

Tourism Impacts at the Grotto

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## Abstract

A research report has been conducted over the course of an original six-month study designed to analyze tourism impacts at the Grotto. Tourism is Saipan's primary source of income, the CNMI is the third fast growing tourism destination according to United Nations World Tourism Barometer's August 2017 report. Tourist attractions such as the Grotto or import for our economy but as a natural resource as well. By identify changes within recent years due to tourism activity, the research plans to educate the public on the severity and importance of these changes. A survey distributed to 23 Northern Marianas College students, indicates the majority of the public are aware of negative impacts cause by the tourism population, but the extent of their knowledge depends on how frequently they visit the Grotto. Observations were made at the Grotto through the months of October and November, five visits total. The student researcher tallied up the number of tourist visitors at the Grotto for a two-hour period. The highest number recorded was 434 within a two-hour time frame. At this rate the number of tourists entering and exiting the Grotto on a daily basis would seem to surpass the carrying capacity of the area. Resulting in an unsustainable practice, harming the environment and economy that the Grotto provides and sustains.

## Introduction

The Grotto is a popular swimming area for locals and tourists alike. Though in recent years it has been noticed that the numbers of tourist visitors are continuously growing. Northern Marianas College students have reported that safety, harm to our natural resources and “overcrowding” have been apparent issues. Unsustainable numbers have been observed at the Grotto, around 300 visitors on average in only two hours. The student researcher has formulated a research project to assess “Tourism Impacts at the Grotto”. A variety of literature sources on analyzing Tourism Impacts at the Grotto have been gathered to answer the said research topic. Surveys were distributed to Northern Marianas College students, letters with attached questionnaire were sent to “experts on the topic” and similar case studies were located by Tenorio. With these different literature sources Tenorio has accessed different perspectives to answer the research topic. Original data on the topic as well as professionals’ insights will be evaluated to identify changes in the popular tourist and local destination.

## Literature Review

The surveys distributed to college students received interesting data. 23 responses have been recorded thus far, most responses came from females about 73.9% percent. Most responses did indicate that there were issues with crowdedness at the Grotto, though the rate at which they visit the Grotto was less than what was initially anticipated. Participants also stated that safety was also a factor with excessive tourist numbers. 18 to 25 year olds seem to be the bulk of

participants of the survey, providing insight for the researcher on how the younger generation views tourism impacts at the Grotto. More surveyors will be recruited to part take in the survey, perhaps the male population may have a different view on the topic since Grotto is a hot spot for teenage boys and young men.

Tenorio had drafted letters to experts and has gone through a revision process with the instructor of the course. These letters to experts contain a brief questionnaire to get an understanding on how professionals on the research topic view the status of Grotto. Unfortunately, Tenorio is yet to hear recorded email responses, but the researcher has gone through and begun gather information through unofficial interviews or conversation if you will. Experts such as Marine Biologist and CRM personnel have agreed that the Grotto is facing excessive amounts of tourists, and that it needs to be addressed. In fact, a User Capacity Case Study is currently being conducted by an employee contracted under a Fellowship Program.

The case study that was conducted in Palau was aim at creating a sustainable action plan between maintaining tourism industry income and Palau natural resources as well as wildlife ecosystems. The study indicated that a sufficient amount of facilities such as restrooms and shower areas were crucial for preventing tourist defecation and urination at the sites. Litter control and stricter regulation of tourist companies were implemented as well to reduce unsustainable consumption and pollution. Water quality is a known issue at the Grotto due to urination and fecal matter, Tenorio believe that even if more facilities were constructed Red Flags will still be an issue due to the lack of wiliness to walk back up the flight of stairs to use the restroom.

A sufficient amount of literature sources is present according to Tenorio. Different perspective and approaches have been taken into consideration throughout the duration of this project. Though the literature sources stated provide enough insight to the topic, the student researcher has gathered more information from different student surveyors, more experts in the topics and a case study conducted off island. The most valuable information at the disposal of the student researcher is the case study being conducted by a fellowship contract worker on the User Capacity at the Grotto. This study dives into the same aspects that Tenorio has analyzed, with that being said Tenorio has received advice and guidance on how to conduct to study effectively and efficiently.

### Research Questions Primary/Secondary

- 1) Primary Research Question: How much of an impact does tourism impose on Grotto.

The answer for this is extremely hard to calculate, the process would take months of data to show sufficient trends that can be analyzed effectively.

- 2) Secondary Research Question: How many tourists visit Grotto on popular days? (Friday and Saturday)

Based on the observation commitment that the students research had tasked their self with the Grotto has two durations throughout the day where it become a “hotspot”. The two times are from 10am-12pm and 2pm-4pm. The highest number recorded was 432

within the months of October to November, this number was recorded on a Saturday on in the afternoon (2pm-4pm) “hotspot” time. 5 observations were conducted with the average number being 350 visitors (tourist only) total within a two-hour time frame (morning or afternoon).

### Methodology “Process”

The student researcher has created a 10 question survey on Google Forms. The survey was distributed to English Composition II classes. The purpose of the survey was to gauge college students understanding of tourism impacts at Grotto. The survey is designed to extract information using open ended questions, multiple choice and ratings questions. This information is useful to the research topic, its used to open the eyes of the general public.

The second perspective the researcher has conducted letters to experts. In class students were tasked with locating letters to experts in order to give professional insight on research topics. Tenorio located experts in local environmental agencies such as the Division of Fish & Wildlife, Division of Coastal Resource Quality and Division of Environmental Quality. Within each of these division Tenorio has located an expert in each division that will provide information for different aspects of the study. Government employees such as marine biologist

and Water Quality personnel will provide their views on the topic and answer given questions from the student researcher.

The final perspective that the researcher has chosen are observations. For the month of October every Saturday the student researcher has dedicated four hour for observations. Since the student researcher is working in an environmental agency, there is a study currently being conducted on this topic. Every other Tuesday and Thursday was spent collecting data on the same aspects of Grotto. This study observes visitors at the Grotto and what activity they are partaking in, be it site seeing, snorkeling and SCUBA diving.

In conclusion with the said research methods and perspectives that the researcher has formulated, Tenorio will be able to take different insights and knowledge and combine it to answer the given research topic. With student surveys, experts in the topics and self conducted observation done at the researcher site, sufficient sources of knowledge should accurately answer questions on Tourism Impacts at Grotto. This research study was possible within the time frame given.

## Analysis/ Findings

### Letters to Experts

Letters to experts were distributed to various experts within the environmental field, within the letter a 4-questioned questionnaire had been attached. Some professionals that letters had been sent to include marine biologists, outreach coordinators, dive safety officers and Water Quality employees. With the letters sent, unfortunately two experts were able to provide insight



and voice knowledge in the topic regarding the Grotto. A total of five responses were recorded, two marine biologists, a dive safety officer and an outreach coordinator had responded to the questionnaire. All agreed that Grotto has been experiencing crowding within recent years. Most ranked the Grotto at a high popularity, which we can expect that it plays an importance in Saipan's economy and pleasure based on those statements. As for the question regarding placing a fee on visitors at the Grotto, all agreed there would be benefits to the fee. Though only with a combined combination with fee and other factors can we solve the issue of "overcrowding" at the Grotto.

## Surveys

A total of 23 survey participants have submitted answers to a 10-question survey. Through the conducted survey of Northern Marianas College students, it appears that the general public does realize that there are some negative impacts created from massive tourist numbers at the Grotto. The extend of their knowledge is limited by the number of times the surveyors have been to the Grotto. Based on their view visits (2x - 6x) a year, they have confirmed witnessing large tourist numbers and agree that it is hazardous to both people and the environment. 17 (73.9%) participants were females and the other 6 (26.1%) were males. 82.6% of the participants have visited the Grotto less than 5 times or not at all and they have visit less than 5 times a year. Students were also asked to rank the Grotto's popularity, a 100% of students ranked it above

average popularity, high popularity and highest popularity. From this information it can be assumed that students are aware of the Grotto's impact on Saipan, for tourists and locals alike.

## Discussion

Observations conducted provided interesting data that no other source of literature could provide. The numbers recorded provide more information to bite into rather than "Yes, there is crowding at the Grotto." Though the numbers were shocking, Tenorio believes that it is somewhat inaccurate. Due to the facts that weather and popular months were not able to be measured. Certain times of the year change circumstances for the Grotto, such as typhoon season where rough weather conditions are less favorable for swimming. Furthermore, certain months within the year tourist visitors are more frequent, such as summer. Aside from the previous statements, a lack of male participants was apparent in the survey to Northern Marianas College students. It could be possible that male participants are more likely to visit the Grotto more frequently. Many responses stated that they rarely visit the Grotto, less than 5 times a year, though these surveyors seemed to be more compassionate towards the negative impacts towards the environment. A lack in literature was apparent within the research paper, 5 experts would have provided a lengthy amount of information to delve into, but only 2 responses were recorded. Also there was a lack in literature, a case study in Palau was available and was somewhat researched, but the document became inaccessible due to unknown reasons.

## Conclusion

In conclusion over this research report it appears that both the public and experts in the topic agree that the Grotto is in fact being impacted negatively by tourist activity. The students however seemed less educated in the matter than what was initially anticipated. Experts in the topic provided insight on the topic further added to the idea of negative impacts. Voicing that tourist numbers have been gradually increasing over time. Experts also implied that certain restrictions such as reducing the number of tourist on the “rock” and charging tourism companies, though these ideas should benefit the island, more actions are necessary to sustainable manage the popular tourist destination. Observations provided major insight to the daily visitors that the Grotto faces. Averaging at 350 tourist visitors in a two-hour time frame. Due to time constraints identifying tourism impacts at the Grotto can not be stated accurately. A lack of literature also makes is difficult to determine what restrictions should be implemented and how effective those regulations will be.

## References

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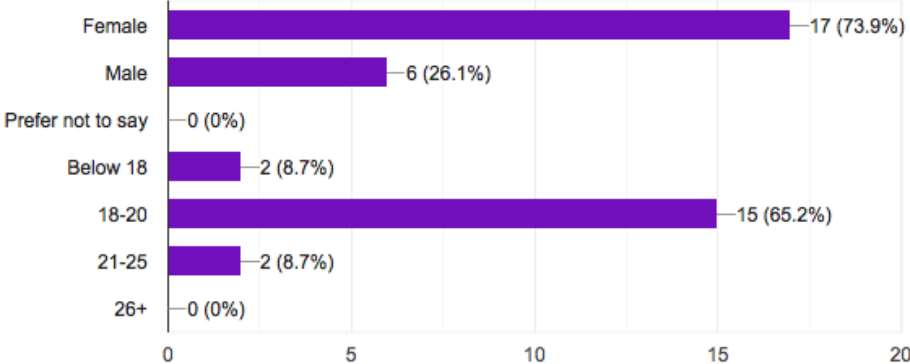
# Appendices

## A. Survey Summary

### What is your gender and age?



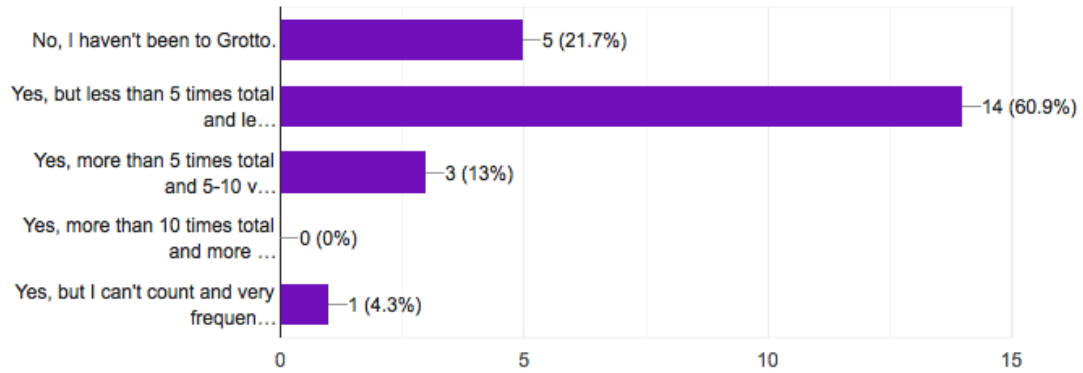
23 responses



### Have you ever been to the Grotto, how many times, if frequently how often in a year?



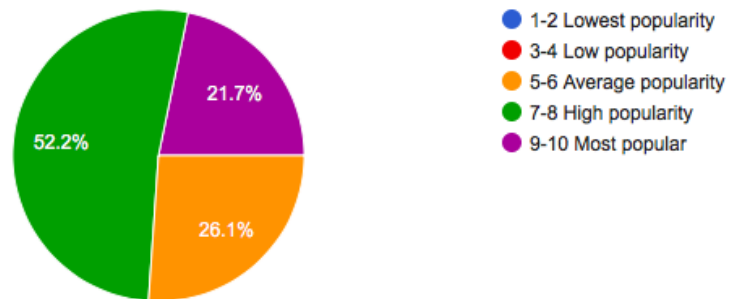
23 responses



### If you were to rank Saipan's most popular tourist attractions, where would the Grotto place at.



23 responses



Have you experienced large influxes of tourist visitors at the Grotto, if so, please use adjectives to describe visit.

20 responses

Yes
Crowded, loud
Last i've went there were quite a lot of people. Over the years, i've seen a drastic growth of tourists and it is such a small place for many people
Annoying and crowded
Overcrowded, irritating (parking), overwhelming, and noisy
No I have not
Crowded
No i haven't. Maybe once of twice but not frequently.
Yes, there were so many tourists that there were so many cars scattered around. Very crowded.
No.
I haven't been there for a very long time, so I wouldn't know.
Yes, crowded.

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## What is your view on large numbers of tourists visiting Grotto?

22 responses

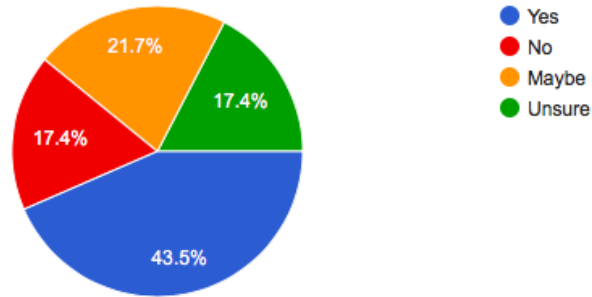
It's alright.
I wouldn't really know, but it would seem packed. And going up and down the stairs might become dangerous.
I think there should be a restriction.
Overwhelming
I feel like since grotto is quite beautiful. I do expect a large amount of groups of tourist to visit the area.
Might prove to be a environmental problem
it's good for island to develop
I think that it's unmanageable and destroys the natural environment there. I lived on Tinian all my life, so seeing the Grotto only once and it having that many people in such a small area of space is disorienting. I'm not sure if the number of people there at once is regulated, but if it isn't, I believe that it should be. There is no reason there should be that many people visiting a tiny space at once.
It is to crowded and it might be dangerous because Grotto is pretty small and someone can get injured.
Worried due to their impact on the environment and for their own safety.
I think it's annoying



Do you believe there should be a fee for visiting Grotto, example \$1 for locals and \$5 dollars for tourists?

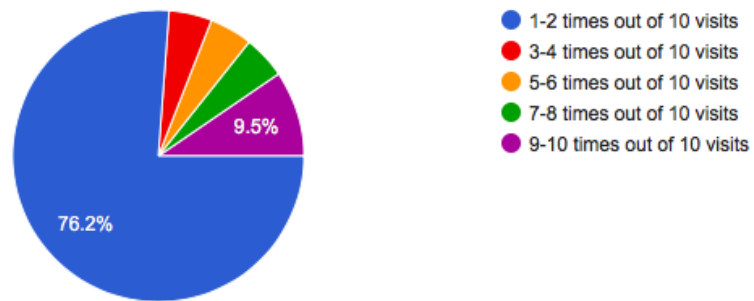


23 responses



Have you ever experienced difficulty finding parking at Grotto, if so how often?

21 responses



## Please explain your reasoning for the previous question.

21 responses

Income for the economy
I do believe that our sites should require entrance fees because it will help maintain the structure after so many people visit
I feel that a fee would be a great way to get more money for the island and would possibly encourage tourists to be careful while they are there, but I also feel like people wouldn't be really happy with being charged.
It should have a cost because that area needs it maintenance and that money could help with it.
The money collected could easily be used to renovate the stairs, the lookout area, pavilions, and parking area.
Because it could be good for the economy but at the same time many would be put off with the fee.
Since its a tourist spot, keeping it safe and clean is necessary.
Because i think it would help our economy here in the cnmi grow faster and easier especially with a place like Grotto, but at the same time i don't believe we should use Saipans natural nature as a place to earn income.
The money collected from the fees can go to preserving the grotto.
Make it free for locals, but let the tourist pay.
It's a natural attraction, there shouldn't be a price on it

## Do you think there should be lifeguards on duty at Grotto, if so how many would you prefer?

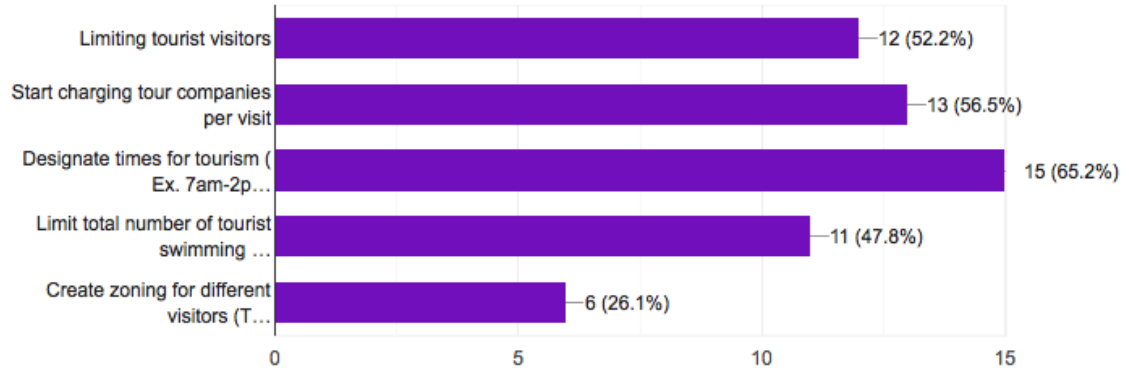
23 responses

Yes. Two.
There should be life guards present at the site. Preferably 4. Due to crowding, people can have accidents and life guards should be there to rescue if need be
Wait, I thought there were lifeguards? If not, then I think at minimum, there should be at least two. Ideally, it would be better if there were three. The Grotto is beautiful, but it is also very dangerous and it is really easy to get swept out to sea.
Yes probably 3
Yes, at most 5
There should be life guards and it should depend on how many tourist would visit
I would prefer 3 lifeguards.
Yes, and as much as needed
Yes; 2
There is already a lifeguard stationed there.
Yes, at least 2

## What regulations would you support to reduce "overcrowding" at Grotto?



23 responses



### 1B. Letters to Experts Response

Questionnaire:

- 1) Do you believe that the Grotto is experiencing “overcrowding” with its visitors?  
Explain your reasoning.
- 2) Do you believe that the current amount of tourist visitors is effecting the environment at the Grotto, if so how?
- 3) On a scale from 1-10 (1=Lowest/10=Highest) how popular would you rank the Grotto?
- 4) Would implementing a fee be a possible solution to reducing tourists’ numbers?  
Explain your answer.

## Experts

Name: Mike Tenorio

Position: Division of Fish & Wildlife Marine Biologist

- 1) “Yes, the number of tourists visiting the Grotto have increased over the past few years. Crowding along the steps and the rock are common.”
- 2) “Yes, water quality issues have increased. Possible increase of trampling on substrate by snorkelers and divers.”
- 3) “8”
- 4) “Implementing fees may limit the number of tourists entering the Grotto, but it will generate funds to support maintenance efforts within the Grotto. Other management options such as determining a carrying capacity for the Grotto and implementing a limit for divers, snorkelers and visitors. Also, limiting visitors (non-divers/non-swimmers) to the lookout and charge a higher fee for entrance onto the rock. There may be other options to managing visitors to the Grotto.”

Name: Jihan Younis

Position: Division of Coastal Resource Management Outreach Coordinator

- 1) “Yes, overcrowding has become an issue at popular tourist attractions like the Grotto. The lack of management has led to a conflict among resource users.”

- 2) “Yes, I believe the increase of visitors to the Grotto has affected the environment. The number of tourist coming to Saipan keeps climbing and many are now crowding into places that were once reserved for locals like the Grotto. Visitors must share the burden of caring for our land and infrastructure. If its not well-managed, overcrowding at popular areas like the Grotto may lead to an increase in trash, poor water quality and an impact to public health and safety. Not only do tourist put stress on specific places, but the issue of quality becomes a concern.”
- 3) “10”
- 4) “I don’t think it is the solution to reducing the number of tourist at the Grotto, but it is an integral part of the overall solution to managing and protecting the Grotto.”

Name: David Benavente

Position: Division of Coastal Resource Management lead marine biologist

- 1) “Yes, the news reports over a hundred tourists an hour. Additionally, water quality reports higher incidences of red flag.”
- 2) “Yes. Both water quality and ecologically. Grotto is shaped like a toilet. It's ability to flush dirty water is limited. This affects ecology within the grotto hanging the water chemistry will have an affect on algae and Marine life in the area”

3) “That depends on who you ask. Most locals don't like to go there anymore because of the overcrowding. It used to be a 10 for me. Now it's more like a 1.”

4) “Not just a fee. A fee and a user cap. The user cap will limit the amount of people and the fee would help maintain the facilities and infrastructure. It's done everywhere else Hawaii, east Asia, should do it here.”

Name: John Iguel

Position: Division of Coastal Resource Management dive safety officer

1) “Yes, overcrowding! I grew up on the Northside of Saipan and ever since I was a teenager back in the 1980's and 1990's we would go up to the Grotto to hang out and enjoy the natural beauty of the Grotto. At the time, we already had Japanese tourists also enjoying the natural beauty has to offer. I remembered the infrastructure was so bad that we had to be careful going up and down the stairs that is if you call it a stairwell, it was just a rugged trail. We still managed to enjoy the Grotto along side our Japanese tourists guests.”

Now it's a nightmare going to the Grotto:

- Overcrowded
- No parking
- Even with proper infrastructures, the place is poorly maintained
- The stench or urine everywhere especially the stairs

- Safety/Liability
- Natural beauty is disappearing
- Poor water quality

2) “Yes, refer to answers above.”

3) “10”

4) “I don’t think implementing a fee would solve the overcrowding problem, its still going to be “Grotto” one or the best dive spots in the world! But the fee would help in turns of upgrading infrastructures and more public education.”