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Research Article

Preliminary Survey on Clam Based Tourism and Conservation in Sabah

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ABSTRACT

One nature-based attraction for nature lovers and ecotourists in Sabah is the variety of clam resources where exotic species such as Giant clam are protected under CITES and the Sabah Department of Fisheries. Clams are highly distributed in Sabah, attracting tourists and providing food sources for local people. Despite the popularity of clams, the relationship between clam consumption by the local community and tourists are least documented and studied in Sabah, implicating the management and conservation of clam resources through the perspective of local people and tourists. This research is significant in improving policies and decision-making for the long-term ecological and socio-economic sustainability of clam-based tourism and conservation in Sabah. Online surveys and in-person interviews on local people and tourists were conducted in Sandakan, Kota Kinabalu, Tawau and Kudat. Descriptive statistical methods, Chi-squared analysis, and factor analysis were used for analysing data. Findings suggest a relationship between clam consumption by the respondents with clam as traditional food of the respondents and the popularity of clam in the visited area. Factor analysis yielded two factors on the involvement of the local community in clam conservation and utilization in the visited area, and another two factors on the respondent's expectation based on their trip experiences in Sabah. The results also suggest that tourists commonly viewed the involvement of the local community in their visited area as more traditional-like. These views contradict clam conservation efforts in Sabah that adopt modern approaches while excluding the role of local people. This information is crucial in understanding the consumption of clam resources in Sabah's tourism industry, integrating with local cultures and adding value to calm conservation in Sabah.

Keywords: Consumption, managements, conservation, nature-based tourism, clam resources

Introduction

Clam populations are subject to natural demographic fluctuation. Still, the benefit of clam resources to the local community may alter their population dynamic because it is the source of food that benefits local communities.

However, reviving the clam population is not feasible due to miscommunication, conflict between enforcers and local people, and rapid development for tourism activities, especially in coastal areas. The current fields, consumption in economic views and conservation of resources, would present difficulties to understand more precisely the relationship between human consumption and conservation of clams (Anderson, Pearsall, Hunn, 2011). These difficulties seem to be limitations of both fields: while conservation focuses more on the current modern efforts to conserve and increase the population of clam resources and exclusively ignore the rights of the local community or indigenous people in utilizing resources, consumption in economic views focus on the method to consume and generate financial benefits from clam resources (Anderson, Pearsall, Hunn, 2011).

The recurrent contact with local communities, or even tourists and researchers can cause disturbance to the population and abundance, especially in threatened and protected clams, such as giant clams (Copland & Lucas, 1988). Specifically related to tourism, this practice can benefit from the presence of clams, like in several countries such as Fiji, the Philippines and Southeast Asia, which promote clam consumption as traditional cuisines to attract tourists (Copland & Lucas, 1988). Practices like these can help people better understand clams and add value to their conservation through consumption and utilization. Despite the popularity of clams as seafood products among international and local tourists (Copland & Lucas, 1988; Fredericks, 2018), clam consumption by the local community and tourists is least documented and studied in Sabah. Therefore, it is hard to perceive the importance of clams through the perspective of local people and tourists for management and conservation efforts. The food systems of local people offer essential information in understanding the functional aspects of the culture, environment, and health of the people consuming the resources (Albuquerque & Alves, 2016). Data on this research could be an essential tool to understand the knowledge and conceptualization of tourists, researchers, and local communities regarding clams (Ladio & Molares, 2014). Therefore, this research is crucial in determining the level of clam resources that could be harvested and consumed in Sabah's tourism industry, infused under the culture of locals to understand better and add value to their conservation in Sabah.

Methods

Study Site

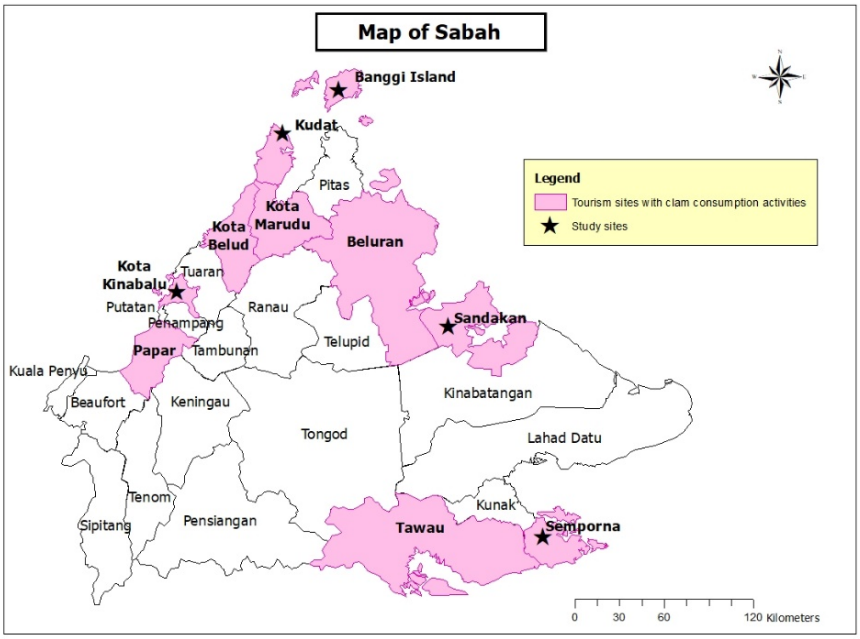

Figure 1. Map shows the location of data sampling.

Semi-structured interviews and open-ended questionnaires (Teh & Sumaila, 2007) were conducted in four main sites involved in giant clam conservation and clams trading. Giant clam conservation at the Marine Ecology Research Centre (MERC) in Malohom Bay of Gaya Island, Banggi Island of Tun Mustapha Park (TMP), Sandakan wet market and Fisheries Department of Kota Kinabalu. These sites were chosen because the conservation area emphasized the giant clam propagation programme and coral reef restoration. Activities such as nursery and re-stocking giant clams are currently active in these areas; individuals involved directly in the effort of giant clam conservation were interviewed (Ladio & Molares, 2014). Field interviews targeted local communities (Teh et al., 2005; Teh & Sumaila, 2007), tourists and individuals involved in giant clam professions, as these were the three stakeholder groups with the highest potential for interaction with giant clams. Government officers were interviewed to gain their perspective on their professions in managing marine resources. Giant clams also are food resources for local people (Teh & Sumaila, 2007), such as the Bajau people (Stacey et al., 2018).

Sampling Method

The survey instrument was self-developed, and pilot tested among randomly selected participants (Creswell, 2014). The core survey items formed 5-point Likert-type scales related to the importance of clam consumption and conservation to the tourism industry in Sabah. Based on the pilot testing, some survey items were revised slightly. The survey was administered face-to-face with the respondents (Creswell, 2014), distributed manually to the department, and lastly, administered online due to pandemic outbreaks. The data collection took place from September to November of 2019 because the location was distributed far from each other and aimed to be sufficient with online surveys. The procedure was complicated by having a small sample due to lack of tourists, thus, changed to local tourists, represented by the local community and only some international tourists. Therefore, the data was administered online as a method to collect a larger sample. Respondents were recruited from Sandakan, Kota Kinabalu, Papar, Penampang, Semporna and Tuaran for the two months operation. The survey assessed the perspectives of local people and tourists on clam conservation and consumption through their experiences (Albuquerque & Alves, 2016). The outcome measures were: (1) Demographic background (Creswell, 2014), (2) Ordinal form of questions on the importance of clam consumption and conservation and clam consumption in the visited area; (3) Subjective form of questions for clam consumption; 4-point Likert scale on the trip experiences based on the respondent expectations (Creswell, 2014) and another 6-point Likert scale of the respondent perspectives on clam consumption and conservation in Sabah (Creswell, 2014).

Data Analysis

This research applies descriptive and inferential analysis with Statistical Packages for Social Sciences version 27 (SPSS 27) (Field, 2009). The descriptive findings help explain the survey results and provide insights into the results (Fetterman, 2010). This research would use descriptive statistics to present the demographic background of the respondents, respondent experiences on clam consumption, and conservation and expectation of the respondents based on their trip experiences through frequency and percentages to describe and display the results.

The main reason that Chi-square tests were selected to analyze data in this research was to test hypotheses on nominal types of data (Field, 2009; Mchugh, 2013). This test is suitable for studying the situation of clam consumption and conservation and stipulating the extent of the relationship between each variable, reflecting the magnitude. This research also applied factor analysis to

reduce measurable and observable variables with similar variance by reducing the dimensionality (Yong and Pearce, 2013). Thus, 5-point Likert scale questions and 4-point Likert scale were analyzed using factor analysis and reduced into comprises factors (Yong and Pearce, 2013). Factor analysis helps reduce the questionnaires to a smaller set and acquire an underlying concept to facilitate the interpretation of the survey (Yong and Pearce, 2013). Therefore, descriptive analysis on respondents' expectations matches their trip experiences and local community involvement in clam conservation, and utilization in the visited area applied factor analysis to reduce the data into several categories.

Results

Demographic of the Respondent Background

As shown in the table below, this study yielded 48 % male and 52 % female respondents. Most of the respondents were dominated by local tourists (86%) and the remaining 14 % were international tourists at the study sites. In terms of age composition, most of the respondents were more than 40 years old (37%), followed by 25 % of respondents aged 31 to 35 years old. Another 22 % were 26 to 30 years old, which is less than 10 % of 25 years old and 7 % of 36 to 40 years old. In terms of occupation, three sectors were highlighted: 44 % government officers, 28 % tourists, and 13 % traders. The response rate from Kota Kinabalu was 62 % and Sandakan (27 %), with locals making up the majority of respondents because most of the study sites lacked tourists. This uneven distribution was due to a lack of tourists during the school season and a dry period with lack of clam supplies from fishermen.

Table 1. Demographic variable of the respondents.

Item	Frequency (%)
Gender	
Male	48
Female	52
Age	
<25 years old	10
26-30 years old	22
31-35 years old	25
36-40 years old	7
>40 years old	37
Type of Tourists	
Local Tourist	86

Value	Frequency (%)
Occupation	
Administrator	3
Blogger	3
Chef	0
Government Officer	44
Restaurant Manager	1
Security	0
Traders	13
Teacher	0
Tourist	28
Waitress	0

International Tourist	14
Web Developer	1
No Answer	6
Location	
Sandakan	27
Kota Kinabalu	62
Papar	1
Penampang	1
Semporna	5
Tuaran	4

Respondent Experiences on Clam Consumption in the Visited Site

Based on **Table 2** below, most respondents consumed clam meat with a response rate of 87 %, while a minority did not consume the meat mainly due to lack of preferences and allergic reasons. In terms of clam products in the visited area, the table lists eight types of clam products comprising 10 % canned food, 1 % of clam collection, 41 % of clam cuisine, 4 % of dried clams, 4 % of exotic pet, another 34 % of clam handicraft, 2 % of skincare cosmetic, and 1 % of snacks from clam—only 3 % of the respondents did not provide answers. The respondents also highlighted several locations that commercialized clam products. 11 % of the respondents listed beaches due to abundance and easy access to calm supplies by traders. As shown in the table below, local consumers and tourists listed fresh clam supplies for cooking and cuisine methods often found in fish, local and wet markets. Readily cooked clam cuisines for consumption are often found in restaurants, local stalls and night markets that are concentrated with local and international tourists.

Table 2. Information on clam products and consumption location.

Information	%	Information	%
Consume Clam		**Consumption Location**	
Yes	87%	Beaches	11%
No	13%	Coral Reef Area	0%
Total	100%	Fish Market	8%
Products from clam		Houses	2%
		Local Market	12%
Canned Food	10%	Night Market	3%
Collection	1%	Restaurant	23%
Cuisine	41%	Sea	1%
Dried	4%	Seaside	1%
Exotic Pet	4%	Souvenir store	5%
Handicraft	34%	Stall	16%
Skincare Cosmetic	2%	Supermarket	4%

Snacks	1%	Local Supplier	1%
No Answer	3%	Wet Market	10%
Total	100%	Not Sure	1%
		No Answer	1%
		Total	100%

Table 3. Relationship between clam consumption by the respondents and clam conservation in the visited area

a. Relationship between clam consumption and awareness of clam conservation in the tourism area

		Awareness of clam conservation				
		Are you aware of clam conservation in the tourism site?				
Clam Consumption		Yes	No	X^2	df	P
Do you consume clam meats?						
	Yes	107	130	0.006	1	0.937
	No	16	20			

The relationship between clam consumption among respondents and awareness of clam conservation in the tourism area had a p-value greater than the chosen significance level of a=0.05 ($X2(2)$> = .006, p = 0.937). The null hypothesis is not rejected because there is not enough evidence to suggest an association between clam consumption and awareness of clam conservation in the visited area.

b. Relationship between clam consumption and clam as traditional food for the respondent.

		Clams as traditional food for respondents				
		Is clam part of your traditional food?				
Clam Consumption		Yes	No	X^2	Df	P
Do you consume clam meats?						
	Yes	138	99	16.285	1	0.000
	No	8	28			

The relationship between clam consumption and clam as traditional food of the respondent in the tourism area had a p-value less than the chosen significant level of a=0.05 ($X2(2)$> = 16.285, p = 0.00). Thus, the null hypothesis is rejected

and concluded that there is an association between clam consumption and clam as traditional food of the respondents.

c. Relationship between clam consumption and increased trend of clam consumption at the respondent and visited area.

		Trends of clam consumption				
		Has clam consumption or utilization increased in your community or visited area?				
Clam Consumption		Yes	No	X^2	df	P
Do you consume clam meats?						
	Yes	136	102	2.120	1	0.145
	No	16	20			

The relationship between clam consumption of the respondent and the increase of clam consumption in the visited area had a p-value greater than the chosen significance level of a=0.05 (X2(2)> = 2.120, p = 0.145). The null hypothesis is not rejected because there is not enough evidence to suggest an association between clam consumption and increased clam consumption in the visited area. (The increase of clam consumption could not be investigated due to seasonal factors limiting clam resources in the studied area, limited time, Covid 19 pandemic related restrictions, and lack of documentation; therefore, it is based on respondent experiences only).

Table 4. Expectation of the Respondents on their Trip Experiences

Factor analysis on expectation of the respondent on their trip experiences

Items	Factor Loading	Mean [a]	Eigen-Value	Total Rotated SS [b]	Variance Explained (%)	Cronbach's Alpha
Factor 1: Tourism activities in the visited area			**3.303**	**2.718**	**55.048**	**0.850**
How the area (visited area) looked	0.830	2.58				
How are the people	0.701	2.88				
Authenticity of arts and crafts	0.858	3.09				
Tradition and cultural of local people	0.834	2.96				

Factor 2: Conservation activities in the visited area			**1.059**	**1.644**	**17.643**	**0.689**
Development of technology	0.801	2.90				
Conservation activities in the area	0.893	1.96				
Overall Scale					**72.691**	**0.830**

Varimax rotation was used; Kaiser-Meyer-Olkin = 0.623; Barlett's test of sphericity-significance = 0.000. Factor loading smaller than 0.3 are not included. [a]Items measured in a 4-point scale (1, Not at all as anticipated;4, More traditional than anticipated). [b]Sum of squares.

The table above contains an analysis on expectations of respondents based on their trip experiences via exploratory factor analyses. The suitability of the items and the strength of the inter-correlations were checked based on statistic indicators. Barlett's test sphericity results show that the analyses were highly significant ($p < 0.001$). The Kaiser-Meyer-Olkin measure of sampling adequacy was above 0.623, exceeding the recommended value of 0.5. Varimax rotation produces factor structure and meaningful interpretation by maximizing the variances of loadings factors. As shown in the table above, the exploratory factor analysis identified two factors with eigenvalues greater than one: tourism activities in the visited area and clam conservation activities in the visited area. These factors explained over 72.30% of the variation. Factor 1 on tourism activities in the visited area yielded 4-factors, which is how the visited area looked like or the infrastructure in the visited area, what the local people are like or attitudes of local people towards tourists, authenticity of arts and crafts, including tradition and culture of local people in the visited area. These factors had variance explained over 55.048 % with eigenvalues greater than one. Factor 2 on clam conservation activities in the visited area yielded 2-factors, which is the development of technology and conservation activities in the conservation area with variance explained 17.643 %. All of these factors have eigenvalues more significant than one and explained over 68.69 % of the variation.

Correlation between respondents' expectation on willingness to return to Sabah to experience clam consumption

Chi-squared analyses were applied to test the influence on the willingness to return to Sabah to experience clam consumption and the respondent expectation. The analysis of the relationship between the two variables do not show enough evidence to suggest an association between respondent expectation and their willingness to return and consume clam ($p = .008$). On the other hand, descriptive analysis shows that 65 % of the respondents positively

agree on the willingness to return to Sabah to experience clam consumption. The promotion of Sabah as a 'seafood paradise' mainly influenced these results in several tourism sites due to concentrated seafood restaurants in areas such as Kota Kinabalu, Sandakan and Semporna. A small percentage of respondents disagree on the willingness to return to Sabah to experience clam consumption mainly due to lack of seasonal seafood supplies, or lack of preferences or allergic and health issues concerning clam consumption. Issues on the price or cost for clam consumption may not be the main issues due to low prices in competing with other traders. Some of the respondents explained this during face-to-face surveys and interviews. However, this study does not include the situation post-Covid 19 restrictions, where the prices may change and affect the overall results.

Table 5. Involvement of local community into clam conservation and utilization in the visited area

Exploratory factor Analysis: Involvement of local community into clam conservation and utilization in visited area

Items	Factor Loading	Mean [a]	Eigen-Value	Total Rotated SS [b]	Variance Explained (%)	Cronbach's Alpha
Factor 1: Involvement of local community			**3.192**	**2.097**	**53.192**	**0.747**
Do you agree that it is important for the community to be involved in clam conservation based on nature tourism?	0.842	4.30				
Do you agree that utilization of clams in tourism can help the community?	0.829	4.22				
Do you agree that the opportunities in training local people for tourism is important to the clam conservation and community?	0.557	4.36				
			0.946	**2.041**	**15.767**	**0.731**

Factor 2: Clam conservation in tourism area				
Do you agree that clam conservation should be stricter?	0.849	4.00		
How important do you think it is that tourism in this area promote your involvement in conservation practices?	0.749	4.24		
How important do you think it is that tourism provide educational material on the conservation of clam in tourism site?	0.641	4.18		
Overall Scale			**68.959**	**0.815**

Varimax rotation was used; Kaiser-Meyer-Olkin = 0.820; Barlett's test of sphericity-significance = 0.000. Factor loading smaller than 0.3 are not included. [a]Items measured in a 5-point scale (1, Strongly disagree;5, Strongly agree). [b]Sum of squares.

Involvement of the community and clam conservation in tourism efforts were examined via exploratory factor analyses to describe and understand the relationships. Barlett's test sphericity shows that the analyses were highly significant ($p < 0.001$). The Kaiser-Meyer-Olkin measure of sampling adequacy was above 0.820, exceeding the recommended value of 0.5. Varimax rotation produced a simple factor structure and interpretation by maximizing the variances of loadings factors. The exploratory factor analysis in the table identified two factors with eigenvalues greater than one, which is Factor 1 on local community involvement in clam conservation and utilization in the visited area, and Factor 2 on clam conservation for tourism in the visited area. These factors all had eigenvalues more significant than one and explained over 68.69% of the variation. Factor 1 yielded 3-subfactors with over 53.192 % of variance explained whether respondents agree with the involvement of the community in clam conservation based on nature tourism, benefits of utilization of clams to the community in tourism activities, and the importance of the opportunities in training local people or communities for clam conservation in the visited area. Factor 2 yielded 3-subfactors with variance explained of 15.767 % on whether the respondents agree about strict conservation, promoting the involvement of

tourists and local people in conservation activities, and the importance of educational material on clam conservation in tourism activities of the visited area. This information is crucial in understanding the involvement of local people or communities in clam conservation and utilization in tourism activities of the visited area, which is based on respondent experiences.

Discussion

Sabah has unique natural attractions, such as tropical marine environment habituated by clam species varieties. The enormous diversity of coastal marine habitats, ranging from deep fjords to atolls and coastal shelves to immense lagoon systems, contributes to a greater diversity of clams (Copland and Lucas, 1988). In the same context, environmental factors in these habitats provide optimum requirements needed by the population for growth and distribution around the coastal area of Sabah. Therefore, an increase in population and distribution provides food supplies for the local communities and is exploited for monetary benefits through seafood consumption, Tisdell (1990) stated. This led to concentrated seafood consumption around city and coastal areas such as the Kota Kinabalu waterfront and Sandakan's Sim-Sim restaurants (The Star, 2018). Meanwhile, seascapes and landscapes, including cultural and traditional richness, attract local and international tourists.

Consumption and utilizing clam products by visitors as tourism products in Sabah's tourism

A B

Figure A and **B** shows clam cuisines as clam products in the visited area (Study Site)

Clam products such as handicrafts and cuisines in Sabah are likely influenced and affected by local cultures in the visited area as tourism products. Copland and Lucas (1988) highlight the fusion of local tradition and cultures into the

production of clam products such as handicrafts and cuisines in tourism sites such as Fiji, the Philippines, and Palau, to attract tourists. This explains the influence of local tradition on clam products in Sabah, which is shown in the figure above and below. Such approaches have caused seafood cuisines in Sabah to be promoted massively as tourist attractions at coastal areas such as Sandakan, Kota Kinabalu and Semporna. However, this research's distribution of tourist data shows uneven distribution because of lack of interest in clam consumption and transportation factors, and current supplies from local fishers. The fusion of cultures into the production of clam products helps people better understand and add value to their conservation through consumption and utilization of the clam resources. Clam consumption of local people within coastal areas can provide significant economic benefits and social function, even in protected or conserved areas.

A B

Figure A and **B** above shows the clam handicraft product that are sold in the local handicraft shop on the visited area (study site)

Promotion of seafood industry in Sabah through media such as travel advisories, magazines, blogs and by recommendation from tourists, and websites such as Portview, Ocean, Welcome, Sri Mutiara, Gayang, Salut, Windbell, and Kampung Nelayan often point at Sabah's seafood restaurant as an exclusive destination for potential tourists (New Straits Times, 2014). The news often reported that the traders provide two choices in selling fresh seafood: either selling fresh supplies to be cooked by customers, or served at the restaurants. This was concurrent with the finding in this study on types of clam products provided by traders in the result section. New Straits Times (2014) reports that seafood consumption in Sabah is affordable and reasonable, and fresh supplies consistently attract tourists and consumers for seafood consumption. Prices of seafood consumption generally ranged between RM30 to RM200, depending on the order (New Straits Times, 2014). Where mollusks are known as exotic

seafood in the seafood market, it is revealed that the bigger branches of restaurants profited approximately RM50,000 per day and even more on exceptional days (New Straits Times, 2014). Local and foreign tourists highly anticipate seafood products with lower prices. This generates income for fishermen, seafood farm owners, boatmen, suppliers, transporters and retailers. Previous research proved that understanding the expectations and experiences of visitors helps in planning, marketing and promoting Sabah's tourism industry. Moreover, the perspectives of visitors and tourists provide opportunities to improve and enhance tourism sites while preserving biodiversity. Improved tourism areas help create experiences that match the tourist's expectation, thus influencing their decision to return and recommend the tourism area. Expectations of tourists are crucial for efficient marketing destination based on tourist's destination selections, consuming goods and services, and deciding to revisit the tourism areas (Aksu, 2010). Following the respondents' expectation, it is likely that they expected the visited area to be traditional and infused with cultural aspects as promoted in many tourism magazines and sites. These expectations were met in several sites that prioritize local cultures, such as Semporna. However, clam conservation activities in the visited area are not likely to be expected by the local tourists due to low promotion of environmental awareness. The respondent responses that conservation activities in the visited site are more likely to be a modern approach in the development of technology and conservation activities. Such approaches may be necessary to utilize developed technology to conserve the clam population, such as advanced aquaculture or mariculture techniques. Modern and recent approaches to conservation activities mainly promote awareness and environmental education to the younger generation, local people and tourists.

This study also assessed the condition of the visited area determined by tourist expectations and willingness to visit Sabah for clam consumption purposes and whether it was a more traditional or modern approach (Nkwanyana & Bekebu, 2018). In other words, tourist satisfaction was directly influenced by perceived, experienced value, either modern or traditional (Nkwanyana & Bekebu, 2018). It is questioned in this research whether modern or traditional approaches in the tourism site affects the willingness of visitors to return and recommend clam consumption in the visited area. As discussed above, the majority of visitors expected the visited area to encompass natural attractions with traditional and cultural approaches. Artistic approaches are also included in producing tourism products such as clam cuisines and handicraft products seen as rare and different from other locations or tourism locations. However, they also expected modern approaches to ease their visitation through developed facilities, transportation and land connection. This information helps create

supporting images on clam conservation and products in the tourism industry by promoting plans and triggering expectations of tourists. Thus, the most crucial factors are comparing tourism image with the experience during visits, which eventually influences the satisfaction for willingness to return (Pinto and Guerreiro, 2010).

The importance of clam consumption and utilization in the clam management and conservation activities in Sabah

Tourism promotion has increased tourist arrival beyond the carrying capacities of the environment, eventually leading to degradation of the environment and exhausting clam supplies for consumption activities. Therefore, to minimize the effect and pressure of mass tourism, nature-based tourism is seen as an alternative (TTR, 2020) to promote natural attractions (Chok Sim Yee, 2018), awareness (Daily Express, 2019), and conservation (Daily Express, 2014) effort in the tourism industry. It helps highlight and prioritize natural attractions and culture in Sabah (Chok Sim Yee, 2018). Concurrent with the results in this research, the respondents emphasized the community's involvement in clam conservation on nature tourism in the visited area. Mereniuc (2015) described nature-based tourism generates economic advantages through financial benefits and employment opportunities to the local community. It provides additional jobs, ranging from low-wage entry-level to high-paying professional positions in management and technical fields, generating income and raising living standards for the local people (Mereniuc, 2015). Professional positions and skills in managing and planning, including decision-making in both clam conservation and tourism industry, help train the community, especially in managing clam resources and in increasing environment consciousness among locals. As tourism is developed and promoted, additional opportunities are created for investment, development and to alleviate poverty in the rural community (Mereniuc, 2015) while increasing environmental awareness (Chheang, 2013); environmental preservation; employment and educational opportunities for local communities; empowerment of the communities; economic development as a result of tourist expenditures (SAN Parks Management, 2012), tax revenues (Vianna et al., 2018) and governmental investments; cultural viability and heritage maintenance, which could only be maintained along with efficient management and monitoring plans. Therefore, this research is crucial in determining the importance of consumption and utilization of clam resources in Sabah's tourism industry, under the cultures of locals to better understand clams and add value to their conservation in Sabah.

Conclusion

This research is crucial in determining the level of clam resources that could be harvested and consumed in Sabah's tourism industry, infused under the cultures of locals to understand clams better and add value to their conservation in Sabah. Data on this research could be an essential tool to understand the knowledge and conceptualization of tourists, researchers and local communities regarding clams (Ladio & Molares, 2014). However, reviving the clam population is not feasible due to miscommunication, conflicts between enforcers and local people, and rapid development for tourism activities, especially in the coastal area. In conclusion, this study suggests that local cultures influence clam products such as handicrafts and cuisines in Sabah in the visited area. This fusion of cultures into the production of clam products helps understand and add value to their conservation activities through consumption and utilization of clam resources. Following the respondents' expectations, the visited area was expected to be infused with traditional and cultural aspects promoted in tourism magazines and websites. However, clam conservation activities in the visited area are more likely to be a modern approach in developing technology and conservation activities due to necessities in utilizing developed technology to conserve the clam population. This also includes modern approaches to conservation activities to promote awareness and environmental education to the visitors. This study also questioned whether these tourism site approaches affect the visitors' willingness to return and recommend clam consumption in the visited area. Concurrent with the results, the respondents emphasized that the community's involvement in clam conservation for tourism is mainly because of advantages through financial benefits and employment opportunities to the local community. On the other hand, they cultivated professional skills in managing and planning in clam conservation and tourism industry to help the community, including increasing environmental consciousness, environmental awareness and preservation for local communities.

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