosystems, fishing gear and law enforcement showed an increase. The results of this study indicate that the LESS training model is effective in improving the attitudes and knowledge of fishermen's children.

Keywords: Fishing Gear, Marine Ecosystem, Law Enforcement

INTRODUCTION

Water resources in Indonesia are very potential as a source of food for the population. The oceans in Indonesia, covering an area of about 5.8 million km2 with a coastline of 81.00 km, are the second longest productive coastline in the world. The potential of marine fish resources in Indonesia is estimated at 12.54 million tons per year spread over Indonesian territorial waters. The potential for fish is supported by coral reefs of 25,000 square kilometers. The Indonesian Sea has about 8,500 species of fish, 555 species of seaweed and 950 coral reef biotas. Fish resources in Indonesia's seas cover 37 percent of the world's fish species.

Exploitation of marine and fisheries resources on a large scale does not consider environmental sustainability aspects [1]. Fishing patterns that often conflict with the principles of responsible fisheries management [2]. Illegal fishing is a well-organized fisheries crime, starting at the national to international level. This pattern needs special attention because it has been proven to damage fish resources as a result, this action is considered a fisheries crime [3]. The wrong fishing pattern is caused by the limited knowledge of the community about the condition of the marine ecosystem, legal

compliance and fishing gear methods. The pattern of fishing is carried out for generations, causing ecosystem damage to marine resources such as the destruction of coral reefs and loss of marine biota.

The practice of destructive fishing also takes place in the waters of South Sulawesi. Fishermen who live in Liukang Tuppabiring District, Pangkajene Islands Regency, utilize marine water resources to meet their daily needs. However, in practice many fishermen still use destructive fishing methods in catching fish such as using explosives and cyanide poison. As a result, it can cause damage to marine ecosystems such as damage to coral reefs which are the home and breeding grounds for fish, as well as fish populations that continue to decline [4].

Various wrong marine resource management activities are generally caused by the low knowledge and attitude of the community in fishing. Therefore, a study on the potential development of children's knowledge of fishermen to prevent destructive fishing is carried out so that environmental sustainability is better maintained.

RESEARCH METHOD

This research is a descriptive quantitative method by involving fishermen's children as research samples. The research location is Salebbo Island, Mattiro Wallie Village, Liukang Tuppabiring Utara District, Pangkep Regency. A total of 50 children of fishermen who. This research was carried out using a descriptive correlational method with the aim of obtaining information about the knowledge and attitudes of fishermen's children towards the practice of fishing by destructive fishing in the waters of South Sulawesi. This study uses the LESS approach (Law enforcement, Economy, Sustainable environmental, Social conflict). The LESS model training for fisher children consists of 3 training modules which are presented in table 1.

Table 1. Training Module

Modul	Learning Goal
Marine Ecosystem	Explain the potential damage to marine ecosystems due to destructive fishing
Destructive fishing gear	Explain about various destructive fishing gear
Law Enforcement	Explain about law enforcement applied to perpetrators of destroying marine ecosystems

The purpose of this training is to improve the knowledge and attitudes of children of fishermen (students) and fishermen in order to reduce the practice of fishing by destructive fishing. Presentation of the material presented by the facilitator as well as group assignments including answering all pretest questions. Followed by a discussion to

increase the knowledge and attitudes of the children of fishermen. After being given the learning material for the LESS Module, an evaluation in the form of a posttest is then given to determine the extent to which there has been a change in knowledge and attitudes. The research instrument is a questionnaire in the form of a statement with five alternative answer choices which are weighted 5,4,3,2,1 for positive statements and 1,2,3,4,5 for negative statements (Riduwan, 2008).

The data analysis method used is to calculate the index of the level of knowledge and attitudes of fishermen's children on Salebbo Island, Mattiro Wallie Village, Liukang Tuppabiring North District, towards destructive fishing practices in the waters of South Sulawesi and classify them into categories. The score used is a Likert Scale, which is 0 for the lowest answer value and 10 for the highest answer value [5]. The criteria for assessing the knowledge of learning citizens are presented in Table 2.

Table 2 Assessment of Children's Fishermen's Knowledge

Interval value	Knowledge Assessment
0 – 2,499	Not enough
2,50 – 4,99	Currently
5,0 – 7,49	Well
7,5 – 10	Very good

The assessment criteria for the attitude test of learning citizens are presented in Table 3.

Table 3. Assessment of Children's Fishermen's Attitude

Interval value	Attitude Assessment
1,00 – 1,75	Not good
1,76 – 2,50	Kurang Baik
2,51 – 3,25	Good
3,26 – 4,00	Very good

RESULT AND DISCUSSION

Profile of fishermen's children

Based on the characteristics of the fishermen's children, the researchers grouped them in a table as follows:

Table 4 Profile of Fisherman's Children

Characteristic	Group	Frequency	Percentage
Gender	Men	33	66
	Women	17	44
Age (years)	11	19	38
	12	13	26
	13	19	38
The grade of student	V	28	56
	VI	14	28
	VII	8	16

There are 50 children of fishermen who have participated in the LESS training, mostly boys and only 44% girls. By age group, there are 38% of children aged 11 years and 13 years. Furthermore, most of the fishermen's children are studying in fifth grade of elementary school.

The level of knowledge of fishermen's children about marine ecosystems

Based on the level of knowledge of the children of fishermen about marine ecosystems, it is made as in the table below:

Table 5 Children's Knowledge Level of Marine Ecosystems

Value	Category	Pretest		Posttest	
		Freq	(%)	Freq	(%)
0 – 2.49	Very Low	31	**62**	3	**6**
2.50 – 4.99	Low	14	**28**	10	**20**
5.00 – 7.49	High	5	**10**	35	**70**
7.50– 10.00	Very High	0	**0**	2	**4**
Total		50	100	50	100

Based on the results of the analysis in the table above, it was found that the highest pretest score of 62% was in the very low category. The lowest pretest value of 10% is in the high category. Furthermore, after the posttest the knowledge of the children of fishermen about marine ecosystems has increased. The highest post-test score of 70% is in the high category and the lowest post-test value of 4% is in the very high category.

The level of knowledge of fishermen's children about fishing gear

Based on the level of knowledge of the children of fishermen about fishing gear, it is made in the following table.

Table 6 Children's Knowledge of Fishers About Fishing Equipment

Value	Category	Pretest		Posttest	
		Freq	(%)	Freq	(%)
0 – 2.49	Very Low	3	6	0	0
2.50 – 4.99	Low	28	56	4	8
5.00 – 7.49	High	19	38	39	78
7.50– 10.00	Very High	0	0	7	14
Total		50	100	50	100

Based on the results of the analysis in the table of knowledge of fishermen's children about fishing gear, the results are as in table 5, namely, the highest pre-test value of 56% in the low category. And for the lowest value in the pre-test of 3%, it is in the very low category. Furthermore, a post-test was conducted on the children's knowledge of fishing gear and experienced an increase. The results obtained are, the highest post-test score is 78% in the high category and the lowest value is 8% in the low category.

The level of knowledge of the children of fishermen about the law

Based on the level of knowledge of the children of fishermen about the law is presented in the table below:

Table 7 Children's Knowledge of Fishers About Law

Value	Category	Pretest		Posttest	
		Freq	(%)	Freq	(%)
0 – 2.49	Very Low	12	24	2	4
2.50 – 4.99	Low	31	62	4	8
5.00 – 7.49	High	7	14	33	66
7.50– 10.00	Very High	0	0	11	22
Total		50	100	50	100

Based on the results of the analysis in the pretest table, the knowledge of the children of fishermen about the application of the law in the practice of destructive fishing, it was found that the highest value was 62% in the low category. The lowest score in the post test was 14% in the high category. After that, the post test results were analyzed and the highest result was 66% in the high category. The lowest post test results were obtained at 4% in the very low category.

The results of the test of the knowledge of the fishermen's children (students) in the experimental group both pretest and posttest are presented in Table 8.

Table 8 Average Pretest and Posttest Results Students' knowledge of LESS Material

Topic	Knowledge of children	
	Pretest	**Post Test**
Marine Ecosystem	2.73	5.27
Destructive fishing gear	4.27	6.45
Law Enforcement	3.25	6.37

The level of attitude of fishermen's children towards destructive fishing practices

The attitude of caring for the marine environment is a behavior that arises on the basis of the awareness and feelings of citizens learning about the marine environment. The average value of the attitude of the experimental group students is presented in Table 9.

Table 9 Average Scores of Children's Attitudes towards Destructive Fishing in the three LESS modules

Nilai sikap	Marine Ecosystem	Destructive fishing gear	Law Enforcement
Pretest	2.23	1.85	2.22
Post test	3.27	3,68	3,81

Prior to the training process, fishermen's children generally showed a disapproving attitude towards the marine ecosystem, destructive fishing gear and law enforcement. After the explanation about destructive fishing, there was a change in the attitude of the fishermen's children towards the three materials. The results of the student attitude assessment showed that the LESS training model was effective in improving the attitudes of fishermen's children towards destructive fishing.

The description of the research results shows that the provision of materials about destructive fishing packaged as a LESS model increases the knowledge and attitudes of fishermen's children. Thus, it is hoped that the children of fishermen will not be involved in destructive fishing practices. Practical conditions encountered at the location are fishermen's children participating with their parents in fishing activities. Some of the fishermen's children joined the sea for several days in a large boat. Some of the children were involved in preparing fishing gear and some were involved in collecting the catch.

Fishermen's decisions about fishing patterns greatly affect the risk of damage to marine ecosystems. The low knowledge of fishermen about ecology has an impact on the pattern of marine resource management. If the knowledge is low, then the risk of destroying marine life is also higher and results in an unsustainable ecosystem [6]. Fishing activities are very common as an activity of extracting marine resources that are ecologically harmful. Destructive fishing is a major challenge for conservation and

ecosystem management. The use of fishing gear that is used destructively into a form of overexploitation of small-scale fisheries creates problems such as reduced biodiversity. Continuous fishing activities on a large scale have an impact on decreasing catches [7]. The author promotes the pattern of increasing the knowledge of fishermen's children by introducing the condition of the coastal ecosystem as a form of environmental education. With this education, there will be community involvement in reducing destructive fishing patterns.

CONCLUSION

The results of the test of children's knowledge of fishermen about marine ecosystems, fishing gear and law enforcement before participating in the training were in the low category. After participating in the LESS training, the children's knowledge of fishermen increased and reached the high category. The attitude of the children of fishermen towards destructive fishing was categorized as not good before the implementation of the training. After receiving materials on ecosystems, fishing gear and law enforcement, fishermen's children generally experience an increased attitude towards destructive fishing. The results of this study indicate that the LESS training model is effective in improving the attitudes and knowledge of fishermen's children.

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