

**2012-13 VISITOR INTERCEPT SURVEY:
CAPE PERPETUA, OTTER ROCK, AND CASCADE HEAD MARINE
RESERVES**

BY

**TOMMY SWEARINGEN
HALEY EPPERLY
HILARY POLIS**

**OREGON DEPARTMENT OF FISH AND WILDLIFE
FEBRUARY 22, 2017**



TABLE OF CONTENTS

EXECUTIVE SUMMARY	II
INTRODUCTION	II
RESEARCH OBJECTIVES	II
RESEARCH DESIGN.....	III
RESULTS.....	III
CONCLUSIONS	IV
INTRODUCTION	1
OREGON MARINE RESERVE GOALS	1
PROGRAM EVALUATION IN 2023.....	1
RESEARCH DESIGN	3
RESEARCH OBJECTIVES	3
SAMPLE DESIGN	3
PRESSURE COUNT DATA COLLECTION.....	5
INTERCEPT INTERVIEW DATA COLLECTION.....	5
RESEARCH RESULTS.....	6
2012-13 PRESSURE COUNT RESULTS	6
2012-13 VISITOR INTERCEPT SURVEY – VISITOR PARTY AND TRIP CHARACTERISTICS	9
2012-13 VISITOR INTERCEPT SURVEY – DEMOGRAPHIC DATA	15
2012-13 VISITOR INTERCEPT SURVEY - KNOWLEDGE, ATTITUDES, AND PERCEPTIONS.....	16
2012-13 VISITOR INTERCEPT SURVEY – TRIP EXPENDITURES.....	21
CONCLUSIONS.....	24
LITERATURE CITED	26
APPENDIX A	27
APPENDIX B	30
APPENDIX C	33

EXECUTIVE SUMMARY

INTRODUCTION

When the state of Oregon began a process to establish a limited system of marine reserves within state territorial waters in 2008, the Oregon Department of Fish and Wildlife (ODFW) was designated the lead agency responsible for implementing and managing the system. ODFW oversees the five marine reserve sites at Cape Falcon, Cascade Head, Otter Rock, Cape Perpetua, and Redfish Rocks. The goals of the Oregon Marine Reserve system are:

Conservation Conserve marine habitats and biodiversity.

Research Serve as scientific reference sites to investigate marine reserve protections and the Oregon territorial seas, to inform nearshore ocean management.

Communities Avoid significant adverse impacts to ocean users and coastal communities.

To achieve these goals, ODFW established a program in 2009 for marine reserves implementation and monitoring. In this context, the Marine Reserves Human Dimensions Monitoring Program conducts studies to determine the direct and indirect social, cultural, and economic impacts which result from reserve site implementation. The information collected through this process should be relevant to other marine and coastal natural resource policy issues in Oregon. This paper reviews a study conducted to identify baseline information about existing knowledge of and attitudes about the marine reserves among Oregon coastal visitors. Tourism constitutes a substantial proportion of the economy of many coastal communities in Oregon. How the reserve system may impact coastal visitation can have significant implications for the economies of Oregon coastal communities.

RESEARCH OBJECTIVES

An important aspect of establishing baseline data about marine reserves is determining the use of the reserve areas. This study was designed as a pilot project to test and evaluate sampling design and questionnaire design for future research in subsequent years. A rapid assessment approach was used to collect reserve site visitor use information by activity type and user demographics. This method, referred to as a pressure count, produces a snapshot of use of the area for a given point in time. A pressure count provides a basic understanding of the type of activities connected to these areas. To gather more detailed data, on-site intercept interviews were conducted among a sample of visitors in the immediate vicinity of the reserves. The purpose of the intercept interviews was to understand user knowledge, attitudes, and opinions of reserve areas, characteristics of trips to the area, visitor party data, and the demographic characteristics of visitors.

The data collected during the pressure count focused on the following questions:

Who are the users of the reserve site?

What are these uses?

The purpose of the visitor intercept interviews at the reserve sites is to gather information about:

Demographic characteristics of the visitor population,

Visitor trip characteristics associated with the reserves (frequency, duration, etc.),

Visitor knowledge, attitudes, and perceptions about the marine reserves,

Types of expenditures associated with traveling to the marine reserve area.

Given this baseline information, replication will allow assessment of change in visitation patterns over time. Such information is central to the mandate of the Marine Reserves Human Dimensions Monitoring Program. The data reviewed in this report are from early pilot research conducted in 2012-13. The research instruments and methods used in 2014 and 2015 for related studies evolved as result of this pilot research.

RESEARCH DESIGN

The study protocol was designed to ensure that the interviews and pressure counts resulted in representative samples from the visitor population in areas adjoining the marine reserves. The sampling procedure was systematically rotated for location, time of day, and day of week. The studies were conducted during the peak 2012-13 summer tourism seasons at the sites of the Cape Perpetua, Otter Rock, and Cascade Head Marine Reserves.

Five sampling locations were selected for Cape Perpetua, five locations were selected for Cascade Head, and two locations were selected for Otter Rock. Pressure counts and intercept interviews were performed concurrently at each sampling location. Intercept surveys began immediately after the pressure count was completed at each location. This procedure was repeated at set time intervals for three sample periods at each sampling location per day.

Upon arrival at a sample location, an agency employee first conducted the pressure counts, recording the number and activities of all visitors observed at the site. Once the pressure count for a given location was completed, the employee would then conduct the visitor intercept interviews. While contacted visitors were interviewed, the agency employee concurrently recorded their responses on a field data collection form. The interview consisted of a series of structured interview questions about visitors, their visit and trip characteristics, visitor demographics, trip expenditure types, and visitor attitudes and perceptions about marine reserves.

RESULTS

For the visitor pressure count, observation data were collected for a total of 17,673 visitors during the 398 observation periods at 12 sampling locations during the summers of 2012 and 2013. Of those visitors, detailed activity data were collected for 12,648 visitors on the shore or beach, while 5,025 visitors were still in the parking areas. Among the shoreside visitors for which detailed data were collected, the most popular observed activities included general beach recreation (sunbathing, digging, kite flying, etc. - 78%), hiking (6%), and board sports (surfing, etc.) and tidepooling (both were 5%). A statistically significant higher proportion of observed visitors were engaged in board sports at Otter Rock than at Cascade Head and Cape Perpetua.

A total of 350 visitor interviews were completed. Most visitors (76%) were not local, but overnight visitors, who stayed away from home an average of five to eight nights. The overnight visitors stayed in Lincoln City (28%), Newport (23%), Yachats (13%) and Florence (8%). Respondents resided primarily in Oregon (36%) and adjoining west coast states (23%). There were many foreign visitors (8%), most from Canada. Visitors expended funds during their visit for lodging, restaurant dining (80%), grocery purchases (66%), and fuel (63%). The majority of visitors (79%) were at the coast in small groups of two to five people. Most respondents (66%) were first time visitors. The primary trip purposes were sightseeing (31%), visiting the beach (24%), and visiting with family and friends (11%). Respondents

were almost equally split between males (49%) and females (51%), and were either adults 31 to 45 years of age (32%) or adults 46 to 60 years of age (30%).

Although most respondents (84%) were not aware they were visiting a marine reserve, a large majority (88%) thought marine reserves were a positive outcome for Oregon. A majority (74%) also felt the reserves would increase their appreciation for the area. Many (41%) felt reserve designation would not impact their future visitation, and 44% felt the reserves would encourage more visitation. Only 7% (n = 14) felt the reserves would discourage future visitation.

A series of six questions were used to investigate visitors' factual knowledge about reserves. Most visitors (63%) answered less than 50% of the questions correctly. A higher proportion of correct answers was positively correlated to local residence, awareness of reserves, and repeat visitation. Somewhat unpredictably, higher factual knowledge was also correlated with negative perceptions of the outcome of the reserves for the state. The statistical strength of this relation was weak ($F = 6.207$; $p \leq .045$; Eta Squared = .027), and the number of respondents holding this view was small (n = 12).

CONCLUSIONS

The majority of visitors observed during the pressure counts were engaged in a range of pursuits described as general beach visitation, followed by hiking, tidepooling and board sports. Otter Rock visitors tended to engage more frequently in board sports. Most visitors who completed the questionnaire(s) were not local, but overnight visitors. As one might expect, they resided primarily in Oregon, and adjoining states, particularly Washington and California. There were many international visitors, most from Canada. The visitors typically had not previously visited the area.

The visitor support for reserves was positive. Although most were not aware they were visiting a designated (or soon-to-be designated) reserve, a large majority of the visitors thought marine reserves were a positive outcome for Oregon and felt the reserves increase their appreciation for the area. While many (41%) felt reserve designation would not impact their visitation, more visitors (44%) indicated that the designation of reserves would encourage them to visit more often. A very small minority (7%, n = 14) of the visitors thought the reserves would negatively impact their visitation.

The activity patterns of questionnaire respondents mirrored the observation data. Sightseeing and/or wildlife viewing, visiting the beach, and visiting with family and friends were the most common trip motives. Most visitors stayed overnight for an average of eight nights. Lodging, restaurant dining, fuel, and groceries were the most common expenditure categories. One should note that since only 15% of the visitors were aware of the reserves, the presence of marine reserves has had little impact to date on visitation or trip motives. As such, analysis of any marine reserves tourism economic impacts is currently inappropriate.

An analysis of visitors' factual knowledge about reserves revealed that the majority of respondents (63%) answered less than half of the test items correctly. Correct answers were positively correlated to local residence, awareness of reserves, and repeat visitation. Higher factual knowledge was also correlated with negative perceptions of the outcome of the reserves for the state. The statistical strength of this relation was weak ($F = 6.207$; $p \leq .045$; Eta Squared = .027), and the number of respondents holding this view was small (n = 12).

This study was the initial effort to document the baseline characteristics of marine reserve visitation. Since the methods were in a pilot phase, further adaptation of the methods occurred as a result of these learning experiences. These results will provide a basis for comparison with the additional years of baseline data (2014 and 2015), and will also be valuable for comparison with related data obtained after several years of reserve implementation have transpired, and prior to marine reserve system review in 2023.

INTRODUCTION

In 2008, the state of Oregon began a process to establish a limited system of marine reserves within state waters. State mandates and guidelines for the Oregon marine reserves are provided in Executive Order 08-07 (2008), House Bill 3013 (2009), Senate Bill 1510 (2012), administrative rules adopted by state agencies (OAR 635-012, OAR 141-142, and OAR 736-029), and in the *Oregon Marine Reserve Policy Recommendations* adopted by the Oregon Ocean Policy Advisory Council (OPAC) in 2008. The Oregon Department of Fish and Wildlife (ODFW) was designated the lead agency responsible for implementing and managing the Oregon Marine Reserve System. The OPAC policy recommendations provided the foundation for monitoring of the marine reserves.

During an extensive public engagement process, local communities worked with state officials to site the reserves in areas that would provide ecological benefits, and also avoid significant negative impacts to ocean users and coastal communities, in accordance with Executive Order 08-07. The reserves were to be phased in over several years. With the addition of Cape Falcon Marine Reserve on January 1, 2016, Oregon completed implementation of five marine reserve sites off the Oregon coast, all within 3 nautical miles from shore. The marine reserve sites are named after local natural landmarks, and are located at Cape Falcon, Cascade Head, Otter Rock, Cape Perpetua, and Redfish Rocks.

OREGON MARINE RESERVE GOALS

Based on the OPAC policy recommendations (OPAC 2008), the goals of the Oregon Marine Reserve System are:

- Conservation Conserve marine habitats and biodiversity.
- Research Serve as scientific reference sites to investigate marine reserve protections and the Oregon territorial seas, to inform nearshore ocean management.
- Communities Avoid significant adverse impacts to ocean users and coastal communities.

PROGRAM EVALUATION IN 2023

The Oregon marine reserve legislation included a mandate for an evaluation of the Oregon Marine Reserves Program in 2023. The evaluation will cover all aspects of marine reserve implementation including site management, scientific monitoring, outreach, community engagement, compliance, and enforcement. The Legislature will then consider if and how marine reserves will continue to be used as a management tool in the future.

Each of the five Oregon marine reserves is a unique case study with different configurations, site characteristics, and demographics. The 2023 evaluation will provide an opportunity to learn from these five case studies. Comparative examination of research across the five sites should help determine what has or has not worked well, and what has been learned with this research.

There is general agreement among the scientific community that this timeframe is too brief for detection of substantive ecological changes due to marine reserve protections. In the Oregon temperate marine ecosystem, scientists project a minimum of 10-15 years after extractive activities have ceased before scientific detection of ecological changes is practical. However, this duration does

provide sufficient time for constructive ecological and human dimensions research that will provide information for marine reserve site evaluation and inform nearshore resource management and policy.

To achieve these goals, ODFW established a program in 2009 for marine reserves implementation and monitoring. In this context, the Human Dimensions Monitoring Program was developed by ODFW staff with collaboration and assistance from external scientists and marine reserve community members. The Oregon Marine Reserves Human Dimension Monitoring and Research Plan (Murphy, et. al., 2012) documents the monitoring program objectives and research purposes. Research results are presented in interim project and summary biennial reports.

To contribute to the evaluation of the marine reserve system, the studies conducted by ODFW Human Dimensions Project are designed to address the following:

- Determine if marine reserves increase our knowledge of the Oregon nearshore environment, resources, and uses. Ascertain if this information is useful to support nearshore resource management.
- Determine if the marine reserves and associated marine protected areas, and the system as a whole, avoid significant adverse social and economic impacts to ocean users and coastal communities.

Human dimensions research pertaining to the Oregon Marine Reserve System is designed to determine the direct and indirect social, cultural, and economic impacts which result from reserve site implementation. Study subjects include related ocean users, communities of interest, and communities of place. The information collected through this process should be relevant to other marine and coastal natural resource policy issues in Oregon. Thus, the intention is to design a monitoring program that provides area specific data, but also addresses a sufficiently broad scope of research to inform state-wide coastal resource management and policy.

RESEARCH DESIGN

RESEARCH OBJECTIVES

As one aspect of the related human dimensions research, ODFW initiated a study to ascertain how people use the marine reserves, which includes identifying who the users of the sites are, what they are doing at the reserve sites, and the frequency of these user activities at each site. The primary objective of this research was to collect and analyze data about marine reserve visitor activities, demographics, party characteristics, visitor trip economic information, and visitor attitudes about and knowledge of the reserves. The establishment of this baseline data is important to determine the current patterns of usage of the reserves. Subsequent replication of this research can then provide the data for assessment of how such uses may or may not change over time. The 2012 and 2013 study was intended as a pilot project to test and evaluate the sampling design and questionnaire design. Results and feedback from this study improved the accuracy and efficacy of marine reserve visitor intercept surveys that occurred in subsequent years.

This study consisted of two components with different research designs and purposes. An observation procedure was used to collect data on visitor density, estimated age, gender, and visitor activities at the reserve sites. This method, referred to as a pressure count, produces a snapshot of visitation patterns for a given point in time. The purpose of the pressure counts is to obtain a rapid assessment of the usage of each marine reserve site in order to determine:

- Who are the users of the site?
- What are these uses?
- What is the rate of visitation?

Since personal contact with users can provide more detailed individual data than simple observations, on-site intercept interviews were also conducted with marine reserve visitors. The purpose of the intercept interviews of users at the reserve sites is to gather information about:

- Visitor expenditures associated with traveling to the marine reserve, to assist with future non-market valuations of the marine reserve system;
- Characteristics of visitor trips to the reserve site (frequency, duration, distance traveled, etc.);
- Visitor knowledge, attitudes, and perceptions about the marine reserves; and
- Visitor demographic characteristics.

Combining pressure counts with intercept interviews provides data to characterize both broad visitation patterns, observed visitor characteristics and activities, and important additional information on reserve visitor party type, trip motives and expenditures, and individual visitor attitudes and knowledge of the reserves.

SAMPLE DESIGN

Data for these studies were collected at three marine reserve sites, Otter Rock, Cape Perpetua, and Cascade Head during the summers of 2012 and 2013.¹ Specific sampling locations at each reserve site

¹ Although the Redfish Rocks Marine Reserve was implemented in 2012, that location was deemed too far away for this study, as sampling there would require overnight travel and additional personnel. Furthermore, the visitors at Redfish Rocks are mostly stopping at Hwy. 101 pullouts in an elevated setting where attribution of their behaviors to either the beach or

were selected based on visitation frequency and access criteria. The implementation of the reserves was phased in over several years in part to facilitate baseline data collection at each site prior to restrictions going into effect. Visitor observation and pilot interview data were collected at Otter Rock during 2011. The earliest observation data were discussed in a prior agency report (Swearingen, et. al., 2014). During that initial field work, an intercept interview protocol was in a pilot project development phase. Following the initial 2011 fieldwork, the visitor observations were expanded to include Otter Rock, Cape Perpetua, and Cascade Head in 2012 and 2013, reflecting the phased implementation schedule for the reserves. While improvements had been made to the 2011 visitor observation and interview protocols and designs for the 2012-2013 study, the 2012-2013 study was still intended to be part of the pilot phase. An example of the data collection instrument used during the pressure counts is located in Appendix C. Each pressure count sheet is site specific to facilitate accuracy during data collection. The pressure count data collection procedure has not been substantially changed since inception.

During the 2012-2013 study, the interview protocol was further refined. The instrument used for the 2012-2013 intercept survey was a structured interview design. The data collection protocol required the ODFW employee to actually interview the respondents and manually record their open ended responses on a structured interview form.² Various versions of the interview forms were slightly different in format, but contained essentially the same questions. Given the variations in the interview form, development of numeric codes that were universal across versions of the interview form was necessary. Content analysis of some of the visitor responses was required, consisting of interpretation and code assignment. Nevertheless, it was possible to create a common data base containing all of the 2012 and 2013 pilot data, a total of 350 interviews.

Sampling procedures for both the intercept survey and pressure count were performed concurrently at each sampling location. The sampling protocols for each reserve used a systematic rotation by time of day between sampling locations within a reserve. The sample design was not systematically rotated by each of the marine reserves. At each reserve site, the data collection rotated between sampling locations according to a set schedule, sampling at each location three times per day. This rotation schedule was designed to control for potential sampling bias by time of day by location, with data collection occurring at each sampling location during the morning, mid-day, and in the afternoon. Several of the most visited pull-outs, scenic attractions, and parking areas along each reserve were selected as sampling locations.³ Data for this research were collected between June 29th and August 15th in 2012, and between June 29th and August 23rd, 2013, at the height of the tourism season on the Oregon Coast.

When the ODFW employee conducting the studies arrived at a sample location, data were collected for the pressure count. Intercept surveys began immediately after the pressure count was completed within that location. The ODFW employee would then proceed to the next sample location at that

reserve visitation could be problematic. Few are actually visiting along the ocean. In the future ODFW is considering use of a camera to monitor visitor behaviors, but this method has not yet been implemented. Any related interviews would have to be conducted by a resident or residential intern based on availability.

² To facilitate more visitor contacts, the 2014 and 2015 studies used a closed-ended questionnaire design. Such a questionnaire design allows the respondent to participate in a largely self-administered manner. As a result, the 2014 and 2015 interview data are not directly comparable to data previously collected at these sites.

³ These sampling locations were also used for subsequent studies in 2014 and 2015. The one exception was at Cape Perpetua, where visitors were previously contacted at the Tenmile Creek parking area in 2012 and 2013, but that parking lot was closed for construction in 2014.

reserve site. This procedure was repeated across all locations within a reserve for a total of three sample rotations for each sampling location per day.

PRESSURE COUNT DATA COLLECTION

The data collected during each pressure count observation included the number of cars and visitors at the parking area, the number of visitors present on the shore and in the water or intertidal zone of the reserve, and the activities of visitors present at the site. When the ODFW employee first arrived at the site, they immediately counted the number of cars parked in the area, the number of visitors in the parking area, and the number of visitors engaged in each type of activity along the ocean shore.⁴ The goal was to finish the pressure count as quickly as possible to capture a snapshot of the users at a single moment in time. An effort was made to avoid double counting or counting users who arrived at the site after the first general inventory. Other data recorded on the observation form during the pressure count included the time of day and location.

INTERCEPT INTERVIEW DATA COLLECTION

When the pressure count for a given location was complete, the employee would conduct an opportunity sample contacting a number of visitors present at the site. The employee would make contacts with proximate visitors immediately present along the points of access to the location (i.e., in the parking lot, on beaches or shorelines, and/or on the trails). Since the sample date was already systematically rotated by time and by location, this contact procedure should not introduce any substantial bias to the sample.⁵ When the target sample size at that location was achieved, the interviewer would move on to the next sampling location, and begin the process of pressure counts and intercept interviews again.

The employee conducting the visitor contacts was a seasonal female employee wearing an ODFW jacket and hat. Upon introduction, this employee explained the purpose of the study, and the contacted visitors were each interviewed by the employee. The visitor responses were recorded during the interview by the employee on a field data collection form on a clipboard. The survey instrument contained questions about basic visitor demographics and trip information, trip expenditure and activity questions, and questions about visitor attitudes, expectations, and knowledge of marine reserves (Appendices A and B).

⁴ The employee then recorded the gender of the visitors and the estimated age category of all visitors at some of the sites. These data are not presented herein as this pilot procedure was not standardized across all the sites. In reports for subsequent years, these data are presented.

⁵ Refusals to participate in the study were exceedingly rare.

RESEARCH RESULTS

2012-13 PRESSURE COUNT RESULTS

When the ODFW employee first arrived at an observation site, all persons and vehicles in the parking area were counted. Once this preliminary data collection was completed in the parking area, the ODFW employee then moved to shoreside observations to collect data about visitor demographics and activities. Data were collected at twelve sampling locations across the three reserves during a total of 398 observation periods between June 29, 2012 and August 23, 2013. Table 1 illustrates this distribution of observation periods by reserve site and sampling location.

Table 1. 2012-13 Visitor Pressure Count - Sampling Frequency by Location

Location	Frequency	Percent
OR - Punchbowl	20	5.0%
OR - Otter Crest	19	4.8%
CH - 35 th Street	27	6.8%
CH - Nelscott	27	6.8%
CH - D-River	27	6.8%
CH - Roads End	27	6.8%
CH - Knight Park	27	6.8%
CP - Yachats	45	11.3%
CP - Perpetua	45	11.3%
CP - Neptune/Strawberry	45	11.3%
CP - Tenmile	44	11.1%
CP - Washburn/Heceta	45	11.3%
Total	398	100.0%

Note: OR = Otter Rock, CH = Cascade Head, CP = Cape Perpetua

For all of the reserves combined, an average of 13 persons per observation period were counted in the parking areas (Table 2). These visitors (N = 5,025), classified as general visitors, are not included in the analysis of visitor activities, as their intended activities could not be identified in the parking areas. During the observation periods, an average of 20 vehicles were present in the parking areas of the sampling locations. In 46% of the observation periods, fewer than ten vehicles were parked at each sampling location during the pressure count. Similarly, during 58% of the observation periods, fewer than six visitors were observed in the parking areas of sampling locations during the pressure count.

Table 2. Number of Vehicles and Visitors in Parking Area

Descriptive Statistics	Vehicles	Visitors
Mean	20.09	12.66
Median	10.0	5.0
Mode	2	0
Std Deviation	22.611	17.751
Minimum	0	0
Maximum	111	94
Total	7,010	5,025

N = 7,010 vehicles; N = 5,025 visitors

Henceforth in this paper, all discussions about visitor activities refer to the shoreside visitors (N = 12,648) observed after the traffic and visitor count in the parking areas. For the visitor activity observations, Table 3 presents the distribution of observed visitors by reserve site. Note: The protocol for collecting observation data was not designed to produce an equal distribution across reserve sites. Data collection spanned two summers.

Table 3. Observed Visitors by Reserve Site (Activity Data Only)

Reserve	Frequency	Percent	Observation Periods
Cape Perpetua	4,589	36.3%	224
Otter Rock	1,440	11.4%	39
Cascade Head	6,619	52.3%	135
Total	12,648	100.0%	398

N = 12,648

The most common type of activity observed at all sites was categorized as general beach visitation, those participating in swimming/wading, general play, kite flying, etc. (Table 4). Hiking was the second most popular activity (6%) observed among all visitors, followed by tidepooling (5%) and board sports (5%). While many visitors engage in a range of activities during their visit, these data represent a brief snapshot of average visitor activities during the specific observation period.

Table 4. Proportion of Visitor Participation by Activity

Observed Visitor Activity	Frequency	Percent
Beach Goer	9,874	78.1%
Hiking and/or Camping	731	5.8%
Tidepool	654	5.2%
Board Sports	579	4.6%
Wildlife Viewing/Photography	415	3.3%
Motorboats	65	0.5%
Dog Walking	44	0.3%
Shore Fishing	36	0.3%
Non-motorized Boats	14	0.1%
Other	236	1.9%
Total	12,648	100.1%

N = 12,648

General beach visitation was also the most common observed visitor activity at each of the individual reserves (Table 5). Hiking was the second most popular activity at Cape Perpetua, and viewing tidepools was the second most popular activity at Cascade Head. Board sports, the second most common activity at Otter Rock, was significantly more popular at that location in comparison to the two other reserve sites. Fishing, boating and all other types of activities were considerably less popular among the visitors at all of the reserve sites.

Table 5. Average Number of Participants by Activity and by Marine Reserve Site¹

Observed Visitor Activity	Cape Perpetua	Otter Rock	Cascade Head	All Locations (N)
General Beach Goer	13.90	22.64	43.93	24.93 (9874) ²
Hiking and/or Camping	2.53	N/A	1.25	2.05(731) ³
Board Sports	0.22	10.03	1.05	1.47 (579) ²
Tidepooling	1.11	2.33	2.34	1.65 (654) ⁴
Wildlife Viewing and/or Photography	1.75	N/A	0.18	1.17 (415) ²
Shore Fishing	0.13	N/A	0.06	0.10 (36) ⁴
Dog Walking	N/A	1.13	N/A	1.13 (44)
Motorboats	.08	.26	.29	0.17 (65) ²
Non-motorized Boats	.01	.00	.09	0.04 (14) ³
Other	0.86	0.54	0.18	0.60 (236) ⁴

¹ N/A indicates data were not recorded for this activity at this reserve site.

² Significant difference, $p < .001$; ³ Significant difference, $p < .05$; ⁴ Not a significant difference
 Note: This table does not include the visitors observed in the parking lots because their intended activity could not be discerned.

2012-13 VISITOR INTERCEPT SURVEY – VISITOR PARTY AND TRIP CHARACTERISTICS

Visitor intercept interviews were conducted during the summer vacation seasons from June 29 to August 15, 2012 and from June 29 to August 23, 2013. Interview responses were initially recorded in the field on an interview form by the ODFW employee conducting the interviews (Appendices A and B). These responses were subsequently converted into numeric codes and entered into a digital database. This database was created prior to standardization of the instrument, so there were some minor differences between the versions of the interviews by location and/or by year. Thus a few tables may reflect responses to questions by only a subsample of all respondents, although most contain responses by all visitors who were interviewed. The content of the questions in the interviews was usually the same, but some of the questions were not used at all sites.

A total of 350 visitor interviews were completed during the entire period of data collection. The interviews were almost equally distributed across the three marine reserve sites (Table 6). An average of 117 interviews were conducted at each reserve, with a slightly larger proportion of the interviews (36%) conducted at Cape Perpetua.

Table 6. Interview Distribution by Reserve Site

Reserve Site	Frequency	Percent
Cape Perpetua	126	36.0%
Otter Rock	115	32.9
Cascade Head	109	31.1%
Total	350	100.0%

N = 350

The largest proportion of visitors resided in Oregon (36%, Table 7, Figure 1). The next most common states of residence were the adjoining coastal states of Washington (14%) and California (9%). There were more international visitors (8%)⁶, including Canada (5%) and Europe (3%), than residents of any other single state in the United States. Texas (3%) was the next most common state of residence among respondents from the United States.

Table 7. Visitor Home State or Country of Residence

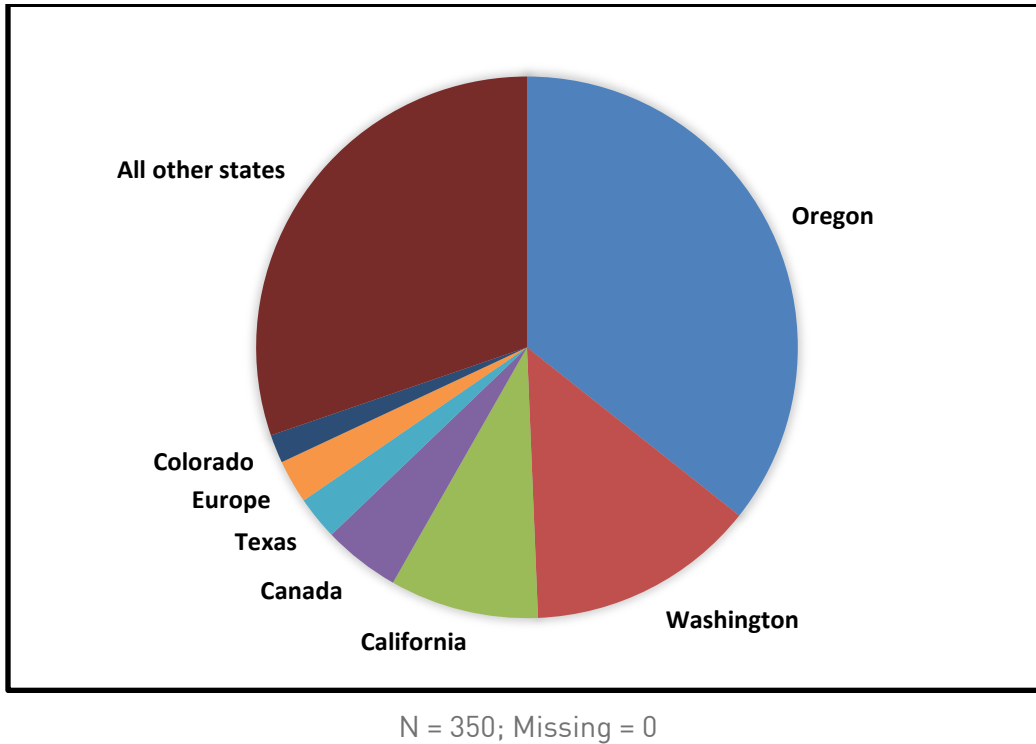
Appendix A and B: QA1. Where is home for you?

State or Country	Frequency	Percent
Oregon	125	35.7%
Washington	48	13.7%
California	31	8.9%
Canada	16	4.6%
Texas	9	2.6%
Europe	9	2.6%
Colorado	6	1.7%
All Others	106	30.3%
Totals	350	100.1%*

N = 350; Missing = 0; * Rounding Error

⁶ Includes Canadian and European visitors plus one visitor each from Korea and Rwanda.

Figure 1. Residence of Marine Reserve Visitors



The distance visitors had traveled from home was computed using zip codes (or cities for international visitors).⁷ The average distance traveled from home was 808 miles (Table 8). Since some of the international visitors had traveled a considerable distance, their travel mileage would tend to inflate the average trip mileage of visitors from the U.S. and Canada. The analysis was rerun for visitors from North America, excluding those visitors who had traveled greater than 4000 miles. For North American visitors only, the average distance from their residence was 648 miles.

Table 8. Distance from Residence When Contacted

Statistic	All Respondents	North American Respondents
Mean	808.52	648.00
Median	246.50	241.00
Mode	0	0
Std Deviation	1202.49	810.86
Minimum	0	0
Maximum	9120	3200
Valid N	338	327*

N = 338; Missing = 12

* Excludes 9 foreign visitors from Europe, one each from South Korea and Rwanda.

⁷ For this analysis, distance is defined as driving distance, using Google Maps, rather than straight line distance.

Many economic analyses of tourism define a tourist as anyone who travels over fifty miles for a recreational (i.e., non-business) trip (c.f. Dean Runyan Associates, 2016). Using that definition of a tourist, an analysis was run to identify the proportion of the visitor population that could be defined as tourists (Table 9). Accordingly, 84% of the visitors were at least 50 miles from home, and 16% of the respondents would be defined as local residents or day visitors.

Table 9. Distance from Residence When Contacted

Statistic	Distance ≥ 50	Distance < 50
Mean	955.94	15.76
Median	393.00	8.00
Mode	106	0
Std Deviation	1255.662	17.362
Minimum	53	0
Maximum	9120	49
Valid N	285 (84.3%)	53 (15.7%)

N = 338; Missing = 12

As one indication of the proportion of visitors who were overnight visitors/tourists rather than local residents or residents in close proximity to the coast, respondents were asked whether their trip originated at home or elsewhere on the day of contact (Table 10). For the entire sample across all reserves, 75% of respondents began their trip from a location other than their home.

Table 10. Visitor Trip Origin by Marine Reserve Site

Appendix A: QA2. Did you start your trip today from home or another location (where)?
 Appendix B: QA2. Did you start your trip today from home or another location (where)?

Origin of Trip	Frequency	Percent
Home	87	24.9%
Other Location	263	75.1%
Total	350	100.0%

N = 350, Missing = 0

Those visitors who had not traveled to the reserve sites from home on the day of contact had stayed overnight at some other location within reasonable driving distance of the coast. Not surprisingly, a significant majority (71%) of those respondents stayed in four coastal communities in close proximity to the reserves (Table 11). Those towns were Lincoln City (28%), Newport (23%), Yachats (13%), and Florence (8%).

Table 11. City Where Trip Originated

QA2-2. Did you start your trip from home or another location (where)?

City	Frequency	Percent
Lincoln City	73	27.9%
Newport	59	22.5%
Yachats	33	12.6%
Florence	21	8.0%
Waldport	12	4.6%
Portland (Metro)	7	2.7%
Depoe Bay	6	2.3%
All Other Trip Origins	51	19.5%
Total	262	100.1%*

N = 262, Missing = 1

* Rounding Error

Note: Table excludes those respondents who started their trip from home.

Visitors were asked where they had started their trip from on the day of contact, and this information was used to determine the distance they had traveled that day (Table 12). Visitors had driven an average of 32 miles on the day of contact. Since one respondent had traveled a considerable distance (772 miles) on that contact day, and because the standard deviation was large relative to the mean, an analysis was run to check for the effect of outliers on average distance traveled. Excluding the one respondent in question, the average distance traveled did not change substantially (still about 30 miles). Additional analyses of the data using progressively smaller distances traveled did not appreciably change the outcome. Thus, there is considerable variation in the distance traveled among visitors on the day of contact. However, the average distance traveled ranged from 27 to 32 miles across all analyses.

Table 12. Distance Traveled on Day of Contact

Appendix A: QA1. Where is home for you?

QA2. Did you start your trip from home or another location (where)?

Appendix B: QA1. Where is home for you?

QA2. Did you start your trip from home or another location (where)?

Statistic	All Respondents	Less Than 600 Miles	Less Than 150 Miles
Mean	31.65	29.49	26.54
Median	12	12	11
Mode	0	0	0
Std Deviation	57.188	40.899	32.503
Minimum	0	0	0
Maximum	772	316	146
Valid N	344	343	338

N = 344; Missing = 6

Visitors were asked about the size of the group that they were with while visiting the marine reserve (Table 13). The average group size was 3.38 visitors. The most common group size was two visitors, and one party consisted of 50 visitors. A large majority of all groups (79%) consisted of two to five visitors (Table 14). Individuals visiting alone were 13% of the respondents, and groups of six to ten visitors (6%) were the next most common group size.

Table 13. Total Number of People in Group

Appendix B: QC3. Party Size _____

Statistic	Value
Mean	3.38
Median	2.00
Mode	2
Std. Deviation	4.679
Minimum	1
Maximum	50

N = 336, Missing = 14

Table 14. Size Categories of Visitor Groups

Group Size	Frequency	Percent
Individual	42	12.5%
Small Group (2-5 people)	265	78.9%
Medium Group (6-10 people)	20	6.0%
Large Group (11+ People)	9	2.7%
Total	336	100.0%

N = 336, Missing = 14

During 2012 at Cape Perpetua, visitors were asked to identify the type of group they were with while visiting the area (Table 15). A substantial majority of visitors (74%) cited visiting family as the group type during their visit. Visiting with friends (13%) or as a couple (5%) were other common groups their visitation to the area.

Table 15. Group Type (2012; Cape Perpetua Only)

Appendix B: QC3. Party size: Visitor Group Characteristics

Group Characteristics	Frequency	Percent
Family Group	92	80.0%
Friends	16	13.9%
Couple	7	6.10
Total	115	100.0%

N = 115; Missing = 11; Question only used in 2012 at Cape Perpetua.

Note: There were errors in coding for 10 cases.

Visitors were asked to identify their primary purpose for visiting the coast (Table 16). The most common primary purpose for visitation cited by respondents was sightseeing and/or wildlife viewing (31%), followed by general beach use (24%). A wide range of visitor-identified purposes that were categorized as 'Other' were cited, and the next most common specific reason for visitation was visiting with family and friends (11%).

Table 16. Activities as Primary Purpose of Visit

Appendix A: QA3. What was the main purpose of your trip to the Oregon coast?
 Appendix B: QA4. What was the main purpose of your trip to the Oregon coast?

Primary Purpose	Frequency	Percent
Sightseeing and/or Wildlife Viewing	107	30.6%
General Beach Use	85	24.3%
Other	56	16.0%
Family and Friends	40	11.4%
Water Sports	24	6.9%
Business	12	3.4%
State Park/Marine Garden	8	2.3%
Fishing Trip	4	1.1%
Not Sure	14	4.0%
Total	350	100.0%

N = 350, Missing = 0

Contacted visitors were asked how many times they had previously visited the area where they were contacted within the last year (Table 17). The mean number of visits among the respondents was 18. However, the standard deviation was quite large relative to the measures of central tendency (mean, median, and the mode). Since a respondent visiting the area once would be referring to that visit during the interview, and some visitors had visited quite frequently (the maximum was 365 days), the statistics were rerun to adjust for both singular visits and unusually large rates of visitation. There were 227 first time visitors, and 14 respondents reported that they had visited the area an average of 329 days in the past year. Among those respondents who were repeat visitors to the area, and who did not report unusually high rates of visitation, the average number of visits during the prior year was 13 visits. Among all visitors, a large majority (76%) had visited the area only once or twice during the prior year.

Table 17. First Time and Repeat Visitation among Area Visitors

Appendix A: QA5. How many times have you visited this area over the last year?

Appendix B: QA6. How many times have you visited this area over the last year?

Statistic	All Respondents	High Visitation	1 < Visits ≤ 150	1st Visit
Mean	17.84	329.07	12.74	1
Median	1	365	3	1
Mode	1	365	2	1
Std. Deviation	66.665	67.275	22.19	0
Minimum	1	180	2	1
Maximum	365	365	100	1
N	346	14	105	227

N = 346, Missing = 4

2012-13 VISITOR INTERCEPT SURVEY – DEMOGRAPHIC DATA

Demographic questions during the interview were included to characterize the visitor population by respondent age and gender. During the interview, the visitors were asked their age (Table 18). The most common age category of respondents was adults of 31 to 45 years of age (32%). However, respondents who were adults from 46 to 60 years of age (30%) were also nearly as common among the interviewees. Older adults and seniors (60+ years) represented 25% of all respondents. Slightly more interview respondents were females (51%) than males (49%, Table 19).

Table 18. Visitor Age Categories

Appendix A: QC1. What is your age?

Appendix B: QC1. Age (estimated)

Age Category	Frequency	Percent
18 to 30 Years	48	14.0%
31 to 45 Years	109	31.8%
46 to 60 Years	102	29.7%
60+ Years	84	24.5%
Total	343	100.0%

N = 343; Missing = 7

Table 19. Gender of Respondents

Appendix A and B: QC2. Gender (observed)

Gender	Frequency	Percent
Male	165	48.7%
Female	174	51.3%
Total	339	100.0%

N = 339; Missing = 11

2012-13 VISITOR INTERCEPT SURVEY - KNOWLEDGE, ATTITUDES, AND PERCEPTIONS

In addition to the general demographic and trip characteristics questions discussed above, all interviewed visitors were asked additional questions pertaining to their perceptions and awareness of the reserves. The visitors were first asked whether they were aware that the state had designated or would soon be designating a marine reserve at the interview location. A large majority (84%) of respondents at all three locations were not aware that a marine reserve had been or was to be designated at the location where they were interviewed (Table 20).

Table 20. Respondent Awareness of Reserve Designation

Appendix A: QB1. Were you aware the state will be implementing a marine reserve in this area in a few years?

Appendix B: QB1. Were you aware the state implemented a marine reserve in this area in 2012?

Aware of Reserve	Frequency	Percent
Yes	51	14.7%
No	292	84.4%
Not Sure	3	0.9%
Total	346	100.0%

N = 346, Missing = 4

Visitors were asked if the designation of a marine reserve in the area would impact their visitation in any manner (Table 21). Those visitors who indicated that the designation of the reserve would encourage them to visit more frequently were 44% of the respondents. In one version of the questionnaire, only those respondents who did not respond positively to this question (N = 195) were asked the subsequent question concerning whether reserve implementation would discourage their future visitation. Most of these respondents (70%) thought reserve designation would not discourage their visitation. Fourteen respondents (7%) thought reserve designation would negatively impact their visitation. Thus only 4% of all respondents (14/345) thought they would be discouraged from visiting the area upon marine reserve designation.

Table 21. Expectations for Visitation in Response to Reserve Designation

Appendix A: QB4. Would a marine reserve in this area encourage you to visit more often?

QB5. Would a marine reserve discourage you to visit the area?

Appendix B: QB2. Does the designation of this area as a marine reserve encourage or discourage you from visiting?

Expectations Response	Encourage Visitation		Discourage Visitation	
	Frequency	Percent	Frequency	Percent
Yes	150	43.5%	14	7.2%
No	140	40.6%	137	70.3%
Not Sure	55	15.9%	44	22.6%
Total	345	100.0%	195*	100.0%

N = 345, Missing = 5

* Excludes visitors that indicated a marine reserve would encourage visitation on QB4.

When asked if a marine reserve in the area would increase their appreciation for the area, the majority (74%) of respondents answered affirmatively (Table 22). A modest number of visitors (8%) were unsure what impact the reserve might have on their appreciation of the area, and 18% of the respondents thought the presence of the reserve would not increase their appreciation of the area.

Table 22. Impact of Marine Reserves on Visitor Appreciation of Area

Appendix A: QB6. Would a marine reserve in this area increase your appreciation for this area?
 Appendix B: QB3: Does it increase your appreciation for this area?

Response	Frequency	Percent
Yes	255	73.9%
No	63	18.3%
Not Sure	27	7.8%
Total	345	100.0%

N = 345; Missing =5

Survey participants were asked if they felt that marine reserves were a positive outcome (a *good thing*) for Oregon. A large majority (88%) of respondents at all sites considered the reserves to be a positive outcome for Oregon (Table 23). A small number of visitors (9%) were not sure of the outcome, and only 4% of visitors felt that the marine reserves represent a negative outcome for the state of Oregon.

Table 23. Visitors Opinions Concerning Impact of Reserves for Oregon

Appendix A: QB7. In your opinion, do you feel marine reserves are a good thing for Oregon?
 Appendix B: QB4. In your opinion, do you feel marine reserves are a good thing for Oregon?

Response	Frequency	Percent
Yes	303	87.8%
No	12	3.5%
Not Sure	30	8.7%
Total	345	100.0%

N = 346, Missing = 4

Visitors were asked a series of questions to ascertain their factual knowledge concerning the Oregon marine reserves (Table 24). The first question in this series concerned types of activities allowed in marine reserves. Ninety-four (41%) of the visitors chose the correct answer (yes) for swimming, and 35% of the respondents chose the correct answer (yes) for surfing. The majority of visitors answered correctly for both questions concerning the prohibition of extractive activities within the reserves, fishing/crabbing (73%) and clamming (68%). A smaller proportion of the respondents (44%) correctly answered that boating without fishing is allowed.

Table 24. Perceived Activities Allowed in Reserves

Appendix A: QB2. Which of the following do you think is allowed in a marine reserve?

Type of Activities	Response	Yes N (%)	No N (%)	Not Sure N (%)	Total
Swimming		94 (40.7%)	124 (53.7%)	13 (5.6%)	231 (100%)
Surfing		80 (34.6%)	139 (60.2%)	12 (5.2%)	231 (100%)
Fishing/crabbing		43 (18.6%)	168 (72.7%)	20 (8.7%)	231 (100%)
Clamming		43 (18.7%)	157 (68.3%)	30 (13.0%)	230 (100%)
Boating w/o Fishing		102 (44.3%)	98 (42.6%)	30 (13.0%)	230 (100%)
Beach Combing		120 (52.2%)	87 (37.8%)	23 (10.0%)	230 (100%)

N = 230-231, Missing = 4, 4, 4, 5, 5, 5, respectively

Note: Computed sum excludes Otter Rock visitors (N = 115)

A sum of all correct factual answers was computed from the respondent answers to QB2. That outcome is displayed in Table 25. The majority of respondents (63%) correctly answered three or fewer answers out of the six factual questions asked. The average correct score was 3.12 (52%). Only 5% of respondents correctly identified every activity that is and is not allowed in the reserves.

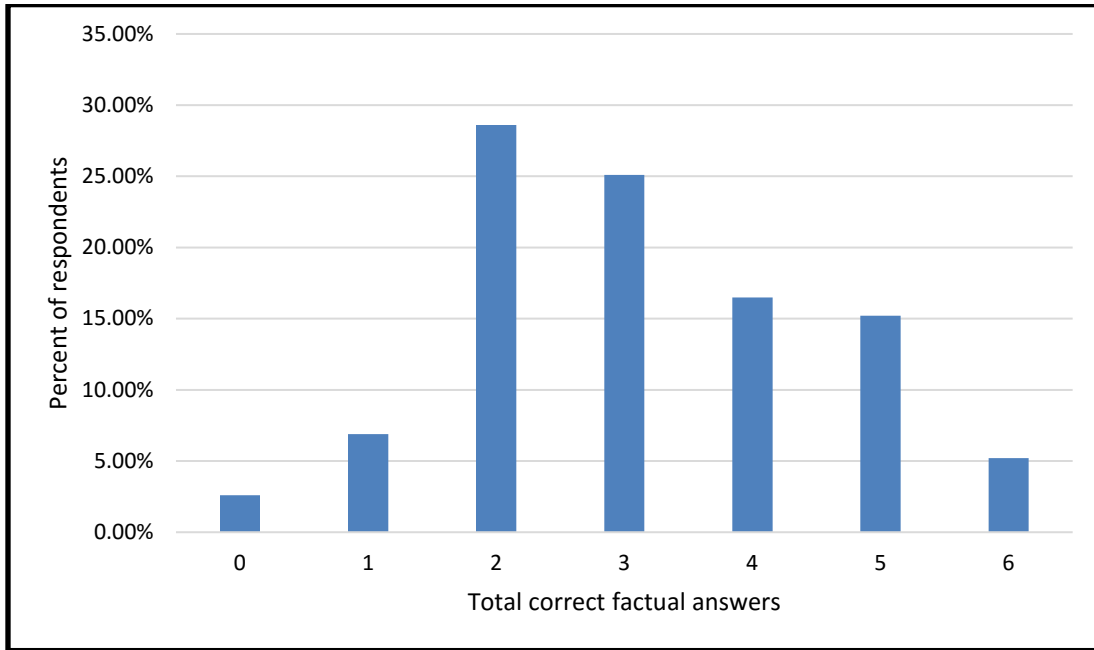
Table 25. Sum of Correct Factual Answers

Value	Frequency	Percent	Cumulative Percent
0	6	2.6%	2.6%
1	16	6.9%	9.5%
2	66	28.6%	38.1%
3	58	25.1%	63.2%
4	38	16.5%	79.7%
5	35	15.2%	94.8%
6	12	5.2%	100.0%
Total	231	100.0%	---

N = 231; Missing = 4

Note: Computed sum excludes Otter Rock visitors (N = 115)

Figure 2. Distribution of Summed Score on Factual Answers



N = 231; Missing = 4

An additional analysis was performed to investigate which variables (visitor characteristics) would predict a higher number of correct factual answers related to the reserves. Factual answer scores were compared between local coastal residents⁸ and the rest of the respondents. Coastal residents had statistically higher factual scores (Table 26). The strength of this relationship was low (Eta Squared = .030), indicating that other factors may explain differences in factual scores.

Table 26. Variance in Factual Scores between Coastal Residents and Nonresidents

Residence	Mean	N	Std deviation
Coastal	3.87	23	1.546
Not Coastal	3.07	199	1.393
Total	3.15	222	1.427

N = 222; Missing = 13
 F = 6.717; p ≤ .01; Eta Squared = .030

There were not statistically significant differences in average factual scores between men and women, or between age categories. However, visitors who were aware of the reserves were significantly more likely to have higher average factual scores. (Table 27).

⁸ Coastal residence was defined as any respondent whose residence was west of the Coast Range.

Table 27. Variance in Factual Scores Related to Reserve Awareness

Aware of reserves?	Mean	N	Std deviation
Yes	4.17	23	1.435
No	3.01	207	1.374
Not Sure	1.00	1	---
Total	3.15	231	1.424

N = 231; Missing = 4
 F = 8.491; $p \leq .0001$; Eta Squared = .069

There were not statistically significant differences in average factual scores among visitors who thought reserves might encourage visitation and visitors that did not think reserves would encourage visitation. Average factual scores were also not related to increased appreciation for the reserves. However, differences in factual scores were related to attitudes about the reserves as positive outcomes for Oregon (Table 28). Visitors who thought the reserves were a positive outcome (a *good thing* for Oregon) were significantly more likely to have lower average factual scores. This somewhat counterintuitive result might be explained by the very small number of visitors (n = 12) who thought reserves were not a positive outcome. Regardless, the strength of this statistical relationship was low (Eta Squared = .027).

Table 28. Variance in Factual Scores Related to Positive Opinions of Reserves

Positive Outcome?	Mean	N	Std deviation
Yes	3.15	198	1.424
No	3.90	10	1.524
Not Sure	2.59	22	1.182
Total	3.13	230	1.421

N = 231; Missing = 4
 F = 6.207; $p \leq .045$; Eta Squared = .027

Finally, repeat visitation was positively and significantly correlated with factual scores (R = .157; $p = .017$; N = 231). As might be expected, respondents who had visited the coast more frequently within the past year had higher scores for factual knowledge about the reserves. Summarizing the foregoing analysis, higher factual knowledge scores were related to local residence (F = 6.717; $p \leq .01$; Eta Squared = .030), awareness of reserves (F = 8.491; $p \leq .0001$; Eta Squared = .069), and repeat visitation (Pearson's R = .157; $p = .017$). These correlations represent statistically significant results in the direction one would expect. Respondents who did not think the reserves were a good thing for Oregon (n = 10) had significantly higher knowledge scores (F = 6.207; $p \leq .045$; Eta Squared = .027).

Visitors were asked to identify Oregon's purpose for implementing a marine reserve in the area where they were contacted (Table 29). The most selected answer was 'all of the above', indicating respondents felt that every provided option was included in the state's purpose for creating reserves. The second highest answer, which 28% of respondent chose, was for habitat conservation. The third most selected answer was to protect endangered species.

Table 29. Perceived State Purpose for Reserves?

Appendix A: QB3. In your opinion which of the following best describes the state’s purpose for implementing a marine reserve in this area?

Response	Frequency	Percent
Protect Endangered Species	38	16.5%
Rebuild Depleted Fish Stocks	8	3.5%
Research Opportunities	15	6.5%
Habitat Conservation	64	27.8%
Political Reasons	13	5.7%
Not Sure ¹	4	1.7%
All the Above ¹	88	38.2%
Total	230	100.0%

N = 230; Missing =5

¹ The Not Sure response was before the All the Above response on the interview form. While one could expect the interviewers did not use that sequence when conducting the interview, there is no way to ascertain if there was some influence on the response patterns.

2012-13 VISITOR INTERCEPT SURVEY – TRIP EXPENDITURES

Visitors were asked if they planned to stay overnight during their trip (Table 30), and a significant majority (76%) were staying overnight. For these visitors, the average duration away from home was eight nights (Table 31). Several visitors were staying for more than a month; therefore, the statistics were rerun excluding these long term visitors. Among the shorter term visitors, the average length of stay was five nights.

Table 30. Visitors Staying Overnight During Trip

Appendix A: QA2. Did you start you trip today from home or another location (where)?
Appendix B: QA2. Did you start you trip today from home or another location (where)?

Response	Frequency	Percent
Started from another location	262	75.9%
Started from home	83	24.1%
Total	345	100%

N = 345; Missing =5

Table 31. Duration of Overnight Stay (2013 Data Only)

Appendix B: QA3. How many nights are you away from home on this trip?*

Statistic	All 2013 Visitors	Shorter Term Visitors
Mean	7.53	5.21
Median	3	3
Mode	0	0
Std Deviation	11.961	5.902
Minimum	0	0
Maximum	71	25
Valid N	115	109

N = 115; *Question was not used during the 2012 interviews.

Visitors were asked if they traveled by any type of commercial transportation at any time during their trip (Table 32). Only 18% of the visitors used transportation modes other than private automobiles.

Table 32. Modes of Visitor Travel

Appendix B: QA5. Have you done any of the following activities during THIS TRIP to the Oregon coast?
[commercial modes of travel listed]

Response	Frequency	Percent
Used at least one mode of commercial travel	21	18.30%
Did not use any mode of commercial travel	94	81.70%
Total	115*	100.00%

N = 112, Missing = 3

* Otter Rocks visitors only; question not used at other locations.

Trip expenditure data (actual or estimated) were not collected from visitors. However, visitors were asked if they spent money on a range of expenditure categories (Table 33). A large majority (80%) of visitors ate out in restaurants during their visit. Most visitors spent money on groceries (66%) and fuel (63%). Only a small number of visitors (n = 19, 5%) indicated that they had expended funds for fishing fees.

Table 33. Funds Spent in Expenditure Categories

Appendix A: QA4. Have you done [spent funds on] any of the following activities [expenditure categories] during THIS TRIP to the Oregon coast?

Appendix B: QA5. Have you done [spent funds on] any of the following activities [expenditure categories] during THIS TRIP to the Oregon coast?

Expenditure Type	Yes N (%)	No N (%)	Total
Grocery	227 (65.6%)	119 (34.4%)	346 (100%)*
Restaurant	277 (80.1%)	69 (19.9%)	346 (100%)*
Vehicle Rental	66 (19.1%)	280 (80.9%)	346 (100%)*
Fuel	218 (63.0%)	128 (37.0%)	346 (100%)*
Fishing fees	19 (5.4%)	331 (94.6%)	350 (100%)**
Retail	165 (47.7)	181 (52.3%)	346 (100%)*
Recreation Fees	33 (28.7%)	82 (71.3%)	115 (100%)***

*N = 346; Missing =4

**N = 350; Missing =0

***N = 115; Otter Rock respondents only.

CONCLUSIONS

Most visitors (78%) were observed in a range of pursuits which can be described as general beach visitation. More visitors at Cascade Head fell under the general beach goer category, whereas this visitor activity was less frequently observed at Otter Rock and Cape Perpetua. The next most common visitor activity at all reserves sites was hiking/camping (6%), followed by viewing tidepools and board sports (both 5%). Otter Rock is considered an ideal location for beginner surfers due to a headland protecting the beach from wind and massive swells. A statistically significant higher proportion of observed visitors were engaged in board sports at Otter Rock than at Cascade Head and Cape Perpetua.

Most visitors (75%) who completed the questionnaire(s) were not coastal Oregon locals, but were overnight visitors. Visitors stayed away from home an average of five to eight nights during their trip, and they had traveled an average of 808 miles when contacted. The overnight visitors stayed in close proximity to the reserve sites in Lincoln City (28%), Newport (23%), Yachats (13%) and Florence (8%). As one might expect, they reside primarily in Oregon (36%), and adjoining states, particularly Washington (14%) and California (9%). There were many foreign visitors (8%), most from Canada. The majority of visitors (79%) were at the coast in small groups of two to five people. Approximately one-third of all respondents (34%) were repeat visitors, and they typically had previously visited the area once or twice. The primary trip purposes were sightseeing (31%), visiting the beach (24%), and visiting with family and friends (11%). Few visitors (5%) expected to fish during their trip, only 5% cited fishing-related fees as an expenditure. Respondents were almost equally split between males (49%) and females (51%). The majority (62%) of the respondents were either adults (32%) or middle-aged adults (30%).

Although most respondents (85%) were not aware they were visiting a recently or soon-to-be designated reserve, a large majority of the visitors (88%) thought marine reserves were a positive outcome for Oregon. This study was conducted before Cascade Head and Cape Perpetua were officially implemented as marine reserves. No signs or interpretive information related to the reserves was available at the sites during the time of these surveys, which might be a factor in visitors' lack of awareness. A majority (74%) felt the reserves would increase their appreciation for the area. While many (41%) felt reserve designation would not impact their future visitation, 44% felt the reserves would encourage more visitation. Sixteen percent of the respondents were not sure of the reserve impact on visitation, but only 4% felt the reserves would discourage future visitation. These data suggest that visitors respond positively or are unsure how marine reserves will impact their future visitation, yet the vast majority believe marine reserves are good for Oregon.

In addition to attitudes, a series of six questions were used to investigate visitors' factual knowledge about reserves. Most visitors (63%) answered 50% or fewer of these questions correctly. A higher proportion of correct answers was positively correlated to local residence, awareness of reserves, and repeat visitation. Somewhat unpredictably, higher factual knowledge was also correlated with negative perceptions of the outcome of the reserves for the state, although the number of respondents was small ($n = 10$), and the statistical strength of the relation was weak ($F = 6.207$; $p \leq .045$; Eta Squared = .027).

Visitors expended funds during their visit for lodging (76% stayed overnight), restaurant dining (81%), grocery purchases (66%), and fuel (63%). One should note that since only 15% of the visitors were aware of the reserves, the presence of marine reserves had little impact on visitation or trip motives

during the period of data collection. As such, analysis of any marine reserves tourism economic impacts was inappropriate at that time.

LITERATURE CITED

Dean Runyan Associates. 2016. Oregon Travel Impacts. Portland, Oregon.

Murphy, M., Crowther, D., Davis, S., Golden, J., Freeman, P., Hall, E., Don, C., & Fox, D. 2012. Oregon Marine Reserves Human Dimensions Monitoring & Research Plan.

Oregon Fish and Wildlife Marine Reserves Program. 2014 Oregon Department of Fish and Wildlife Marine Reserves Program Pressure Count and Intercept Interview Methodology.

Oregon Marine Reserves. ODFW. Web. 5 Oct. 2014.

<http://www.dfw.state.or.us/MRP/marinereserves.asp>

Oregon Ocean Information: A Resource for Planning in the Territorial Sea. Web. 5 Oct. 2014.

<http://www.oregonocean.info/index.php/marine-reserves-sp-26120>

Oregon Ocean Policy Advisory Council (OPAC). 2008. Oregon Marine Reserve Policy Recommendations.

Swearingen, T.C., Don, C., Murphy, M., Davis, S., and Polis, H. 2014. Oregon Marine Reserves Human Dimensions Monitoring Report 2010 - 2011. Oregon Department of Fish and Wildlife, Marine Resources Program. Newport, OR.

Appendix A
Questionnaire Version 1
2012-13 Visitor Intercept Interview Form

Intercept Survey – 2012

Interviewer: NAME
Site: Cape Perpetua

[Agency Use only – Don't Ask]

Date: _____

Confidentiality Statement Delivered:

Promised that ODFW will maintain confidentiality of personal and trade secret information provided in response to this survey to the extent permitted by law.

Section A: Trip Information

A1. Where is home for you? City and State: _____

1. Refuse to answer _____

A2. Did you start your trip today from home or another location (where)? [Miles traveled _____]

1. Home _____

2. Another location (city/state): _____

3. Refuse to answer _____

A3. What was the main purpose of your trip to the Oregon coast?

1. Business _____

2. Visiting friends and family _____

3. Sightseeing or wildlife viewing _____

4. Visiting a state park or marine garden _____

5. Fishing trip (motorized or non-motorized boat) _____

6. Water sport (surfing, kite boarding, boogie board, kayak) _____

7. General beach use (tidepooling, walking, water play, picnic, sunbathe, storm watch) _____

8. Other _____

9. Not sure _____

A4. Have you done any of the following activities during THIS TRIP to the Oregon coast?

1. Stay in hotel or rental house _____

2. Stay overnight with friends or family _____ [Multi day trip _____]

3. Pay for campsite/RV site _____

4. Rent a vehicle _____

5. Eat at a restaurant, café, grill, etc. _____

6. Shop at a grocery store _____

7. Shop at a retail store (souvenir, knick knacks, kites, etc.) _____

8. Fish from shore or dock _____

9. Fish with a charter company _____

10. Fish from private boat or kayak _____

11. Purchase gas for a car or boat _____

11. Purchased permit for fishing _____

12. Paid for boat launch _____

13. Paid for parking _____

14. Not sure _____

A5. How many times have you visited this area over the last year? _____ [Round or Average answer]

Section B: Marine Reserve Information

B1. Were you aware the state will be implementing a marine reserve in this area in a few years?

1. Y _____

2. N _____

3. Not sure _____

B2. Which of the following do you think is allowed in a marine reserve?

1. Swimming_____
2. Surfing_____
3. Fishing/crabbing_____
4. Clamming_____
5. Boating w/o fishing_____
6. Beach combing_____
7. Not sure_____

B3. In your opinion which of the following best describes the state's purpose for implementing a marine reserve in this area?

1. Protection of endangered or threatened species_____
2. Rebuilding depleted fish stocks_____
3. Science and research opportunities_____
4. General conservation of habitat_____
5. Political reasons_____
6. Not sure_____
7. All of the above_____

B4. Would a marine reserve in this area encourage you to visit more often?

1. Y____ (Skip to B6)
2. N____ (Ask B5)
3. Not sure_____

B5. Would a marine reserve discourage you to visit the area?

1. Y____
2. N____
3. Not sure_____

B6. Would a marine reserve in this area increase your appreciation for this area?

1. Y____
2. N____
3. Not sure_____

B7. In your opinion, do you feel marine reserves are a good thing for Oregon?

1. Y____
2. N____
3. Not sure_____

Section C: Demographic Information

C1. What is your age (years)?_____

1. Refuse to answer_____

C2. Gender (Don't Ask) 1. M____ 2. F____

C3. What's your current employment status?

1. Student_____
2. Self employed_____
2. Employed full time_____
3. Employed part time_____
4. Unemployed_____
5. Retired_____
6. Refuse to answer_____

C4. What's the highest level of education you've completed?

1. Less than high school_____
2. High school diploma_____
3. Vocational school_____
4. Some college_____
5. College graduate_____
6. Graduate school or higher_____
7. Refuse to answer_____

Section D: Future Participation

D1. Would you be willing to participate in future surveys on the marine environment and other natural resource issues?

1. Y____
2. N____

First Name:_____ Last Name:_____

Phone:_____ Email:_____

Mailing Address:_____

City_____ State_____ Zip_____

Appendix B
Questionnaire Version 2
2012-13 Visitor Intercept Interview Form

Interviewer: _____

[Agency Use only – Don't Ask]

Site: Otter Rock Survey ID No. _____

Date: _____ Time: _____

Confidentiality statement delivered:

Section A: Trip Information

A1. Where is home for you?

1a. Zip code or city, state: _____

1b. Miles traveled: _____

2. Refuse to answer _____

A2. Did you start your trip today from home or another location (where)? [Miles traveled _____]

1. Home _____

2. Another location (city/state): _____

3. Refuse to answer _____

A3. How many nights are you away from home on this trip?

1. ___ Nights

2. ___ Don't know or refused

A4. What was the main purpose of your trip to the Oregon coast?

1. Business _____

2. Visiting friends and family _____

3. Visiting this site (Otter Rock) _____

4. Visiting a state park or marine garden _____

5. Fishing trip (motorized or non-motorized boat) _____

6. Water sport (surfing, kite boarding, boogie board, kayak) _____

7. General beach use (tidepooling, walking, water play, picnic, sunbathe, storm watch) _____

8. Sightseeing or wildlife viewing _____

9. Other _____

10. Not sure _____

A5. Have you done any of the following activities during THIS TRIP to the Oregon coast? [Code as Y/N/Unsure=1/2/3]

1. Lodging

a. Motel or rented house ___

b. Camping ___

2. Travel

a. Air, train, or bus ___

b. Auto rental ___

c. Auto fuel ___

d. Parking ___

e. Boat ___

3. Food

a. Grocery ___

b. Restaurant ___

4. Other

a. Retail store (souvenirs, clothing, etc.) ___

b. Fishing related fees (charter, launch, permit, etc.) ___

c. Other sport related fees (kayack rental, etc.) ___

d. Other (specify) _____

5. Do not know or refused ___

A6. How many times have you visited this area over the last year? _____ [Round or Average answer]

Section B: Marine Reserve Information

B1. Were you aware the state implemented a marine reserve in this area in 2012?

1. Y____ 2. N____ 3. Not sure_____

A MR or MPA prohibit certain types of activities for various reasons. Here in Oregon the goal is to use the areas for research of the nearshore environment.

B2. Does the designation of this area as a marine reserve encourage or discourage you from visiting?

1. Encourage ____
2. Discourage ____
3. Not sure ____

B3. Does it increase your appreciation for this area?

1. Y____ 2. N____ 3. Not sure_____

B4. In your opinion, do you feel marine reserves are a good thing for Oregon?

1. Y____ 2. N____ 3. Not sure_____

Section C: Demographic Information

C1. Age: 1. 18-30 2. 31-45 3. 46-60 4. 60+

C2. Gender (Don't Ask) 1. M____ 2. F____

C3. Party size: _____

Characteristics (mark all that apply):

- | | |
|-----------------------------------------------------------------|------------------------------------------|
| 1. Family (parents, kids, grandparents, aunts/uncles, etc)_____ | 6. Youth Group (girl scouts, church,ect) |
| 2. Retirees/Seniors_____ | 7. Guys (group of men)_____ |
| 3. Active/Sporting (surfers, bikes, runners, hikers,etc)_____ | 8. Gals (group of gals)_____ |
| 4. Twenty Something's (college, young adults)_____ | 9. No identifiers_____ |
| 5. Couple (no kids or other companions)_____ | |

Section D: Future Participation

D1. Would you be willing to participate in future surveys on the marine environment and other natural resource issues?

1. Y____ 2. N____

First Name:_____ Last Name:_____

Phone:_____ Email:_____

Mailing Address:_____

City_____ State_____ Zip_____

Appendix C
Pressure Count Data Collection Form
Example from Cape Perpetua Marine Reserve

Pressure Count - Cape Perpetua

Weather: cloudy (1) rainy (2) foggy (3) sunny (4)

Date:	Yachats (2) Time:	Perpetua (3) Time:	Neptune / Straw Hill Time:	Tenmile	Washburn / Heceta Time:	TOTAL	Codes
Vehicles							Participant Identifier: 1. Male child (0-12) 2. Male teen (13-19) 3. Male young adult (20-30) 4. Male adult (30-65) 5. Male senior (65+) 6. Female child 7. Female teen (13-19) 8. Female young adult (20-30) 9. Female adult (30-65) 10. Female senior (65+)
General Visitor (Parking Lot)							
Tidepooling/ Agate Hunter							
Beach Goer							Beach Goer: swimmer/wader, picnicing, general play, kite flying,
Water Sports							Board Sports: surfer, kite surfer, paddle
Shore/Shell- fishing							
Wildlife Viewer/Photo grapher							Binoculars, camera. Etc
Hiker/Camper							
Picnicking							
Other							Biking, artistic endeavors
Boater (motorized)							Within 3nm (3.5miles)
Boater (non- motorized)							Within 3nm (3.5miles)