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THE ROLE OF SEA TURTLE CONSERVATION EDUCATION FOR SUSTAINABLE MARINE TOURISM BASED ON BIO-ECOREGION (CASE STUDY IN BALI, INDONESIA)

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Abstract: Sea turtle conservation management is part of natural tourism activities which are often referred to as ecotourism based on bio-ecoregion. Conservation activities by taking into account environmental, socio-cultural and economic aspects receive special attention by the community, especially sea turtle conservation. In Indonesia, one of the areas that conducts sea turtle conservation in Bali. This research aim to analysis the role of sea turtle conservation education for sustainable marine tourism based on bio-ecoregion (Case Study in Bali, Indonesia). The method used in this research is quantitative descriptive. The data used in this research primary and secondary data. The data collection technique used purposive sampling with 60 respondents consisting of tourists. Based on the research results of sea turtle conservation management in Bali tourism area from the ecological, social and institutional aspects it has a low value while from the economic aspect it has a high value. Lessons learned from the management of sea turtle conservation in Bali by emphasizing the socio-cultural aspects are able to produce modern sea turtle conservation management with the concept of ecotourism based on bio-ecoregion and able to improve the economy of the local community. The results of the activity showed that tourists who visit the sea turtle conservation area are provided with information about the sea turtle population that has decreased and is included in the protected animals. Conservation education aims to introduce tourists to raising awareness of the sustainability of sea turtle resources.

Key words: bio-ecoregion, conservation, education, sea turtle, marine tourism

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INTRODUCTION

Marine Tourism is one of the Indonesia largest industries. The marine tourism sector in various regions in Indonesia is increasingly growing in importance with regard to its contribution to national economies as well as to the wellbeing of local communities in the coastal area. The development of marine tourism activities in coastal areas is based on bio-ecoregion where any planning decision is taken mainly on the basis of conservation criteria, while the environment is taken into account only in a sense that can be described as trying to minimize effects human activities marine tourism. Marine tourism is based on bio-ecoregion is landscape a unique resource combination at the interface of land and sea offering amenities such as water, beaches, terrestrial and marine biodiversity (Nurhayati et al., 2019). Indonesia has a lot of biodiversity based on bio-ecoregion, one of which is a sea turtle. Marine waters in Indonesia, support for sea turtle habitat. There are seven species of sea turtles in the world, i.e: green turtle *(Chelonia mydas*), olive ridley (*Lepidochelys olivacea*), loggerhead (*Caretta caretta*), hawksbill (*Eretmochelys imbricata*), *leatherback* (*Dermochely coriacea*) and *flatback* (*Natator depressus*) (Nuitja, 1992; Darmawan, 2009). The sea turtle is a powerful and mysterious creature in many cultures in the world. Sea turtles have historically contributed to economic activity through consumptive harvest for food, tools, and decorative objects. (Groombridge and Luxmoore, 1989; Van Dijk and Shepherd, 2004; Kinch and Burgess, 2009; Lam et al., 2012; Nurhayati et al., 2020). Hunting of sea turtles to supply trade and consumption demands of both a domestic and international market, is demand a serious and persistent threat to the long term survival of sea turtles (Groombridge and Luxmoore, 1989; Meylan and Donnelly, 1999; Pilcher, 2000; Kemf et al., 2000; Van Dijk and Shepherd, 2004; Stiles, 2009). Sea turtle meat, mostly involving green turtles but also the hawksbill turtle, consumed for religious and cultural reasons in Bali (Barr, 2001; Van Dijk and Shepherd, 2004; Jansen, 2009; Nurhayati et al., 2020).

The management of sea turtles is very complicated for various reasons, including slow growth, later maturity, high mortality rate in young turtles, sea turtles distribution, long migration between foraging and nesting sites, habit of laying eggs in the same location, and breeding dependence on certain temperatures (Limpus, 1997). All types of sea turtles in

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Indonesia are protected under Government Regulation No. 7 of 1999 concerning Preservation of Plants and Animals and Government Regulation No. 8 of 1999 concerning Utilization of Wild Plants and Animals, which means that all trade in a state of life or death is prohibited. This is because almost all species of sea turtles in Indonesia have experienced population declines that are categorized as endangered (Casale and Tucker, 2017; Seminoff, 2004; Mortimer and Donnelly, 2008; Wallace et al., 2013). Sea turtle management areas in Bali, through the management of conservation areas. Based on World Conservation Union (IUCN), the basic understanding of conservation areas is land area and / or sea, especially those intended for the protection and maintenance of biodiversity, and natural resources that are connected to the culture involved, and managed through the application of the law or in other effective ways (Broquere, 2005; Pomeroy, 2012). The prospect of collaborative management in the management of water conservation areas is very wide open and clearly regulated in Government Regulation number 60 of 2007 concerning Conservation of Fish Resources, which states that the central government and regional governments in accordance with their authority in managing water conservation areas can involve the community through partnerships between the management organizational units and community groups and / or indigenous communities, non-governmental organizations, corporations, research institutions, and universities.

Collaborative management is currently highly developed as the main approach in the management of small-scale fisheries resources in several developing countries, including ecotourism-based on sea turtle habitat management (Evans et al., 2011; Nurhayati et al., 2020). Ecotourism is a form of responsible travel to areas that are still natural for the purpose of conservation or preserving the environment and providing livelihoods for the local population and involving elements of education. Sustainable management of marine ecotourism must consider the ecological aspects that are the object of an activity, involving social elements as tourism actors in management, so that it can provide economic benefits (Lindberg and Hawkins, 1993; Nurhayati et al., 2020). Only recently have they begun to benefit humans economically through non-consumptive roles, primarily as a focal point of educational ecotourism. Sea turtle ecotourism is an option in promoting a unique environment and preserved authenticity, as well as a tourist visit. The existing potential is an environmental development concept based on the approach, maintenance and conservation of nature. Ecotourism has sustainable management principles such as based on nature tourism which emphasizes conservation activities and refers to sustainable tourism development and is related to educational development activities, accommodating local culture and benefiting the local economy (Nurhayati et al., 2019). Ecotourism is a form of travel to natural areas that is carried out with the aim of conserving the environment and preserving the lives and well-being of the local population, is expected to be a solution to the decline in turtle populations that occur in Indonesia, especially in Bali. According to the Regulation of the Minister of Home Affairs of Republic Indonesia Number 33 of 2009 concerning Guidelines for the Development of Ecotourism in the Regions in the first article of ecotourism is a natural tourism activity in the area responsible for paying attention to the elements of education, understanding and support for efforts to conserve natural resources, as well as increasing community local income. Condition Sea Turtle Conservation, can be seen in the Table 1.

Table 1. Condition Sea Turtle Conservation

No	Indicators	Category	Ranting to Scale
1.	Beach monitoring	Not monitoring at all	1
		There is monitoring but not periodic;	2
		There is periodic monitoring but off site	3
		Periodic monitoring around the conservation center	4
2.	Successful hatching	None	1
		Exist, but the condition is broken	2
		Eexist	3
3.	Enlargement Facilities	None	1
		Exist, but the condition is broken	2
		Exsits and Adequate	3
		Exsits and Good Facilities	
4.	Hatchling release locations	Away from the center of conservation	1
		Radius of 50 km from the location of the conservation	2
		Radius of 20 km from the location of the center;	3
		around the central conservation conservatory location	4
5.	When the hatchling is released When the hatchling is released	10-12 AM	1
		1-2 o'clock in the afternoon;	2
		3-4 in the afternoon	3
		5-6 in the afternoon / 5-6 in the morning	4
6.	Turtle enlargement	Available, for display	1
		For display and defective conditions;	2
		Efective conditions	3
		None	4
7.	Holding / taking pictures with hatchlings	Available, free to hold and without observation	1
		Freely held in observation	2
		Only held by the manager	3
		May not hold	4
8.	Sales of souvenirs from turtles	There are hangers, jewelry, displays, preserved sea turtles	1
		Preserved sea turtles, ornaments, jewelry	2
		There is jewelry	3
		Nothing	4

The function of ecotourism is emphasized into three main functions namely the education function, tourism function and conservation function. Tourism activities at the site is to maximize the natural potential still natural in an area. Marine Tourism is one of many activities in a coastal area that require planning and coordination conservation area for marine ecosystem-based on bio-ecoregion condition. Based on the background, the following problems can be identified how to the role of sea turtle conservation education for sustainable marine tourism based on bio-ecoregion (Case Study in Bali, Indonesia).

MATERIALS AND METHODOLOGY

The reserach was conducted in September 2019 – March 2021. To find out the history and management of sea turtle conservation in Bali, it was conducted through a literature study using secondary data. Interviews were conducted with respondents. Respondens in this research was purposive proportional random sampling. Purposive sampling according to Sugiyono is a sampling technique with certain considerations (Sugiyono, 2012). According Arikunto (2010) the meaning is: the technique of taking samples not based on random, regional or stratum, but based on the existence of considerations that focus on specific objectives. Analysis of the effectiveness of sea turtle conservation can be seen from the management activities and indicators of the effectiveness is seven activities i.e beach monitoring, egg origin, successful hatching, rearing facilities, hatchling release (location and time), turtle enlargement, visitor activity, and souvenirs from sea turtle raw materials. Likert scale is a scale used to measure the attitudes, opinions, and perceptions of a person or a certain group about social phenomena. Contingent valuation uses surveys to ask participants questions about sea turtle conservation for marine tourism based on bio-ecoregion. Reliability test using *Cronbach's Alpha.*

The first group of questions was designed to gather the respondent's socio-economic demographics (age, education level, gender, location of residency), previous knowledge level about sea turtles, and marketing method used to attract the guest to the walk. The structure used for respondents assesments is variabel Attitudes (X_1) : Pre-disposition or tendency to respond positively or negatively to the activities of conderving green turtle; Awareness (X_2) Growth and development of awareness and understanding of bio ecoregion and its problem, including human interactions effect; Action (X_3) take action and responsibility for conservation activities by integrating culture as well social economic value in decision making and does not damage the enviroment; Enviromental Education Conservation Sea turtle (Y): A procecc of recognizing value and classifying concepts to develop the attitude needed to understand and appreciate the interrelationships between humas, culture and enviroment of bio ecoregion in conservation activities.This section included multiple-choice questions with fixed answers from which to choose, and one open-ended answer for the participant's primary reason for visiting the sea turtle conservation based on bio-ecoregion. The assessment element contained in the statement of personal views of each respondent who assessed the subject contained in the questionnaire, the assessment was outlined in the form of determining the gradation between disagree and strongly agree so that the rating scale was used, can be seen in Table 2. A rating scale is a data collection tool used in observation to explain, classify, assess individuals or situations. A rating scale is a data collection tool used in observation to explain, classify, assess individuals or situations, can be seen in Table 3. According to Sugiono 2010, to rank in each research variable, it can be seen from the comparison between the actual and ideal scores:

$$r_{11} = \frac{k}{(k-1)}\left[1 - \frac{\sum \sigma_b{}^2}{\sigma_1{}^2}\right]$$

$$\%\ skor\ actual = \frac{skor\ actual}{skor\ ideal} \times 100\ \%$$

Table 2. Criteria Percentage of Respondents

No	% Total score	Criteria
1	20.00% – 36.00%	Disagree
2	36.01% – 52.00%	Less Agree
3	52.01% – 68.00%	Undecided
4	68.01% – 84.00%	Agree
5	84.01% – 100%	Strongly agree

Table 3. Interpretation of Value r_s

r_s	Interpretation
0.00 – 0.199	Very low
0.20 – 0.399	Low
0.40 – 0.599	Moderate
0.60 – 0.799	Strong
0.80 – 1.00	Very Strong

Validity test is a data that can be trusted in accordance with reality. According to Sugiyono 2013, valid means that the instrument can be used to measure what should be measured. Validity showed the degree of accuracy between the data that actually occurs on the object with data collected by researchers. Test criteria if the correlation between items with a total score of more than 0.35 then the instrument is declared valid, or vice versa if the correlation between items with a total score of less than 0.35 then the instrument is declared invalid, if r count> r table with α = 0.05, the correlation coefficient was significant. Items that have a positive correlation with criteria (total score) as well as high correlations, indicate that the item has a high validity as well. Usually the minimum requirement to be considered eligible is if r = 0.35 (Sugiyono., 2009). Reliability test is used to find out whether the data collection tool shows the level of accuracy, level of accuracy, stability or consistency in expressing certain symptoms. (Sugiyono 2010). The reliability test uses the Cronbach Alpha coefficient method, which is as follows:

$$\frac{k}{(k-1)}\left[1 - \frac{\sum \sigma_b{}^2}{\sigma_1{}^2}\right]$$

Information: r_{11} = Reliabilitas Instrumen
k = Number of Questions
$\sum \sigma_b{}^2$ = Total Variance Item

The reliability test decision criteria are as follows:
If r_{11} > 0,60, If r_{11} > 0.60, then the instrument is reliable
If r_{11} < 0,60, If r11 < 0.60, then the instrument is not reliable

Spearman Rank Correlation Test

The nonparametric statistical data analysis method in this reserach Spearman Rank correlation method. According Sarwono and Suhayati, 2010, that the Spearman Rank correlation is used to determine the relationship or influence between two or more variables with an ordinal scale. Spearman's Rank formula as follows :

$$\rho = 1 - \frac{6\sum b_i^2}{n(n^2-1)}$$

Information:
ρ= *Spearman Rank Correlation Coefficient*
b_i= Variable Data Ranking
n= Total Respondents

After going through the calculation of spearman rank correlation analysis equation, then testing using defined criteria, by comparing the value of ρ is calculated by ρ table were formulated as follows:

If , ρ count ≤ 0, it's mean H_0 *accepted and* H_a *rejected*.

If, ρ couunt ≥ 0, it's mean H_0 *rejected and* H_a *accepted*.

Coefficient of Determination

The term coefficient of determination (CD) is used to assess how much influence the variable X has on Y which is the correlation coefficient which is usually expressed as a percentage%. Here is the coefficient of determination formula:

$CD = r_s^2$ x 100%

Information:

CD = Coefficient Determination

r_s = Coefficient *Rank Spearman*

The results of the calculation of the coefficient can be interpreted based on the table below to see how strong the level of relationship held between variables. To provide an impression of the correlation coefficient, the authors use guidelines that refer to Sugiyono (2010) as follows:

RESULTS AND DISCUSSION

The education level of the respondents has a relationship with the level of environmental awareness of sea turtle conservation based on bi-ecoregion is obtained from learning biology, but it can also be obtained from economic and social aspects. Environmental education is needed in the development of marine tourism. Environmental education, especially marine tourism in order to be effective, must be carried out as an integrated education system that is carried out formally and informally. The age of the respondent, the level of education of the respondent, the level of income of the respondent will affect knowledge about conservation of fisheries resources, especially marine tourism regarding sea turtle.

Characteristic Respondens

Based on the results of research in the field obtained information about the characteristics of respondents as follows*:* In Figure 1 showed respondents' visits to the sea turtle conservation area based on age as much 32% are at the age 35 - 45 years, this condition proves the level of community concern for the conservation environment is in the productive age range. Respondents' visits to the sea turtle conservation area by age is 26% were at the age of 15-25 years, this condition proves the level of concern of students and students towards the conservation environment is in the range of young people who are active in the world of education. Figure 1 showed based on the research results of respondents age 26 – 35 years old is 20 %, respondents age 46 – 55 years old is 14 % and respondents age 56- 65 years old is 8 %. Characteristic responden based on age classified as productive age and provide information regarding the attraction of turtles as endangered species encourages visitors to get new experiences, add insight and as a campaign to protect turtles.

Figure 2 showed based on the results of research in the field 36% tourism of high school education respondents and 42% tourism respondents have a junior high school education. The integrated environmental education system is one of the new breakthroughs in educating the conservation of fisheries resources, especially sea turtles.

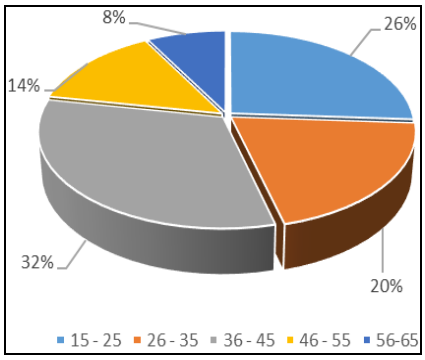

Figure 1. Characteristic responden based on age

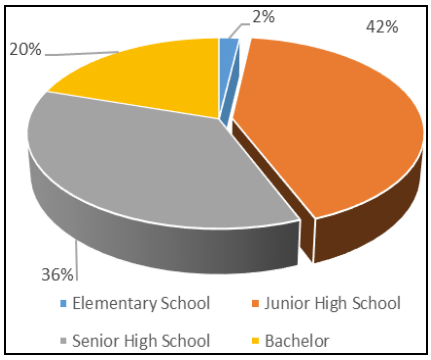

Figure 2. Characteristic responden based on education

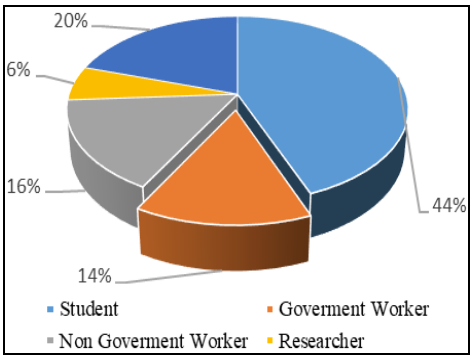

Figure 3. Characteristic responden based on occupation

In junior high school has been given the material on water conservation, air and soil and some facts about the life of plants and animals. The students are made aware of the diversity of plants and animals and its adaptation to the environment. The educational process is placed on the relationship between living things, inanimate objects and the dynamics of balance in nature, students are expected to be able to understand the need for conservation of nature as a whole and foster a sense of responsibility for the preservation of natural resources. Figure 3 showed characteristict respondent based on occupation 44 % is students, 20 % is fisherman, 16 % is non goverment worker, 14 % is goverment worker and 6 % is reserchер. Based on the background of occupation can distinguish the level of knowledge about turtle conservation in terms of biology, ecology and economic value. In Figure 4 showed conservation of fisheries resources in collaboration with marine tourism is strengthening the order of the local institutional values of the community. Fisheries resource conservation education have a better chance of success, if we are can collaborate between stakeholders. Based on the results of research in the field, sea turtle species in Indonesia. The condition of sea turtle species in Indonesia has experienced decreases in production, is green turtle (*Chelonia mydas),* olive ridley *(Lepidochelys olivacea),* loggerhead *(Caretta caretta),* hawksbill

(Eretmochelys imbricata), leatherback *(Dermochely coriacea) and* flatback *(Natator depressus).* Results from the community questionnaires also indicated that sea turtles (juveniles, sub-adults and adults) critical conditions. Exploitation of sea turtles, primarily for subsistence, is a long-standing practice by Bali, sea turtle conservation center in Bali Province can bee seen in Table 4. Sea turtles have long been a source of protein for the locals community.

Table 4. Sea Turtle Conservation Center in Bali Province
(Source: Natural Resources Conservation Center, Bali, 2020)

No	Name of Center Conservatiions	Location
1.	Turtle Conservation and Education Center	Serangan
2.	Conservation of Turtles	Serangan
3.	Saba Asri Turtle Conservation	Gianyar
4.	Sindhu Dwarawati Turtle Conservation	Sanur
5.	Yeh Gangga Turtle Conservation	Tabanan
6.	Kurma Asih Turtle Conservation	Jembrana
7.	Pemuteran Turtle Conservation	Buleleng
8.	Turtle breeding in Tegal Besar	Klungkung
9.	Bali Sea Turtle Society	Kuta
10.	Turtle breeding in Deluang Sari	Tanjung Benoa
11.	Turtle breeding in MoonCot Sari	Tanjung Benoa
12.	Turtle breeding in Bulih Bali	Tanjung Benoa
13.	Turtle Farm	Tanjung Benoa

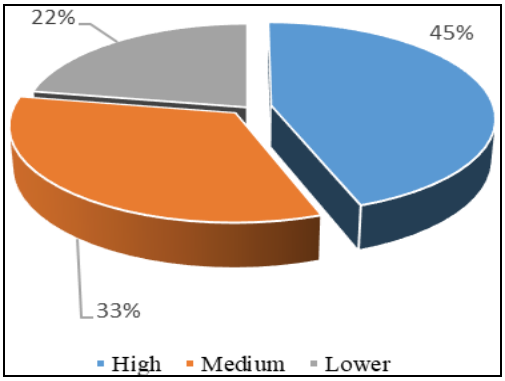

Figure 4. The level fisheries resource conservation education

Sea turtle conservation education for sustainable marine tourism based on bio-ecoregion

Bali is one of the areas that still uses sea turtles for socio-cultural and economic needs since the 1970s (Karnan, 2008; Jensen, 2009). In Bali, sea turtles are used in ceremonies as offerings to the Gods to balance evil and goodness. Before government regulations were implemented, the Balinese used turtles for consumption, souvenirs, trade, medicine and religious activities. In fact, it is known that one of the causes of the decline in the turtle population is unsustainable use, especially for consumption (Nuitja, 1992). Green turtle is one of the important and valuable offerings

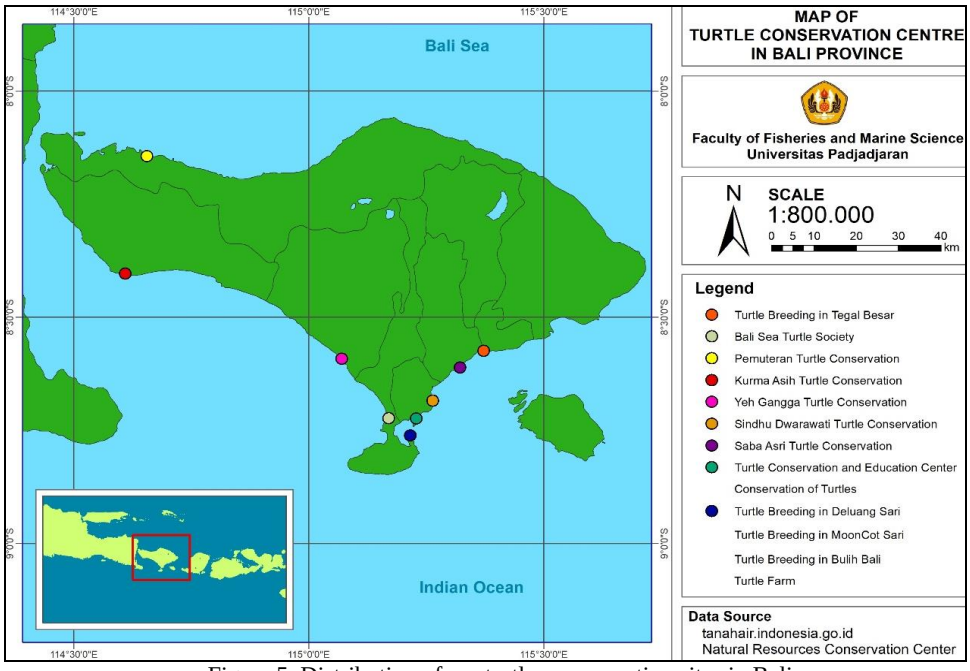

Figure 5. Distribution of sea turtles conservation sites in Bali
(Source: Natural Resources Conservation Center, Bali, 2020)

that are used in community ceremonies in Bali, including when children reach the age of 3 months, cutting teeth, marriage and cremation (Bäckström, 2004). Considering the use of sea turtles in religious ceremonies is difficult to eliminate, the use of turtles is limited by the use of qouta. After the issuance of the Decree Governor of Bali No. 243/2000, about sea turtle protection, the use of turtles for ceremonies in Bali, should be used the recommendations issued by the local government (Sudiana, 2010). Before government regulations were implemented, the Balinese used sea turtles for consumption, souvenirs, trade, medicine and religious activities. In fact, it is known that one of the causes of the decline in the turtle population is unsustainable use, especially for consumption (Nuitja, 1992). Bali has several turtle conservation sites namely: Turtle Conservation and Education Center (TCEC) in Serangan, Kurma Asih Turtle Conservation in Perancak, Deluang Sari Turtle Breeding in Tanjung Benoa, Saba Asri Turtle Conservation in Gianyar and Bali Sea Turtle Conservation in Kuta. Here is the distribution of sea turtles conservation sites in Bali, there are 13 turtle conservation locations.

Turtle Conservation and Education Center (TCEC) or turtle conservation and education center located on Serangan Island, Bali and has been opened since 2006. TCEC was built as part from a comprehensive strategy to eliminate illegal sea turtle trade on Serangan Island, Bali. The TCEC exploits the potential of education, tourism, conservation and research with a business touch to provide new opportunities for threatened sea turtles extinct on Serangan Island (Subadra, 2015).

Licensing for the use of sea turtles must use a recommendation letter made by the applicant (Indigenous Chair) containing the intended use and the amount needed, then given to the Parisada Hindu Dharma Indonesia (PHDI), then attached to the Natural Resources Conservation Center which will set a utilization quota. However, there are allegations that these recommendations were misused by traders to smuggle sea turtles to escape inspection by officers (Sudiana, 2010).

Validity and Reliability Test

Table 5. Interpretation Coefficient Rank Spearman (r_s)

No	Variabel	r_s	Category
1.	Attitude (X_1)	0.546	Moderate
2.	Awaerness (X_2)	0.752	Strong
3.	Actions (X_3)	0.569	Moderate
	Averange	0.622	Strong

This reserach used questionnaire data given to tourists by random sampling, to analyze ecoturism based coservative management scheme for sea turtle. Validity showed the degree of accuracy between the data that actually occurs on the object with data collected by researchers. The structure used for respondents assesments is variabel Attitudes (X_1) : Pre-disposition or tendency to respond positively or negatively to the activities of conderving sea turtle; Awareness (X_2) Growth and development of awareness and understanding of bio ecoregion and its problem, including human interactions effect; Action (X_3) take action and responsibility for conservation activities by integrating culture as well as social economic value decision making and does not damage the enviroment; Enviromental education conservation sea turtle (Y): A procecc of recognizing value and classifying concepts to develop the attitude needed to understand and appreciate the interrelationships between humas, culture and enviroment of bio ecoregion in conservation activities, can be seen in Table 5. Based on the research results obtained data validity test results of 0.48, which is greater than 0.35 means that the data used by interviews with respondents have a high level of validity. Reliability test is used to find out whether the data collection tool showed the level of accuracy, level of accuracy, stability or consistency when the respondent answers the questionnaire by using the Cronbach's Alpha coefficient method a value of 0.75 is greater than 0.60 which means that it is reliable. Based on research results using non-parametric statistical data and analyzed using the Spearman Rank. The results of testing the data by using the Spearman Rank statistical test to see the factors the level of community-based environmental education in coastal areas and their role in conservation sea turtle the correlation coefficient for each variable is the variable attitudes (X_1), awareness (X_2), action (X_3). Relationship of the Role of Education in Conservation of Fisheries Resources (Y).

Based on this reserach with Spearman Rank statistical test to see the factors the level of community-based environmental education in coastal areas and their role in conservation sea turtle the correlation coefficient for each variable is the variable aattitudes (X_1) 0.546 category is moderate, awareness (X_2) 0.752 category is strong, action (X_3) 0.569 category is moderate and averange value X variabel is 0.622 category is moderate to relationship of the role of education in conservation of fisheries resources (Y). The structure used for respondents assesments is variabel Attitudes (X_1): Pre-disposition or tendency to respond positively or negatively to the activities of conderving sea turtle; Awareness (X_2) growth and development of awareness and understanding of bio-ecoregion and its problem, including human interactions effect; Action (X_3) take action and responsibility for conservation activities by integrating culture as well social economic value in decision making and does not damage thr enviroment. Enviromental Education Conservation Sea turtle (Y): A procecc of recognizing value and classifying concepts to develop the attitude needed to understand and appreciate the interrelationships between humas, culture and enviroment of bio-ecoregion in conservation activities. Existing condition sea turtle conservation in Bali based on bio-ecoregion, can be seen in Table 6.

Table 6. Existing Condition Sea Turtle Conservation In Bali Based on Bio-ecoregion (Source: data collection, 2020)

No	Indicators	Category	Ranting to Scale Sea Turtle Conservation	
			Value Ranting to Scale	In Bali Province
1.	Beach monitoring	Not monitoring at all	1	x
		There is monitoring but not periodic;	2	x
		there is periodic monitoring but off site	3	x
		Periodic monitoring around the conservation center	4	√
2.	Successful hatching	None	1	x
		Exist, but the condition is broken	2	x
		Exist	3	√
3.	Enlargement Facilities	None	1	x
		Exist, but the condition is broken	2	x
		Exsits and Adequate	3	x
		Exsits and Good Facilities	4	√
4.	Hatchling release locations	Away from the center of conservation	1	x
		Radius of 50 km from the location of the conservation	2	x
		Radius of 20 km from the location of the center;	3	x
		Around the central conservation conservatory location	4	√
5.	When the hatchling is released When the hatchling is released	10-12 AM	1	x
		1-2 o'clock in the afternoon;	2	x
		3-4 in the afternoon	3	x
		5-6 in the afternoon / 5-6 in the morning	4	√
6.	Turtle enlargement	Available, for display	1	x
		There is, for display and defective conditions;	2	x
		defective conditions	3	√
		None	4	x
7.	Holding/ taking pictures with hatchlings	Available, free to hold and without observation	1	x
		There are, freely held in observation	2	√
		Only held by the manager	3	x
		May not hold	4	x
8.	Sales of souvenirs from turtles	There are hangers, jewelry, displays, preserved sea turtles	1	x
		There are preserved sea turtles, ornaments, jewelry	2	√
		There is jewelry	3	
		Nothing	4	

Conservation is one of the activities expected to prevent the extinction of sea turtle habitat, prevent the use of turtles for commercial purposes such as the sale of eggs, meat, and shells and can be a means of sharing knowledge or education to the wider community about the importance of turtle conservation in order to protect turtle habitat in Indonesia so as not to become extinct. Before conservation, sea turtles are used as ingredients raw jewelry, meat and eggs as food so in worry about will cause decline in turtle populations and leads to extinction. Besides this, the extinction of sea turtles will quickly occur if the spawning habitat is damaged and his food was exploited on a large scale and tourism development and the beach is experiencing abrasion. Sea turtle consevation becomes one choice in promoting typical and awake environment authenticity, as well as being a place vacation. Potential is there is a development concept environment based on approach, maintenance and bio ecoregion-based nature conservation. Sea turtle conservation in Bali is one of the strategies carried out comprehensively to reduce and eliminate illegal sea turtle trade. Sea turtle conservation supports the community to find alternative livelihood solutions by collaborating ecotourism through formal and non formal education education and nature tourism. Turtle conservation in Bali has several things in common, which are built with the main purpose of protection, education, tourism, eradicating the issue of illegal trade and as a livelihood of the community, both for the management of the conservation center and fishermen. Sea turtle conservation centers in Bali conduct beach monitoring, egg collection, semi-natural hatchery, hatchling rearing, and conservation education. Monitoring this beach in the form of patrols. Coastal monitoring is one of the conservation strategies that ensures turtle nests and eggs are safe from predators. If disturbance is felt, eggs are usually transferred to semi-natural hatcheries to protect against natural or human predators.

Based on the results of research on the attractiveness of sea turtles as endangered animals encourage visitors to gain new experiences, add insight and as a campaign to protect sea turtles. Based on observations, the activities carried out by visitors are almost the same, including getting education, taking pictures, releasing hatchlings. From a cultural perspective, there have been changes in the use of turtle parts, which have been offset by conservation efforts undertaken. Central and local government policies are expected to be able to regulate the use of sea turtles that are developed in the form of quotas and a system of size restrictions. Quotas will limit the number of sea turtles used in religious and cultural events in certain areas, especially in Bali. Sea turtle conservation does not only emphasize “turtle breeding” but also management of sea turtle habitat and monitoring programs for turtles in nature. Based on this research the education component in ecotourism is desirable to develop positive attitudes towards tourists towards wildlife conservation and to ensure actions that support conservation. Sea turtle ecoturism able to collaborate: nature resources based; educational; tradisional cultur and is careful of the environment and conservation oriented. Based on the results of research communities around the turtle conservation area considers tourism development as one of the benefits of conservation areas. However, according to the community, turtle tourism activities in Bali and West Java are not new activities. The difference is that tourism activities used to be done in a limited way because the purpose of the area management is harvesting sea turtle eggs, while at present the tourism activity is one of the objectives of area management so that tourism activities are prioritized, can be seen in Table 7.

The Turtle Conservation and Education Center (TCEC) was built as part of a comprehensive strategy to reduce and eliminate illegal sea turtle trade in Indonesia, particularly on the islands of Bali. The TCEC also supports the community to find alternative livelihood solutions outside the sea turtle trade. The TCEC utilizes the potential of education, tourism, conservation and research with a business touch to provide new opportunities for threatened sea turtles extinct in Bali.This educational function aims to provide information to tourists who come about the importance of maintaining the survival of sea turtles and how to maintain and conserve the sea turtle's living habitat.

Table 7. Marine Tourism Sea Turtle Conservations Based on Bio-ecoregion

No	Location	Venue	Description
1.	Bali	Turtle nesting beaches, hatcheries and tourist turtle attractions	1. Turtle Conservation and Education Center in Serangan 2. Turtle Conservation in Gianyar 3. Turtle Conservation Saba Asri in Sanur 4. Turtle Conservation Yeh Gangga in Tabanan 5. Turtle Conservation Kurma Asih in Jembaran 6. Turtle Conservation Pemuteran in Buleleng 7. Turtle Conservation Tegal Besar in Klungkung 8. Bali Sea Turtle Society in Kuta 9. Turtle Conservation Penyu Delung Sari in Tanjung Benoa 10. Turtle Conservation Penyu MoonCot Sari in Tanjung Benoa 11. Turtle Conservation Bulih Bali in Tanjung Benoa 12. Turtle Farm in Tanjung Benoa
2.	Bali	Souvenir shops	1. Bali Sea Turtle Society in Kuta 2. Turtle Conservation Saba Asri in Sanur

In addition, the education function also functions to facilitate research activities related to sea turtles. Activities undertaken in the education function are research on the type and classification of sea turtles; research on the types and causes of sea turtle diseases. monitoring sea turtle nesting activities; releasing hatchlings into the sea, and observing sea turtles. The role of education in sea turtle conservation is to learn about the importance of sea turtles for the environment, culture, heritage, and economy of the people in sea turtle conservation areas. Conservation function is a function in which there are activities that can maintain the survival and breeding of sea turtles in order to increase the number of turtle populations. Activities undertaken in the conservation function are to see, touch and feed the turtle; releasing hatchlings into the sea; monitoring turtle nesting activities; and move turtle eggs to safe areas.

CONCLUSION

Based on the results of the reserach can be concluded as follows:

1. Marine tourism based on bio-ecoregion for sea turtle conservation determined by the suitability of the beach location. The socio-cultural aspect in Bali, sea turtles are used in religious ceremonies (Panca Bali Krama, *etc*.), which have experienced a shift towards conservation of responsible management of sea turtles.

2. The level of community-based environmental education in coastal areas and their role conservation sea turtle, the correlation coefficient for each variable is the variable attitudes (X_1) 0.546 category is moderate, awareness (X_2) 0.752

category is strong, action (X_3) 0.569 category is moderate and averange value X variabel is 0.622 category is moderate to relationship of the role of education in conservation of fisheries resources (Y).

3. Eco-tourism based conservative management scheme for sea turtle, lessons learned the economic aspect in Bali have been economic value, sea turtle eggs and meat can be consumed by humans, but now it has experienced a shift towards protecting sea turtle habitats that are protected and banned for consumption. The economic value obtained from sea turtles is the education of sea turtle tourism.

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