

Attitudes about Marine Garden Implementation and the Haystack Rock Awareness Program among Cannon Beach Visitors and Residents

OREGON SEA GRANT SUMMER SCHOLARS PROGRAM
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Abstract:

This study evaluated attitudes toward Marine Garden implementation at Haystack Rock from the perspective of four interest groups: visitors to Haystack Rock, businesses in Cannon Beach, the City of Cannon Beach's government, and residents. Visitors and businesses were both surveyed to obtain information about their attitudes toward the Marine Garden protections and the Haystack Rock Awareness program (HRAP). A member of the government and residents in the area were asked a series of open-ended questions in interviews to prompt a conversation about their relationship to Haystack Rock and the work being done by HRAP. Results showed that all four interest groups responded positively to HRAP's initiatives and the protections in place at Haystack Rock.

Introduction:

HRAP began as a pilot project in 1985 to protect the delicate marine life that resides in the rocky intertidal zone. Haystack Rock is one of seven Marine Gardens along the coast of Oregon and was granted Marine Garden Status by the Oregon Department of Fish and Wildlife in 1990 (Oregon's Ocean Resource Management Plan, 1990). The purpose of this intertidal area designation was to protect the area from overuse, overharvest, excessive collecting, and to ensure it would be sustained for future public use and enjoyment. Marine Garden status strictly prohibits the collecting of plants and animals as well as climbing above the mean high tide level. HRAP staff and volunteers provide informative programs to visitors of the area to advance their mission "to protect, through education, the intertidal and bird ecology of the Marine Garden and Oregon Islands National Wildlife Refuge at Haystack Rock". This program both educates visitors about the wildlife that they are seeing while also working to prevent ecosystem degradation.

The Oregon Department of Fish and Wildlife (ODFW) has conducted human dimensions research in communities along the coast of Oregon. Human dimensions research, as it relates to the Oregon Marine Reserves, examines the direct and indirect cultural, social, and economic impacts that result from marine reserve implementation (Swearingen et. al 2017). This study has emulated that research and applied it to Cannon Beach which is heavily reliant on tourism. Nearly one-third of the working population is employed in the tourism sector, the highest proportion compared to other coastal Oregon towns (Swearingen et. al, 2018).

Previous visitor intercept surveys in Oregon marine reserves reported positive opinions of marine reserves and were supportive of their implementation. Although most were not aware that they were visiting a protected area, most visitors felt that marine reserves were a positive outcome for Oregon (Swearingen et. al, 2019). Several visitor intercept survey questions in the present study were borrowed from survey questions in ODFW's 2015 Cape Falcon Marine Reserve study (Swearingen & Epperly, 2016). Cape Falcon Marine Reserve is the closest marine reserve to Cannon Beach, and it was assumed that a similar demographic of visitors would visit Haystack Rock. Previous studies of marine reserve opinions from the perspectives of business owners at Oregon's five marine reserves reported a trend from negative to neutral over time (Swearingen et. al, 2017). Although the study that surveyed those businesses spanned a period of five years, some of the survey questions were relevant and were borrowed for the present study that surveyed businesses in a similar fashion.

A study that analyzes the effectiveness of Marine Garden protections is important for several reasons. The effects of protected status on a site like Haystack Rock go beyond just the species level, as is illustrated by the breadth of the ODFW marine reserves human dimensions research. Costs and benefits can accrue at a community, governmental, and economic level, especially when the site attracts a large number of tourists. The current study was designed to enhance understanding of those aspects of the impact of Haystack Rock, Marine Garden

protections, and HRAP. Compiling a variety of different perspectives will also emphasize the importance of areas like Haystack Rock for coastal communities and why their preservation is vital.

Methods:

I investigated this topic by engaging four different interest groups; visitors of Haystack Rock, business owners in Cannon Beach, a representative of the City of Cannon Beach's government, and residents of the area. Each group required a different approach to elicit specific details.

Interest Group I: Visitors

For the survey of visitors, complete randomization of the sample was not feasible due to open access to the site, so precautions were taken to correct for this as best as possible. Surveys were conducted for five weeks throughout the month of August and early September during periods of low tide when Haystack Rock is accessible to visitors. A random number generator was used to select two weekdays and a Saturday or Sunday for each of the weeks sampled. Two weekdays and one weekend day were randomly selected per week to account for the fact that more people were likely to visit Haystack Rock on the weekends vs. weekdays. This ensured that enough surveys were administered to both the weekday and weekend visitors. As the surveys were being administered, more survey days were added to the calendar to ensure that a sufficiently large sample was collected.

There were three sampling sites where surveys were administered; Parking Lot 1 (city hall public parking), Parking Lot 2 (closer to downtown area), and at Haystack Rock. Shifts in August vary from 4-8 hours depending on whether staff worked both low tides in one day. It is possible that some survey days occurred during a morning and afternoon/evening shift, solely a morning shift, or solely afternoon/evening shift.

Respondents did not fill out the surveys themselves due to COVID-19 precautions. To follow both HRAP and Oregon Parks and Recreation Department's rules regarding sharing equipment and materials, surveys were conducted in a socially distanced manner and filled out by the interviewer. The interviewer introduced the survey as an OSG scholar's study looking at public perceptions of HRAP. Prior to filling out the survey, visitors were informed that it was completely anonymous. The closed-ended survey questions asked included information such as where the visitors came from, what they know about HRAP, and attitudes toward the Marine Garden protections. The questionnaire included 11 questions and took only a few minutes to complete to minimize visitor disturbance as much as possible. Survey responses were coded and then later analyzed.

See Appendix A for Visitor Intercept Questionnaire

Interest Group II: Businesses in Cannon Beach

Cannon Beach is a town that concentrates heavily on the arts and tourism. Businesses that have a focus in art, accommodations, retail, and restaurants were included since they derive a substantial amount of their revenue from tourism and are more likely to interact with people who could potentially visit or have already visited Haystack Rock. Because of the relatively small size of the city, it is possible that all the art, accommodations, retail and restaurant businesses could be contacted. All 13 art galleries, 55 retail businesses, and 32 restaurants were contacted. There are 280 accommodations businesses in Cannon Beach, which can be divided into the categories bed and breakfast, campground, conference, motel, property management, TRP-unlimited¹, TRP-5 year unlimited², and VHRP-14-day permit³. All the businesses in the categories of bed and breakfast, campground, conference, motel, and property management were sampled. Of the TRP-unlimited, TRP-5 year unlimited, and VHRP-14-day permit, only the short-term rentals managed by specific management companies were selected. A total of 221 businesses were thus contacted, although not all of them participated, as some refusal was expected.

The manager, owner, or knowledgeable employee was asked to participate in the survey on behalf of the business and is referred to as the business representative. Most surveys were conducted over the phone, some were done in-person, and a few were completed via email. During the in-person surveys, respondents did not complete the interview forms themselves due to COVID-19 precautions. To follow both HRAP and Oregon Parks and Recreation Department's rules regarding sharing equipment and materials, surveys were conducted in a socially distanced manner and filled out by the interviewer. The interviewer introduced the survey as an OSG scholar's study looking at how a site like Haystack Rock attracting tourists may affect their business. Business representatives were asked for their consent and informed that their answers were anonymous. The closed-ended survey questions assessed the business representatives' opinions concerning why they think tourists are attracted to the area of Cannon Beach, knowledge of HRAP's mission, and the frequency of tourist's inquiries about HRAP. Survey responses were coded and then later analyzed.

See Appendix B for Business Representative Questionnaire

Interest Group III: City of Cannon Beach's Government

Over the course of August and September, informational interviews were planned with members of Cannon Beach's government. Since this research was conducted remotely, it was harder to reach government officials, and only one 30-minute interview was conducted over the phone. The style of the interview was formal with open-ended questions that prompted a conversation. The interview was introduced as an OSG scholar's study looking at how a site like Haystack Rock has affected the community of Cannon Beach. Prior to the interview, the interviewee was asked for their consent and reminded that their identity will be confidential. Questions focused on understanding the government's relationship with Haystack Rock and HRAP, and the history of the government's involvement in implementing protections. Responses were not coded for analysis but were included in an educational pamphlet. It details some of HRAP's history, includes anonymous quotes from the government official and other interest groups, and provides some resources to assist in enacting similar protections for other coastal areas.

¹Short term property rentals

² Five-year transient rentals

³ Vacation home rentals

Interest Group IV: Residents

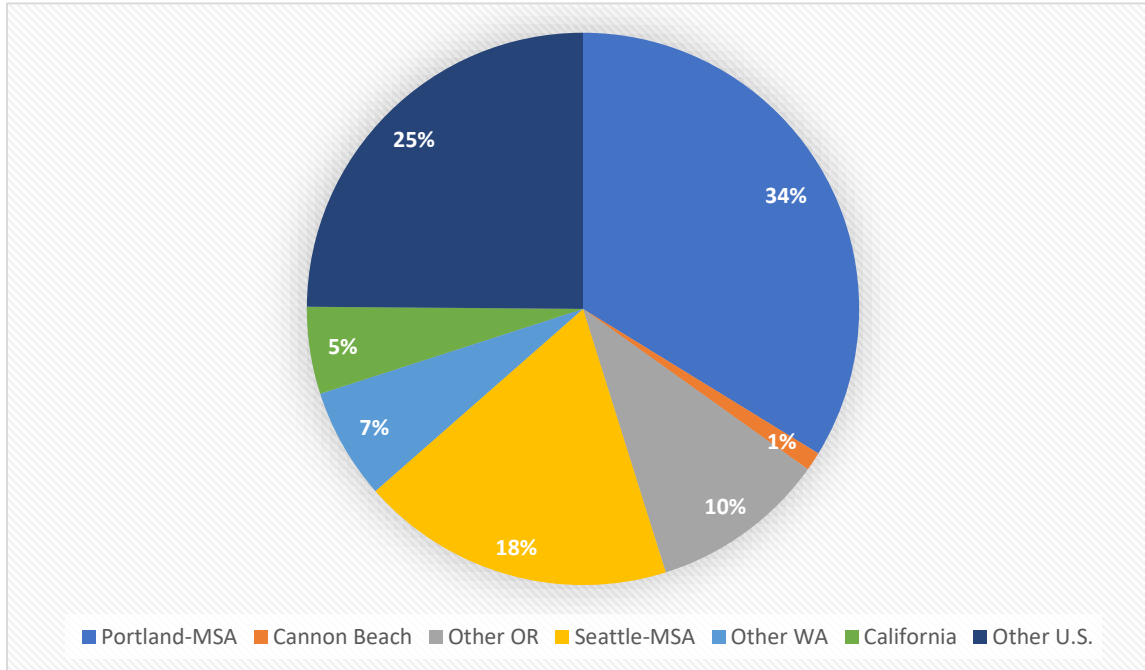
Informational interviews with residents of Cannon Beach were also planned during the same time frame. Again, it was difficult to engage these subjects. Several advertisements were included in HRAP's social media and newsletter but prompted no responses. Subsequently, a Google survey was announced in HRAP's social media and newsletter that contained some of the open-ended questions from the interview protocol. Residents were informed that this was an OSG scholar's study and that their information would be kept completely confidential. The information was a personal account of their relationship to both Haystack Rock and HRAP. Responses were not coded for analysis but were quoted herein and in the educational pamphlet.

Results:**Visitor Surveys**

We collected a total of 373 surveys. Among these respondents, the largest proportion of visitors were from the Portland Metropolitan-Statistical Area (MSA) comprising 34% of the sample (Figure 1). Other respondents were from across the U.S. (25%), Seattle-MSA (18%), other places in Oregon (10%) or Washington (7%), California (5%), and Cannon Beach (1%).

Figure 1. Visitor Respondents Place of Residence

Q1. Where is home for you?



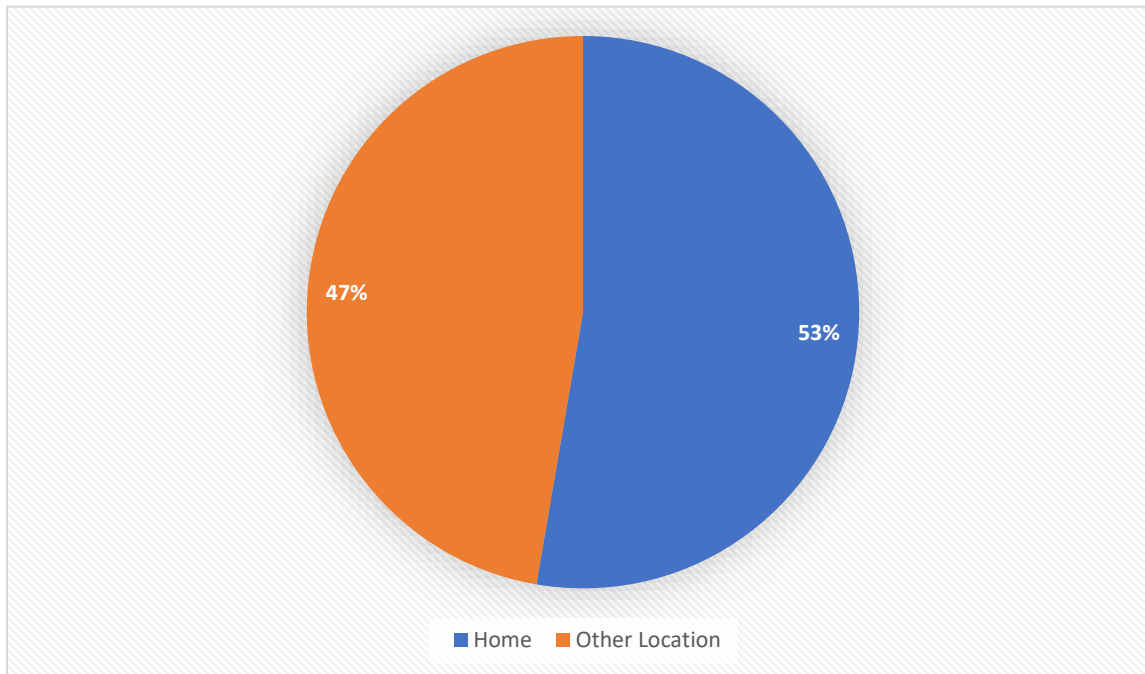
N=370

Missing=3

Visitors were also asked whether they started their trip from their place of residence or from another location. A majority (53%) of respondents reported that they began their trip to Haystack Rock from home, and 47% reported that they started their trip from another location (Figure 2).

Figure 2. Visitors Trips Started from Home vs. Another Location

Q2. Was your trip today started from home or another location?



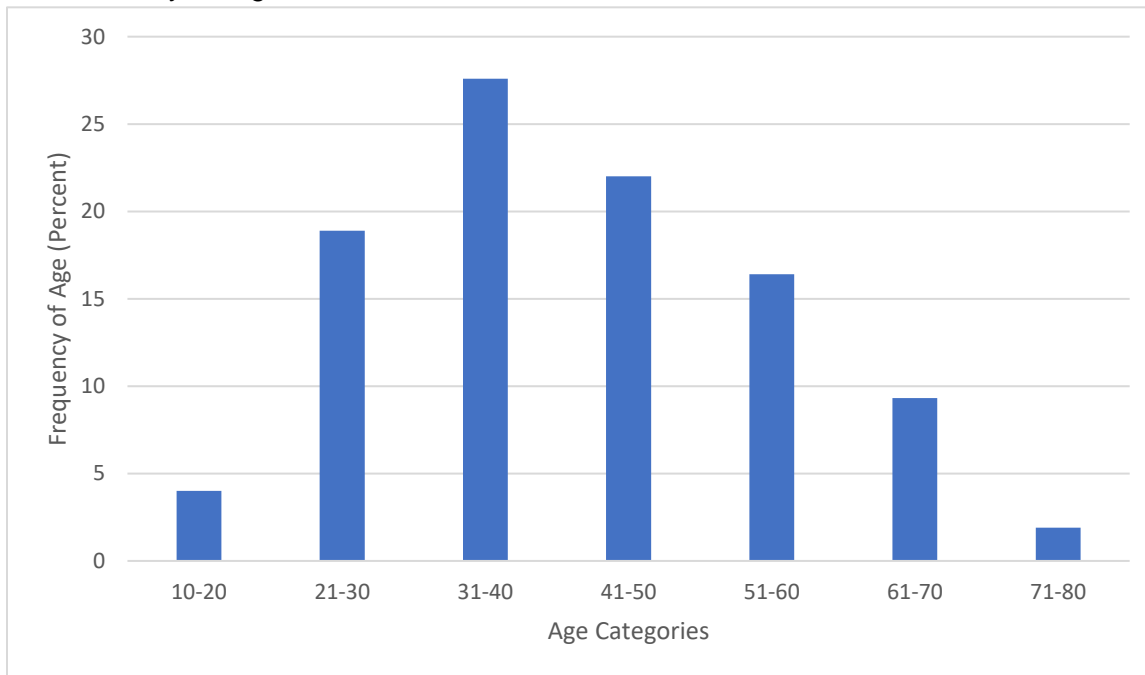
N=372

Missing=1

The average visitor age among all respondents was 42 years old; the youngest respondent was 12, and the oldest respondent was 76. Respondent ages were grouped into categories to indicate which age group visited more commonly (Figure 3). The most common age category among the respondents was the age range of 31-40 (27.6%) followed by 41-50 (22.0%), 21-30 (18.9%), 51-60 (16.4%), 61-70 (9.31%), 10-20 (4.0%), and 71-80 (1.9%).

Figure 3. Frequency of Visitor Age Categories

Q4. What is your age?



N=323

Missing=50

The distribution of visitor party sizes ranged from parties of one to a large party of 40 people (Table 1). Since parties of more than 5 were widely distributed, responses of these larger parties were combined into one category. Parties of 2 were the most common (30.5%) followed by parties of ≥ 5 (27.7%), parties of 4 (24.6%), parties of 3 (15.4%), and solitary visitors (1.9%). One group reported 40 people in their party, but this outlier was removed to avoid overstating average party size. After the removal of this outlier, average party size was 3.8 persons.

Table 1. Frequencies of Visitor Party Sizes

Q3. How many people are in your party?

Party Size	Frequency (percent)
1	7 (1.9%)
2	113 (30.5%)
3	57 (15.4%)
4	91 (24.6%)
≥ 5	102 (27.7%)

N=370

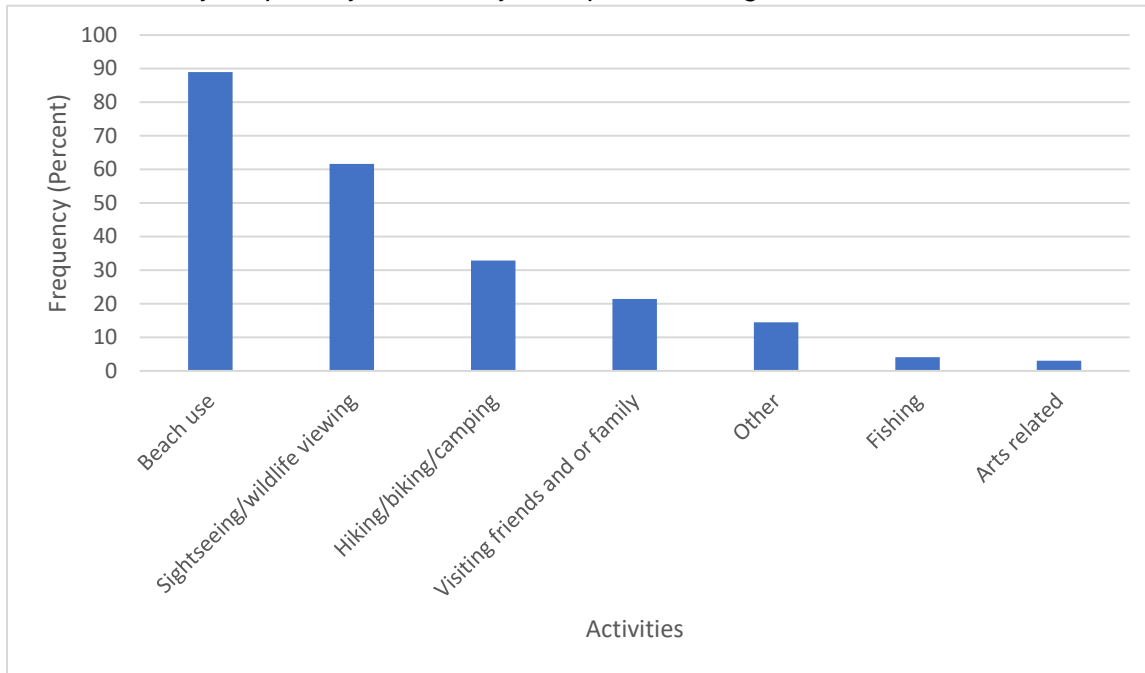
Missing = 2

*Removed one outlier, a party of 40, out of 371 respondents

Respondents were asked to identify the primary motive for their trip to the Oregon coast (Figure 5). The overwhelming majority indicated beach use (83%) and sightseeing/wildlife viewing (62.5%) as the most common choice, with fishing (4.6%) and arts related activities (3.2%) as the least common trip motives.

Figure 5. Primary Motive of Trip to the Oregon Coast

Q5. What was your primary motive of your trip to the Oregon Coast?



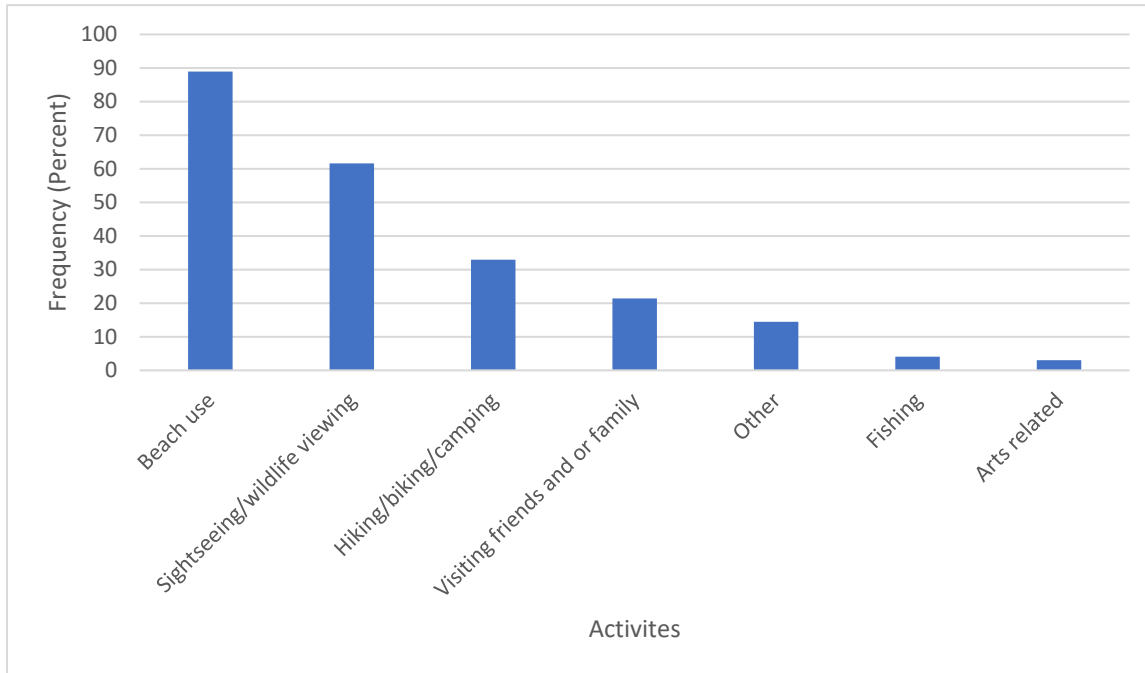
N=371

Missing=2

Respondents were asked what activities they had engaged in during their trip to the Oregon coast (Figure 6). The overwhelming majority indicated beach use (89%) and sightseeing/wildlife viewing (61.6%) as the most common choices, and fishing (4.1%) and arts related activities (3.0%) were the least common activities.

Figure 6. Recreational Activities During Visitors' Trip to the Coast

Q6. What kinds of activities have you done during your trip to the Oregon Coast?



N=365

Missing=8

The majority of respondents were first time visitors (39.5%) to Haystack Rock (Table 2). Slightly more than a third (35.1%) of the respondents had visited between 2-5 times (35.1%) and 29.1% visited more than 5 times.

Table 2. Frequency of Prior Visits to Haystack Rock

Q7. How many times have you visited Haystack Rock?

Number of Visits	Frequency
First visit	132 (39.5%)
2-5 visits	129 (35.1%)
6-10 visits	48 (13.0%)
10-15 visits	22 (6.0%)
15+ visits	37 (10.1%)

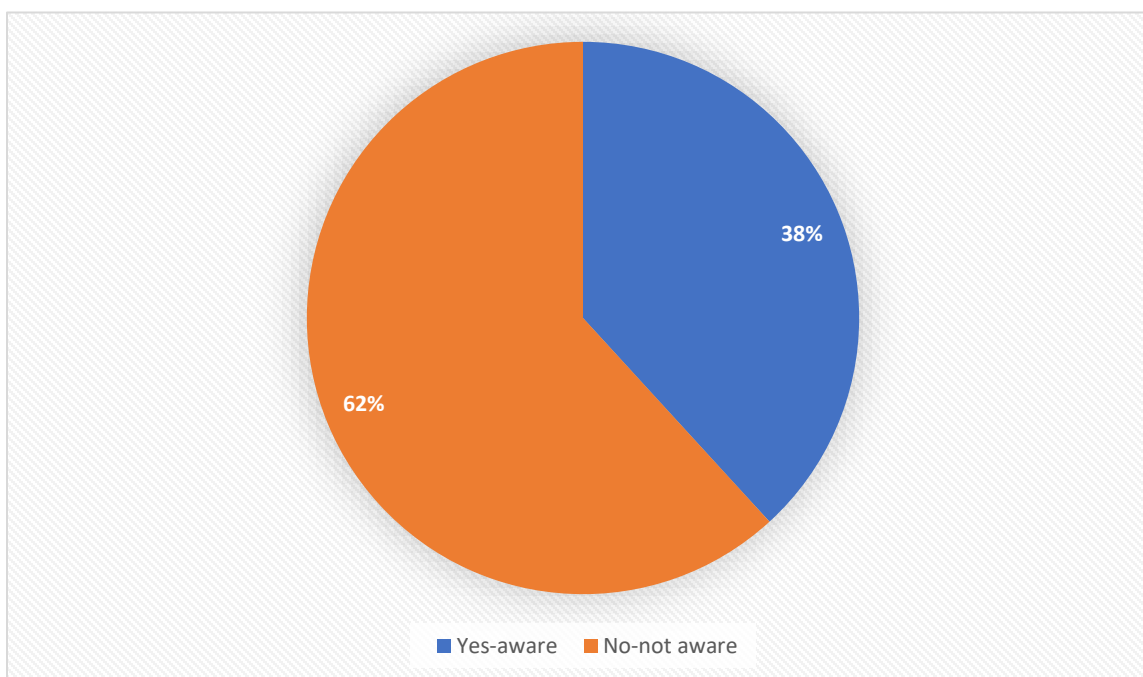
N=368

Missing=5

Visitors were asked if they were aware of the Marine Garden protections in place at Haystack Rock (Figure 8), and more than half (62%) were not aware of those protections.

Figure 8. Visitor Awareness of Marine Garden Protections

Q8. Were you aware that Haystack Rock has Marine Garden protections?



N=372

Missing=1

There was a statistically significant difference ($p < .05$) between the number of visits to Haystack Rock and visitor awareness of the Marine Garden protections (Table 3). The visitation data was recoded into three categories for clarity: First visit, 2-5 visits, and 5+ visits. Among the respondents who were first time visitors, 84.1% were unaware of protections during their first visit, 71.3% of respondents who had visited between 2 and 5 times were unaware of the marine Garden protections, but only 22.4% were still unaware of the protections after more than 5 visits. After the 5th visit, most visitors had become aware of Marine Garden protections. A Phi and Cramer's V of .529 indicate a high measure of association between increased visits to Haystack Rock and Marine Garden awareness, indicating there was a moderately strong relationship between the frequency of visitation and awareness of the protections.

Table 3. Visitation Frequency and Marine Garden Awareness

Marine Garden Awareness			
	Yes	No	Total
First visit	21 (15.9%)	111 (84.1%)	132
2-5 visits	37 (28.7%)	92 (71.3%)	129
5+ visits	83 (77.6%)	24 (22.4%)	107
Total	141 (38.3%)	227 (68.7%)	368

N=368

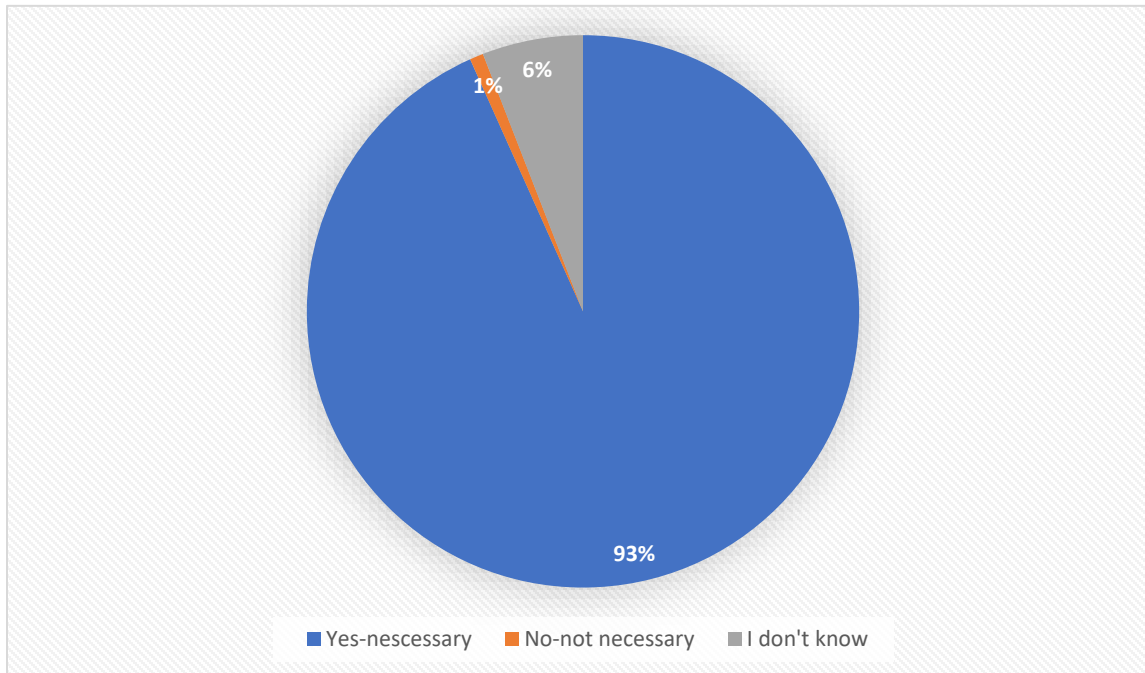
Missing=5

Phi=.529

Cramer's V=.529

Visitors were given a brief explanation of the Marine Garden protections and why they were put in place. When asked whether visitors thought these protections were necessary, most of the visitors (93%) thought that they were necessary (Figure 10). Only 6% of the visitors said that they didn't know, and 1% of the respondents disagreed and said that the protections were not necessary.

Figure 10. Visitor Opinions on whether Marine Garden Protections are Necessary
Q9. Do you think these protections are necessary?



N=372

Missing=1

When visitors were asked what their opinions of HRAP were (Table 4), most reported positive (34.6%) and extremely positive (31.4%) opinions. Nearly a third of the respondents (29.6%), had never heard of HRAP.

Table 4. Visitors Opinions of HRAP

Q10. What are your thoughts and feelings about the Haystack Rock Awareness Program?

HRAP Opinion	Frequency
I haven't heard of it	100 (29.6%)
Extremely negative	1 (.3%)
Negative	1 (.3%)
No opinion	13 (3.8%)
Positive	117 (34.6%)
Extremely positive	106 (31.4%)

N=338

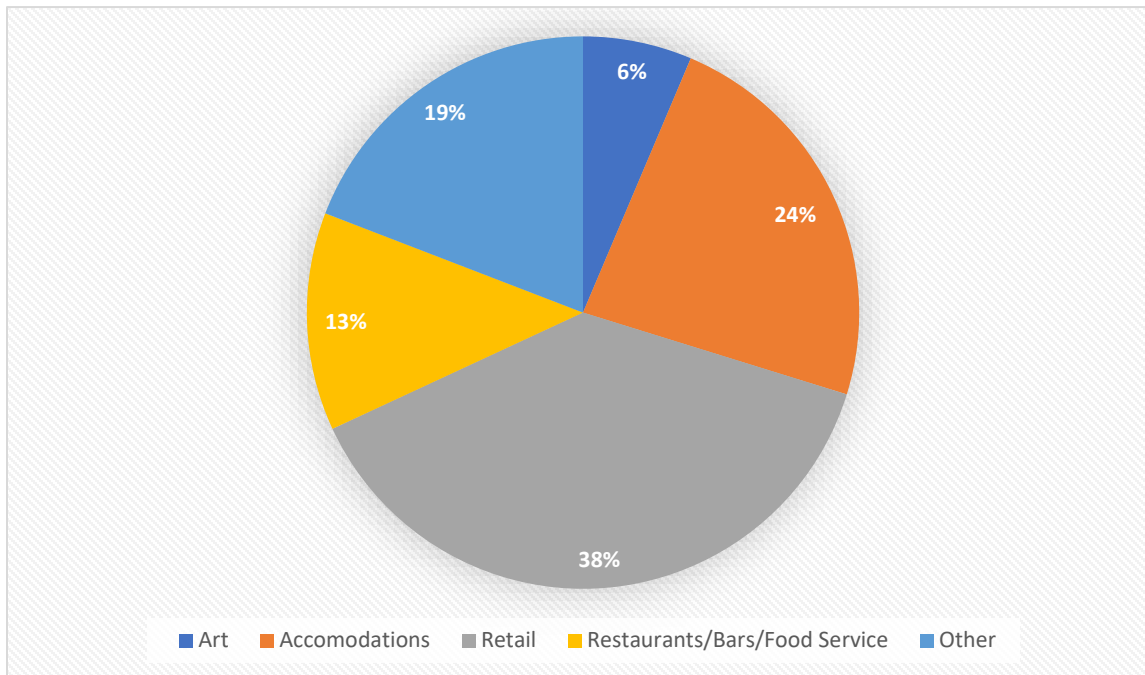
Missing=35

Business Surveys

We collected a total of 47 surveys. Of the 221 businesses contacted, (21%) participated. Among these respondents (Figure 1), accommodations (24%) and retail (38%) comprised the majority of businesses followed by other (19%), restaurant/bars/food service (13%), and art (6%).

Figure 1. Business Sectors

Q1. What sector best describes your business?



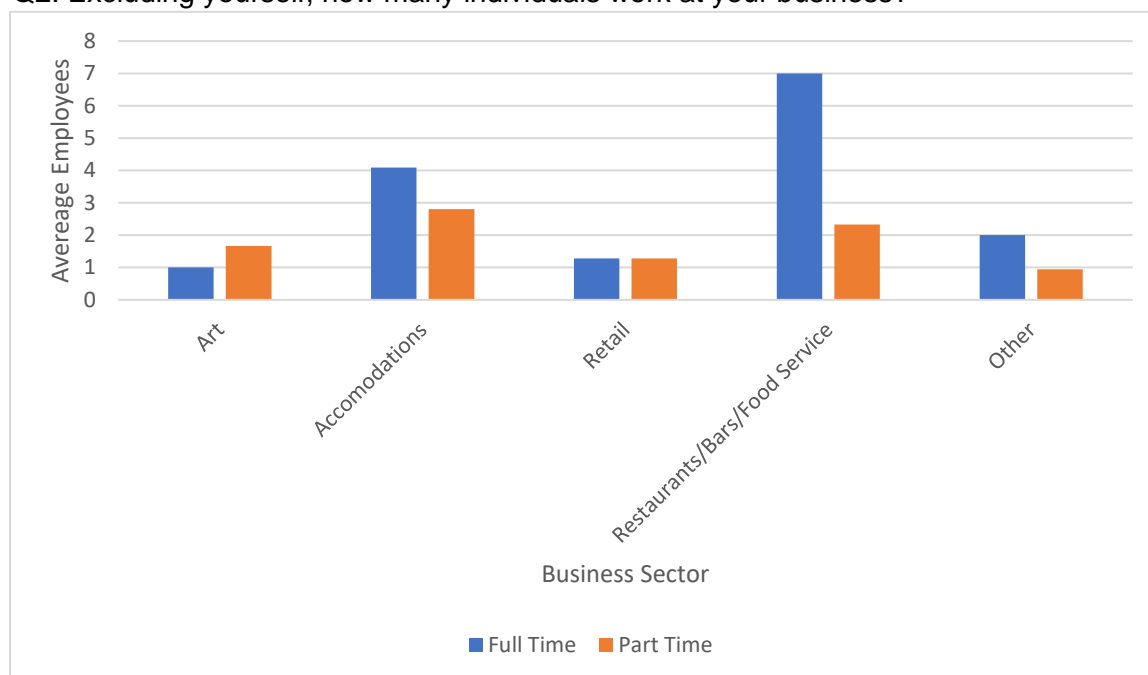
N=47

Missing=0

Business representatives were asked how many part-time and full-time employees worked at their business (Figure 2). A one-way ANOVA test was run to see if there was a significant difference between the average number of full-time employees across the 5 business sectors. A one-way ANOVA test was also run to see if there was a significant difference between the average number of part-time employees across the 5 business sectors. ANOVAs for both comparisons were not statistically significant with a p -values $>.05$. Some cell counts for both tests were quite small, so these results are tenuous. There was no statistically significant difference, but this outcome is probably due to the small sample size. There are clearly substantially more employees in accommodations and food service businesses. The minimum number of full-time employees was 0 and the maximum was 23. The minimum number of part-time employees was 0 and the maximum was 8.

Figure 2. Average Number of Employees per Sector

Q2. Excluding yourself, how many individuals work at your business?



Full time: N=46, Part time: N=45

Missing=0

*Removed 1 outlier, a business with 160 full-time employees, out of 47 surveys

*Removed 2 outliers, a business with 26 part-time and 40 part-time employees out of 47 surveys

Business representatives were asked how long their business had existed. A one-way ANOVA test was run to see if there was a significant difference between the average number of years in business across the 5 business sectors. With a $p\text{-value} > .05$, no statistically significant difference between the means was detected. Again, some cell counts for both tests were quite small, so these results are tenuous. There was no statistically significant difference, but this outcome is probably due to the small sample size. There are clearly substantially older establishments among some of the business sectors. On average, arts and accommodations businesses had been open around 30 years (Table 1). This was followed by other (23.7 years), retail (18.7 years), and restaurants/bars/food service (13.8).

Table 1. Mean Number of Years in Business per Sector

Q3. How long have you been in business?

Business Sector	Mean (years)
Arts	30.0
Accommodations	30.5
Retail	18.7
Restaurants/Bars/Food Service	13.8
Other	23.7

N=43

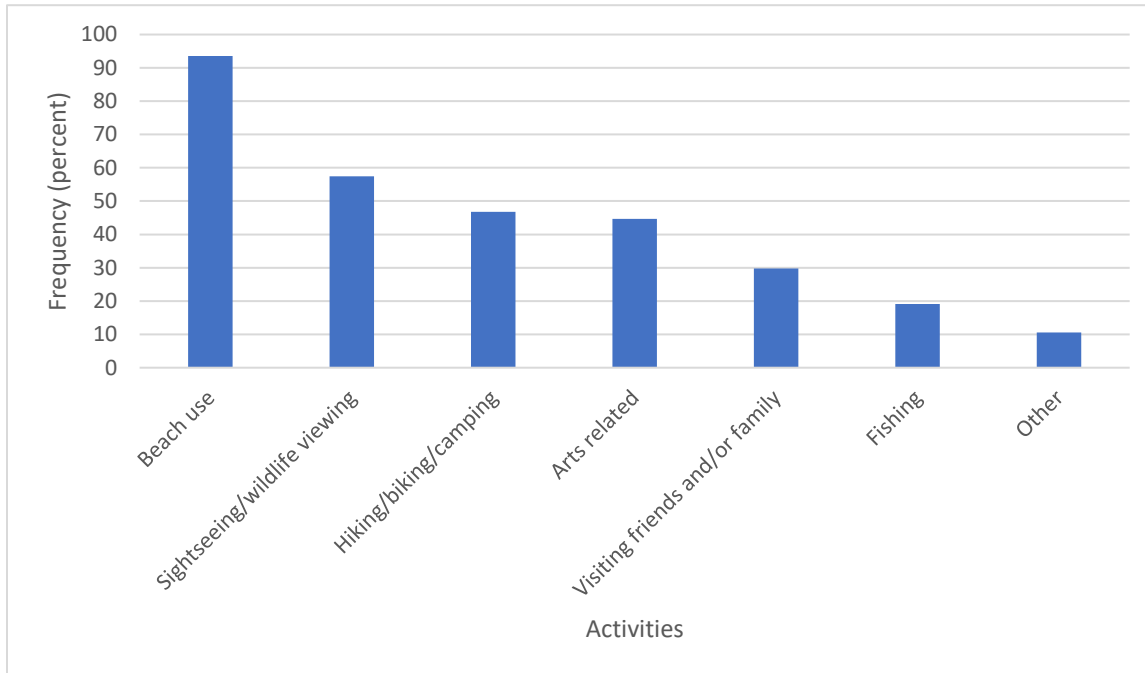
Missing=1

*Removed 3 outliers that were atypically older establishments (66, 75, and 70 years).

Respondents were asked to identify what activities they thought motivated people to visit Cannon Beach (Figure 3). The overwhelming majority indicated beach use (93.6%) and sightseeing/wildlife viewing (57.4%) as the most common choice, and fishing (19.1%) and other activities (10.6%) were among the least common activities.

Figure 3. Business Owner Perceptions on Visitor Activities in Cannon Beach

Q4. What type of activities do you think brings people to Cannon Beach?



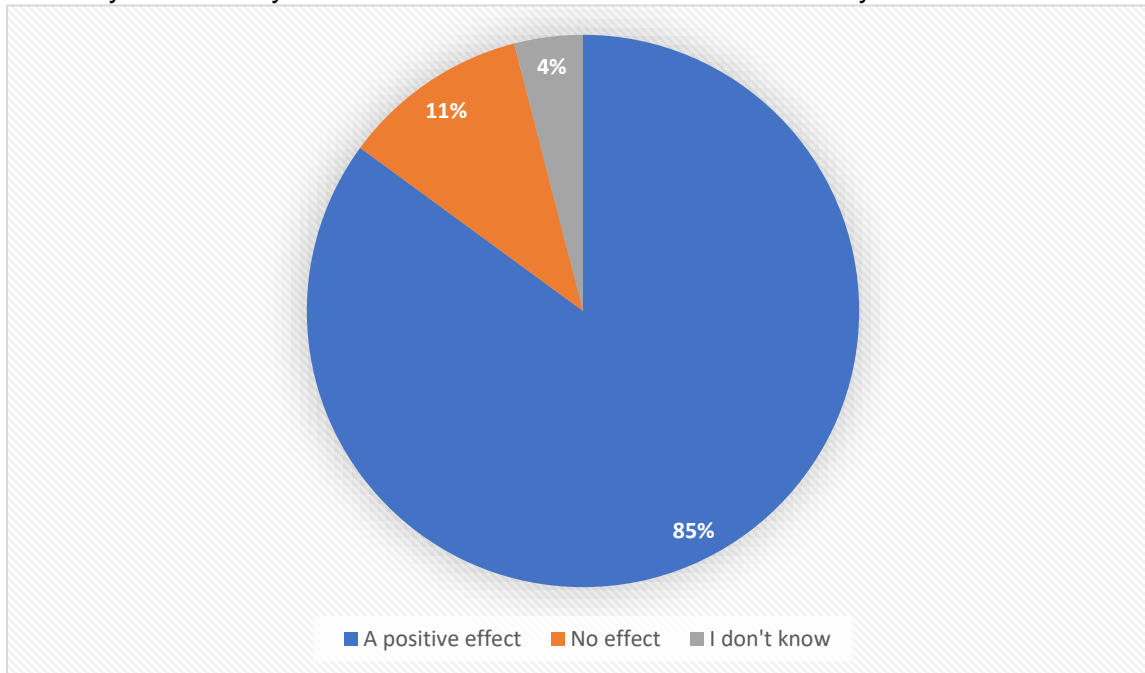
N=47

Missing=0

Respondents were asked if they thought that Haystack Rock had an effect on their business (Figure 4). The overwhelming majority responded that Haystack Rock had a positive effect on their business (85%), while 11% responded that there was no effect, and 4% responded that they didn't know. None of the respondents reported that Haystack Rock had a negative effect on their business.

Figure 4. Business Owner's Opinions on Haystack Rock's Effect on their Business

Q5. Do you think Haystack Rock Marine Garden has an effect on your local business?



N=46

Missing=1

Business owners were asked how frequently guests ask them about Haystack Rock (Table 2). The frequency data were recoded into three categories for clarity: Never, 0-5 visits, and 5+ visits. The majority (66.7%), of businesses in the arts sector responded that guests asked very frequently (over 5+times a week) about Haystack Rock. In both the accommodations (54.5%), restaurants/bars/food service (50.0%), and other (50.0%) sectors, about half of businesses responded that guests asked about Haystack Rock frequently (0-5 times a week). A majority of the responses by retail businesses sector representatives were evenly distributed (35.3% each) between never and frequently (0-5 times a week).

Table 2. Frequency of Guest Questions about Haystack Rock

Q6. How frequently do guests ask about Haystack Rock?

Business Sector	Question Frequency			Total
	Never	Frequently (0-5 times a week)	Very frequently (5+ times a week)	
Arts	0 (0%)	1 (33.3%)	2 (66.7%)	3
Accommodations	0 (0%)	6 (54.5%)	5 (45.5%)	11
Retail	6 (35.3%)	6 (35.3%)	5 (29.4%)	17
Restaurants/Bars/Food Service	1 (16.7%)	3 (50.0%)	2 (33.3%)	6
Other	1 (12.5%)	4 (50.0%)	3 (37.5%)	8
Total	8 (17.7%)	20 (44.4%)	17 (37.9%)	45

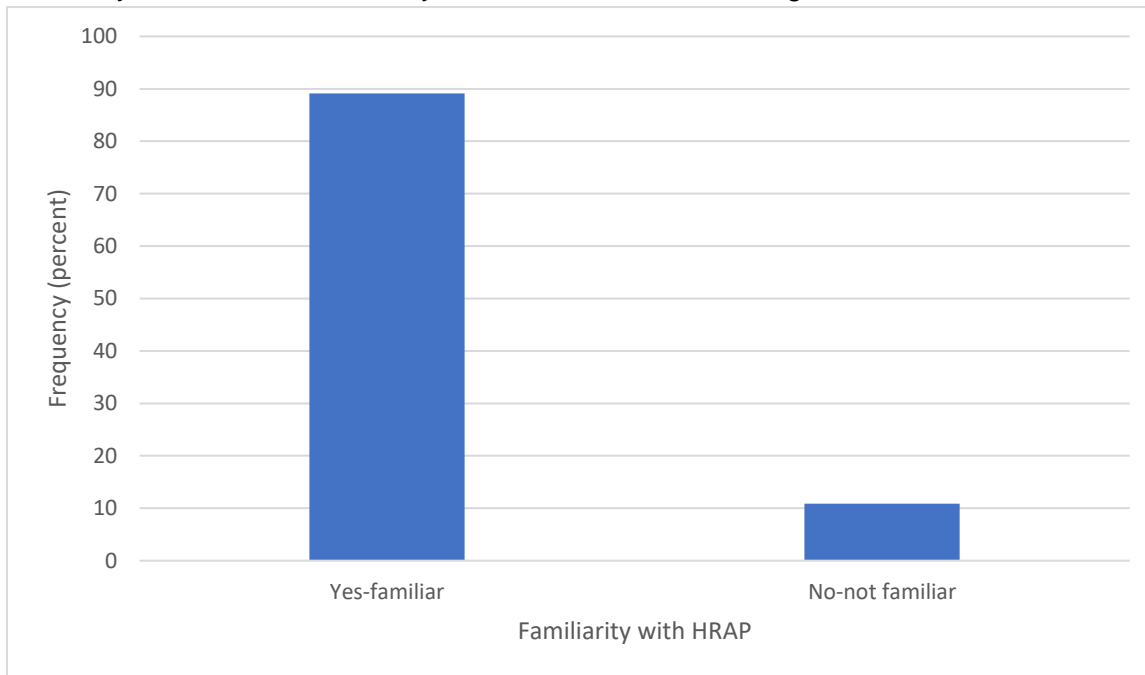
N=45

Missing=2

Respondents were asked if they were familiar with HRAP (Figure 5). An overwhelming majority (89.1%) responded that they were. Only 10.9% reported that they were not familiar with HRAP. All respondents who indicated that they were not familiar with HRAP were not asked to complete the balance of the questions concerning attitudes about HRAP. These 5 respondents are noted as N/A in the relevant tables.

Figure 5. Familiarity with HRAP

Q7. Are you familiar with the Haystack Rock Awareness Program?



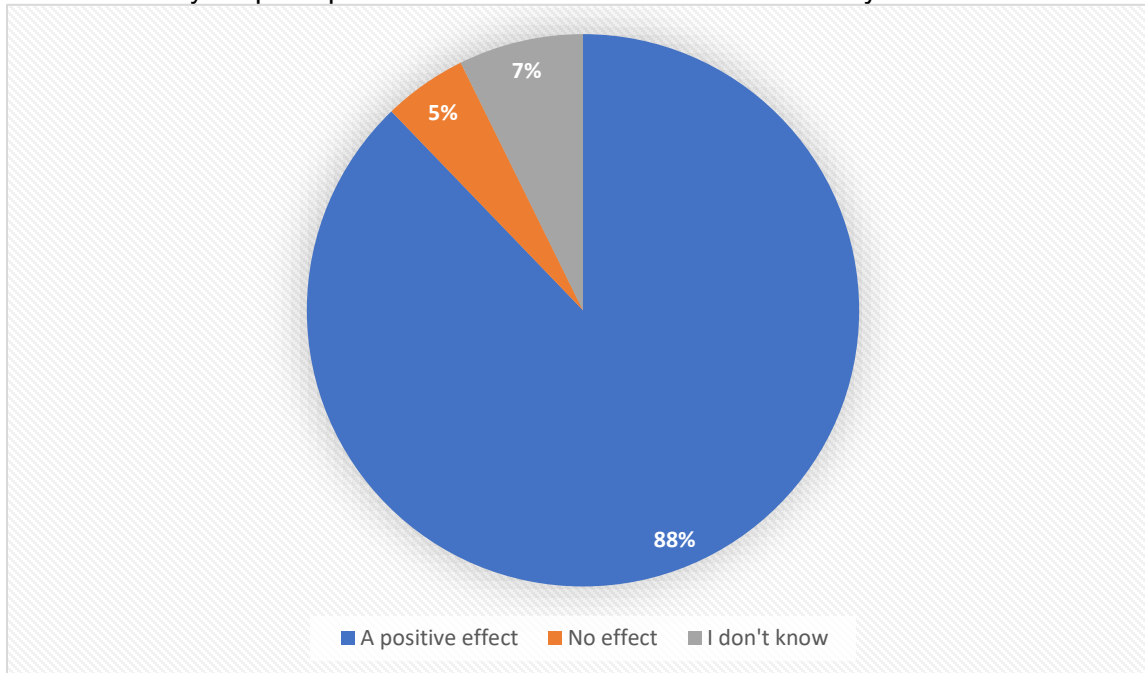
N=46

Missing=1

Business owners were asked their perceptions on HRAP's effect on the community of Cannon Beach (Figure 6). Among the respondents that were familiar with HRAP, the majority (88.0%) responded that HRAP had a positive effect on Cannon Beach, while 7.0% did not know, and 5.0% felt that there was no effect. None of the respondents reported that HRAP had a negative effect on the community.

Figure 6. Business Owner's Perception's on HRAP's effect in Cannon Beach

Q8. What are your perceptions on HRAP's effect on the community of Cannon Beach?



N=41

Missing=1

N/A=5

Respondents were asked if they thought HRAP had an effect on their business (Table 3). Among the respondents that were familiar with HRAP, about half (53.7%) responded that HRAP had a positive effect on their business while 29.3% felt there was no effect, and 17.1% responded that they didn't know. None of the respondents reported that HRAP had a negative effect on their business.

Table 3. Business Owner's Opinion on HRAP's effect on their Business

Q9. Do you think HRAP has an effect on your local business?

Type of Effect	Frequency
A positive effect	22 (53.7%)
A negative effect	0 (0%)
No effect	12 (29.3%)
I don't know	7 (17.1%)

N=41

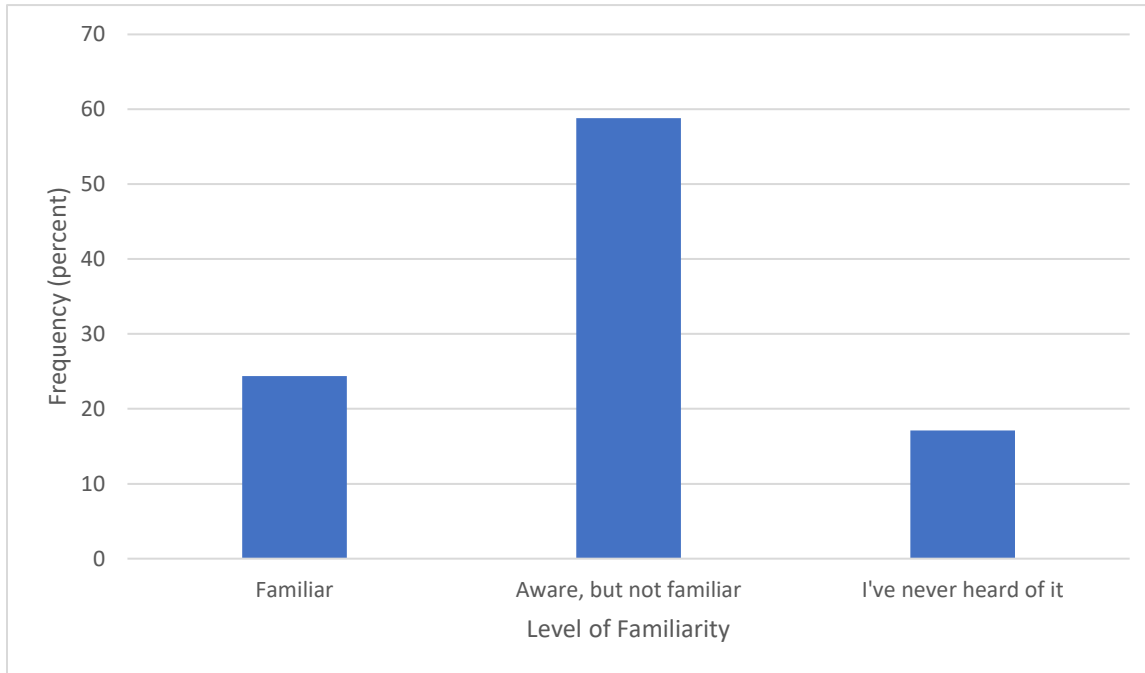
Missing=1

N/A=5

Respondents were asked how familiar they were with HRAPs' mission statement (Figure 7). Among the respondents that were familiar with HRAP, more than half (58.8%) were aware but not familiar with the mission statement, 24.4% were familiar with the statement, and 17.1% had never heard it.

Figure 7. Business Owner's Familiarity with HRAP's Mission Statement

Q10. How familiar are you with HRAP's mission statement?



N=41

Missing=1

N/A=5

Discussion:

Knowing how visitors and Cannon Beach residents perceive Haystack Rock's Marine Garden protections and HRAP's educational programs that carry the protections out is important when trying to understand how successful they have been. This study will provide data on both visitor and business representative perceptions to inform and guide HRAP on where community connections may be lacking and how they can be strengthened.

Visitor Surveys

This 10-week study was able to capture a detailed understanding of visitor's demographics, trip characteristics, Marine Garden awareness, and opinions of HRAP.

As expected, visitors who were between the ages of 31 and 40 were the most common respondents in the study. Older individuals are more likely to want/have the time to stop and chat with surveyors versus those who may be younger. The same can be said for the average party size of 3.8 visitors. Visitors with smaller parties, particularly those that may not have young kids that require attention, were more likely to take the survey. These response patterns created limitations in the sample design, with unknown response bias implications. Nonetheless, there was still a relatively wide distribution of ages. To reach the younger demographic, creating a QR code for them to scan was discussed, but time limitations did not make it feasible. Moving forward, however, HRAP could consider using QR codes that will link information as a means of reaching younger groups of people.

Awareness of Marine Garden protections increased as the number of visitations to Haystack Rock increased. The majority of respondents that had visited less than five times had not heard of the protections. After respondents reported they had visited more than five times, the majority reported they had heard of the protections. After numerous visits, the respondents were more likely to have interacted with HRAP staff or volunteers who informed them of the protections in place. In addition, visitors who repeatedly visit Haystack Rock may develop vested interest in it and may have sought out this information. Marine Garden awareness was not statistically correlated with any other variables that were tested, including visitor opinions of HRAP, visitor opinions of Marine Garden protections, and visitor's place of residence. This outcome is potentially affected by the relatively small sample. Future studies could focus on obtaining a larger sample size to investigate relationships among those variables.

Generally, visitor's motives to visit the Oregon coast followed the same trend as the types of activities visitors had already reported they were engaging in. Beach use was the most frequent of those activities, followed by the other two outdoor activities; sightseeing/wildlife viewing and hiking/biking/camping. Since a visit to Haystack Rock is an outdoor activity, it is not surprising that visitors would also be interested in or have done other outdoor activities. HRAP could use this to increase their outreach and engagement efforts by reaching out to other areas or outdoor recreation businesses that could encounter this same demographic of people. This could serve as an advantage by providing individuals with information about Haystack Rock before they visit, or it could inspire them to see the rock for themselves.

When visitors were asked where their home was, only 34% responded that they were from the Portland-MSA and only an additional 10% were from elsewhere in Oregon. The balance of the respondents had come from out of state, which was unexpected, just based on proximity. Visitors to Haystack Rock were almost equally divided between those that started their trip from home (53%) or from another location (47%). This question was originally included to differentiate between day-trippers and those visitors staying overnight in Cannon Beach. However, data obtained from that single question are insufficient to draw any such conclusion.

Overall, two-thirds of the visitors had an overwhelmingly positive opinion of HRAP, but about one-third of the respondents had never heard of the program. Almost all the visitors (93%) agreed that the Marine Garden protections were necessary to protect the intertidal zone.

Business Surveys

Of the 221 businesses contacted, 21% responded, a total of 47 surveys. The study might have achieved a higher response rate with in-person interviews, but since the majority of surveys were conducted over the phone, businesses were harder to contact. Small sample sizes for each of the business sectors made it difficult to achieve significant statistical outcomes in comparisons between sectors. It was not possible to make comparisons between five sectors with as few as three responses for one sector. Future studies should focus obtaining a larger sample size.

Statistical analyses were conducted to determine there was a difference between the average number of part-time and full-time employees across business sectors, but these results were inconclusive. Cell counts for both tests were quite small, and there were more respondents from employees in food service and accommodations. We also tested whether there was a difference between the average amount of time that businesses had been open between business sectors, but again the outcome was not statistically significant. There was a large difference in the range with newer businesses open less than a year and the oldest establishment, which had been open for 55 years.

Similar to the results from the visitor survey, business representatives also felt that outdoor activities such as beach use, sightseeing/wildlife viewing, and hiking/biking/camping were among the most common activities that draw people to Cannon Beach. This reinforces the notion that a good way to preemptively educate people about Haystack Rock could be to connect with places nearby that support those activities.

A majority of business representatives felt that Haystack Rock had a positive effect on their business. Since Haystack Rock attracts a lot of tourists to Cannon Beach, we expected business owners to perceive that they benefit from that tourism traffic. Most business representatives also reported that they were frequently asked about Haystack Rock by their customers. With the high volume of inquiries, ensuring that businesses in Cannon Beach are well informed about the site and the marine garden protections is vital. As one business owner stated, *"I talk to people all day long and part of what I do is interact with people, and I used to give away some of the brochures and I wouldn't mind having some in my shop."* Perhaps providing businesses with information they could distribute to their customers would be a way to increase HRAP's outreach and engagement efforts. Since more than half of business representatives reported being aware of, but not familiar with HRAP's mission statement, incorporating the mission statement into the information distributed by HRAP could increase familiarity among Cannon Beach businesses. This could make a lasting impression on those considering a visit to Haystack Rock, especially if they have yet to hear of HRAP and its environmental initiatives.

Most businesses representatives that responded were familiar with HRAP, and only a small minority (11%) were not familiar with the program. Of the businesses that were familiar, 88% felt that HRAP had a positive effect on Cannon Beach. However, only about half of business that knew of HRAP felt that it had a positive effect on their business. About a third of respondents did not think that HRAP had any effect on their business. It would be worthwhile to investigate why most felt that HRAP had a positive effect on Cannon Beach, but not on their particular business. A larger sample size would be needed to understand if there is one particular business sector whose representatives do not feel that HRAP affects their businesses.

Conclusions:

The results of this study address the effects and perceptions of Haystack Rock and HRAP within Cannon Beach. This study has shown that more visits to Haystack Rock increase visitors' awareness of the Marine Garden protections. To increase this awareness, HRAP should expand the ways they are reaching people. Implementing QR-codes for people to scan to read up on Haystack Rock or increasing outreach and engagement with other businesses/areas that specialize in outdoor recreation are among a few such options. Business representatives feel that they benefit from proximity to Haystack Rock as it attracts a high volume of tourists that are potential customers. Since businesses often receive many questions about Haystack Rock, ensuring that they are informed about the marine garden protections, as well as HRAP's missions and initiatives is vital. Providing them with some easily digestible information they can distribute to their customers will help increase awareness among both business representatives and their customers. Additional research into public perceptions of Haystack Rock and HRAP would be needed with a larger sample size to be able to draw additional conclusions with greater certainty.

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Appendix A: Visitor Intercept Survey



2020 HRAP Visitor Perception Survey



1. Where is home for you? **(city, state)**

_____ , _____

2. Was your trip today started from home or from another location?

a. Home b. Other location If other location specify: _____

3. How many people are in your party? _____

4. What is your age? _____

5. What was your primary motive of your trip to the Oregon Coast?
(Circle all that apply)

- a. Sightseeing/wildlife viewing
- b. Hiking/biking/camping
- c. Beach use
- d. Fishing
- e. Visiting friends and or family
- f. Arts related
- g. Other: _____

6. What kinds of activities have you done during your trip to the coast?
(Circle all that apply)

- a. Sightseeing/wildlife viewing
- b. Hiking/biking/camping
- c. Beach use
- d. Fishing
- e. Visiting friends and or family
- f. Arts related
- g. Other: _____

7. How many times have you visited Haystack Rock?
(Circle one item)

- a. This is my first visit
- b. 2-5 visits
- c. 6-10 visits
- d. 10-15 visits
- e. More than 15 visits

A coastal area given Marine Garden protections restricts the collecting of plants, animals, and climbing above the high tide level. This is to protect the environment from harm.

8. Were you aware that Haystack Rock has Marine Garden protections?

- a. Yes
- b. No

9. Do you think these protections are necessary?

- a. Yes
- b. No
- c. I don't know

10. What are your thoughts and feelings about the Haystack Rock Awareness Program?
(Circle one item)

- a. I haven't heard of it
- b. Extremely Negative
- c. Negative
- d. No opinion
- e. Positive
- f. Extremely positive

11. Do you have any other comments you would like to add? _____

Appendix B: Business Survey



2020 HRAP Business Survey



1. What sector best describes your business?
(Circle one item)
 - a. Arts
 - b. Accommodations
 - c. Retail
 - d. Restaurants/Bars/Food Service
 - e. Other _____

2. Excluding yourself, how many individuals work at your business?
_____ full time _____ part time

3. How long have you been in business? _____ years

4. What types of activities do you think attract people to Cannon Beach?
(Circle all that apply)
 - a. Sightseeing/wildlife viewing
 - b. Hiking/biking/camping
 - c. Beach use
 - d. Fishing
 - e. Visiting friends and or family
 - f. Arts related
 - g. Other: _____

5. Do you think Haystack Rock Marine Garden has an effect on your local business?
 - a. A positive effect
 - b. A negative effect
 - c. No effect
 - d. I don't know

6. How frequently do guests ask about Haystack Rock Marine Garden?
(Circle one item)

- a. Never
- b. Infrequently (0-3 times/week)
- c. Somewhat frequently (3-5 times/week)
- d. Frequently (5-10 times/week)
- e. Very frequently (10+ times/week)

7. Are you familiar with the Haystack Rock Awareness Program (HRAP)?

- a. Yes
- b. No **(Skip to #11)**

8. What are your perceptions on HRAP's effect on the community of Cannon Beach?

- a. A positive effect
- b. A negative effect
- c. No effect
- d. I don't know

9. Do you think HRAP has an effect on your local business?

- a. A positive effect
- b. A negative effect
- c. No effect
- d. I don't know

10. How familiar are you with HRAP's mission statement?

- a. Familiar
- b. I'm aware, but not familiar
- c. I've never heard it

11. Do you have any other comments you would like to add? _____
