


Coastal Resident Perceptions of Marine Reserves in Oregon

Final Report

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EXECUTIVE SUMMARY

Objectives

In Oregon, Senate Bill 1510 was enacted in 2012 requiring state natural resource agencies to evaluate, establish, and enforce regulations on five new marine reserves in this state's coastal waters (i.e., Otter Rock, Redfish Rocks, Cape Falcon, Cape Perpetua, Cascade Head). A number of studies have examined biological issues and impacts associated with these marine reserves. The process for evaluating social and economic impacts associated with these reserves, however, has primarily involved information from community evaluation teams consisting of small groups of stakeholders (e.g., commercial anglers, conservation groups, watershed councils, scientists). Some additional data for evaluating social and economic impacts of these reserves were collected from town hall meetings with select residents, questionnaires given to a small number of specific industries or stakeholder groups (e.g., commercial and recreational anglers), and other observational data. Taken together, these efforts mainly involved economic stakeholders and vocal residents thought to be most directly affected by the marine reserves.

What has been lacking, however, is a comprehensive, systematic, and representative assessment of coastal resident perceptions regarding these new marine reserves. A scientifically grounded random and representative selection of residents living along the entire Oregon coast, especially in areas near these reserves (i.e., communities of place), is required for generalizing information beyond select groups to citizens living along the coast, including those who may be potentially affected the most by these reserves. This project, therefore, addressed this knowledge gap by utilizing representative samples of residents along the Oregon coast (i.e., essentially the voting public) to understand their knowledge, attitudes, and behavioral intentions in response to these reserves. Project objectives were to understand coastal resident:

- Awareness of these marine reserves and sources of information for learning about the areas.
- Knowledge of the characteristics, benefits, and constraints of these marine reserves.
- Attitudes of support and opposition toward these reserves (i.e., favor, disfavor, like, dislike).
- Perceptions about the future effectiveness of these reserves in meeting management goals.
- Opinions about activities that should and should not be allowed to occur in these reserves.
- Behavioral intentions in response to these reserves and how residents may change their use of these areas in the future (e.g., increase or displace any visitation / recreation use).
- Socio-demographic characteristics.

Methods

Data were obtained from questionnaires administered by mail in late 2012 and early 2013 to a sample of residences along the Oregon coast selected randomly from postal records. A sample of 2,600 addresses was equally divided into two subpopulations: (a) residents living near the five marine reserves (i.e., communities of place), and (b) residents along the rest of the coast (i.e., general coastal sample). The 1,300 addresses in the communities of place were distributed equally among five areas corresponding to each marine reserve location (i.e., 260 addresses for each). A 10 mile radius was drawn around the land point nearest to the center of each reserve and communities within this radius were included in the communities of place delineation. The other half of the sample addresses (i.e., 1,300) was spread throughout the rest of the coast and included areas seaward of the Coast Range excluding those in the five communities of place.

Three separate questionnaire mailings were implemented to collect the data. In total, 357 questionnaires were undeliverable (e.g., incorrect address, vacant, moved) and n = 595

completed questionnaires were returned, yielding a 27% response rate (595 / 2,600 – 357). The sample size for residents in the communities of place was n = 326 (30% response rate) and the sample for those along the rest of the coast (i.e., general coastal sample) was n = 269 (23% response rate). The combined sample size of n = 595 allows generalizations about the population of Oregon coastal residents at a margin of error of ± 4% at the 95% confidence level, which is better than the conventional standard of ± 5% that is widely accepted and adopted in human dimensions of natural resources research. To check for potential nonresponse bias, residents who completed a mail questionnaire were compared against those who did not (i.e., nonrespondents). A large sample of n = 202 nonrespondents was telephoned and asked 10 specific questions from the questionnaire. There were no substantive differences in responses between those who responded to the mail survey and those who did not (i.e., completed telephone nonresponse bias check), so the data did not need to be weighted based on this nonresponse bias check. The data were, however, weighted by population proportions based on the most recent US Census information for number of households in the sampling areas to ensure that the samples and questionnaire responses were statistically representative of the broader target populations.

Results

Oregon Marine Areas in General

- Coastal residents have participated in a range of activities in Oregon's marine areas, especially sightseeing (88%), viewing marine animals (86%), exploring tidepools (77%), and non-charter recreational fishing (55%). Their most popular primary activities in these areas have been sightseeing (35%), non-charter recreational fishing (22%), and viewing marine animals (16%).
- Coastal residents overwhelmingly perceived marine areas and other natural resources in Oregon to be moderately or very healthy. Residents perceived wildlife to be the most healthy (77%), and bays and estuaries to be least healthy (66%). Approximately three-quarters of coastal residents perceived Oregon's marine animals (75%), marine areas (i.e., ocean; 73%), marine fish (72%), and rivers and streams (71%) to be healthy.
- These coastal residents, however, were concerned about perceived anthropogenic and natural threats to Oregon marine areas, in particular marine trash and debris (85%), water pollution (77%), invasive species (74%), ocean acidification (70%), and overfishing (66%). Residents were least concerned about recreational anglers (25%), people who purchase or consume seafood (32%), viewers of marine animals (35%), and wave energy and power development (38%). Residents in the communities of place (i.e., nearest the five reserves) were more concerned about these threats compared to those along the rest of the coast.
- Half of coastal residents (50%) agreed that the government should do more to help protect marine areas in Oregon, with residents in the communities of place indicating significantly stronger agreement (65%) than those living along the rest of the coast (45%).
- A minority of coastal residents agreed that people who fish commercially (41%) or recreationally (14%) are harming marine areas in Oregon. Residents living in the communities of place, however, were more likely than those along the rest of the coast to agree that commercial and recreational fishing are harming these areas.
- Less than one-third of coastal residents agreed that the condition of marine areas in Oregon has improved in recent years (34%), managers are doing everything they can to protect these areas (30%), and laws protecting these marine areas are too strict (22%).

- The majority of coastal residents (55% to 84%) believed that a number of federal, state, and local groups and organizations should have an influence in managing marine areas in Oregon, with the exception of people who do not live on the Oregon coast (25%). The organization that residents believed should have the greatest influence in managing these areas was the Oregon Department of Fish and Wildlife (ODFW, 84%).
- The majority of coastal residents trust many of these groups and organizations to contribute to management of marine areas in Oregon. Groups most strongly trusted were people who live along the coast (78%), Oregon Department of Fish and Wildlife (76%), US Fish and Wildlife Service (76%), and the US Coast Guard (76%). Groups who were trusted the least included people who do not live on the coast (18%), recreationists (43%), the Governor of Oregon (47%), and environmental organizations (49%). Respondents living in the communities of place had higher levels of trust in federal and state agencies than did the rest of the coast. In contrast, residents along the rest of the coast had higher trust in people living along the coast and those who fish commercially.

Oregon Marine Reserves

- In total, two-thirds (67%) of respondents have visited at least one of the five marine reserve sites in Oregon. Residents in the communities of place were more likely (74%) than those along the rest of the coast to have visited at least one site (64%). The largest proportion of respondents has visited Otter Rock (45%), followed by Cape Perpetua (38%), Cascade Head (33%), Redfish Rocks (24%), and Cape Falcon (23%). Sightseeing (58%), viewing marine animals (52%), and exploring tide pools (42%) were the most common activities in Oregon's marine reserves.
- Only one-third (37%) of respondents indicated that at least one of these marine reserve sites was very special to them, 36% agreed that at least one of these sites was the best place for doing what they like to do, 32% said that they identify strongly with at least one of these sites, and 31% felt attached to at least one of these sites. Those living in the communities of place indicated higher levels of attachment to these places.
- The majority (56%) of respondents felt that they understood the purpose of the marine reserves in Oregon. Only 44% of residents, however, felt that they were informed about these reserves and understood the role of science in these areas. Similarly, only 40% of residents felt knowledgeable about these reserves, 34% understood where these areas were located, and 30% understood the role of public involvement in these reserves. Respondents felt that they understood the least about how these reserves would be managed (26%) and any rules and regulations associated with the reserves (22%). There were no differences in this self-assessed knowledge between the communities of place and the rest of the coast.
- Residents answered 16 true / false or multiple choice questions measuring their factual knowledge about Oregon's marine reserves. This knowledge, however, was low with an average score of only 43% of questions answered correctly (i.e., failing grade) and this did not differ between the communities of place and the rest of the coast. The question answered correctly by the most residents (80%) was that scientific research would be allowed in both marine protected areas and marine reserves in Oregon, whereas the question answered correctly by the fewest was that commercial fishing would be allowed in this state's marine protected areas, but not in its marine reserves (7%). Only 34% of residents correctly identified ODFW as the agency responsible for these marine reserves.
- Only 18% of residents agreed that it is easy to access and find information about the marine reserves in Oregon, and only 13% agreed that managers have done a good job

communicating with the public about these reserves. There were no differences in this agreement between the communities of place compared to the rest of the coast.

- Respondents have utilized a variety of sources to obtain information about marine reserves in Oregon. Newspapers were the most often cited source (80%), whereas social websites were the least cited (20%). More than half of respondents indicated that they had discussed Oregon's marine reserves with friends or family (68%), watched television news or programs about these reserves (65%), read magazine articles or books about these areas (64%), or listened to radio news or programs about these reserves (63%). There were few differences in the use of these sources between the communities of place and the rest of the coast. Residents would prefer to receive information about these areas either through newspaper articles or television news and related programs.
- In total, 60% of respondents believed in protecting Oregon's marine areas with little or no utilization, whereas 40% believed in utilizing these marine areas with little or no protection. Residents in the communities of place (72%), however, were more likely than those along the rest of the coast (56%) to believe in the protection of these areas. Nearly half (48%) of respondents believed that marine areas should mostly be protected with just a little utilization, whereas 37% believed that marine areas should be mostly utilized with just a little protection. Fewer respondents believed that Oregon's marine areas should be fully protected with no utilization (12%) or fully utilized with no protection (3%).
- Respondents overwhelmingly agreed (88%) that scientific research should be allowed in Oregon's marine reserves, followed by non-extractive recreation and tourism activities (59%). Only 39% of respondents agreed that recreational fishing should be allowed in these reserves and the fewest thought that commercial fishing should be allowed (22%).
- The only group that the majority of respondents believed could benefit from these marine reserves in Oregon is scientists / researchers (86%). Less than the majority believed that government agencies (49%), people living along the coast (43%), people recreating in marine areas (30%), local businesses (26%), people who do not live on the coast (26%), and people who fish recreationally (24%) or commercially (16%) would benefit.
- Conversely, the only groups that the majority of respondents believed would be harmed by these reserves are people who fish commercially (75%) or recreationally (59%). Less than the majority believed that people who recreate in marine areas (44%), local businesses (42%), and people who live along the Oregon coast (32%) would be harmed. Residents believed that the groups least likely to be harmed by the reserves are scientists / researchers (4%), government agencies (10%), and people who do not live on the coast (12%).
- The majority of respondents held positive attitudes toward marine reserves in general. Residents believed that marine reserves are beneficial (67%), liked the idea of these reserves and thought these areas are generally good (65%), and believed that marine reserves are positive (64%). Residents in the communities of place were more likely than those on the rest of the coast to report these positive attitudes toward marine reserves.
- Respondents also held positive attitudes toward the specific topic of marine reserves in Oregon. Residents believed that these reserves are beneficial (66%) and positive (62%), liked the idea of these reserves (61%), and thought that these areas are good (60%). Residents in the communities of place were significantly more likely than those along the rest of the coast to have positive attitudes toward marine reserves in Oregon.
- There was strong agreement that marine reserves in Oregon would allow scientists to monitor these areas (80%), improve understanding of marine areas (76%), allow depleted

populations to recover (76%), improve scientific understanding of marine areas (74%), protect the diversity of marine species (73%), benefit marine areas in general (71%), or increase species populations (71%). Residents were least likely to agree that these reserves would improve the economy (30%), increase tourism (39%), or benefit communities (44%). Compared to residents on the rest of the coast, those in the communities of place were more likely to agree with these potential benefits of marine reserves in Oregon.

- In terms of potential constraints of marine reserves in Oregon, 60% of respondents agreed that these reserves would reduce commercial fishing. A slight majority also agreed that the reserves would cost a lot to manage (55%), be difficult to enforce (53%), and both reduce recreational fishing and prevent people from using these areas (52%). Residents were least likely to agree that these reserves would not be effective in conserving marine areas (17%) and may cause some species to become overpopulated (32%). There were no differences in these attitudes between residents in the communities of place and the rest of the coast.
- In total, 49% of respondents agreed that people who are important to them would want them to support establishing marine reserves in Oregon, and 42% agreed that people in their life whose opinions they value would want them to support these reserves. Residents from the communities of place indicated statistically higher agreement compared to those along the rest of the coast. Only 23% of respondents agreed that other people would expect them to oppose marine reserves in Oregon, with residents along the rest of the coast more likely to agree (25%) compared to those in the communities of place (17%).
- In total, 69% of respondents would vote in support of establishing marine reserves in Oregon if they were to be given an opportunity to vote on this issue. Residents in the communities of place (82%) would be significantly more likely than those on the rest of the coast (65%) to vote in favor of these reserves. This indicates overwhelming majority support for marine reserves in Oregon. Almost all respondents were extremely (47%) or moderately certain (41%) in these voting intentions, with those from the communities of place (56%) being more likely than the rest of the coast (44%) to be extremely certain.
- In terms of future behaviors at these marine reserve sites, the largest percentage of respondents (45%) would be likely to visit these sites the same amount. Only 26% would likely go to other marine areas on the Oregon coast instead, 25% would go to other nearby or adjacent marine areas instead, and 22% would likely visit these sites more often. Only 14% indicated that they were likely to never visit these sites again, and 13% reported that they would visit less often if these reserves sites were implemented.
- The majority (54%) of respondents agreed that they shared similar values as ODFW and 46% agreed that they shared similar goals and opinions as this agency. Residents were least likely to agree that they would take similar actions as this agency (35%).
- In total, 64% of respondents trusted ODFW to provide truthful information about marine reserves, 63% trusted this agency to manage these reserves using the best available information about non-human species, and 62% trusted ODFW to provide the best available information about marine reserves. The lowest proportion of respondents trusted ODFW to use public input to inform management of marine reserves (49%). There were no differences between respondents in the communities of place and the rest of the coast regarding their perceptions of similarity and trust in ODFW.

Perceptions of Marine Areas and the Environment

- In total, 87% of respondents agreed that they were aware of impacts that humans can have on marine areas, 80% agreed that their own actions can impact these areas, and 69% agreed

that their own behaviors can cause problems in these areas. Residents in the communities of place were more likely to agree that they were aware of impacts that humans have on marine areas and that their own behaviors can cause problems in these areas.

- In total, 81% of respondents agreed that they felt a personal obligation to help protect marine areas, 59% agreed that they can do more to help protect these areas, and 57% agreed that they felt a personal responsibility to educate other people about helping to protect marine areas.
- The largest proportion of coastal residents had a strong biocentric (i.e., nature oriented) general value orientation toward the environment (34%) and the smallest proportion had an anthropocentric orientation (i.e., human oriented, 12%). Another 25% of residents had a moderate biocentric general value orientation toward the environment, and 29% had a mixed anthropocentric – biocentric orientation.
- The largest proportion of residents had a mixed protection – use specific value orientation toward marine areas (41%) and the smallest proportion had use related orientations toward these areas (15%). Another 24% of residents had a moderate protectionist orientation toward marine areas, and 21% had a strong protectionist orientation toward these areas. Residents in the communities of place were significantly more likely than those on the rest of the coast to have both strong (25% vs. 19%) and moderate (28% vs. 23%) protectionist orientations toward marine areas. Conversely, residents on the rest of the coast were more likely than those in the communities of place to have a mixed protection – use (42% vs. 37%) or purely use orientation toward these areas (16% vs. 10%).

Residential and Demographic Characteristics

- In total, 58% of respondents were male and 42% were female; the average age was 61 years old with half of the sample (50%) between 50 and 69 years of age; and the majority (57%) had a high school diploma or less, two-year associates degree, or trade school. In addition, 23% of respondents had a four-year college degree and 20% had an advanced degree (e.g., MS, PhD, Law, Medical).
- Only 15% of respondents were members of an environmental or marine related organization (e.g., Ducks Unlimited, Sierra Club).
- Only 5% of respondents had someone in their household who was employed in the commercial fishing industry.
- Respondents had lived an average of 34 years in Oregon, 24 years on the Oregon coast, and 14 years at their current residence, with 75% owning and 23% renting or leasing their current residence.
- For most of these demographic and residential characteristics: (a) there were no statistically significant differences between people living in the communities of place compared to those along the rest of the coast, and (b) results were consistent within ± 5% of findings reported in recent US Census data and other recent natural resource related studies that also surveyed residents along the Oregon coast.

Implications and Recommendations

- Although coastal residents in Oregon overwhelmingly perceived this state's marine areas and resources (e.g., ocean, animals, fish) to be moderately or very healthy, fewer than one-third agreed that conditions have improved in recent years, and the majority were concerned about marine trash and debris, invasive species, ocean acidification, overfishing, and other threats to these areas. Residents in the communities of place were more

concerned about these threats compared to those living elsewhere along the coast. Regardless, it is clear that coastal residents are concerned about Oregon's marine areas and are an important constituency for agencies to work with, inform, and educate about these areas and efforts that agencies and others are taking to address threats in the areas.

- The majority of coastal residents, especially those in the communities of place, believed that the government should do more to help protect marine areas in Oregon. In addition, less than one-third of respondents agreed that laws protecting these marine areas are too strict or that managers are already doing everything they can to protect these areas. It appears that a large percentage of these residents believe there is room for improvement in agency management and policies associated with marine conservation in Oregon.
- The organization that almost all coastal residents believed should have the greatest influence in managing Oregon's marine areas was the Oregon Department of Fish and Wildlife (ODFW), but the majority thought that a variety of other groups should also have a major influence (e.g., US Fish and Wildlife Service, Oregon Parks and Recreation Department, Oregon Marine Board, National Oceanic and Atmospheric Administration, coastal residents). Residents trusted most of these groups to contribute to managing this state's marine areas, but this trust was slightly lower outside of the communities of place. Coastal residents clearly believe that ODFW should be the lead agency for managing these areas, but should also collaborate with several other agencies and organizations in these efforts. These groups should also work together and strive to build and foster trust among residents, especially in locations outside of the communities of place.
- Although two-thirds of respondents claimed that they have visited at least one of the five marine reserve sites in Oregon, more than two-thirds did not feel any major attachment to these areas. This suggests that many respondents are not passionate about these sites and may not understand the salience of these areas to their coastal experiences. Managers, therefore, should strive to build a narrative around the importance of these specific sites that currently may not have identifiable emotional or physical characteristics. This may increase public awareness and understanding of the marine reserve locations and system, and their interconnections to marine conservation and human wellbeing.
- More than two-thirds of respondents felt familiar with the topic of marine reserves in Oregon and the majority felt they understood the purpose of these reserves. Only 20% to 40%, however, felt informed and knowledgeable about these reserves, and only one-third understood where the reserves are located and the role of public involvement in these areas. Factual knowledge about these reserves was also extremely low with an average of only 43% of the factual questions about these reserves answered correctly (i.e., a failing grade). Only one-third of respondents, for example, knew that ODFW was the agency currently responsible for managing these reserves. There were few differences in this self-assessed and factual knowledge between communities of place and the rest of the coast. In addition, only 18% of coastal residents agreed that it was easy to access and find information about the reserves, and only 13% agreed that managers have done a good job educating the public about these areas. It is clear that coastal resident knowledge about these reserves is minimal and much more is needed to inform and educate citizens about these areas. Major information campaigns are needed and residents would prefer this information to be disseminated through channels such as newspapers and television. Education and engagement catering to different audiences and settings, however, may not be needed because of the similarities in self-assessed and factual knowledge across both the communities of place and the rest of the coast. In addition, any targeted communications

thus far to the communities of place may not have succeeded in increasing this population's knowledge in comparison to their more distant neighbors. Managers may want to pinpoint messages and facts about the marine reserves and convey these to the entire public, as there may be some facts that are deemed critical or more important than others for the public to understand. Grasping these points may be a more meaningful metric of factual knowledge to the agency than whether the public knows the majority of all facts about these reserves.

- The majority of coastal residents believed that scientific research and non-extractive recreation activities should be allowed in Oregon's marine reserves, but they did not think that recreational or commercial fishing should be allowed in these areas. Although both types of fishing are not currently permitted in Oregon's marine reserves, they are allowed in some of the adjacent marine protected areas, and results showed that fewer than 12% of coastal residents were aware of this distinction. To avoid public confusion and contention, therefore, it is important for managers to clearly articulate to residents the differences between reserves and protected areas, activities that are allowed within each designation, and the rationale for these different allowances.
- The only group that the majority of coastal residents believed would benefit from Oregon's marine reserves is scientists / researchers. Less than the majority believed that other groups would benefit (e.g., residents of the coast, recreationists, local businesses, people who do not live on the coast, recreational and commercial anglers). In fact, many residents believed that these other groups would be harmed by the reserves. It is important, therefore, for agencies to inform and educate residents about potential benefits of these reserves for all groups, such as the potential for more tourism revenue and its impacts on local businesses, as well as the ability of fish populations to recover thereby enhancing long-term sustainability of the recreational and commercial fishing industries.
- There was strong agreement that marine reserves in Oregon would provide benefits (e.g., improve understanding, allow populations to recover, protect species diversity), but there was significantly less agreement regarding potential constraints associated with these reserves, such as reduced commercial fishing, increased management costs, difficulties with enforcement, and increased restrictions on people using the areas. These constraints, however, are important and realistic because there will always be costs associated with placing sites under protected area designation. When informing and educating people about these marine reserves, therefore, managers should strive for a transparent and balanced perspective emphasizing not only the potential benefits of these reserves, but also the realistic challenges and costs likely to be encountered with these areas.
- An overwhelming majority of coastal residents had strong positive attitudes toward marine areas in general and marine reserves in Oregon in particular. In addition, almost 70% of coastal residents would vote in support of these reserves, with significantly higher support and more favorable attitudes among residents in the communities of place (i.e., nearest these reserves). This is important because these communities are likely to be the most affected by these reserves and related management decisions in these areas. Residents living along the rest of the coast were still supportive, but less than those in the communities of place. Individuals living along the rest of the coast and elsewhere, however, are still an important constituency that could be impacted by these reserves, so managers should not just focus their efforts on building capacity in communities nearest the reserves; they should also focus attention throughout the entire population.
- The majority of coastal residents agreed that they shared similar views as the managing agency (ODFW) and trusted this agency to manage marine reserves in Oregon. This is

important for several reasons. First, similarity and trust can influence support of agency goals and objectives. Residents who trust ODFW, for example, may be more likely to support management actions associated with these reserves. Second, persuasion models (e.g., elaboration likelihood, heuristic systematic) suggest that perceived similarity and trust are important determinants of effective information and education campaigns (Eagly & Chaiken, 1993). Residents who trust an agency are often more motivated to attend to its informational and educational efforts. Campaign effectiveness may be lower with residents who are less trusting of the managing agency. Third, agencies should strive to understand constituent opinions, values, and goals because to preserve trust and a strong constituent base, management should be tailored to reflect these views whenever practical and feasible. If constituent views are not reflected in management, reasons for inconsistencies should be shared so they can be weighed in relation to considerations of trust. The public now demands and expects involvement in natural resource decision making and, if ignored, may resort to administrative appeals, court cases, and ballot initiatives. Managers, therefore, should seek positive relationships with residents and actively generate and maintain trust by fostering dialogue with citizens.

- The largest proportions of coastal residents had biocentric (i.e., nature-oriented) value orientations toward the broader environment in general and protectionist orientations toward marine areas in particular, suggesting that activities and management strategies encouraging deleterious effects on marine areas are unlikely to be supported by a large number of these residents. Research has shown that value orientations influence attitudes, intentions, and behaviors, so knowing resident orientations can be useful for estimating possible reactions to potentially controversial management actions. In addition, value orientations are stable and resistant to change, so attempts to inform individuals with biocentric or protectionist value orientations to consider adopting attitudes and supporting actions that may be harmful to marine areas are unlikely to be successful.
- Finally, this project used cross-sectional data at one point in time to provide a baseline snapshot of coastal resident perceptions of marine reserves in Oregon at an early stage in the establishment of these areas. Although more than two-thirds of respondents would vote in favor of these reserves, had positive attitudes toward the benefits of these areas, and trusted ODFW to manage these reserves, these cognitions can change over time. It is critically important, therefore, for managers to cultivate and maintain this support and trust, and monitor these social conditions over time to ensure that they do not deteriorate.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Background and Rationale

The idea of having marine reserves and protected areas in Oregon has been considered for a number of years. With the states of Washington to the north and California to the south already having systems of marine reserves and protected areas, the ecological and geographical gap in Oregon's waters was noticeable. In 2000, Oregon Governor Kitzhaber requested that the Ocean Policy Advisory Council (OPAC) make a recommendation about marine reserves in this state. OPAC recommended in 2002 that the state create a system of reserves along its coast between zero and three nautical miles from shore (i.e., the state's territorial sea). Then in 2008, Governor Kulongoski instructed OPAC to recommend no more than nine sites for consideration as marine reserves that "are to be large enough to allow scientific evaluation of ecological effects, but small enough to avoid significant adverse social and economic impacts on ocean users and coastal communities" (OPAC, 2008a, 2008b). Major drivers for ecosystem conservation within these marine habitats included ground fisheries, especially the recruitment of rockfish.

As a result of House Bill 3013 and recommendations by OPAC in 2009, the state proposed two pilot marine reserve sites – a marine reserve at Otter Rock north of Newport, and a marine reserve and protected area at Redfish Rocks near Port Orford. Four additional sites were considered and underwent further evaluation as sites for future marine reserves – Cape Falcon near Manzanita and Nehalem, Cape Perpetua south of Yachats, Cascade Head north of Lincoln City, and Cape Arago near Coos Bay (OPAC, 2008b). Oregon Department of Fish and Wildlife (ODFW) was identified as the lead agency for evaluating biological and social issues and impacts associated with these marine reserves (ODFW, 2009). Following this process, Senate Bill 1510 was enacted in 2012 requiring this agency to evaluate, establish, and enforce regulations on five new marine reserves in this state's coastal waters (i.e., Otter Rock, Redfish Rocks, Cape Falcon, Cape Perpetua, Cascade Head; Figure 1).

A number of studies have examined biological issues and impacts associated with these marine reserves. Several studies, for example, have examined patterns in home ranges of rockfish and other species at the marine reserve sites to determine if these reserves would help protect habitats and areas important to marine fisheries, and how large these reserves should be for optimal effectiveness (e.g., Gallagher & Heppell, 2010; Heppell, Barth, & Reiff, 2008). Other studies have mapped seafloor structure, oceanographic conditions, habitat, and the presence, abundance,

and distribution of other species at these marine reserve sites (e.g., Amolo, 2010; Laferriere, Matteson, & Johnson, 2011; Lanier, Romsos, & Goldfinger, 2007).

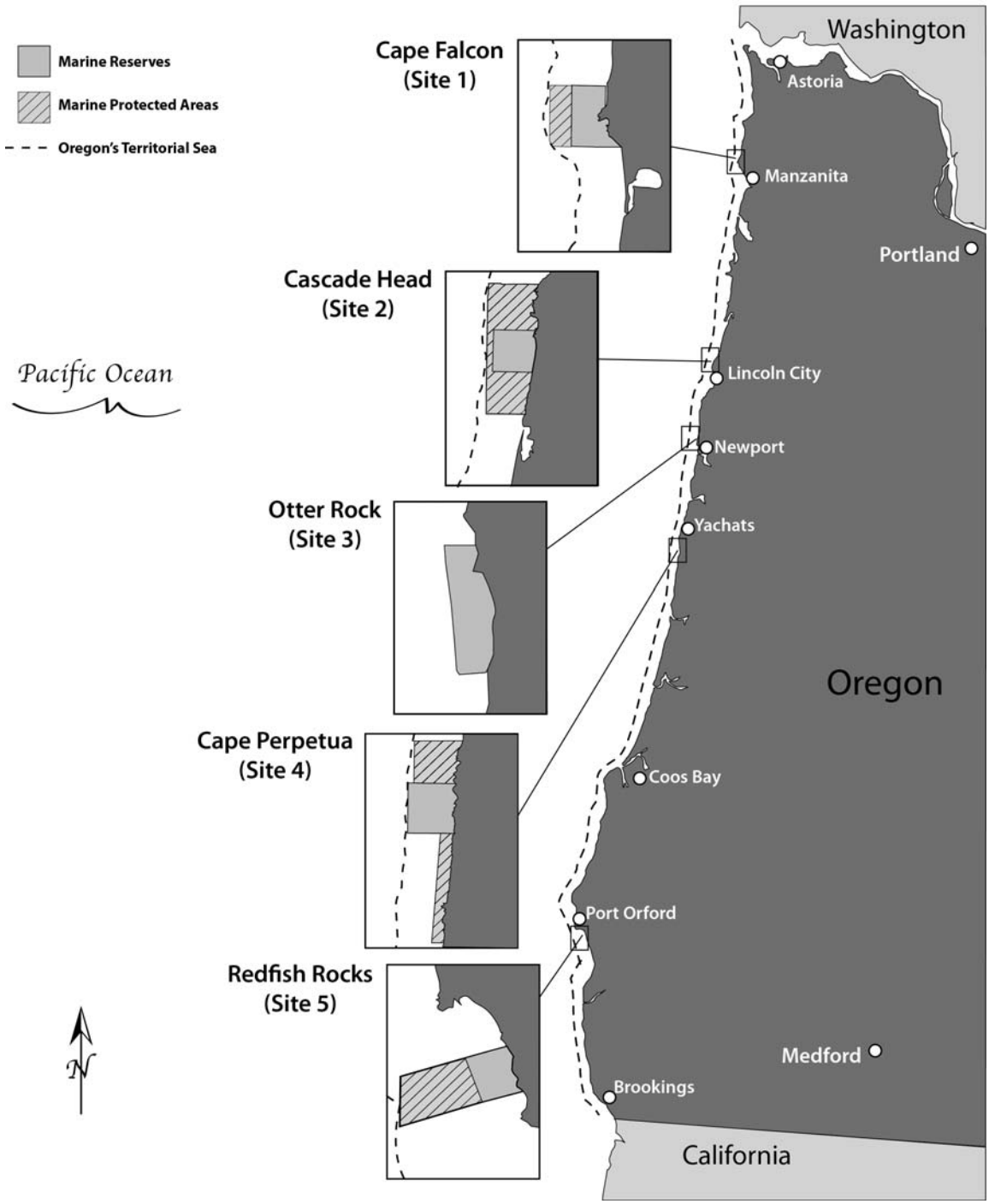

Figure 1. Current marine reserve sites in Oregon

On the other hand, the process for evaluating social and economic impacts associated with these marine reserves has primarily involved information from three community evaluation teams made up of a small number of stakeholders representing eight groups (e.g., commercial anglers, conservation groups, watershed councils, scientists). These teams held their first meetings in early 2010 to evaluate the reserve sites and were asked to agree to a consensus building process that would end by late 2010. The goal of this process was for each team to work toward consensus regarding a marine reserve site for their area of evaluation and then submit recommendations to ODFW, which would perform an assessment and share the recommendation with OPAC. These final recommendations would then move through the legislative process and eventually, depending on approval of resources, enter the implementation phase (Murphy, 2010).

Some additional data for evaluating social and economic impacts of these reserves were collected from town hall meetings with select residents, questionnaires given to a small number of specific industries or stakeholder groups (e.g., commercial and recreational anglers), and other observational data. ODFW, for example, conducted a survey of a convenience sample of commercial and recreational anglers to measure their catch rates, visitation, and expenditures associated with these marine reserve sites (ODFW, 2010). In a separate study, public outreach meetings were held in eight coastal communities during 2008 and participants were invited to submit written comments about marine reserves (Oregon Sea Grant, 2008). A few studies also conducted interviews with some anglers and other select members of communities potentially affected by these reserves (Norman et al., 2007; Package & Conway, 2010). Taken together, the community teams and these additional efforts mainly involved economic stakeholders and vocal residents thought to be most directly affected by these marine reserves, which is beneficial as a starting point for issue identification and clarification.

What has been lacking, however, is a comprehensive, systematic, and representative assessment of coastal resident perceptions regarding these new marine reserves. A scientifically grounded random and representative selection of residents living along the entire Oregon coast, especially in areas near these reserves (i.e., communities of place), is required for generalizing information beyond select groups to citizens living along the coast, including those who may be potentially affected the most by these reserves. This scientifically grounded social science is needed for fulfilling the primary goal of the Oregon marine reserves process of utilizing ecosystem based management (EBM) as its guiding principle (OPAC, 2008a). EBM is an integrated approach to planning and management that considers the entire ecosystem including humans, as opposed to

approaches focusing on a single species, activity, site, or community (McLeod & Leslie, 2009). This process, therefore, emphasizes not only understanding interrelationships among ecosystem structure and functioning, but also integrating representative social, economic, and institutional data and perspectives.

Development and implementation of marine reserves based on EBM should be supported by planning and management approaches such as integrated coastal zone management (ICZM) and marine spatial planning (MSP; Dalton, 2005; McLeod & Leslie, 2009). Integrating both sound biological information and comprehensive social science research into these approaches offers the best opportunity for reserves to provide scientific, ecological, and social benefits, as well as equitable inputs into the planning and management of marine resources (Clark, 1996). These approaches also represent opportunities for plans and management to be informed by various community interests, and provide for broad participation and the resolution of any potential areas of conflict (Clark, 1996; Crowfoot & Wondolleck, 1990; Decker, Krueger, Baer, Knuth, & Richmond, 1996; Edwards, Jones, & Nowell, 1997; Lück, 2008; Needham & Szuster, 2011).

As a result of this emphasis on EBM in the Oregon marine reserves process, a number of agencies have emphasized the need for comprehensive and representative information about public knowledge, attitudes, and behavior in response to these reserves. According to the OPAC Marine Reserve Policy Guidelines (2008a), for example, opinions from the broader public, including ocean users and other local communities, must be integrated into the selection, implementation, regulation, and monitoring of Oregon's marine reserves. Despite these needs, however, most of the social information from the community teams and other efforts conducted to date is based on small purposive samples of selected groups (e.g., anglers, vocal community members) that are not representative of all coastal residents or other constituents (Connor, Stauffer, & Harte, 2007; Murphy, 2010; Package & Conway, 2010). This project, therefore, addressed this knowledge gap by utilizing comprehensive and representative samples of residents along the Oregon coast (i.e., essentially the voting public) to understand their knowledge, attitudes, and behavioral intentions in response to these new marine reserves in Oregon. With these marine reserves still in their infancy, understanding resident perceptions of these areas is crucial. This project, therefore: (a) generated information that will allow planners and policy makers to predict likely impacts of these reserves on residents in communities adjacent to these reserves and along the rest of the coast; (b) yielded data about how much these individuals know about these reserves, which can guide information and education efforts to

inform citizens about these areas; and (c) provided empirical information that can be used for guiding decisions associated with managing these reserves that are within public tolerance limits.

Project Goals and Objectives

The overall goal of this project was to provide representative information about coastal resident knowledge, attitudes, intentions, and behaviors associated with the new marine reserves in Oregon. This project involved data collected from scientifically grounded random and representative surveys of residents living both in communities near these marine reserves (i.e., communities of place) and along the rest of the Oregon coast. This information can serve as a baseline from which to assess future changes in public responses over time as these reserves are managed or as more reserves may be implemented. Specific objectives of this project were to understand coastal resident:

- Awareness of these new marine reserves and sources of information used for learning about these areas.
- Knowledge of the characteristics, benefits, and constraints of these marine reserves.
- Attitudes of support and opposition toward these reserves (i.e., favor, disfavor, like, dislike).
- Perceptions about the future effectiveness of these reserves in meeting management goals.
- Opinions about activities that should and should not be allowed to occur in these reserves.
- Behavioral intentions in response to these reserves and how residents may change their use of these areas in the future (e.g., increase or displace any visitation / recreation use).
- Socio-demographic characteristics.

Conceptual Foundation

These objectives necessitated examining several cognitive concepts including public knowledge, norms, and attitudes regarding these reserves. It is important to measure and understand these cognitions because they can influence behavior, including support of and receptivity toward specific planning and management actions such as designating and monitoring marine reserves. These concepts are integrated and build on each other in a number of theories such as the cognitive hierarchy, theory of reasoned action, and theory of planned behavior (Eagly & Chaiken, 1993; Fishbein & Ajzen, 1975; Fulton, Manfredo, & Lipscomb, 1996; Homer & Kahle, 1988; Manfredo, Teel, & Bright, 2004; Needham & Rollins, 2009; Vaske & Donnelly, 1999).

The foundations of some of these theories are *values*, which are abstract and enduring cognitions concerned with desirable end states (e.g., freedom, success) and modes of conduct (e.g., honesty, politeness). Values are basic modes of thinking shaped early in life by family or other peers, few in number, relatively stable over time, change slowly, guide life decisions, and transcend situations and objects (Rokeach, 1973). *Value orientations* reflect an expression of these general values and are revealed through the pattern and direction of multiple basic beliefs that an individual holds regarding a situation or issue. Fulton et al. (1996), for example, asked individuals how strongly they disagreed or agreed with statements such as "humans should manage wild animal populations so that humans benefit" and "wildlife should have equal rights as humans." Taken together, these items measured values and beliefs related to wildlife use and protection. Patterns in responses can then be combined into a value orientation scale called the protection – use continuum, and similar orientations such as the anthropocentric – biocentric continuum have been examined for fisheries, forests, coral reefs, and the broader environment (Dunlap, Van Liere, Mertig, & Jones, 2000; Manfredo et al., 2004 for reviews). These values and orientations can be used for identifying groups with divergent preferences for management, informing attitudes toward management, and anticipating receptivity to and polarization over prevention and mitigation strategies. In the context of this project, coastal resident value orientations toward marine areas could serve as a foundation for their attitudes toward marine reserves and activities that they feel should and should not be allowed to occur in these areas. Residents with biocentric or nature oriented values, for example, may be more supportive of protecting marine areas in the form of designated reserves (Needham, 2010).

Individuals hold foundational values and beliefs regarding a particular object, situation, or issue, and these cognitions tend be related to *awareness* and *knowledge* about the topic. Awareness and knowledge are important in information processing and decision making (Raju, Lonial, & Mangold, 1995). Studies have examined public knowledge of natural resource issues with most finding that the public often lacks detailed knowledge of many resource issues and concerns (e.g., Needham & Little, 2013; Sutton & Ditton, 2001; Teel, Bright, Manfredo, & Brooks, 2006; Vaske, Needham, Stafford, Green, & Petchenik, 2006). This project examined coastal resident awareness of the new marine reserves in Oregon, sources of information used for learning about these reserves, and knowledge about marine reserve characteristics, benefits, and concerns.

This awareness and knowledge can inform *attitudes*, which are tendencies to evaluate a specific object, situation, or issue with some degree of favor or disfavor, or like or dislike (Fishbein &

Ajzen, 1975). Unlike values and value orientations, humans have many attitudes that are often specific to particular topics. Somewhat related to attitudes are *subjective norms*, which identify what an individual believes other people (e.g., friends, family members) think he or she should do or feel about an issue (Vaske & Whittaker, 2004). This project examined general attitudes of coastal residents toward marine reserves (i.e., favor, disfavor) and also their specific attitudes regarding the perceived effectiveness of these areas in meeting management goals. Subjective norms associated with these reserves were also measured. These attitudes and norms can influence *intentions* to engage in a behavior, and these intentions can subsequently influence actual *behaviors* (Eagly & Chaiken, 1993). This project measured intentions of coastal residents in relation to the new marine reserves by asking if they would vote for or against these reserves, and also whether designation of these reserves could alter their future visitation behavior.

Understanding cognitions such as knowledge, attitudes, intentions, and behaviors in the context of marine reserves is important because it allows a better understanding of how the public will respond to these reserves, as well as possibly predict future behavior associated with these areas. Individuals with biocentric values (i.e., nature oriented) and high knowledge of marine reserves, for example, may have more positive attitudes toward these areas and therefore be likely to vote in support of having reserves. Conversely, those who are less aware of benefits of these reserves may have more negative attitudes and vote against implementation. These cognitions can also be targeted for change, which is important when designing and evaluating informational and educational outreach efforts and campaigns. For example, if individuals have negative attitudes toward marine reserves and these attitudes are largely shaped by a lack of awareness or knowledge of the benefits and rationale of these areas, agencies such as ODFW can target communication and education campaigns to increase knowledge and potentially change attitudes.

METHODS

Data for measuring these cognitions and addressing this project's objectives were obtained from questionnaires administered by mail in late 2012 and early 2013 to a sample of residences along the Oregon coast selected randomly from postal records. This sample was obtained from Marketing Systems Group (MSG) in Pennsylvania, which uses the most recent US Postal Service delivery sequence files to compile sampling lists. Respondents were adult residents who were 18 years of age and older. A sample of 2,600 addresses was equally divided into two main subpopulations: (a) residents living near the five marine reserves (i.e., communities of place),

and (b) residents along the rest of the coast (i.e., general coastal sample; Figure 2). The term, communities of place, implies a collective identity and perhaps different perceptions and reactions to a management issue such as marine reserves (Winter, Palucki, & Burkhardt, 1999). The 1,300 addresses in the communities of place were distributed equally among five specific areas corresponding to each current marine reserve location (i.e., 260 addresses for each). A 10 mile radius was drawn around the land point nearest to the center of each reserve and communities within this radius were included in the communities of place delineation. The exact size and location of these areas were adjusted slightly in cases where they would split communities inside and outside of the sample, and in cases where they overlapped with another reserve's community of place so that communities were not split or overlapping. The other half of the sample addresses (i.e., 1,300) was spread throughout the rest of the coast and included areas seaward of the Coast Range excluding those in the five predefined communities of place. Prior to data collection, these sampling areas and the questionnaire instruments were reviewed extensively, pre-tested, and approved by personnel at Oregon Department of Fish and Wildlife.

This type of delineation of subpopulations by proximity is common in research addressing public concerns regarding protected areas and other related natural resource management issues. Several studies, for example, have divided populations based on proximity to protected areas with the division, although subjectively determined, designed to investigate whether people who live geographically closer to a place differ from those living farther away (e.g., Jim & Xu, 2002; Winter et al., 1999). Issues with delineating a local region, or community of place, have been noted in the literature where these delineations may not crisply capture people in a local versus more distant community and their associated concerns (e.g., Cocklin, Craw, & Mcauley, 1998). Although these delineations are generally subjective, they are set a priori and relate to the situational context. Distance is a common method and the approach employed here, although there are other means of delineation in the literature, such as by time-on-roads distance to a protected area or potential affectedness associated with the marine issue and ocean dependence (e.g., fishing, tourism; Gee & Burkhard, 2010; Thomassin, White, Stead, & David, 2010).

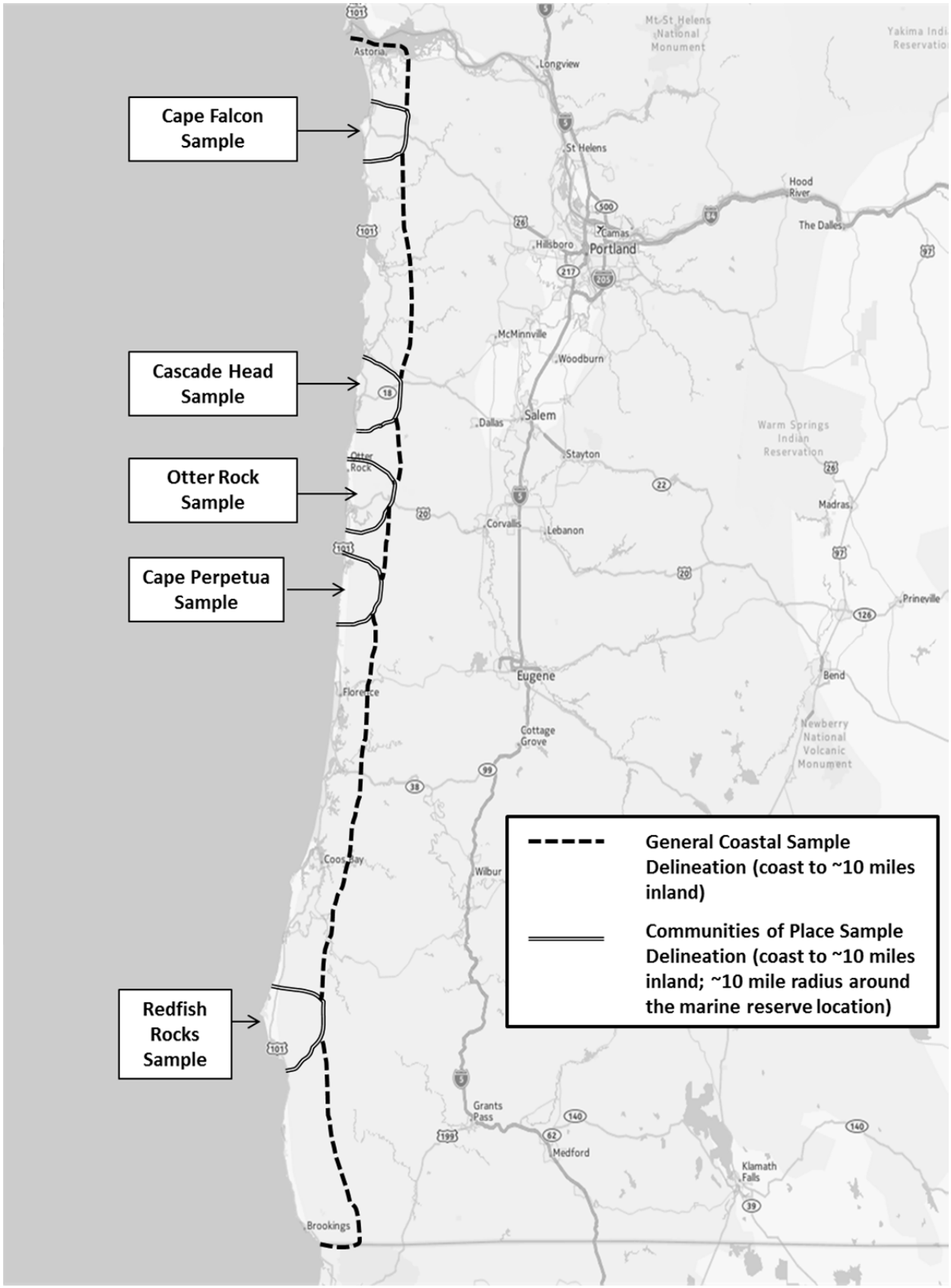

Figure 2. Generalized map of sampling areas for surveyed population. Actual sample delineation followed more detailed boundaries

Three separate questionnaire mailings were implemented to collect data. Multiple mailings are standard for social science studies and are necessary for increasing response rates, the ability to generalize, and ensuring representativeness of samples (Dillman, 2007; Mitra & Lankford, 1999; Vaske, 2008). Residents were first sent a mail packet on November 9, 2012, containing a questionnaire booklet (Appendix A), postage paid business reply envelope, and cover letter requesting their participation. On November 30, 2012, a postcard reminder was sent to those who had not yet completed the questionnaire requesting their participation. On January 11, 2013, a final full mailing (i.e., letter, questionnaire, reply envelope) was sent to those who had still not completed and mailed back the questionnaire. No further mailings were sent, so residents were considered a nonresponse if they did not complete the questionnaire following these three contacts. To ensure that respondents did not complete the questionnaire more than once, each residence that was sampled was given a unique identification (ID) code that was printed on the questionnaire. This is a standard approach for avoiding duplicate responses (i.e., people completing the questionnaire more than once), which could make the sample nonrandom and bias the representativeness and generalizability of results (Vaske, 2008). This ID code also allowed the researchers to identify who completed the questionnaire so that respondents were not contacted again in any additional correspondence.

In total, 357 questionnaires were undeliverable (e.g., incorrect address, vacant household, moved) and n = 595 completed questionnaires were returned, yielding a 27% overall response rate (595 / 2,600 – 357; Table 1). This response rate is relatively consistent with many other recent mail surveys asking the public about natural resource issues (see Connelly, Brown, & Decker, 2003; Vaske, 2008 for reviews). The sample size for residents living in the communities of place was n = 326 (30% response rate) and the sample size for those living along the rest of the coast (i.e., general coastal sample) was n = 269 (23% response rate). The combined sample size of n = 595 allows generalizations about the population of Oregon coastal residents at a margin of error of ± 4% at the 95% confidence level, which is better than the conventional standard of ± 5% that has been widely accepted and adopted in human dimensions of natural resources research (Mitra & Lankford, 1999; Vaske, 2008). Margins of error for each subpopulation were ± 5.4% at the 95% confidence level for residents of the communities of place and ± 6% at the 95% confidence level for those living along the rest of the coast.

Table 1. Final sample sizes and response rates

Site	Mailed Questionnaires	Undeliverable Questionnaires	Completed Questionnaires (*n*)	Response Rate (%)
Cape Falcon	260	30	70	30
Cascade Head	260	54	50	24
Otter Rock	260	34	69	31
Cape Perpetua	260	44	63	29
Redfish Rocks	260	51	74	35
Rest of the Coast	1300	144	269	23
Total	2600	357	595	27

To check for potential nonresponse bias, residents who completed a mail questionnaire were compared against those who did not (i.e., nonrespondents). A large sample of n = 202 nonrespondents was telephoned in March 2013 and asked 10 specific questions from the questionnaire (Appendix B). There were no substantive differences in responses between those who responded to the mail survey and those who did not (i.e., completed telephone nonresponse bias check), so the data did not need to be weighted based on this nonresponse bias check.

The data did, however, need to be weighted by population proportions based on the most recent US Census information for number of households to ensure that the samples and questionnaire responses were statistically representative of the broader target populations. Two different sets of weights were necessary. First, the data needed to be weighted when aggregating the five samples from communities near the marine reserves into a single subpopulation representing the communities of place (Table 2). Results in this report presented in table columns as "communities of place" are based on these weights. Second, the data needed to be weighted when aggregating these five communities of place samples with the larger sample from the rest of the coast into a single population representing all Oregon coastal residents in total (Table 3). Results presented in table columns as "total" are based on this second set of weights. The following calculation was used for weighting the data to reflect population proportions:

$$\text{Weight} = \frac{\text{Population}\,\%}{\text{Sample}\,\%}$$

Table 2. Weighting for the *communities of place* subpopulation

	Population (number of households)		Sample (one respondent per household)		
Site	*N*	%	*n*	%	Weight
Cape Falcon	2595	12.9	70	21.5	0.60
Cascade Head	4885	24.3	50	15.3	1.59
Otter Rock	8709	43.3	69	21.2	2.04
Cape Perpetua	2708	13.5	63	19.3	0.70
Redfish Rocks	1197	6.0	74	22.7	0.26
Total	20094	100.0	326	100.0	

Table 3. Weighting for the *total population* of Oregon coastal residents

	Population (number of households)		Sample (one respondent per household)		
Site	*N*	%	*n*	%	Weight
Cape Falcon	2595	3.2	70	11.8	0.27
Cascade Head	4885	6.0	50	8.4	0.71
Otter Rock	8709	10.7	69	11.6	0.92
Cape Perpetua	2708	3.3	63	10.6	0.31
Redfish Rocks	1197	1.5	74	12.4	0.12
Rest of the Coast	61098	75.3	269	45.2	1.67
Total	81192	100.0	595	100.0	

Results in this report are grouped into subsections according to the project objectives and questionnaire items. Within each subsection, analyses are conducted to reveal total responses across all Oregon coastal residents, and also compare responses between residents living in the communities of place and those along the rest of the coast. Percentages, crosstabulations, and bivariate and multivariate inferential statistical tests were used for analyzing and presenting results. Many of these tests produce *p*-values and when a *p*-value associated with any test (i.e., χ^2, *t*, *F*) presented in this report is $p \leq .05$, a statistically significant relationship or difference was observed. In addition to these tests of significance, effect size statistics (e.g., phi ϕ, Cramer's *V*, eta η) were used for examining the strength of relationships. Effect sizes of .10 typically suggest "minimal" (Vaske, 2008) or "weak" (Cohen, 1988) relationships or differences. Effect sizes of .30 are usually considered "medium" or "typical," and .50 or greater are "large" or "substantial" relationships or differences; larger effect sizes imply stronger relationships or differences. To highlight findings, data were recoded into major response categories (e.g., agree, disagree), but descriptive results of all uncollapsed questions (e.g., strongly, slightly agree) are in Appendix C.

RESULTS

Oregon Marine Areas in General

Activity Participation in Oregon Marine Areas. Residents were asked in the questionnaire to select all of the activities in which they have ever participated at marine areas in Oregon. Table 4 shows that, in total, sightseeing (88%), viewing marine animals (86%), and exploring tide pools (77%) were the most common activities in this state's marine areas. The least popular activities were scuba diving or snorkeling (6%), commercial fishing (10%), and surfing or boogie boarding (13%). The order of activities was similar between communities of place and the rest of the coast. There were a few statistically significant differences between these two groups, however, with respondents from the communities of place being significantly more likely to explore tide pools (83% vs. 75%), surf or boogie board (18% vs. 11%), and scuba dive or snorkel (10% vs. 5%). Those living along the rest of the coast had higher rates of participation in non-charter recreation fishing (57% vs. 48%).

Table 4. All activities participated in Oregon marine areas [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Sightseeing	89	87	88	.60	.438	.03
Viewing marine animals (whales, seals)	90	85	86	2.78	.095	.07
Exploring tide pools	83	75	77	5.29	.021	.10
Non-charter recreational fishing	48	57	55	4.71	.030	.09
Motorized boating	42	43	43	.07	.793	.01
Swimming	34	40	38	2.32	.128	.06
Charter recreational fishing	33	32	32	.03	.877	.01
Non-motorized boating (canoe, kayak)	30	27	28	.36	.550	.03
Other [b]	12	15	14	1.38	.239	.05
Surfing / boogie boarding	18	11	13	5.19	.023	.09
Commercial fishing	11	10	10	.17	.678	.02
Scuba diving / snorkeling	10	5	6	5.70	.017	.10

[a] Cell entries are percentages (%) of respondents who have ever participated in the activity in Oregon's marine areas.
[b] Most common "other" activities listed include: beachcombing, clamming, crabbing, and hiking / walking.

Respondents were then asked to select the one main activity in which they participated the most at marine areas in Oregon. Table 5 shows that sightseeing (35%), non-charter recreational fishing (22%), and viewing marine animals (16%) were the most popular main activities. The least popular activities were scuba diving or snorkeling (1%), swimming (1%), surfing or boogie boarding (2%), non-motorized boating (2%), and charter recreational fishing (2%). Respondents

who resided in the communities of place were significantly more likely than those living along the rest of the coast to consider viewing marine animals (21% vs. 14%) and exploring tide pools (12% vs. 6%) as their main activities, whereas those living along the rest of the coast were more likely to specify sightseeing (36% vs. 31%) and non-charter recreational fishing (25% vs. 12%) as their main activities.

Table 5. Main activity participation in Oregon marine areas [a]

	Communities of place	Rest of the coast	Total
Sightseeing	31	36	35
Non-charter recreational fishing	12	25	22
Viewing marine animals (whales, seals)	21	14	16
Exploring tide pools	12	6	8
Other	6	7	6
Motorized boating	3	4	4
Commercial fishing	4	3	3
Charter recreational fishing	2	2	2
Non-motorized boating (canoe, kayak)	3	2	2
Surfing / boogie boarding	4	1	2
Swimming	1	1	1
Scuba diving / snorkeling	2	0	1

[a] Cell entries are percentages (%) of respondents who indicated this was their main activity in Oregon's marine areas. $\chi^2(11, N = 527) = 35.75, p < .001, V = .25$.

Ecological Health of Oregon Natural Resources. The questionnaire asked respondents to rate how ecologically healthy they believed seven different natural resources were in Oregon on 9-point scales of 0 "not healthy" to 8 "very healthy." For analysis purposes, answers were recoded into dichotomous responses of "not at all or slightly healthy" (0 – 3 on scale) and "moderately or very healthy" (4 – 8 on scale). Table 6 shows that more than two-thirds of respondents believed that wildlife (77%), other marine animals (75%), forests (75%), marine areas (i.e., ocean; 73%), marine fish (72%), rivers and streams (71%), and bays and estuaries (66%) were moderately or very healthy in this state. There were no statistically significant differences in these perceptions between respondents living in the communities of place versus along the rest of the coast.

Table 6. Perceived ecological health of marine areas and other natural resources in Oregon [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Wildlife in Oregon	75	78	77	.56	.454	.03
Other marine animals in Oregon	73	75	75	.23	.635	.02
Forests in Oregon	70	77	75	2.66	.103	.07
Marine areas (ocean) in Oregon	73	73	73	.01	.972	.00
Marine fish in Oregon	69	73	72	.62	.431	.03
Rivers and streams in Oregon	70	71	71	.07	.799	.01
Bays and estuaries in Oregon	66	66	66	.01	.980	.00

[a] Cell entries are percentages (%) of respondents who perceived the resource to be "moderately or very healthy" (4 – 8 on scale).

Threats to Oregon Marine Areas. Respondents were asked how much they perceived 18 different threats to marine areas in Oregon. The questionnaire asked respondents to rate each of these threats on 9-point scales of 0 "no threat" to 8 "extreme threat," which were recoded into dichotomous responses of "no threat or slight threat" (0 – 3 on scale) and "moderate or extreme threat" (4 – 8 on scale) for analysis purposes. Results in Table 7 show that for all respondents, marine trash and debris (85%), water pollution (77%), invasive or exotic species (74%), and ocean acidification (70%) were considered to be the greatest threats to Oregon marine areas. There were no statistical differences in these responses between residents in the communities of place and the rest of the coast. Residents perceived the lowest threats from recreational anglers (25%), people who purchase or consume seafood (32%), wildlife viewers getting too close to marine animals (35%), and wave energy or power development (38%). There were significant differences between residents in the communities of place and the rest of the coast regarding threats associated with water temperature, global climate change, oil and gas exploration and transport, rise in sea level, and people who purchase or consume seafood, with those living in the communities of place indicating higher perceived threats associated with all of these issues.

Table 7. Perceived threats to Oregon marine areas [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Other types of pollution (marine trash, debris)	85	85	85	.01	.948	.00
Water pollution	82	75	77	3.39	.065	.08
Invasive / exotic species	75	74	74	.02	.895	.01
Ocean acidification (lower pH, higher acidity)	74	69	70	1.73	.189	.06
Overfishing	67	66	66	.04	.850	.01
Changes in water temperature	74	63	65	7.79	.005	.12
Global climate change	71	60	63	7.50	.006	.12
Loss or disturbance of marine / coastal habitat	69	61	63	3.78	.052	.08
Oil / gas exploration and transport	70	58	61	8.33	.004	.12
People who fish commercially	63	57	58	2.33	.127	.07
Dams	58	55	56	.47	.495	.03
Tsunamis	60	53	55	2.59	.108	.07
Rise in sea level	64	49	53	12.66	< .001	.15
Naval or other military operations	44	40	41	.80	.370	.04
Wave energy / power development	40	37	38	.78	.378	.04
Viewers getting too close to marine animals	39	34	35	1.59	.208	.05
People who purchase / consume seafood	41	30	32	8.19	.004	.12
People who fish recreationally	26	25	25	.25	.618	.02

[a] Cell entries are percentages (%) of respondents who perceived the issue to be a "moderate or extreme threat" (4 – 8 on scale).

Beliefs about Oregon Marine Areas. The questionnaire asked respondents the extent that they disagreed or agreed with eight statements about marine areas in Oregon. Table 8 shows that the highest proportion of respondents (50%) believed that the government should do more to help protect marine areas in Oregon. Residents in the communities of place were significantly more likely (65%) than those along the rest of the coast to agree with this statement (45%). In total, 41% of residents agreed that people who fish commercially are harming marine areas in Oregon, with no statistical difference between communities of place and the rest of the coast. Only 38% of residents agreed that fishing is not harming marine areas in Oregon, but respondents from the communities of place were significantly less likely to agree with this statement (29%) compared to those living along the rest of the coast (42%). Only 34% of respondents agreed that the condition of marine areas in Oregon has improved in recent years, followed by 30% who agreed that managers are doing everything they can to protect marine areas in this state. Furthermore, only 22% of respondents agreed that laws protecting marine areas in Oregon are too strict, with respondents from the communities of place (16%) less likely than those along the rest of the coast (24%) to agree with this statement. Finally, only 14% of residents agreed that people

fishing recreationally are harming Oregon's marine areas, with those in the communities of place more likely to agree (23%) compared to those on the rest of the coast (11%).

Table 8. Beliefs about Oregon marine areas [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
The government should do more to help protect marine areas in Oregon	65	45	50	21.31	< .001	.20
People who fish commercially are harming marine areas in Oregon	46	39	41	2.50	.114	.07
Fishing is *not* harming marine areas in Oregon	29	42	38	10.25	.001	.14
The condition of marine areas in Oregon has improved in recent years	36	34	34	.39	.534	.03
Managers are doing everything they can to protect marine areas in Oregon	26	31	30	1.59	.207	.05
Laws protecting marine areas in Oregon are already too strict	16	24	22	4.90	.027	.09
People who purchase / consume seafood are harming marine areas in Oregon	20	15	16	2.21	.136	.06
People who fish recreationally are harming marine areas in Oregon	23	11	14	12.99	< .001	.15

[a] Cell entries are percentages (%) of respondents who "agreed" with the statement.

Influence and Trust of Groups to Manage Oregon Marine Areas. Respondents were asked how much influence they believed 19 different individuals and groups *should have* in contributing to the management of marine areas in Oregon. These questions were asked on 9-point scales of 0 "no influence" to 8 "strong influence," which were recoded into dichotomous responses of "no or some influence" (0 – 3 on scale) and "moderate or strong influence" (4 – 8 on scale). Results in Table 9 show that for nearly all groups listed, over 50% of respondents believed that each group should have moderate or strong influence. Residents believed that the strongest influence should be from the Oregon Department of Fish and Wildlife (84%), followed by the US Fish and Wildlife Service (79%), Oregon Parks and Recreation Department (78%), Oregon Marine Board (78%), National Oceanic and Atmospheric Administration (77%), people who live along the Oregon coast (77%), and the Pacific Fishery Management Council (76%). Residents believed that the least influence should be from people who *do not* live on the Oregon coast (25%) and environmental organizations (55%). There were few differences in these perceptions between the communities of place and the rest of the coast, but those living in the communities of place were significantly more likely to believe that the National Oceanic and

Atmospheric Administration, university researchers, and environmental organizations should have moderate or strong influence in contributing to the management of marine areas in Oregon.

Table 9. Influence that groups should have in managing marine areas in Oregon [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Oregon Department of Fish and Wildlife	84	83	84	.09	.770	.01
US Fish and Wildlife Service	80	78	79	.12	.734	.01
Oregon Parks and Recreation Department	82	76	78	2.22	.136	.06
Oregon Marine Board	81	77	78	1.30	.254	.05
National Oceanic and Atmospheric Administration	83	75	77	4.93	.026	.09
People who live along the Oregon coast	77	78	77	.02	.890	.01
Pacific Fishery Management Council	81	75	76	3.21	.073	.08
People who fish commercially	75	73	73	.24	.623	.02
University researchers	80	70	72	7.91	.005	.12
Local port authorities	77	71	72	2.56	.110	.07
US Coast Guard	75	71	72	.77	.381	.04
Local governments	71	71	71	.01	.948	.00
Tribal authorities / governments	65	62	63	.68	.410	.04
People who fish recreationally	65	61	62	.97	.324	.04
People who recreate in marine areas	56	59	58	.45	.502	.03
Oregon State Police	57	57	57	.01	.980	.00
Governor of Oregon	62	54	56	3.37	.066	.08
Environmental organizations	61	52	55	4.34	.037	.09
People who *do not* live on the Oregon coast	25	25	25	.01	.985	.00

[a] Cell entries are percentages (%) of respondents who believed the group should have "moderate or strong influence" (4 – 8 on scale).

Respondents were also asked how much trust they had in each of these individuals and groups to positively contribute to the management of marine areas in Oregon. These questions were asked on 9-point scales of 0 "no trust" to 8 "high trust." For analysis purposes, responses were recoded into dichotomous responses of "no or some trust" (0 – 3 on scale) and "moderate or high trust" (4 – 8 on scale). Table 10 shows the groups receiving the highest trust were people who live along the Oregon coast (78%), Oregon Department of Fish and Wildlife (76%), US Fish and Wildlife Service (76%), US Coast Guard (76%), university researchers (74%), National Oceanic and Atmospheric Administration (72%), and the Oregon Marine Board (70%). Groups trusted the least were people who do not live on the Oregon coast (18%), those who recreate in marine areas (43%), the Governor of Oregon (47%), and environmental organizations (49%). Compared to residents living along the rest of the coast, those in the communities of place had statistically higher trust in university researchers, environmental organizations, the Governor of Oregon, and

most federal and state agencies (e.g., Oregon Department of Fish and Wildlife, National Oceanic and Atmospheric Administration, Oregon Marine Board, Oregon Parks and Recreation Department, Pacific Fishery Management Council). In contrast, respondents living along the rest of the coast had higher trust in people who live along the Oregon coast and fish commercially.

Table 10. Trust in groups to contribute to managing marine areas in Oregon [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
People who live along the Oregon coast	64	82	78	23.80	< .001	.20
Oregon Department of Fish and Wildlife	81	74	76	4.06	.044	.09
US Fish and Wildlife Service	80	75	76	2.62	.106	.07
US Coast Guard	77	76	76	.11	.738	.01
University researchers	80	72	74	4.88	.027	.09
National Oceanic and Atmospheric Administration	82	68	72	15.05	< .001	.16
Oregon Marine Board	77	67	70	6.37	.012	.11
Oregon Parks and Recreation Department	75	67	69	4.10	.043	.09
Pacific Fishery Management Council	74	62	65	8.16	.004	.12
Local port authorities	66	65	65	.15	.703	.02
Local governments	60	56	57	.64	.424	.03
Tribal authorities / governments	59	56	57	.31	.578	.02
Oregon State Police	60	54	56	1.83	.176	.06
People who fish commercially	47	57	54	5.33	.021	.10
People who fish recreationally	48	52	51	.88	.349	.04
Environmental organizations	59	46	49	8.92	.003	.13
Governor of Oregon	55	45	47	5.34	.021	.10
People who recreate in marine areas	38	44	43	1.89	.170	.06
People who *do not* live on the Oregon coast	15	19	18	1.41	.236	.05

[a] Cell entries are percentages (%) of respondents who have "moderate or high trust" (4 – 8 on scale) in the group.

Section Summary

- Coastal residents have participated in a range of activities in Oregon's marine areas, especially sightseeing (88%), viewing marine animals (86%), exploring tidepools (77%), and non-charter recreational fishing (55%). Their most popular primary activities in these areas have been sightseeing (35%), non-charter recreational fishing (22%), and viewing marine animals (16%).
- Coastal residents overwhelmingly perceived marine areas and other natural resources in Oregon to be moderately or very healthy. Residents perceived wildlife to be the most healthy (77%), and bays and estuaries to be least healthy (66%). Approximately three-

quarters of coastal residents perceived Oregon's marine animals (75%), marine areas (i.e., ocean; 73%), marine fish (72%), and rivers and streams (71%) to be healthy.

- These coastal residents, however, were concerned about perceived anthropogenic and natural threats to Oregon marine areas, in particular marine trash and debris (85%), water pollution (77%), invasive species (74%), ocean acidification (70%), and overfishing (66%). Residents were least concerned about recreational anglers (25%), people who purchase or consume seafood (32%), viewers of marine animals (35%), and wave energy and power development (38%). Residents in the communities of place (i.e., nearest the five marine reserve sites) were more concerned about these threats compared to those along the rest of the coast.
- Half of coastal residents (50%) agreed that the government should do more to help protect marine areas in Oregon, with residents in the communities of place indicating significantly stronger agreement (65%) than those along the rest of the coast (45%).
- A minority of coastal residents agreed that people who fish commercially (41%) or recreationally (14%) are harming marine areas in Oregon. Residents living in the communities of place, however, were more likely than those along the rest of the coast to agree that commercial and recreational fishing are harming these areas.
- Less than one-third of coastal residents agreed that the condition of marine areas in Oregon has improved in recent years (34%), managers are doing everything they can to protect these areas (30%), and laws protecting these marine areas are too strict (22%).
- The majority of coastal residents (55% to 84%) believed that a number of federal, state, and local groups and organizations should have an influence in managing marine areas in Oregon, with the exception of people who do not live on the Oregon coast (25%). The organization that residents believed should have the greatest influence in managing these areas was the Oregon Department of Fish and Wildlife (ODFW, 84%).
- The majority of coastal residents trust many of these groups and organizations to contribute to management of marine areas in Oregon. Groups most strongly trusted were people who live along the coast (78%), Oregon Department of Fish and Wildlife (76%), US Fish and Wildlife Service (76%), and the US Coast Guard (76%). Groups who were trusted the least included people who do not live on the coast (18%), recreationists (43%), the Governor of Oregon (47%), and environmental organizations (49%). Respondents

living in the communities of place had higher levels of trust in federal and state agencies than did the rest of the coast. In contrast, residents along the rest of the coast had higher trust in people living along the coast and those who fish commercially.

Oregon Marine Reserves

Visitation and Activity Participation in Oregon Marine Reserves. The questionnaire contained a detailed map of the five marine reserve sites in Oregon (see Figure 1 and Appendix A) and asked respondents questions about their visitation and activities at these sites. First, respondents were asked if they had ever visited at least one of these five reserve sites identified on the map. Table 11 shows that 67% of respondents had visited at least one of the reserve sites. Respondents who resided in the communities of place were significantly more likely (74%) than those living along the rest of the coast to have visited at least one site (64%).

Table 11. Previous visitation to the Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total
Yes (visited at least one reserve)	74	64	67
No (not visited any reserve)	26	36	33

[a] Cell entries are percentages (%). $\chi^2(1, N = 562) = 6.37$, $p = .012$, $\phi = .11$.

Respondents were then asked which of these sites they had visited. Results in Table 12 show that for all respondents (i.e., not just those who had visited at least one of these reserves), the largest proportion had previously visited Otter Rock (45%), followed by Cape Perpetua (38%), Cascade Head (33%), Redfish Rocks (24%), and Cape Falcon (23%). Residents living in the communities of place were significantly more likely than those along the rest of the coast to have visited Otter Rock (57% vs. 41%), Cape Perpetua (43% vs. 36%), and Cascade Head (46% vs. 29%). Those living along the rest of the coast were more likely to have visited Redfish Rocks (28% vs. 13%). There was no statistical difference between these two groups in their visitation to Cape Falcon.

Table 12. Oregon marine reserve sites previously visited [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Otter Rock	57	41	45	13.83	.001	.16
Cape Perpetua	43	36	38	7.27	.026	.12
Cascade Head	46	29	33	17.22	< .001	.18
Redfish Rocks	13	28	24	40.76	< .001	.27
Cape Falcon	25	23	23	2.67	.122	.07
Total (visited at least one of these sites)	74	64	67	6.37	.012	.11

[a] Cell entries are percentages (%) of *all* respondents who have previously visited the site.

The questionnaire also asked respondents to select all activities in which they have participated at these marine reserve sites in Oregon. Table 13 shows that sightseeing (58%), viewing marine animals (52%), and exploring tide pools (42%) were the most common activities in these reserve areas. The least popular activities were scuba diving or snorkeling (3%), non-motorized boating (5%), commercial fishing (6%), and surfing or boogie boarding (7%). There were some statistically significant differences with respondents from the communities of place being slightly more likely than those on the rest of the coast to participate in sightseeing (64% vs. 56%), viewing marine animals (59% vs. 49%), exploring tide pools (51% vs. 39%), charter fishing (12% vs. 9%), swimming (11% vs. 8%), surfing or boogie boarding (11% vs. 6%), non-motorized boating (9% vs. 4%), and scuba diving or snorkeling (5% vs. 3%) in these reserves.

Table 13. All activities participated in Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Sightseeing	64	56	58	7.04	.030	.11
Viewing marine animals (whales, seals)	59	49	52	7.35	.025	.12
Exploring tide pools	51	39	42	9.30	.010	.13
Non-charter recreational fishing	18	19	19	2.51	.113	.06
Motorized boating	11	12	12	2.37	.132	.05
Charter recreational fishing	12	9	10	7.16	.028	.11
Swimming	11	8	9	7.26	.026	.11
Surfing / boogie boarding	11	6	7	9.88	.007	.13
Commercial fishing	6	6	6	1.13	.798	.02
Other [b]	7	5	6	7.04	.030	.11
Non-motorized boating (canoe, kayak)	9	4	5	11.54	.003	.14
Scuba diving / snorkeling	5	3	3	8.22	.016	.12

[a] Cell entries are percentages (%) of *all* respondents who have participated in the activity in at least one of Oregon's marine reserves.
[b] Most common "other" activities listed include: beachcombing, photography, and hiking / walking.

Respondents were then asked to list the one main activity in which they have ever participated at these marine reserve sites in Oregon. Table 14 shows that sightseeing (29%) and viewing marine animals (13%) were the most popular main activities in these reserve sites. The least popular activities were swimming, scuba diving or snorkeling, non-motorized boating, charter fishing, commercial fishing, and motorized boating (all 1% or less). Respondents who lived in the communities of place were significantly less likely (5%) than those on the rest of the coast (10%) to consider non-charter recreational fishing as a main activity in these reserve areas.

Table 14. Main activity participation in Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total
Sightseeing	30	29	29
Viewing marine animals (whales, seals)	15	12	13
Non-charter recreational fishing	5	10	8
Exploring tide pools	8	5	6
Other	4	3	4
Surfing / boogie boarding	4	1	2
Motorized boating	1	1	1
Commercial fishing	2	1	1
Charter recreational fishing	2	1	1
Non-motorized boating (canoe, kayak)	2	0	1
Scuba diving / snorkeling	1	1	1
Swimming	0	0	0

[a] Cell entries are percentages (%) of all respondents who indicated this was their main activity in Oregon's marine reserves. $\chi^2(11, N = 555) = 32.10, p = .001, V = .22$.

Attachment to the Oregon Marine Reserves. The questionnaire contained six questions measuring coastal resident place attachment to these marine reserves. Three of these questions measured the place identity dimension of attachment, and the three others measured place dependence. Place identity refers to emotional ties to a place, can develop over time, and is related to symbolic meanings of an area (Manning, 2011). Place dependence involves the functionality associated with physical characteristics and attributes of the area (Manning, 2011; Williams & Vaske, 2003). Table 15 shows that for place identity, 37% of respondents indicated that at least one of the marine reserve sites was special to them, 32% said that they identify strongly with at least one of these areas, and 31% felt attached to at least one of these sites. There were significant differences between residents in the communities of place and the rest of the coast for all three of these measures of place identity, with those living in the communities of place indicating higher agreement and identity to these places.

For place dependence, 36% of residents agreed that at least one of the marine reserve sites was the best place for doing what they like to do, 19% agreed that they would not substitute any other area for doing the types of things that they do at these sites, and 19% also agreed that doing what they do in at least one of these sites is more important than doing the activity in any other place. Again, compared to residents living along the rest of the coast, those in the communities of place had significantly higher levels of agreement with these three measures of place dependence.

Table 15. Place attachment to Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Place Identity						
At least one of these marine sites is very special to me	51	32	37	20.78	< .001	.19
I identify strongly with at least one of these marine sites	43	29	32	11.23	.003	.15
I am very attached to at least one of these marine sites	41	28	31	11.53	.003	.14
Place Dependence						
At least one of these marine sites is one of the best places for doing what I like to do	49	32	36	16.20	< .001	.17
I would not substitute any other area for doing the types of things that I do in at least one of these marine sites	22	18	19	6.31	.043	.11
Doing what I do in at least one of these marine sites is more important to me than doing it in any other place	25	17	19	7.88	.019	.12

[a] Cell entries are percentages (%) of *all* respondents who "agreed" with the statement.

Self-Assessed Knowledge about Oregon Marine Reserves. Nine questions measured respondent self-assessed knowledge about the marine reserves in Oregon. Respondents were asked "before receiving this survey, were you familiar with the topic of marine reserves in Oregon?" Residents were also asked both how well informed and how knowledgeable they felt about the topic of marine reserves in this state. In addition, the questionnaire asked respondents how much they felt they understood about a number of issues associated with these reserves (e.g., their purpose, how they would be managed, where they are located). Results in Table 16 show that 71% of respondents indicated that they were familiar with these reserves. The majority (56%) of respondents also felt that they understood the purpose of these reserves. Only 44% of residents, however, felt informed about the topic of marine reserves in Oregon and understood the role of science in these reserves. Similarly, 40% of residents felt knowledgeable about these reserves. Furthermore, only 34% understood where these reserves were located and 30% understood the

role of public involvement in these reserves. Respondents felt that they understood the least about how these reserves would be managed (26%) and any rules and regulations associated with these reserves (22%). There were no statistically significant differences between residents in the communities of place compared to the rest of the coast for all nine of these measures of self-assessed knowledge about marine reserves in Oregon.

Table 16. Self-assessed knowledge about Oregon marine reserves

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Familiarity with these reserves [a]	70	71	71	.14	.707	.02
Understand the purpose of these reserves [b]	61	54	56	2.92	.087	.07
Informed about these reserves [c]	41	45	44	1.18	.277	.05
Understand the role of science in these reserves [b]	49	42	44	2.82	.093	.07
Knowledgeable about these reserves [d]	37	41	40	.66	.416	.03
Understand where these reserves are located [b]	33	35	34	.18	.668	.02
Understand the role of public involvement in these reserves [b]	29	31	30	.09	.769	.01
Understand how these reserves would be managed [b]	24	27	26	1.04	.308	.04
Understand rules / regulations of these reserves [b]	21	22	22	.10	.748	.01

[a] Cell entries are percentages (%) of respondents who said "yes" they were familiar with the topic of marine reserves in Oregon.

[b] Cell entries are percentages (%) of respondents who felt they "moderately or fully understand" these issues about marine reserves in Oregon.

[c] Cell entries are percentages (%) of respondents who felt "moderately or extremely informed" about the topic of marine reserves in Oregon.

[d] Cell entries are percentages (%) of respondents who felt "moderately or extremely knowledgeable" about the topic of marine reserves in Oregon.

Factual Knowledge about Oregon Marine Reserves. The questionnaire also contained 16 statements about marine reserves in Oregon designed for measuring coastal residents' factual knowledge about these reserves. Ten true / false (and unsure) questions about these reserves were asked: "In Oregon: (a) the government has been considering marine reserves for the past several years (true), (b) the government has approved marine reserves for this state (true), (c) commercial fishing would be allowed in all marine reserves (false), (d) all marine reserves would include coastal lands such as beaches and coastlines (false), (e) the government has established five marine reserve sites (true), (f) new developments such as wave energy or fish farms would be allowed in all marine reserves (false), (g) non-extractive recreation / tourism activities (e.g., surfing, swimming, diving) would be allowed in all marine reserves (true), (h) keeping fish caught in marine reserves would be allowed in all reserves (false), (i) only scientists and no other people would be allowed in all marine reserves (false), and (j) there have been opportunities for public involvement in agency discussions about marine reserves (true)."

In addition, respondents were asked "what one agency or organization do you think is currently responsible for marine reserves in Oregon" with the following choices: National Oceanic and Atmospheric Administration, US Fish and Wildlife Service, US Coast Guard, Pacific Fishery Management Council, Oregon Parks and Recreation Department, Oregon Department of Fish and Wildlife (i.e., correct answer), Oregon Marine Board, and Unsure.

Respondents were also asked "both marine reserves and marine protected areas have been proposed for Oregon. These designations are not the same thing. Do you think each of the following activities would be allowed in Oregon's marine reserves (MRs), marine protected areas (MPAs), both of these types of areas, or neither of these types of areas?" Five items were listed: (a) commercial fishing (MPAs), (b) recreational fishing (MPAs), (c) scientific research (both), (d) removing any species or habitat would not be allowed (MRs), and (e) non-extractive recreation / tourism activities (e.g., surfing, swimming, diving; both). Respondents were given the option of selecting marine reserves, marine protected areas, both marine reserves and protected areas, neither marine reserves or protected areas, or unsure for each. All of these factual knowledge questions were recoded into dichotomous "correct" and "not correct" responses. Then, a standardized score was computed for each respondent representing the percent of correctly answered questions out of 16 (i.e., 0 to 100% correct).

Results in Table 17 show responses to these variables measuring factual knowledge. The item answered correctly by the largest proportion of residents (80%) was that scientific research would be allowed in both marine protected areas and marine reserves in Oregon, whereas the question answered correctly by the fewest residents was that commercial fishing would be allowed in this state's marine protected areas, but not in its marine reserves (7%). The majority of respondents knew that the government has been considering marine reserves in Oregon for several years (71% answered correctly), commercial fishing would not be allowed in all of these reserves (67%), there have been opportunities for public involvement in decisions about these areas (58%), keeping fish caught would not be allowed in all marine reserves (58%), and scientists would not be the only people allowed in these reserves (54%). Less than the majority of respondents, however, answered the other 10 factual knowledge questions correctly. Only 34% of residents, for example, correctly identified ODFW as the agency or organization currently responsible for these marine reserves. The total factual knowledge score out of 16 questions showed that this knowledge was low among respondents, with an average score of only 43% of questions answered correctly (i.e., failing grade). This factual knowledge score did

not differ between the communities of place and the rest of the coast. Those living in the communities of place, however, were more likely than those along the rest of the coast to know that recreational fishing would be allowed in Oregon's marine protected areas (17% vs. 10%).

Table 17. Factual knowledge about Oregon marine reserves

		Percent answered correctly (%)					
	Correct Response [a]	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Scientific research would be allowed in:	MPA & MR	79	80	80	.07	.789	.01
The government has been considering marine reserves for the past several years	True	68	72	71	.97	.326	.04
Commercial fishing would be allowed in all marine reserves	False	62	68	67	2.02	.155	.06
There have been opportunities for public involvement in agency discussions about marine reserves	True	60	58	58	.29	.588	.02
Keeping fish caught in marine reserves would be allowed in all reserves	False	59	57	58	.07	.797	.01
Only scientists and no other people would be allowed in all marine reserves	False	54	54	54	.01	.942	.01
The government has approved marine reserves for this state	True	43	47	46	1.18	.278	.05
Non-extractive recreation / tourism activities (e.g., surfing, swimming) would be allowed in:	MPA & MR	38	40	39	.23	.631	.02
New developments such as wave energy or fish farms would be allowed in all marine reserves	False	36	36	36	.01	.954	.01
All marine reserves would include coastal lands such as beaches and coastlines	False	36	34	34	.40	.529	.03
What agency organization is currently responsible for marine reserves in Oregon	ODFW	30	35	34	1.75	.186	.06
Non-extractive recreation / tourism activities (e.g., surfing, swimming) would be allowed in all marine reserves	True	32	34	34	.16	.688	.02
The government has established five marine reserve sites	True	29	30	30	.13	.718	.02
Recreational fishing would be allowed in:	MPA	17	10	12	5.28	.022	.10
Removing any species or habitat would not be allowed in:	MR	13	9	10	2.17	.141	.06
Commercial fishing would be allowed in:	MPA	8	6	7	1.04	.309	.04
Total factual knowledge score (average percent correct [%]) [b]		42	43	43	.37	.713	.02

[a] All questions also included an "Unsure" response category coded as "incorrect" in the analysis. MR = marine reserves, MPA = marine protected areas.

[b] Tests of statistical significant are *t*-tests with point-biserial correlation effect sizes.

Sources of Information to Learn about Oregon Marine Reserves. The questionnaire asked respondents the extent that they disagreed or agreed that: (a) it is easy to access and find information about the marine reserves in Oregon, and (b) managers have done a good job communicating with the public about these reserves. Table 18 shows extremely low levels of agreement, with only 18% agreeing that it is easy to access and find information about marine reserves in Oregon, and only 13% agreeing that managers have done a good job communicating with the public about these reserves. There were no differences in agreement between residents living in the communities of place compared to those along the rest of the coast.

Table 18. Beliefs about current information regarding Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
It is easy to access / find information about marine reserves in Oregon	22	16	18	2.75	.098	.07
Managers have done a good job communicating with the public about marine reserves in Oregon	18	12	13	3.37	.067	.08

[a] Cell entries are percentages (%) of respondents who "agreed" with the statement.

Coastal residents were also asked what sources they used for obtaining information and learning about marine reserves in Oregon. The questionnaire listed 13 potential sources with responses measured on 5-point scales of 0 "never" to 4 "often." For analysis purposes, responses were recoded to "never" (0 on scale) and "at least once" (1 to 4 on scale). Table 19 shows that respondents have utilized a variety of sources to obtain information about these marine reserves. Newspapers were the most often cited source (80%), whereas social websites were the least cited source (20%). More than half of respondents indicated that they had discussed Oregon's marine reserves with friends or family (68%), watched television news or programs about these reserves (65%), read magazine articles or books about these areas (64%), and listened to radio news or programs about these reserves (63%). There were few differences in the use of these sources between the communities of place and the rest of the coast, but those living along the rest of the coast were significantly more likely to have watched television news or programs about these marine reserves (68% vs. 57%), and learned about these areas at work or school (36% vs. 25%).

Table 19. Sources of information to learn about Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Read newspaper articles about marine reserves in Oregon	78	80	80	.46	.498	.03
Discussed marine reserves in Oregon with friends or family members	63	69	68	3.02	.083	.07
Watched television news / programs about marine reserves in Oregon	57	68	65	7.83	.005	.12
Read magazine articles or books about marine reserves in Oregon	61	65	64	.89	.346	.04
Listened to radio news / programs about marine reserves in Oregon	60	64	63	1.14	.286	.05
Read about marine reserves in Oregon fishing regulations brochures	48	48	48	.03	.869	.01
Learned about marine reserves in Oregon from environmental or community groups	43	45	45	.17	.681	.02
Learned about marine reserves in Oregon from work or school	25	36	33	7.70	.006	.12
Read about marine reserves in Oregon on any other websites	29	30	30	.01	.993	.00
Attended meetings or presentations about marine reserves in Oregon	25	30	29	1.81	.179	.06
Read about marine reserves in Oregon on government agency websites	28	28	28	.01	.989	.00
Discussed marine reserves in Oregon with government agency employees	21	27	25	2.54	.111	.07
Read about marine reserves in Oregon on social websites (e.g., Facebook, Twitter)	16	22	20	2.64	.104	.07

[a] Cell entries are percentages (%) of respondents who have used the information source at least once to learn about these reserves.

The questionnaire then asked respondents to specify the one primary source from which they would most prefer to obtain information about marine reserves in Oregon. Results in Table 20 show that the greatest proportions of residents would prefer to receive information about these reserves either from newspaper articles (26%) or television news and related programs (25%). The least preferred sources of information included friends or family, work or school, and social websites (all 1%). Respondents who lived in the communities of place were significantly more likely than those along the rest of the coast to prefer newspapers (29% vs. 25%), fishing regulations brochures (9% vs. 5%), radio news and programs (9% vs. 4%), and environmental or community groups (6% vs. 2%). Residents living along the rest of the coast would prefer to obtain information from television news (27% vs. 19%) and government websites (8% vs. 4%).

Table 20. Preferred source of information about Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total
Newspaper articles	29	25	26
Television news / programs	19	27	25
Meetings or presentations	10	12	12
Magazine articles or books	5	8	7
Government agency websites	4	8	7
Fishing regulations brochures	9	5	6
Radio news / programs	9	4	5
Other websites	5	4	4
Environmental or community groups	6	2	3
Government agency employees	2	2	2
Social websites (e.g., Facebook, Twitter)	2	1	1
Work or school	1	1	1
Friends or family members	0	1	1

[a] Cell entries are percentages (%) of all respondents who indicated this would be their preferred source of information about Oregon's marine reserves. $\chi^2(12, N = 387) = 21.39$, $p = .045$, $V = .23$.

Beliefs about Oregon Marine Reserves. The questionnaire contained several questions measuring respondent beliefs about marine reserves and protection in Oregon. Respondents were asked their opinion regarding the protection versus human utilization (i.e., use) of marine areas in this state. Table 21 shows that 60% believed in protecting Oregon's marine areas with little or no human utilization, whereas 40% believed in utilizing these marine areas with little or no protection. Residents in the communities of place (72%), however, were significantly more likely than those along the rest of the coast (56%) to believe in the protection of these areas, whereas residents along the rest of the coast (44%) were more likely than those in the communities of place to believe in the utilization of these areas (28%). Nearly half (48%) of respondents believed that marine areas should mostly be protected with just a little utilization, whereas 37% believed that marine areas should be mostly utilized with just a little protection. Substantially fewer respondents believed that Oregon's marine areas should be either fully protected with no utilization (12%) or fully utilized with no protection (3%).

Table 21. Opinions about protection versus utilization of Oregon marine areas [a]

	Communities of place	Rest of the coast	Total
Should fully protect marine areas with almost no utilization	17	11	12
Should mostly protect marine areas with just a little utilization	55	45	48
Should mostly utilize marine areas with just a little protection	25	41	37
Should fully utilize marine areas with almost no protection	3	3	3

[a] Cell entries are percentages (%). $\chi^2(3, N = 558) = 16.80$, $p = .001$, $V = .17$.

Respondents were also asked the extent that they disagreed or agreed with four statements about activities that should be allowed in marine reserves in Oregon. Results in Table 22 show that respondents overwhelmingly agreed (88%) that scientific research should be allowed in these marine reserves. In addition, 59% of respondents agreed that non-extractive recreation and tourism activities should also be allowed. Only 39% of respondents, however, agreed that recreational fishing should be allowed, and the fewest thought that commercial fishing should be allowed (22%). There were, however, significant differences between residents living in the communities of place and the rest of the coast regarding allowing recreational fishing and commercial fishing in these marine reserves with those living in the communities of place indicating less agreement with allowing these fishing related activities in marine reserves.

Table 22. Beliefs about what should be allowed in Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	p value	ϕ
Scientific research should be allowed in marine reserves in Oregon	88	89	88	.10	.748	.01
Non-extractive recreation / tourism activities (e.g., surfing, swimming) should be allowed in marine reserves in Oregon	56	60	59	1.15	.284	.05
Recreational fishing should be allowed in marine reserves in Oregon	27	43	39	14.72	< .001	.16
Commercial fishing should be allowed in marine reserves in Oregon	13	25	22	12.97	< .001	.15

[a] Cell entries are percentages (%) of respondents who "agreed" with the statement.

In addition, the questionnaire asked respondents the extent that they believed several groups could either be harmed by or benefit from the marine reserves in Oregon (e.g., recreationists, anglers, local businesses, government agencies). Table 23 shows resident opinions about groups that could *benefit* from these reserves, whereas Table 24 shows resident opinions about groups

that could be *harmed* by these reserves. Results in Table 23 show that the only group that the majority of respondents believed could benefit from these reserves are scientists / researchers (86%). Fewer than the majority of respondents believed that government agencies (49%), people living along the coast (43%), people recreating in marine areas (30%), local businesses (26%), people who do not live on the coast (26%), and people who fish recreationally (24%) or commercially (16%) would benefit. There were significant differences between residents in the communities of place and along the rest of the coast regarding perceived benefits to local businesses and people who fish commercially, with those living in the communities of place indicating higher perceived benefits to these groups from the marine reserves.

Table 23. Beliefs that groups could *benefit* from the Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Scientists / researchers	90	85	86	2.79	.095	.07
Government agencies	52	48	49	.89	.345	.04
People who live along the Oregon coast	48	41	43	3.04	.081	.07
People who recreate in marine areas	32	30	30	.24	.623	.02
Local businesses	34	23	26	9.08	.003	.13
People who *do not* live along the Oregon coast	31	24	26	3.53	.060	.08
People who fish recreationally	28	23	24	1.76	.185	.06
People who fish commercially	24	14	16	8.01	.005	.12

[a] Cell entries are percentages (%) of respondents who said group could "slightly or strongly benefit" from the reserves.

Conversely, Table 24 shows that the only groups that the majority of respondents believed would be harmed by these reserves are people who fish commercially (75%) or recreationally (59%). Less than the majority of respondents believed that people who recreate in marine areas (44%), local businesses (42%), and people who live along the Oregon coast (32%) would be harmed by these reserves. Residents believed that the groups least likely to be harmed include scientists or researchers (4%), government agencies (10%), and people who do not live along the Oregon coast (12%). There were some differences in these perceptions between residents living in the communities of place and along the rest of the coast, with those living along the rest of the coast more likely to believe that local businesses, scientists or researchers, people who live along the coast, and people who fish either commercially or recreationally could be harmed.

Table 24. Beliefs that groups could *be harmed* by the Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
People who fish commercially	68	78	75	6.22	.013	.11
People who fish recreationally	50	62	59	7.52	.006	.12
People who recreate in marine areas	38	46	44	3.43	.064	.08
Local businesses	34	44	42	6.44	.011	.11
People who live along the Oregon coast	19	37	32	22.46	< .001	.20
People who *do not* live along the Oregon coast	9	13	12	1.42	.234	.05
Government agencies	8	11	10	2.18	.140	.06
Scientists / researchers	2	5	4	5.71	.017	.10

[a] Cell entries are percentages (%) of respondents who said group could be "slightly or strongly harmed" by the reserves.

Attitudes toward Oregon Marine Reserves. The questionnaire contained four pairs of words, each on 5-point semantic differential scales (e.g., dislike – like, negative – positive), for measuring attitudes toward marine reserves in general (i.e., not specific to Oregon). Table 25 shows that the majority of respondents held positive attitudes toward marine reserves in general (average attitude = 3.80 / 5.00). Residents believed that marine reserves are beneficial (67%), liked the idea of marine reserves and thought that these areas are generally good (65%), and believed that marine reserves are positive (64%). For all four of these measures, residents living in the communities of place were significantly more likely than those along the rest of the coast to report positive attitudes toward marine reserves in general.

Table 25. Attitudes toward marine reserves in general [a]

	Communities of place	Rest of the coast	Total	χ^2 or *t* value	*p* value	ϕ or r_{pb}
Marine reserves in general are beneficial	78	63	67	14.14	< .001	.16
I like the idea of marine reserves in general	77	61	65	16.29	< .001	.18
Marine reserves in general are good	77	60	65	17.95	< .001	.18
Marine reserves in general are positive	75	61	64	12.40	< .001	.15
Average (mean) attitude [b]	4.12	3.70	3.80	3.99	< .001	.17

[a] Items were asked on 5-point semantic differential scales (e.g., 1 "dislike" to 5 "like;" 1 "harmful" to 5 "beneficial"). Cell entries are percentages (%) that selected 4 or 5 (i.e., positive attitude) for each pair unless specified as averages (means).

[b] Represents the overall average (mean) on 5-point scale for all 4 items combined where 1 represents the most negative attitude and 5 represents the most positive attitude. Cronbach alpha reliability = .97.

These same four scales were used for measuring more specific attitudes toward establishing marine reserves in Oregon. Table 26 shows similar findings where respondents expressed positive attitudes toward establishing marine reserves in Oregon (average attitude = 3.7 / 5.0). Residents believed that marine reserves in Oregon are beneficial (66%) and positive (62%), liked

the idea of these reserves (61%), and thought that these areas are good (60%). For all four measures, residents in the communities of place were significantly more likely than those along the rest of the coast to have positive attitudes toward establishing marine reserves in Oregon.

Table 26. Attitudes toward establishing marine reserves in Oregon [a]

	Communities of place	Rest of the coast	Total	χ^2 or t value	p value	ϕ or r_{pb}
Marine reserves in Oregon are beneficial	79	61	66	19.10	< .001	.19
Marine reserves in Oregon are positive	76	58	62	19.55	< .001	.19
I like the idea of marine reserves in Oregon	74	57	61	18.23	< .001	.19
Marine reserves in Oregon are good	76	55	60	23.85	< .001	.21
Average (mean) attitude [b]	4.06	3.59	3.70	4.22	< .001	.18

[a] Items were asked on 5-point semantic differential scales (e.g., 1 "dislike" to 5 "like;" 1 "harmful" to 5 "beneficial"). Cell entries are percentages (%) that selected 4 or 5 (i.e., positive attitude) for each pair unless specified as averages (means).

[b] Represents the overall average (mean) on 5-point scale for all 4 items combined where 1 represents the most negative attitude and 5 represents the most positive attitude. Cronbach alpha reliability = .98.

A second approach for measuring attitudes toward marine reserves in Oregon was context-specific and addressed both affective (i.e., emotional) evaluations and belief questions about 11 possible benefits and seven possible constraints associated with outcomes of these reserves. To measure beliefs associated with *benefits*, respondents were asked the extent that they disagreed or agreed that marine reserves in Oregon would: (a) "benefit marine areas in general," (b) "protect the diversity of marine species," (c) "increase marine species populations," (d) "allow depleted marine species populations to recover," (e) "improve the economy," (f) "increase tourism," (g) "benefit people in local communities," (h) "improve scientific understanding of marine areas," (i) "allow scientists to monitor marine areas over time," (j) "improve our understanding of marine areas," and (k) "improve the ability to manage marine areas." To measure beliefs associated with possible *constraints* associated with these reserves, respondents were asked the extent that they disagreed or agreed that marine reserves in Oregon would: (a) "not be effective in conserving marine areas," (b) "cause some species to become overpopulated," (c) "prevent people from using the reserve areas," (d) "reduce recreational fishing," (e) "reduce commercial fishing," (f) "be difficult to enforce," and (g) "cost a lot to manage," Responses were measured on 5-point scales of 1 "strongly disagree" to 5 "strongly agree," which were then recoded to "disagree" and "agree" for analysis purposes.

Results in Table 27 present respondent beliefs toward potential *benefits* of these marine reserves, and show strong agreement that marine reserves in Oregon would allow scientists to monitor

these areas (80%), improve our understanding of marine areas (76%), allow depleted populations to recover (76%), improve scientific understanding of marine areas (74%), protect the diversity of marine species (73%), benefit marine areas in general (71%), and increase species populations (71%). Residents were least likely to agree that these marine reserves would improve the economy (30%), increase tourism (39%), and benefit local communities (44%). Compared to residents living along the rest of the coast, those in the communities of place were more likely to agree with all of these potential benefits of marine reserves in Oregon, and this pattern was statistically significant for eight of the 11 variables.

Table 27. Attitudes toward potential *benefits* of Oregon marine reserves [a]

Marine reserves in Oregon would:	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Allow scientists to monitor marine areas	86	78	80	6.52	.010	.11
Improve our understanding of marine areas	84	73	76	11.31	.001	.14
Allow depleted populations to recover	82	74	76	5.26	.022	.10
Improve scientific understanding of marine areas	81	72	74	6.60	.010	.11
Protect the diversity of marine species	83	70	73	13.37	< .001	.16
Benefit marine areas in general	82	68	71	15.35	< .001	.17
Increase marine species populations	80	68	71	9.81	.002	.13
Improve the ability to manage marine areas	66	54	57	7.50	.006	.12
Benefit people in local communities	48	43	44	1.22	.270	.05
Increase tourism	43	38	39	1.26	.261	.05
Improve the economy	32	29	30	.76	.383	.04

[a] Cell entries are percentages (%) of respondents who "agreed" with the statement.

To measure affective evaluations, respondents were then asked if they felt that each of these possible benefits associated with marine reserves in Oregon would be good or bad on 5-point scales of 1 "very bad" to 5 "very good." For analysis purposes, these scales were recoded into dichotomous "bad" and "good" responses. Results in Table 28 present the extent that respondents believed that potential *benefits* of these marine reserves are *good*, and show that they overwhelmingly felt that these benefits would be good with positive evaluations ranging from a of low of 73% for "improving the ability to manage marine reserves," to a high of 89% for "allowing depleted populations to recover." There were few differences in these evaluations between the communities of place and the rest of the coast, but residents in the communities of place were significantly more likely to consider the ability of these reserves to benefit marine areas in general and allow depleted populations to recover to be positive (i.e., good), whereas they were less likely to consider increasing tourism to be good.

Table 28. Affective evaluations of potential *benefits* of Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Allowing depleted populations to recover	94	88	89	7.29	.007	.12
Protecting the diversity of marine species	88	83	85	2.74	.098	.07
Improving our understanding of marine areas	88	83	85	2.79	.095	.07
Improving scientific understanding of marine areas	88	82	84	3.56	.059	.08
Benefitting people in local communities	85	83	84	.34	.560	.03
Improving the economy	83	83	83	.01	.984	.00
Allowing scientists to monitor marine areas	87	81	82	3.03	.082	.08
Increasing marine species populations	84	81	82	.81	.369	.04
Benefitting marine areas in general	86	79	81	3.89	.049	.08
Increasing tourism	67	78	75	7.64	.006	.12
Improving the ability to manage marine areas	76	72	73	.87	.351	.04

[a] Cell entries are percentages (%) of respondents who evaluated the potential benefit as "*good*."

Results in Table 29 present respondent beliefs toward potential *constraints* of these marine reserves and show that 60% agreed that the reserves would reduce commercial fishing. A slight majority also agreed that the reserves would cost a lot to manage (55%), be difficult to enforce (53%), and both reduce recreational fishing and prevent people from using these areas (52%). Residents were least likely to agree that the marine reserves would not be effective in conserving marine areas (17%) and may cause some species to become overpopulated (32%). There were no statistically significant differences in these perceptions of constraints between respondents living in the communities of place compared to those residing along the rest of the coast.

Table 29. Attitudes toward potential *constraints* of Oregon marine reserves [a]

Marine reserves in Oregon would:	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Reduce commercial fishing	64	59	60	1.42	.234	.05
Cost a lot to manage	49	57	55	3.40	.065	.08
Be difficult to enforce	51	53	53	.25	.619	.02
Reduce recreational fishing	55	50	52	1.11	.293	.05
Prevent people from using the reserve areas	51	52	52	.13	.715	.02
Cause some species to become overpopulated	32	32	32	.01	.966	.00
Not be effective in conserving marine areas	14	18	17	1.47	.225	.05

[a] Cell entries are percentages (%) of respondents who "agreed" with the statement.

Results in Table 30 present the extent that respondents believed that these potential *constraints* of the marine reserves are *bad*. In total, 72% of respondents considered that costly management of these reserves would be bad, and 69% indicated that the reserves not being effective in

conserving marine areas would also be bad. Another 62% of respondents considered that it would be bad if these reserves caused some species to become overpopulated or reduced recreational fishing. Nearly half (49%) of respondents indicated that it would be bad if these reserves prevented people from visiting these areas. There were significant differences between the communities of place and the rest of the coast regarding resident evaluations of the potential impact of these reserves on reducing recreational and commercial fishing, with those along the rest of the coast being more likely to evaluate these potential constraints as bad.

Table 30. Affective evaluations of potential *constraints* of Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Costing a lot to manage	66	74	72	3.66	.056	.08
Not being effective in conserving marine areas	74	68	69	2.40	.121	.07
Causing some species to become overpopulated	64	61	62	.45	.501	.03
Reducing recreational fishing	51	66	62	12.06	.001	.15
Being difficult to enforce	54	60	58	2.06	.151	.06
Reducing commercial fishing	40	55	52	12.71	< .001	.15
Preventing people from using the reserve areas	43	51	49	3.25	.071	.08

[a] Cell entries are percentages (%) of respondents who evaluated the potential constraint as "*bad*."

Subjective Norms Associated with Oregon Marine Reserves. An individual's subjective norms are a function of his or her: (a) normative beliefs about what other individuals or groups (e.g., friends, family members) think he or she should do or feel about an issue, and (b) motivations to comply with these other individuals or groups (Fishbein & Manfredo, 1992). The questionnaire contained three statements measuring normative beliefs about marine reserves in Oregon, and three additional related variables measuring motivations to comply. Normative beliefs were: (a) "most people who are important to me would want me to support establishing marine reserves in Oregon," (b) "other people would expect me to oppose establishing marine reserves in Oregon," and (c) "the people in my life whose opinions I value the most would want me to favor establishing marine reserves in Oregon." The related motivations to comply were: (a) "doing what most people who are important to me would want me to do matters to me," (b) "I am usually motivated to do what other people expect me to do," and (c) "doing what people in my life whose opinions I value the most would want me to do is important to me."

Table 31 shows coastal resident responses to these statements measuring normative beliefs and motivations to comply. Results show that 49% of respondents agreed that people who are

important to them would want them to support the marine reserves in Oregon, and 42% agreed that people in their life whose opinions they value would want them to support these reserves. Residents from the communities of place indicated statistically higher agreement on these two normative beliefs compared to those along the rest of the coast. Only 23% of respondents agreed that other people would expect them to oppose marine reserves in Oregon, with residents along the rest of the coast more likely to agree (25%) compared to those in the communities of place (17%). For the statements measuring motivations to comply, only 36% of respondents agreed that it is important for them to do what people in their lives whose opinions they value the most would want them to do, 32% agreed that doing what others would want them to do matters to them, and only 8% agreed that they are usually motivated to do what other people expect them to do. There were no significant differences in these responses between residents living in the communities of place compared to those residing along the rest of the coast.

Table 31. Subjective norms associated with Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Normative beliefs						
Most people who are important to me would want me to support establishing marine reserves in Oregon	64	44	49	23.63	< .001	.20
The people in my life whose opinions I value the most would want me to favor establishing marine reserves in Oregon	50	39	42	7.34	.007	.11
Other people would expect me to oppose establishing marine reserves in Oregon	17	25	23	6.07	.014	.11
Motivations to comply						
Doing what people in my life whose opinions I value the most would want me to do is important to me	36	35	36	.02	.889	.01
Doing what most people who are important to me would want me to do matters to me	32	32	32	.01	.995	.00
I am usually motivated to do what other people expect me to do	7	8	8	.20	.653	.02

[a] Cell entries are percentages (%) of respondents who "agreed" with the statement.

Behavioral Intentions in Response to Oregon Marine Reserves. The questionnaire contained a number of questions measuring behavioral intentions associated with these marine reserves. Respondents were asked, "if you were to be given an opportunity to vote for or against establishing marine reserves in Oregon, how would you vote," followed with a question asking how certain they would vote this way. Table 32 shows that 69% of respondents would vote in

support of marine reserves in Oregon. Residents in the communities of place (82%) would be significantly more likely than those living along the rest of the coast (65%) to vote in favor of establishing these reserves. Regardless, this indicates overwhelming majority support for having marine reserves in Oregon. Almost all respondents were also extremely (47%) or moderately certain (41%) in these voting intentions, with those from the communities of place (56%) being significantly more likely than those along the rest of the coast (44%) to be extremely certain; those on the rest of the coast were more likely to be moderately certain (43% vs. 35%; Table 33).

Table 32. Intended voting behavior associated with Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total
I would vote *for* establishing marine reserves in Oregon	82	65	69
I would vote *against* establishing marine reserves in Oregon	18	35	31

[a] Cell entries are percentages (%). $\chi^2(1, N = 563) = 21.33$, $p < .001$, $\phi = .20$.

Table 33. Certainty of intended voting behavior associated with Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total
Extremely certain	56	44	47
Moderately certain	35	43	41
Slightly certain	6	9	8
Not certain	3	4	4

[a] Cell entries are percentages (%). $\chi^2(3, N = 567) = 8.12$, $p = .044$, $V = .12$.

In addition, respondents also indicated the extent that they disagreed or agreed with three related statements: (a) "I intend to support having marine reserves in Oregon," (b) "I am against establishing marine reserves in Oregon," and (c) "I would likely be in favor of implementing marine reserves in Oregon." Results in Table 34 show that the majority of respondents agreed that they would likely be in favor of implementing marine reserves in Oregon (61%), and they intended to support having these reserves (57%). Only 19% of residents agreed that they were against establishing marine reserves in Oregon. There were significant differences between respondents in the communities of place and the rest of the coast, with those in the communities of place indicating higher favor and support of these marine reserves, whereas those along the rest of the coast were more likely to agree that they were against establishing these reserves.

Table 34. Behavioral intentions associated with Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
I would likely be in favor of implementing marine reserves in Oregon	69	58	61	7.43	.006	.12
I intend to support having marine reserves in Oregon	69	53	57	14.59	< .001	.16
I am against establishing marine reserves in Oregon	12	21	19	8.63	.003	.13

[a] Cell entries are percentages (%) of respondents who "agreed" with the statement.

To measure how residents could change their use of these marine areas in the future, they were asked how likely they would be to change their behavior in various ways if one or more of these five marine sites was designated as a reserve (e.g., visit more often, never visit again). Table 35 shows that the largest percentage of respondents (45%) would likely still visit these marine sites the same amount. Only 26% would likely go to other marine areas on the Oregon coast instead, 25% would go to other nearby or adjacent marine areas instead, and 22% would likely visit these sites more often. Only 14% indicated that they were likely to never visit these sites again and 13% reported that they would visit less often. There were two significant differences between residents in the communities of place and along the rest of the coast, with those living in communities of place indicating higher likelihood of visiting the same amount, and those along the rest of the coast reporting they would be slightly more likely to never visit these sites again.

Table 35. Potential changes in behavior in response to Oregon marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Visit the marine sites(s) the same amount	52	43	45	4.73	.030	.09
Go to other marine areas on Oregon coast instead	23	27	26	1.18	.277	.05
Go to other nearby or adjacent marine areas instead	26	24	25	.20	.655	.02
Visit the marine sites(s) more often	23	21	22	.30	.582	.02
Participate in a different primary activity in the marine sites(s)	16	16	16	.01	.953	.00
Never visit the marine sites(s) again	9	16	14	5.38	.020	.10
Visit the marine sites(s) less often	11	14	13	.83	.362	.04

[a] Cell entries are percentages (%) of respondents who said they would be "likely" to engage in the action.

Similarity and Trust in ODFW to Manage Oregon Marine Reserves. Respondents were asked the extent that they disagreed or agreed with five statements measuring their perceptions of similarity with the Oregon Department of Fish and Wildlife (ODFW). Results in Table 36 show that 54% of respondents agreed that they shared similar values as ODFW and 46% agreed that

they shared similar goals and opinions as this agency. Residents were least likely to agree that they would take similar actions as this agency (35%). There were no statistical differences in agreement between residents in the communities of place and those along the rest of the coast.

Table 36. Perceived similarity with ODFW [a]

I feel that ODFW:	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Shares similar values as I do	55	54	54	.03	.855	.01
Shares similar goals as I do	49	45	46	.76	.385	.04
Shares similar opinions as I do	48	46	46	.38	.540	.03
Thinks in a similar way as I do	40	34	36	1.56	.212	.05
Takes similar actions as I would	36	35	35	.08	.776	.01

[a] Cell entries are percentages (%) of respondents who "agreed" with the statement.

Residents were then asked the extent that they disagreed or agreed with nine statements measuring their level of social trust in ODFW to address and manage marine reserves in Oregon (e.g., trust to provide the best available information about these marine reserves, trust to make good decisions regarding management of these marine reserves). Results in Table 37 show that 64% of respondents agreed that they trusted ODFW to provide truthful information about these marine reserves, 63% trusted this agency to manage these reserves using the best available information about non-human species, and 62% trusted ODFW to provide the best available information about these marine reserves. The lowest proportion of respondents trusted ODFW to use public input to inform management of marine reserves (49%). There were no statistically significant differences between respondents in the communities of place and along the rest of the coast regarding these perceptions of social trust in ODFW.

Table 37. Trust in ODFW to manage Oregon marine reserves [a]

I trust ODFW to:	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Provide truthful information about marine reserves	66	63	64	.42	.516	.03
Manage marine reserves using the best available information about non-human species in these areas (e.g., fish, birds)	65	63	63	.35	.552	.03
Provide the best available information about marine reserves	65	60	62	1.19	.275	.05
Manage marine reserves using the best available information about human uses of these areas	58	56	57	.21	.649	.02
Provide timely information about marine reserves	56	54	55	.13	.723	.02
Work with other organizations to inform management of marine reserves	61	52	54	3.69	.056	.08
Provide me with enough information to decide what actions I should take regarding marine reserves	58	53	54	.95	.331	.04
Make good decisions regarding management of marine reserves	58	52	54	1.62	.204	.06
Use public input to inform management of marine reserves	51	48	49	.45	.503	.03

[a] Cell entries are percentages (%) of respondents who "agreed" with the statement.

Section Summary

- In total, two-thirds (67%) of respondents have visited at least one of the five marine reserve sites in Oregon. Residents in the communities of place were more likely (74%) than those along the rest of the coast to have visited at least one site (64%). The largest proportion of respondents has visited Otter Rock (45%), followed by Cape Perpetua (38%), Cascade Head (33%), Redfish Rocks (24%), and Cape Falcon (23%). Sightseeing (58%), viewing marine animals (52%), and exploring tide pools (42%) were the most common activities in Oregon's marine reserves.

- Only one-third (37%) of respondents indicated that at least one of these marine reserve sites was very special to them, 36% agreed that at least one of these sites was the best place for doing what they like to do, 32% said that they identify strongly with at least one of these sites, and 31% felt attached to at least one of these sites. Those living in the communities of place indicated higher levels of attachment to these places.

- The majority (56%) of respondents felt that they understood the purpose of the marine reserves in Oregon. Only 44% of residents, however, felt that they were informed about these reserves and understood the role of science in these areas. Similarly, only 40% of residents felt knowledgeable about these reserves, 34% understood where these areas

were located, and 30% understood the role of public involvement in these reserves. Respondents felt that they understood the least about how these reserves would be managed (26%) and any rules and regulations associated with the reserves (22%). There were no differences in this self-assessed knowledge between the communities of place and the rest of the coast.

- Residents answered 16 true / false or multiple choice questions measuring their factual knowledge about Oregon's marine reserves. This knowledge, however, was low with an average score of only 43% of questions answered correctly (i.e., failing grade) and this did not differ between residents in the communities of place and the rest of the coast. The question answered correctly by the most residents (80%) was that scientific research would be allowed in both marine protected areas and marine reserves in Oregon, whereas the question answered correctly by the fewest residents was that commercial fishing would be allowed in this state's marine protected areas, but not in its marine reserves (7%). Only 34% of residents correctly identified ODFW as the agency currently responsible for these marine reserves.

- Only 18% of residents agreed that it is easy to access and find information about the marine reserves in Oregon, and only 13% agreed that managers have done a good job communicating with the public about these reserves. There were no differences in this agreement between the communities of place compared to the rest of the coast.

- Respondents have utilized a variety of sources to obtain information about marine reserves in Oregon. Newspapers were the most often cited source (80%), whereas social websites were the least cited (20%). More than half of respondents indicated that they had discussed Oregon's marine reserves with friends or family (68%), watched television news or programs about these reserves (65%), read magazine articles or books about these areas (64%), or listened to radio news or programs about these reserves (63%). There were few differences in the use of these sources between the communities of place and the rest of the coast. Residents would prefer to receive information about these areas either through newspaper articles or television news and related programs.

- In total, 60% of respondents believed in protecting Oregon's marine areas with little or no utilization, whereas 40% believed in utilizing these marine areas with little or no protection. Residents in the communities of place (72%), however, were more likely than those along the rest of the coast (56%) to believe in the protection of these areas. Nearly

half (48%) of respondents believed that marine areas should mostly be protected with just a little utilization, whereas 37% believed that marine areas should be mostly utilized with just a little protection. Fewer respondents believed that Oregon's marine areas should be fully protected with no utilization (12%) or fully utilized with no protection (3%).

- Respondents overwhelmingly agreed (88%) that scientific research should be allowed in Oregon's marine reserves, followed by non-extractive recreation and tourism activities (59%). Only 39% of respondents agreed that recreational fishing should be allowed in these reserves and the fewest thought that commercial fishing should be allowed (22%).
- The only group that the majority of respondents believed could benefit from these marine reserves in Oregon is scientists / researchers (86%). Less than the majority believed that government agencies (49%), people living along the coast (43%), people recreating in marine areas (30%), local businesses (26%), people who do not live on the coast (26%), and people who fish recreationally (24%) or commercially (16%) would benefit.
- Conversely, the only groups that the majority of respondents believed would be harmed by these reserves are people who fish commercially (75%) or recreationally (59%). Less than the majority believed that people recreating in marine areas (44%), local businesses (42%), and people living on the coast (32%) would be harmed. Residents believed that the groups least likely to be harmed by the reserves are scientists / researchers (4%), government agencies (10%), and people who do not live on the coast (12%).
- The majority of respondents held positive attitudes toward marine reserves in general. Residents believed that marine reserves are beneficial (67%), liked the idea of these reserves and thought these areas are generally good (65%), and believed that marine reserves are positive (64%). Residents in the communities of place were more likely than those on the rest of the coast to report these positive attitudes toward marine reserves.
- Respondents also held positive attitudes toward the specific topic of marine reserves in Oregon. Residents believed that these reserves are beneficial (66%) and positive (62%), liked the idea of these reserves (61%), and thought that these areas are good (60%). Residents in the communities of place were significantly more likely than those along the rest of the coast to have positive attitudes toward marine reserves in Oregon.
- There was strong agreement that marine reserves in Oregon would allow scientists to monitor these areas (80%), improve understanding of marine areas (76%), allow depleted

populations to recover (76%), improve scientific understanding of marine areas (74%), protect the diversity of marine species (73%), benefit marine areas in general (71%), or increase species populations (71%). Residents were least likely to agree that the reserves would improve the economy (30%), increase tourism (39%), or benefit communities (44%). Compared to residents on the rest of the coast, those in the communities of place were more likely to agree with these potential benefits of marine reserves in Oregon.

- In terms of potential constraints of marine reserves in Oregon, 60% of respondents agreed that the reserves would reduce commercial fishing. A slight majority also agreed that the reserves would cost a lot to manage (55%), be difficult to enforce (53%), and both reduce recreational fishing and prevent people from using these areas (52%). Residents were least likely to agree that these reserves would not be effective in conserving marine areas (17%) and may cause species to become overpopulated (32%). There were no differences in these attitudes between residents in the communities of place and the rest of the coast.
- In total, 49% of respondents agreed that people who are important to them would want them to support establishing marine reserves in Oregon, and 42% agreed that people in their life whose opinions they value would want them to support these reserves. Residents from the communities of place indicated statistically higher agreement compared to those along the rest of the coast. Only 23% of respondents agreed that other people would expect them to oppose marine reserves in Oregon, with residents along the rest of the coast more likely to agree (25%) compared to those in the communities of place (17%).
- In total, 69% of respondents would vote in support of establishing marine reserves in Oregon if they were to be given an opportunity to vote on this issue. Residents in the communities of place (82%) would be significantly more likely than those on the rest of the coast (65%) to vote in favor of these reserves. This indicates overwhelming majority support for marine reserves in Oregon. Almost all respondents were extremely (47%) or moderately certain (41%) in these voting intentions, with those from the communities of place (56%) being more likely than the rest of the coast (44%) to be extremely certain.
- In terms of future behaviors at these marine reserve sites, the largest percentage of respondents (45%) would be likely to visit these sites the same amount. Only 26% would likely go to other marine areas on the Oregon coast instead, 25% would go to other nearby or adjacent marine areas instead, and 22% would likely visit these sites more

often. Only 14% indicated that they were likely to never visit these sites again, and 13% reported that they would visit less often if these reserves sites were implemented.

- The majority (54%) of respondents agreed that they shared similar values as ODFW and 46% agreed that they shared similar goals and opinions as this agency. Residents were least likely to agree that they would take similar actions as this agency (35%).
- In total, 64% of respondents trusted ODFW to provide truthful information about marine reserves, 63% trusted this agency to manage these reserves using the best available information about non-human species, and 62% trusted ODFW to provide the best available information about marine reserves. The lowest proportion of respondents trusted ODFW to use public input to inform management of marine reserves (49%). There were no differences between respondents in the communities of place and the rest of the coast regarding their perceptions of similarity and trust in ODFW.

Perceptions of Marine Areas and the Environment

Responsibility and Awareness of Impacts to Marine Areas. A number of theories suggest that an individual's intentions and behaviors are partially influenced by whether or not he or she: (a) is aware of possible consequences of these behaviors on other people, animals, places, or things; and (b) ascribes some degree of responsibility for these behaviors or actions (Eagly & Chaiken, 1993; Schwartz, 1977). The questionnaire contained three variables measuring coastal resident awareness of consequences of their behaviors on marine areas. Table 38 shows that 87% of respondents agreed that they were aware of impacts that humans can have on marine areas, 80% agreed that their own actions can impact these areas, and 69% agreed that their own behaviors can cause problems in marine areas. Residents in the communities of place were significantly more likely to agree that they were aware of impacts that humans can have on marine areas and that their own behaviors can cause problems in these areas. The questionnaire also contained three variables measuring ascription of responsibility toward marine areas. In total, 81% of respondents agreed that they felt a personal obligation to help protect marine areas, 59% agreed that they can do more to help protect these areas, and 57% agreed that they felt a personal responsibility to educate other people about helping to protect marine areas.

Table 38. Awareness of impacts and ascription of responsibility regarding marine reserves [a]

	Communities of place	Rest of the coast	Total	χ^2 value	*p* value	ϕ
Awareness of consequences						
I am aware of impacts that humans can have on marine areas	93	85	87	9.08	.003	.13
My own personal actions can impact marine areas	81	80	80	.10	.752	.01
I know that my own behaviors can cause problems in marine areas	76	67	69	4.79	.029	.09
Ascription of responsibility						
I feel a personal obligation to help protect marine areas	84	80	81	1.23	.268	.05
I can do more to help protect marine areas	65	57	59	3.29	.070	.08
I feel a responsibility to help educate others about protecting marine areas	59	57	57	.29	.589	.02

[a] Cell entries are percentages (%) of respondents who "agreed" with the statement.

Environmental Value Orientations. The public is heterogeneous and often exhibits different preferences, attitudes, and behaviors in relation to natural resource issues such as marine reserves. To understand various subgroups of the public, individuals have been grouped according to their value orientations toward general objects such as natural resources (Bright, Manfredo, & Fulton, 2000; Vaske & Needham, 2007). As stated earlier in this report, value orientations refer to general classes of objects and are revealed through the pattern, direction, and intensity of basic beliefs (Fulton et al., 1996; Vaske & Donnelly, 1999). In most studies, these basic beliefs have reliably and consistently factored into value orientation continuums such as the biocentric – anthropocentric continuum for broader environmental value orientations (Steel, List, & Shindler, 1994; Vaske & Donnelly, 1999), and the protection – use continuum for value orientations related to more specific objects such as forests, wildlife, and coral reefs (Bright et al., 2000; Fulton et al., 1996; Needham, 2010; Vaske & Needham, 2007). Users arranged along these value orientation continuums can then be grouped into more meaningful homogeneous subgroups (Bright et al., 2000; Vaske & Needham, 2007). These value orientations are important because they can be useful for predicting higher order cognitions such as attitudes, behavioral intentions, and actual behaviors associated with natural resources (Fulton et al., 1996; Vaske & Donnelly, 1999). Individuals with more biocentric or protectionist orientations, for example, may be less inclined to engage in consumptive behaviors such as fishing or hunting, and they may be more likely to support policies such as species reintroduction or habitat protection.

Broad environmental value orientations of coastal residents were measured using eight variables from the popular New Environmental Paradigm Scale (NEP, Dunlap & Van Liere, 1978) and its more recent version, the Revised New Ecological Paradigm Scale (Dunlap et al., 2000). These variables are shown in Table 39. On average, residents agreed with the four biocentric variables and disagreed with the four anthropocentric variables. For example, residents agreed most strongly with the belief statement that "the balance of nature is very delicate and easily upset" (75% agreed) and disagreed most strongly with the statement that "humans were meant to rule over the rest of nature" (only 17% agreed). Reliability of variables measuring these dimensions was examined using Cronbach's alpha reliability coefficients (α), which range from 0 (no reliability) to 1 (perfect reliability). An alpha coefficient of ≥ .65 is considered by most researchers to be acceptable and indicates that multiple variables are measuring the same broad concept or dimension, and justifies combining these individual variables into broad composite indices representing the dimensions (Cortina, 1993; Nunnally & Bernstein, 1994; Vaske, 2008). The alpha reliability coefficients were .79 for the anthropocentric orientation and .83 for the biocentric orientation, suggesting that variables for each reliably measured their respective orientation. Deletion of any variable from its respective orientation did not improve reliability.

Table 39. Reliability analyses of NEP items measuring environmental value orientations

Orientations and variables	Mean [a]	Percent Agree (%)	Item total correlation	Alpha (α) if deleted	Cronbach alpha (α)
Anthropocentric orientation					.79
The earth has plenty of natural resources if we just learn how to develop them	-0.10	40	.51	.78	
The so-called ecological crisis facing humankind has been greatly exaggerated	-0.67	20	.63	.71	
Humans have the right to modify the natural environment to suit their needs	-0.70	18	.60	.73	
Humans were meant to rule over the rest of nature	-0.83	17	.64	.71	
Biocentric orientation					.83
The balance of nature is very delicate and easily upset	0.93	75	.60	.80	
When humans interfere with nature, it often produces disastrous consequences	0.81	69	.72	.75	
Humans are severely abusing the environment	0.74	67	.69	.76	
Plants and animals have as much right as humans to exist	0.56	60	.62	.79	

[a] Variables measured on 5-point recoded scales of -2 strongly disagree to +2 strongly agree.

K-means cluster analysis was then performed on these variables to group residents. Cluster analysis classifies individuals into groups based on statistical patterns of responses across

multiple variables or factors (Hair & Black, 2000). A series of two to six group cluster analyses showed that a four group solution provided the best fit for the data. To validate this solution, the data were randomly sorted and a cluster analysis was conducted after each of five random sorts. These analyses supported the solution identifying four distinct clusters of residents, labeled:

- Strong biocentric orientation – 34%
- Moderate biocentric orientation – 25%
- Mixed anthropocentric – biocentric orientation – 29%
- Anthropocentric orientation – 12%

These groups were compared in terms of their responses to the original value orientation belief statements. Residents with an anthropocentric orientation agreed with all anthropocentric statements and disagreed with all biocentric variables. Those with a mixed anthropocentric – biocentric orientation mostly had neutral mean or average responses (i.e., midpoint on scales) for all variables. Residents with a moderate biocentric orientation slightly agreed with all biocentric variables and slightly disagreed with all anthropocentric variables. Residents with a strong biocentric orientation strongly agreed with all biocentric variables and strongly disagreed with all anthropocentric variables. In total, the largest proportion of coastal residents surveyed had a strong biocentric (i.e., nature oriented) environmental value orientation (34%) and the smallest proportion had an anthropocentric orientation (i.e., human oriented, 12%). Table 40 shows that residents in the communities of place (41%) were slightly more likely than those along the rest of the coast (31%) to have a strong biocentric orientation. Conversely, residents along the rest of the coast (14%) were slightly more likely than those in the communities of place (9%) to have an anthropocentric orientation. These differences, however, were not statistically significant.

Table 40. Environmental value orientations [a]

	Communities of place	Rest of the coast
Strong biocentric orientation	41	31
Moderate biocentric orientation	25	24
Mixed anthropocentric – biocentric orientation	25	31
Anthropocentric orientation	9	14

[a] Cell entries are percentages (%). $\chi^2(3, N = 521) = 7.49$, $p = .058$, $V = .12$.

Value Orientations toward Marine Areas. Research has also measured value orientations toward more specific objects such as forests, wildlife, and coral reefs, as opposed to broader

environmental value orientations. This is especially important in the context of marine areas, which are the focus of this project. An individual's specific value orientation toward marine areas, therefore, was constructed from four variables designed to measure protectionist basic beliefs toward marine areas and five variables measuring use related beliefs about marine areas. These variables are shown in Table 41. On average, residents disagreed with all of the use related variables and agreed with most of the protectionist statements. For example, residents agreed most strongly with the belief statement that "marine areas have value whether humans are present or not" (89% agreed) and disagreed most strongly with the statement that "marine areas exist primarily to be used by humans" (only 13% agreed). Alpha reliability coefficients were .87 for the use orientation and .72 for the protectionist orientation, suggesting that variables for each reliably measured their respective orientation. Deletion of any variable from its respective orientation did not improve reliability.

Table 41. Reliability analyses of items measuring value orientations toward marine areas

Orientations and variables	Mean [a]	Percent Agree (%)	Item total correlation	Alpha (α) if deleted	Cronbach alpha (α)
Use orientation toward marine areas					.87
I would be offended or upset if there were more limits on human use of marine areas	-0.15	33	.64	.86	
The primary value of marine areas is to provide benefits for humans	-0.42	24	.71	.84	
The needs of humans are more important than those of marine areas	-0.49	18	.72	.83	
The economic values that marine areas provide for humans are more important than the rights of species in these marine areas	-0.55	16	.68	.84	
Marine areas exist primarily to be used by humans	-0.77	13	.72	.83	
Protectionist orientation toward marine areas					.72
Marine areas have value whether humans are present or not	1.22	89	.42	.71	
Marine areas should be protected for their own sake rather than to simply meet the needs of humans	0.77	68	.59	.61	
Marine areas should have rights similar to the rights of humans	0.01	35	.56	.63	
I object to fishing, harvesting, or collecting species from marine areas because it violates the rights of these species	-0.50	21	.50	.67	

[a] Variables measured on 5-point recoded scales of -2 strongly disagree to +2 strongly agree.

K-means cluster analysis was performed on these variables to group respondents based on their value orientations toward marine areas. A series of two to six group cluster analyses showed that a four group solution provided the best fit for the data. To validate this solution, the data were randomly sorted and a cluster analysis was conducted after each of five random sorts. These additional analyses supported the solution identifying four distinct groups of residents, labeled:

- Strong protectionist orientation – 21%
- Moderate protectionist orientation – 24%
- Mixed protection – use orientation – 41%
- Use orientation – 15%

These groups were compared in terms of their responses to the original value orientation belief statements. Respondents with use orientations agreed with all of the use related statements and disagreed with all protectionist variables. Those with a mixed protection – use orientation mostly had neutral mean or average responses (i.e., midpoint on scales) for all variables. Residents with a moderate protectionist orientation slightly agreed with all protectionist variables and slightly disagreed with all of the use related variables. Residents with a strong protectionist orientation strongly agreed with all protectionist variables and strongly disagreed with all of the use related variables. In total, the largest proportion of coastal residents surveyed had a mixed protection – use value orientation toward marine areas (41%) and the smallest proportion had use related orientations toward these areas (i.e., human oriented, 15%). Another 24% of residents had a moderate protectionist orientation toward marine areas, and 21% had a strong protectionist orientation toward these areas. Table 42 shows that residents in the communities of place were significantly more likely than those along the rest of the coast to have both strong (25% vs. 19%) and moderate (28% vs. 23%) protectionist orientations toward marine areas. Conversely, residents on the rest of the coast were more likely than those in communities of place to have mixed protection – use (42% vs. 37%) or just use orientations toward these areas (16% vs. 10%).

Table 42. Value orientations toward marine areas [a]

	Communities of place	Rest of the coast
Strong protectionist orientation	25	19
Moderate protectionist orientation	28	23
Mixed protection – use orientation	37	42
Use orientation	10	16

[a] Cell entries are percentages (%). $\chi^2(3, N = 507) = 8.06$, $p = .045$, $V = .13$.

Section Summary

- In total, 87% of respondents agreed that they were aware of impacts that humans can have on marine areas, 80% agreed that their own actions can impact these areas, and 69% agreed that their own behaviors can cause problems in these areas. Residents in the

communities of place were more likely to agree that they were aware of impacts that humans have on marine areas and that their own behaviors cause problems in these areas.

- In total, 81% of respondents agreed that they felt a personal obligation to help protect marine areas, 59% agreed that they can do more to help protect these areas, and 57% agreed that they felt a personal responsibility to educate other people about helping to protect marine areas.
- The largest proportion of coastal residents had a strong biocentric (i.e., nature oriented) general value orientation toward the environment (34%) and the smallest proportion had an anthropocentric orientation (i.e., human oriented, 12%). Another 25% of residents had a moderate biocentric general value orientation toward the environment, and 29% had a mixed anthropocentric – biocentric orientation.
- The largest proportion of residents had a mixed protection – use specific value orientation toward marine areas (41%) and the smallest proportion had use related orientations toward these areas (15%). Another 24% of residents had a moderate protectionist orientation toward marine areas, and 21% had a strong protectionist orientation toward these areas. Residents in the communities of place were significantly more likely than those on the rest of the coast to have both strong (25% vs. 19%) and moderate (28% vs. 23%) protectionist orientations toward marine areas. Conversely, residents on the rest of the coast were more likely than those in communities of place to have a mixed protection – use (42% vs. 37%) or purely use orientation toward these areas (16% vs. 10%).

Demographic and Residential Characteristics

In total, 58% of respondents were male and 42% were female; the average age was 61 years old with half of the sample (50%) between 50 and 69 years of age; and the majority (57%) had a high school diploma or less, two-year associates degree, or trade school (Table 43). In addition, 23% of respondents had a four-year college degree, and 20% had an advanced degree (e.g., MS, PhD, Law, Medical). In total, 15% of respondents were members of an environmental or marine related organization (e.g., Ducks Unlimited, Sierra Club), and only 5% had someone in their household who was employed in the commercial fishing industry. Respondents had lived an average of 34 years in Oregon, 24 years on the Oregon coast, and 14 years at their current residence, with 75% owning and 23% renting or leasing this residence (Table 44). For most of these demographic and residential characteristics, there were no statistically significant

differences between people in the communities of place compared to those on the rest of the coast. Residents in the communities of place, however, were slightly more highly educated, with 52% having a four-year or advanced degree compared to 41% of residents on the rest of the coast having this education. Residents in the communities of place have also lived slightly fewer years on the Oregon coast (M = 19 years) compared to those along the rest of the coast (M = 25 years).

Table 43. Demographic characteristics of sample [a]

	Communities of place	Rest of the coast	Total	χ^2 or t value	p value	ϕ, V or r_{pb}
Sex				2.03	.129	.06
Male	53	59	58			
Female	47	41	42			
Adult age [b]				12.53	.085	.15
20 – 29 years old	6	3	4			
30 – 39 years old	6	9	9			
40 – 49 years old	10	18	9			
50 – 59 years old	12	19	17			
60 – 69 years old	38	32	33			
70 – 79 years old	20	21	20			
80 – 89 years old	7	7	7			
90 or older	2	2	2			
Average adult age (mean years)	60	61	61	.37	.710	.02
Anyone in household employed in the commercial fishing industry				.02	.878	.01
No	94	95	95			
Yes	6	5	5			
Member of any environmental or marine organization (e.g., Sierra Club, Ducks Unlimited)				2.19	.139	.06
No	82	86	85			
Yes	18	14	15			
Highest level of education achieved				11.44	.022	.14
Less than high school diploma	1	1	1			
High school diploma or GED	26	28	28			
2 year associates or trade school	20	30	28			
4 year college degree (BS)	26	23	23			
Advanced degree (MS, PhD, Law, Medical)	26	18	20			

[a] Cell entries are percentages (%) unless specified as averages (means).
[b] Nobody under 18 years of age was allowed to be sampled due to university institutional review board (IRB) regulations on research involving human subjects.

Table 44. Residential characteristics of sample [a]

	Communities of place	Rest of the coast	Total	χ^2 or t value	p value	V or r_{pb}
Length of time lived in Oregon				11.21	.130	.14
Less than 10 years	24	19	20			
10 – 19 years	12	15	14			
20 – 29 years	12	13	13			
30 – 39 years	13	10	11			
40 – 49 years	11	8	9			
50 – 59 years	8	15	13			
60 – 69 years	10	13	12			
70 or more years	9	8	8			
Average (mean years)	33	35	34	1.13	.258	.05
Length of time lived on Oregon coast				19.63	.006	.18
Less than 10 years	39	26	30			
10 – 19 years	20	22	21			
20 – 29 years	16	16	16			
30 – 39 years	12	12	12			
40 – 49 years	6	7	7			
50 – 59 years	3	10	8			
60 – 69 years	3	5	4			
70 or more years	2	3	3			
Average (mean years)	19	25	24	3.47	.001	.15
Own or rent current residence				.77	.682	.04
Own	73	76	75			
Rent / lease	25	22	23			
Other	3	2	2			
Length of time lived at current residence				11.13	.133	.13
Less than 10 years	54	45	47			
10 – 19 years	25	26	26			
20 – 29 years	11	14	14			
30 – 39 years	5	7	6			
40 – 49 years	3	4	4			
50 – 59 years	1	2	2			
60 – 69 years	0	1	1			
70 or more years	1	0	0			
Average (mean years)	12	14	14	1.83	.068	.08

[a] Cell entries are percentages (%) unless specified as averages (means).

Most of these demographic and residential characteristics were consistent within ± 5% of findings reported in recent US Census data and other recent natural resource related studies that also surveyed residents along the Oregon coast (e.g., DHM Research, 2012; Swedeen et al., 2008). The age of respondents in this sample, however, was slightly different than these studies with respondents in this project being an average of approximately seven years older than those in other recent studies. Age, however, was only statistically related to 17% of all variables in this

study (i.e., questionnaire responses) with all effect sizes lower than .29 and averaging only .14, suggesting that these relationships between age and most variables examined in this project were "small" (Cohen, 1988) or "minimal" (Vaske, 2008). Most variables that were influenced by age were other similar or related demographics (e.g., number of years lived in Oregon) and activity participation rates (e.g., surfing, scuba diving); there were few relationships between age and cognitions associated with marine areas and reserves in Oregon, which were the main areas of focus for this study (e.g., attitudes, knowledge, intentions). Weighting the data by age, therefore, would not have substantially influenced results presented in this report (Vaske, 2008). Instead, the data were weighted by population proportions, as described earlier in the methods section.

Section Summary

- In total, 58% of respondents were male and 42% were female; the average age was 61 years old with half of the sample (50%) between 50 and 69 years of age; and the majority (57%) had a high school diploma or less, two-year associates degree, or trade school. In addition, 23% of respondents had a four-year college degree and 20% had an advanced degree (e.g., MS, PhD, Law, Medical).
- Only 15% of respondents were members of an environmental or marine related organization (e.g., Ducks Unlimited, Sierra Club).
- Only 5% of respondents had someone in their household who was employed in the commercial fishing industry.
- Respondents had lived an average of 34 years in Oregon, 24 years on the Oregon coast, and 14 years at their current residence, with 75% owning and 23% renting or leasing their current residence.
- For most of these demographic and residential characteristics: (a) there were no statistically significant differences between people living in the communities of place compared to those along the rest of the coast, and (b) results were consistent within ± 5% of findings reported in recent US Census data and other recent natural resource related studies that also surveyed residents along the Oregon coast.

IMPLICATIONS AND RECOMMENDATIONS

Based on these findings from this survey of coastal residents, the following broad implications and recommendations, in no particular order, are made for Oregon marine areas and reserves:

- Although coastal residents in Oregon overwhelmingly perceived this state's marine areas and resources (e.g., ocean, animals, fish) to be moderately or very healthy, fewer than one-third agreed that conditions have improved in recent years, and the majority were concerned about marine trash and debris, invasive species, ocean acidification, overfishing, and other threats to these areas. Residents in the communities of place were more concerned about these threats compared to those living elsewhere along the coast. Regardless, it is clear that coastal residents are concerned about Oregon's marine areas and are an important constituency for agencies to work with, inform, and educate about these areas and efforts that agencies and others are taking to address threats in the areas.
- The majority of coastal residents, especially those in the communities of place, believed that the government should do more to help protect marine areas in Oregon. In addition, less than one-third of respondents agreed that laws protecting these marine areas are too strict or that managers are already doing everything they can to protect these areas. It appears that a large percentage of these residents believe there is room for improvement in agency management and policies associated with marine conservation in Oregon.
- The organization that almost all coastal residents believed should have the greatest influence in managing Oregon's marine areas was the Oregon Department of Fish and Wildlife (ODFW), but the majority thought that a variety of other groups should also have a major influence (e.g., US Fish and Wildlife Service, Oregon Parks and Recreation Department, Oregon Marine Board, National Oceanic and Atmospheric Administration, coastal residents). Residents trusted most of these groups to contribute to managing this state's marine areas, but this trust was slightly lower outside of the communities of place. Coastal residents clearly believe that ODFW should be the lead agency for managing these areas, but should also collaborate with several other agencies and organizations in these efforts. These groups should also work together and strive to build and foster trust among residents, especially in locations outside of the communities of place.
- Although two-thirds of respondents claimed that they have visited at least one of the five marine reserve sites in Oregon, more than two-thirds did not feel any major attachment to

these areas. This suggests that many respondents are not passionate about these sites and may not understand the salience of these areas to their coastal experiences. Managers, therefore, should strive to build a narrative around the importance of these specific sites that currently may not have identifiable emotional or physical characteristics. This may increase public awareness and understanding of the marine reserve locations and system, and their interconnections to marine conservation and human wellbeing.

- More than two-thirds of respondents felt familiar with the topic of marine reserves in Oregon and the majority felt they understood the purpose of these reserves. Only 20% to 40%, however, felt informed and knowledgeable about these reserves, and only one-third understood where the reserves are located and the role of public involvement in these areas. Factual knowledge about these reserves was also extremely low with an average of only 43% of the factual questions about these reserves answered correctly (i.e., a failing grade). Only one-third of respondents, for example, knew that ODFW was the agency currently responsible for managing these reserves. There were few differences in this self-assessed and factual knowledge between communities of place and the rest of the coast. In addition, only 18% of coastal residents agreed that it was easy to access and find information about the reserves, and only 13% agreed that managers have done a good job educating the public about these areas. It is clear that coastal resident knowledge about these reserves is minimal and much more is needed to inform and educate citizens about these areas. Major information campaigns are needed and residents would prefer this information to be disseminated through channels such as newspapers and television. Education and engagement catering to different audiences and settings, however, may not be needed because of the similarities in self-assessed and factual knowledge across both the communities of place and the rest of the coast. In addition, any targeted communications thus far to the communities of place may not have succeeded in increasing this population's knowledge in comparison to their more distant neighbors. Managers may want to pinpoint messages and facts about the marine reserves and convey these to the entire public, as there may be some facts that are deemed critical or more important than others for the public to understand. Grasping these points may be a more meaningful metric of factual knowledge to the agency than whether the public knows the majority of all facts about these reserves.

- The majority of coastal residents believed that scientific research and non-extractive recreation activities should be allowed in Oregon's marine reserves, but they did not think that recreational or commercial fishing should be allowed in these areas. Although both types of fishing are not currently permitted in Oregon's marine reserves, they are allowed in some of the adjacent marine protected areas, and results showed that fewer than 12% of coastal residents were aware of this distinction. To avoid public confusion and contention, therefore, it is important for managers to clearly articulate to residents the differences between reserves and protected areas, activities that are allowed within each designation, and the rationale for these different allowances.
- The only group that the majority of coastal residents believed would benefit from Oregon's marine reserves is scientists / researchers. Less than the majority believed that other groups would benefit (e.g., residents of the coast, recreationists, local businesses, people who do not live on the coast, recreational and commercial anglers). In fact, many residents believed that these other groups would be harmed by the reserves. It is important, therefore, for agencies to inform and educate residents about potential benefits of these reserves for all groups, such as the potential for more tourism revenue and its impacts on local businesses, as well as the ability of fish populations to recover thereby enhancing long-term sustainability of the recreational and commercial fishing industries.
- There was strong agreement that marine reserves in Oregon would provide benefits (e.g., improve understanding, allow populations to recover, protect species diversity), but there was significantly less agreement regarding potential constraints associated with these reserves, such as reduced commercial fishing, increased management costs, difficulties with enforcement, and increased restrictions on people using the areas. These constraints, however, are important and realistic because there will always be costs associated with placing sites under protected area designation. When informing and educating people about these marine reserves, therefore, managers should strive for a transparent and balanced perspective emphasizing not only the potential benefits of these reserves, but also the realistic challenges and costs likely to be encountered with these areas.
- An overwhelming majority of coastal residents had strong positive attitudes toward marine areas in general and marine reserves in Oregon in particular. In addition, almost 70% of coastal residents would vote in support of these reserves, with significantly higher support and more favorable attitudes among residents in the communities of place (i.e.,

nearest these reserves). This is important because these communities are likely to be the most affected by these reserves and related management decisions in these areas. Residents living along the rest of the coast were still supportive, but less than those in the communities of place. Individuals living along the rest of the coast and elsewhere, however, are still an important constituency that could be impacted by these reserves, so managers should not just focus their efforts on building capacity in communities nearest the reserves; they should also focus attention throughout the entire population.

- The majority of coastal residents agreed that they shared similar views as the managing agency (ODFW) and trusted this agency to manage marine reserves in Oregon. This is important for several reasons. First, similarity and trust can influence support of agency goals and objectives. Residents who trust ODFW, for example, may be more likely to support management actions associated with these reserves. Second, persuasion models (e.g., elaboration likelihood, heuristic systematic) suggest that perceived similarity and trust are important determinants of effective information and education campaigns (Eagly & Chaiken, 1993). Residents who trust an agency are often more motivated to attend to its informational and educational efforts. Campaign effectiveness may be lower with residents who are less trusting of the managing agency. Third, agencies should strive to understand constituent opinions, values, and goals because to preserve trust and a strong constituent base, management should be tailored to reflect these views whenever practical and feasible. If constituent views are not reflected in management, reasons for inconsistencies should be shared so they can be weighed in relation to considerations of trust. The public now demands and expects involvement in natural resource decision making and, if ignored, may resort to administrative appeals, court cases, and ballot initiatives. Managers, therefore, should seek positive relationships with residents and actively generate and maintain trust by fostering dialogue with citizens.

- The largest proportions of coastal residents had biocentric (i.e., nature-oriented) value orientations toward the broader environment in general and protectionist orientations toward marine areas in particular, suggesting that activities and management strategies encouraging deleterious effects on marine areas are unlikely to be supported by a large number of these residents. Research has shown that value orientations influence attitudes, intentions, and behaviors, so knowing resident orientations can be useful for estimating possible reactions to potentially controversial management actions. In addition, value

orientations are stable and resistant to change, so attempts to inform individuals with biocentric or protectionist value orientations to consider adopting attitudes and supporting actions that may be harmful to marine areas are unlikely to be successful.

- Finally, this project used cross-sectional data at one point in time to provide a baseline snapshot of coastal resident perceptions of marine reserves in Oregon at an early stage in the establishment of these areas. Although more than two-thirds of respondents would vote in favor of these reserves, had positive attitudes toward the benefits of these areas, and trusted ODFW to manage these reserves, these cognitions can change over time. It is critically important, therefore, for managers to cultivate and maintain this support and trust, and monitor these social conditions over time to ensure that they do not deteriorate.

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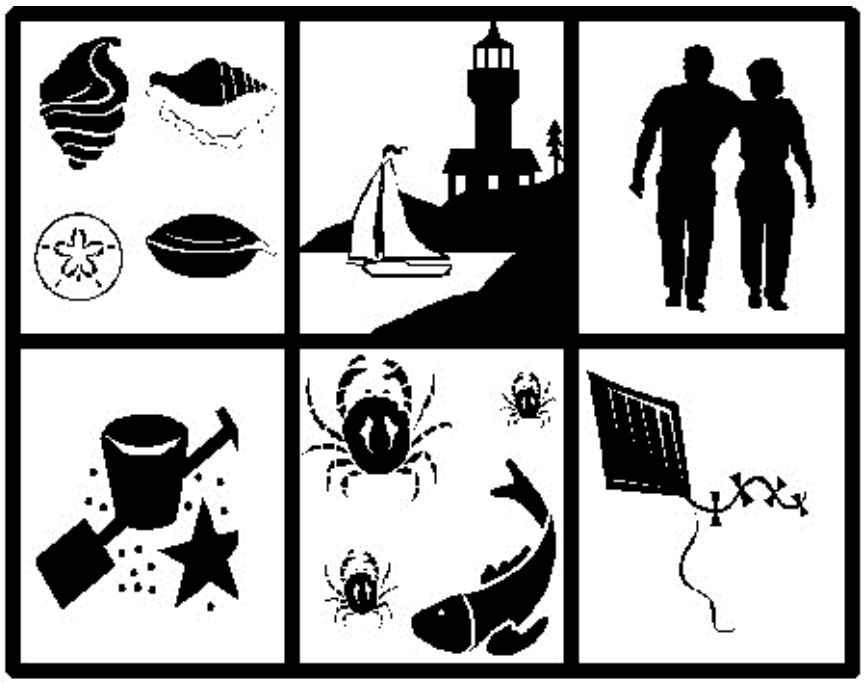
APPENDIX A: MAIL QUESTIONNAIRE

Your Opinions About Marine Areas in Oregon

Important Questions for Oregon Residents



Please Complete this Survey and Return it in the Envelope as Soon as Possible

Participation is Voluntary and Responses are Confidential

Thank You for Your Participation

A Study Conducted by:

OSU Oregon State University

NATURE Natural Resources, Tourism and Recreation Studies Lab

We are conducting this survey to learn about your opinions regarding marine areas and their management in Oregon. Marine areas are primarily offshore consisting of ocean / sea, not land. Your input is important and will assist resource managers. ***Please complete this survey and return it in the addressed postage-paid envelope as soon as possible.***

1. Please check the activities in which you have ever participated at marine areas in Oregon. **(check *ALL THAT APPLY*)**

- ☐ ***A.*** Sightseeing
- ☐ ***B***. Swimming
- ☐ ***C***. Viewing marine animals (e.g., birds, whales, sea lions)
- ☐ ***D***. Exploring tidepools
- ☐ ***E***. Surfing / boogie boarding
- ☐ ***F.*** Scuba diving / snorkeling
- ☐ ***G***. Non-charter recreational fishing
- ☐ ***H***. Charter recreational fishing
- ☐ ***I***. Commercial fishing
- ☐ ***J***. Non-motorized boating (e.g., canoe, kayak)
- ☐ ***K***. Motorized boating
- ☐ ***L***. Other (write response) _____

2. From Question 1 above, what ***ONE activity*** have you participated in most often at marine areas in Oregon? **(write the letter)**

Letter for activity _____

3. How much do you believe that each of the following is a threat to marine areas in Oregon? **(circle one number for *EACH*)**

	No Threat		Slight Threat		Moderate Threat			Extreme Threat	
Water pollution.	0	1	2	3	4	5	6	7	8
Other types of pollution (e.g., marine trash, debris).	0	1	2	3	4	5	6	7	8
Overfishing.	0	1	2	3	4	5	6	7	8
People who fish recreationally.	0	1	2	3	4	5	6	7	8
People who fish commercially.	0	1	2	3	4	5	6	7	8
People who purchase / consume seafood.	0	1	2	3	4	5	6	7	8
Wildlife viewers getting too close to marine animals.	0	1	2	3	4	5	6	7	8
Loss or disturbance of marine / coastal habitat.	0	1	2	3	4	5	6	7	8
Invasive / exotic species.	0	1	2	3	4	5	6	7	8
Dams.	0	1	2	3	4	5	6	7	8
Naval or other military operations.	0	1	2	3	4	5	6	7	8
Oil / gas exploration or transport.	0	1	2	3	4	5	6	7	8
Wave energy / power development.	0	1	2	3	4	5	6	7	8
Global climate change.	0	1	2	3	4	5	6	7	8
Changes in water temperature.	0	1	2	3	4	5	6	7	8
Ocean acidification (lower pH, higher acidity).	0	1	2	3	4	5	6	7	8
Rise in sea level.	0	1	2	3	4	5	6	7	8
Tsunamis.	0	1	2	3	4	5	6	7	8

4. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
The condition of marine areas in Oregon has improved in recent years.	1	2	3	4	5
The government should do more to help protect marine areas in Oregon.	1	2	3	4	5
Laws protecting marine areas in Oregon are already too strict.	1	2	3	4	5
Managers are doing everything they can to protect marine areas in Oregon.	1	2	3	4	5
Fishing is *not* harming marine areas in Oregon.	1	2	3	4	5
People who fish recreationally are harming marine areas in Oregon.	1	2	3	4	5
People who fish commercially are harming marine areas in Oregon.	1	2	3	4	5
People who purchase / consume seafood are harming marine areas in Oregon.	1	2	3	4	5

5. How much ***influence*** do you believe each of the following individuals or groups ***should have*** in contributing to management of marine areas in Oregon? **(circle one number for *EACH*)**

	No Influence			Some Influence			Moderate Influence		Strong Influence
People who recreate in marine areas.	0	1	2	3	4	5	6	7	8
People who fish recreationally.	0	1	2	3	4	5	6	7	8
People who fish commercially.	0	1	2	3	4	5	6	7	8
People who live along the Oregon coast.	0	1	2	3	4	5	6	7	8
People who *do not* live along the Oregon coast.	0	1	2	3	4	5	6	7	8
Environmental organizations.	0	1	2	3	4	5	6	7	8
University researchers.	0	1	2	3	4	5	6	7	8
Local port authorities.	0	1	2	3	4	5	6	7	8
Local governments.	0	1	2	3	4	5	6	7	8
Tribal authorities / governments.	0	1	2	3	4	5	6	7	8
Oregon Department of Fish and Wildlife.	0	1	2	3	4	5	6	7	8
Oregon Parks and Recreation Department.	0	1	2	3	4	5	6	7	8
Oregon Marine Board.	0	1	2	3	4	5	6	7	8
Oregon State Police.	0	1	2	3	4	5	6	7	8
Governor of Oregon.	0	1	2	3	4	5	6	7	8
Pacific Fishery Management Council.	0	1	2	3	4	5	6	7	8
US Coast Guard.	0	1	2	3	4	5	6	7	8
US Fish and Wildlife Service.	0	1	2	3	4	5	6	7	8
National Oceanic and Atmospheric Administration.	0	1	2	3	4	5	6	7	8

6. How much ***trust*** do you have in each of the following individuals or groups to positively contribute to management of marine areas in Oregon? **(circle one number for *EACH*)**

	No Trust			Some Trust			Moderate Trust		High Trust
People who recreate in marine areas.	0	1	2	3	4	5	6	7	8
People who fish recreationally.	0	1	2	3	4	5	6	7	8
People who fish commercially.	0	1	2	3	4	5	6	7	8
People who live along the Oregon coast.	0	1	2	3	4	5	6	7	8
People who *do not* live along the Oregon coast.	0	1	2	3	4	5	6	7	8
Environmental organizations.	0	1	2	3	4	5	6	7	8
University researchers.	0	1	2	3	4	5	6	7	8
Local port authorities.	0	1	2	3	4	5	6	7	8
Local governments.	0	1	2	3	4	5	6	7	8
Tribal authorities / governments.	0	1	2	3	4	5	6	7	8
Oregon Department of Fish and Wildlife.	0	1	2	3	4	5	6	7	8
Oregon Parks and Recreation Department.	0	1	2	3	4	5	6	7	8
Oregon Marine Board.	0	1	2	3	4	5	6	7	8
Oregon State Police.	0	1	2	3	4	5	6	7	8
Governor of Oregon.	0	1	2	3	4	5	6	7	8
Pacific Fishery Management Council.	0	1	2	3	4	5	6	7	8
US Coast Guard.	0	1	2	3	4	5	6	7	8
US Fish and Wildlife Service.	0	1	2	3	4	5	6	7	8
National Oceanic and Atmospheric Administration.	0	1	2	3	4	5	6	7	8

Some places around the world have protected certain marine areas by designating them as **marine reserves**. A marine reserve is an area of the marine environment that is protected from specific uses, especially those that remove or disturb marine life. Around the world, marine reserves have been designated for different purposes such as for research, rebuilding fish populations, protecting habitat, and promoting sightseeing and recreation. Concerns about marine reserves include potential negative impacts to the fishing industry and costs for management and enforcement. The following questions ask about your opinions of marine reserves.

7. Indicate on each of the following scales how you feel about the idea of marine reserves ***in general***. **(circle one number for *EACH*)**

Dislike	1	2	3	4	5	Like
Bad	1	2	3	4	5	Good
Negative	1	2	3	4	5	Positive
Harmful	1	2	3	4	5	Beneficial

8. Indicate on each of the following scales how you feel about the idea of establishing marine reserves ***in Oregon***. **(circle for *EACH*)**

Dislike	1	2	3	4	5	Like
Bad	1	2	3	4	5	Good
Negative	1	2	3	4	5	Positive
Harmful	1	2	3	4	5	Beneficial

9. What is your opinion regarding the protection or human utilization (use) of marine areas in Oregon? **(check *ONE*)**

- ☐ We should fully utilize marine areas with almost no protection
- ☐ We should mostly utilize marine areas with just a little protection
- ☐ We should mostly protect marine areas with just a little utilization
- ☐ We should fully protect marine areas with almost no utilization

10. If you were to be given an opportunity to vote for or against establishing marine reserves in Oregon, how would you vote? **(check *ONE*)**

- ☐ I would vote **for** establishing marine reserves in Oregon
- ☐ I would vote **against** establishing marine reserves in Oregon

11. How certain are you that you would vote this way? **(check *ONE*)**

☐ Not Certain ☐ Slightly Certain ☐ Moderately Certain ☐ Extremely Certain

12. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Most people who are important to me would want me to support establishing marine reserves in Oregon.	1	2	3	4	5
Doing what most people who are important to me would want me to do matters to me.	1	2	3	4	5
Other people would expect me to oppose establishing marine reserves in Oregon.	1	2	3	4	5
I am usually motivated to do what other people expect me to do.	1	2	3	4	5
The people in my life whose opinions I value the most would want me to favor establishing marine reserves in Oregon.	1	2	3	4	5
Doing what people in my life whose opinions I value the most would want me to do is important to me.	1	2	3	4	5

13. To what extent do you disagree or agree that marine reserves in Oregon would cause each of the following outcomes? **(circle one number for *EACH*)**

On the Oregon coast, marine reserves would …	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
… benefit marine areas in general.	1	2	3	4	5
… not be effective in conserving marine areas.	1	2	3	4	5
… protect the diversity of marine species.	1	2	3	4	5
… increase marine species populations.	1	2	3	4	5
… allow depleted marine species populations to recover.	1	2	3	4	5
… cause some species to become overpopulated.	1	2	3	4	5
… improve the economy.	1	2	3	4	5
… increase tourism.	1	2	3	4	5
… benefit people in local communities.	1	2	3	4	5
… prevent people from using the reserve areas.	1	2	3	4	5
… reduce recreational fishing.	1	2	3	4	5
… reduce commercial fishing.	1	2	3	4	5
… improve scientific understanding of marine areas.	1	2	3	4	5
… allow scientists to monitor marine areas over time.	1	2	3	4	5
… improve our understanding of marine areas.	1	2	3	4	5
… be difficult to enforce.	1	2	3	4	5
... cost a lot to manage.	1	2	3	4	5
… improve the ability to manage marine areas.	1	2	3	4	5

14. To what extent do you believe each of the following possible outcomes of marine reserves in Oregon would be bad or good? **(circle one number for *EACH*)**

	Very Bad	Bad	Neither	Good	Very Good
Benefitting marine areas in general would be…	1	2	3	4	5
Not being effective in conserving marine areas would be…	1	2	3	4	5
Protecting the diversity of marine species would be…	1	2	3	4	5
Increasing marine species populations would be…	1	2	3	4	5
Allowing depleted marine species populations to recover would be…	1	2	3	4	5
Causing some species to become overpopulated would be…	1	2	3	4	5
Improving the economy would be…	1	2	3	4	5
Increasing tourism would be…	1	2	3	4	5
Benefitting people in local communities would be…	1	2	3	4	5
Preventing people from using the reserve areas would be…	1	2	3	4	5
Reducing recreational fishing would be…	1	2	3	4	5
Reducing commercial fishing would be…	1	2	3	4	5
Improving scientific understanding of marine areas would be…	1	2	3	4	5
Allowing scientists to monitor marine areas over time would be…	1	2	3	4	5
Improving our understanding of marine areas would be…	1	2	3	4	5
Difficult enforcement would be…	1	2	3	4	5
Costly management would be…	1	2	3	4	5
Improving the ability to manage marine areas would be…	1	2	3	4	5

15. Before receiving this survey, were you familiar with the topic of marine reserves in Oregon? **(check *ONE*)** ☐ No ☐ Yes

16. How well informed do you feel about the topic of marine reserves in Oregon? **(check *ONE*)**

☐ Not Informed ☐ Slightly Informed ☐ Moderately Informed ☐ Extremely Informed

17. How knowledgeable do you feel about the topic of marine reserves in Oregon? **(check *ONE*)**

☐ Not Knowledgeable ☐ Slightly Knowledgeable ☐ Moderately Knowledgeable ☐ Extremely Knowledgeable

18. Do you believe that each of the following statements related to marine reserves in Oregon is true or false? Circle "U" for "unsure" if you are not sure if the statement is true or false. **(circle one letter for *EACH*)**

In Oregon …	True	False	Unsure
… the government has been considering marine reserves for the past several years.	T	F	U
… the government has approved marine reserves for this state.	T	F	U
… commercial fishing would be allowed in all marine reserves.	T	F	U
… all marine reserves would include coastal lands such as beaches and coastlines.	T	F	U
… the government has established five marine reserve sites.	T	F	U
… new developments such as wave energy or fish farms would be allowed in all marine reserves.	T	F	U
… non-extractive recreation / tourism activities (e.g., surfing, swimming, diving) would be allowed in all marine reserves.	T	F	U
… keeping fish caught in marine reserves would be allowed in all reserves.	T	F	U
… only scientists and no other people would be allowed in all marine reserves.	T	F	U
… there have been opportunities for public involvement in agency discussions about marine reserves.	T	F	U

19. How often have you done each of the following related to marine reserves in Oregon? **(circle one number for *EACH*)**

	Never		Sometimes		Often
A. Read newspaper articles about marine reserves in Oregon.	0	1	2	3	4
B. Listened to radio news / programs about marine reserves in Oregon.	0	1	2	3	4
C. Watched television news / programs about marine reserves in Oregon.	0	1	2	3	4
D. Read magazine articles or books about marine reserves in Oregon.	0	1	2	3	4
E. Read about marine reserves in Oregon on government agency websites.	0	1	2	3	4
F. Read about marine reserves in Oregon on social websites (e.g., Facebook, Twitter).	0	1	2	3	4
G. Read about marine reserves in Oregon on any other websites.	0	1	2	3	4
H. Read about marine reserves in Oregon fishing regulations brochures.	0	1	2	3	4
I. Discussed marine reserves in Oregon with government agency employees.	0	1	2	3	4
J. Learned about marine reserves in Oregon from environmental or community groups.	0	1	2	3	4
K. Learned about marine reserves in Oregon from work or school.	0	1	2	3	4
L. Discussed marine reserves in Oregon with friends or family members.	0	1	2	3	4
M. Attended meetings or presentations about marine reserves in Oregon.	0	1	2	3	4

20. From the list in Question 19 (above), please state the ***ONE*** **source** from which you would ***prefer*** to obtain information about marine reserves in Oregon. **(write the letter)**

Letter for source _____

21. What ***ONE*** agency or organization do you think is currently responsible for marine reserves in Oregon? **(check *ONE*)**

- ☐ National Oceanic and Atmospheric Administration
- ☐ US Fish and Wildlife Service
- ☐ US Coast Guard
- ☐ Pacific Fishery Management Council
- ☐ Oregon Parks and Recreation Department
- ☐ Oregon Department of Fish and Wildlife
- ☐ Oregon Marine Board
- ☐ Unsure

22. How much do you feel that you understand about each of the following? **(circle one number for *EACH*)**

	Do Not Understand		Slightly Understand		Moderately Understand			Fully Understand	
Purpose of marine reserves in Oregon.	0	1	2	3	4	5	6	7	8
How marine reserves would be managed in Oregon.	0	1	2	3	4	5	6	7	8
Rules / regulations of marine reserves in Oregon.	0	1	2	3	4	5	6	7	8
Where marine reserves are located in Oregon.	0	1	2	3	4	5	6	7	8
Role of science in marine reserves in Oregon.	0	1	2	3	4	5	6	7	8
Role of public involvement in marine reserves in Oregon.	0	1	2	3	4	5	6	7	8

23. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

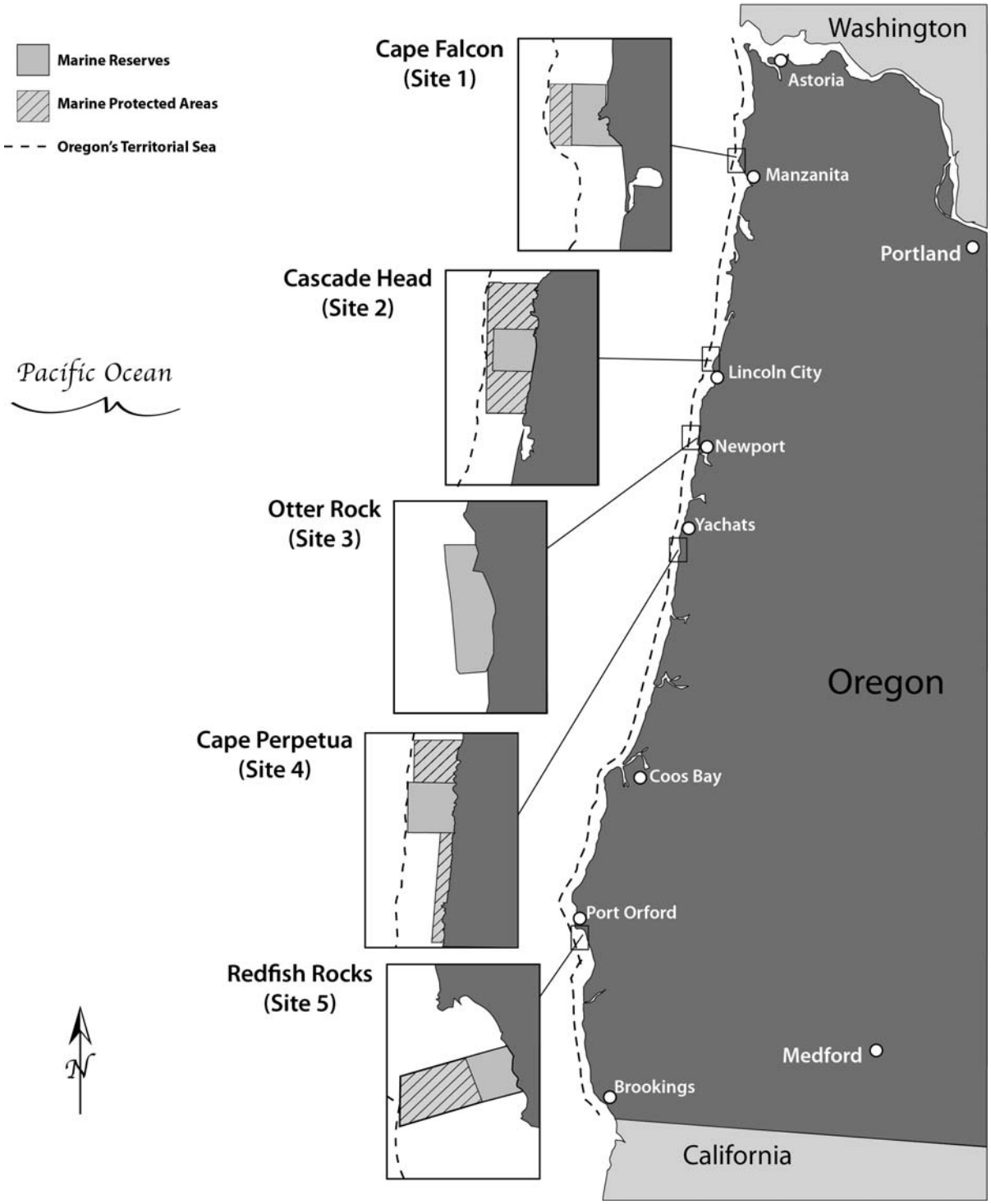
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Commercial fishing should be allowed in marine reserves in Oregon.	1	2	3	4	5
Recreational fishing should be allowed in marine reserves in Oregon.	1	2	3	4	5
Non-extractive recreation / tourism activities (e.g., surfing, swimming, diving) should be allowed in marine reserves in Oregon.	1	2	3	4	5
Scientific research should be allowed in marine reserves in Oregon.	1	2	3	4	5

24. To what extent do you believe that each of the following groups could be impacted by marine reserves in Oregon? **(circle one number for *EACH*)**

	Strongly Harmed by Reserves	Slightly Harmed by Reserves	Not Impacted by Reserves	Slightly Benefit from Reserves	Strongly Benefit from Reserves
People who recreate in marine areas.	1	2	3	4	5
People who fish recreationally.	1	2	3	4	5
People who fish commercially.	1	2	3	4	5
Local businesses.	1	2	3	4	5
People who live along the Oregon coast.	1	2	3	4	5
People who *do not* live along the Oregon coast.	1	2	3	4	5
Government agencies.	1	2	3	4	5
Scientists / researchers.	1	2	3	4	5

25. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I intend to support having marine reserves in Oregon.	1	2	3	4	5
Managers have done a good job communicating with the public about marine reserves in Oregon.	1	2	3	4	5
I am against establishing marine reserves in Oregon.	1	2	3	4	5
It is easy to access / find information about marine reserves in Oregon.	1	2	3	4	5
I would likely be in favor of implementing marine reserves in Oregon.	1	2	3	4	5


Marine Reserves
Marine Protected Areas
Oregon's Territorial Sea
Cape Falcon
(Site 1)
Cascade Head
(Site 2)
Otter Rock
(Site 3)
Cape Perpetua
(Site 4)
Redfish Rocks
(Site 5)
Pacific Ocean
N
Washington
Astoria
Manzanita
Portland
Lincoln City
Newport
Yachats
Oregon
Coos Bay
Port Orford
Medford
Brookings
California

On the previous page is a map of five marine sites in Oregon. ***These sites are shown as boxes that are lightly shaded or with lines, and are primarily offshore consisting of ocean / sea, not land***. Please answer questions on this page based on these sites.

26. Have you ever visited one or more of the five marine sites identified on the map on the previous page **(*areas offshore that are lightly shaded or with lines, as shown on the map*)**? **(check *ONE*)**

☐ No → if no, skip to question 31 below
☐ Yes

27. Which of the five marine sites identified on the map on the previous page have you ever visited **(*areas offshore that are lightly shaded or with lines, as shown on the map*)**? **(check *ALL THAT APPLY*)**

☐ Site 1 ☐ Site 2 ☐ Site 3 ☐ Site 4 ☐ Site 5

28. Please check the activities in which you have ever participated at one or more of the five marine sites identified on the map on the previous page **(*areas offshore that are lightly shaded or with lines, as shown on the map*)**. **(check *ALL THAT APPLY*)**

☐ ***A.*** Sightseeing
☐ ***B***. Swimming
☐ ***C***. Viewing marine animals (e.g., birds, whales, sea lions)
☐ ***D***. Exploring tidepools
☐ ***E***. Surfing / boogie boarding
☐ ***F.*** Scuba diving / snorkeling
☐ ***G***. Non-charter recreational fishing
☐ ***H***. Charter recreational fishing
☐ ***I***. Commercial fishing
☐ ***J***. Non-motorized boating (e.g., canoe, kayak)
☐ ***K***. Motorized boating
☐ ***L***. Other (write response) _____

29. From Question 28 above, what ***ONE activity*** have you participated in most often at one or more of the five marine sites identified on the map on the previous page **(*areas offshore that are lightly shaded or with lines, as shown on the map*)**? **(write the letter)**

Letter for activity _____

30. Thinking about one or more of the five marine sites identified on the map on the previous page **(*areas offshore that are lightly shaded or with lines shown on the map*),** do you disagree or agree with each of the following? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
At least one of these marine sites is very special to me.	1	2	3	4	5
At least one of these marine sites is one of the best places for doing what I like to do.	1	2	3	4	5
I am very attached to at least one of these marine sites.	1	2	3	4	5
I would not substitute any other area for doing the types of things that I do in at least one of these marine sites.	1	2	3	4	5
I identify strongly with at least one of these marine sites.	1	2	3	4	5
Doing what I do in at least one of these marine sites is more important to me than doing it in any other place.	1	2	3	4	5

31. If one or more of the five marine sites identified on the map on the previous page **(*areas offshore that are lightly shaded or with lines, as shown on the map*)** is designated as a marine reserve, how unlikely or likely would you do each of the following?

	Very Unlikely	Unlikely	Neither	Likely	Very Likely
Visit the marine sites(s) more often.	1	2	3	4	5
Visit the marine sites(s) the same amount.	1	2	3	4	5
Visit the marine sites(s) less often.	1	2	3	4	5
Never visit the marine sites(s) again.	1	2	3	4	5
Participate in a different primary activity in the marine sites(s).	1	2	3	4	5
Go to other nearby or adjacent marine areas instead.	1	2	3	4	5
Go to other marine areas on the Oregon coast instead.	1	2	3	4	5

32. The Oregon Department of Fish and Wildlife is currently responsible for marine reserves in Oregon. To what extent do you disagree or agree with each of the following statements about this agency? **(circle one number for ***EACH***)**

I feel that the Oregon Department of Fish and Wildlife …	Strongly Disagree	Slightly Disagree	Neither	Slightly Agree	Strongly Agree
… shares similar values as I do.	1	2	3	4	5
… shares similar opinions as I do.	1	2	3	4	5
… shares similar goals as I do.	1	2	3	4	5
… thinks in a similar way as I do.	1	2	3	4	5
… takes similar actions as I would.	1	2	3	4	5

33. To what extent do you disagree or agree with each of the following statements about this agency? **(circle one number for ***EACH***)**

I trust the Oregon Department of Fish and Wildlife to …	Strongly Disagree	Slightly Disagree	Neither	Slightly Agree	Strongly Agree
… provide the best available information about marine reserves.	1	2	3	4	5
… provide timely information about marine reserves.	1	2	3	4	5
… provide truthful information about marine reserves.	1	2	3	4	5
… provide me with enough information to decide what actions I should take regarding marine reserves.	1	2	3	4	5
… manage marine reserves using the best available information about non-human species in these areas (e.g., fish, birds).	1	2	3	4	5
… manage marine reserves using the best available information about human uses of these areas.	1	2	3	4	5
… work with other organizations to inform management of marine reserves.	1	2	3	4	5
… use public input to inform management of marine reserves.	1	2	3	4	5
… make good decisions regarding management of marine reserves.	1	2	3	4	5

34. Both marine reserves and marine protected areas have been proposed for Oregon. These designations are not the same thing. Do you think each of the following activities would be allowed in Oregon's marine reserves, marine protected areas, both of these types of areas, or neither of these types of areas? Circle "unsure" if you are not sure. **(circle one number for ***EACH***)**

	Marine Reserves	Marine Protected Areas	Both Marine Reserves and Protected Areas	Neither Marine Reserves nor Protected Areas	Unsure
Commercial fishing would be allowed in …	1	2	3	4	5
Recreational fishing would be allowed in …	1	2	3	4	5
Scientific research would be allowed in …	1	2	3	4	5
Removing any species or habitat would ***NOT*** be allowed in …	1	2	3	4	5
Non-extractive recreation / tourism activities (e.g., surfing, swimming, diving) would be allowed in …	1	2	3	4	5

35. How ecologically healthy do you believe each of the following is in Oregon? **(circle one number for ***EACH***)**

	Not Healthy		Slightly Healthy		Moderately Healthy			Very Healthy	
Rivers and streams in Oregon.	0	1	2	3	4	5	6	7	8
Bays and estuaries in Oregon.	0	1	2	3	4	5	6	7	8
Marine areas (ocean) in Oregon.	0	1	2	3	4	5	6	7	8
Marine fish in Oregon.	0	1	2	3	4	5	6	7	8
Other marine animals in Oregon.	0	1	2	3	4	5	6	7	8
Wildlife in Oregon.	0	1	2	3	4	5	6	7	8
Forests in Oregon.	0	1	2	3	4	5	6	7	8

36. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I am aware of impacts that humans can have on marine areas.	1	2	3	4	5
My own personal actions can impact marine areas.	1	2	3	4	5
I know that my own behaviors can cause problems in marine areas.	1	2	3	4	5
I feel a personal obligation to help protect marine areas.	1	2	3	4	5
I feel a responsibility to help educate others about protecting marine areas.	1	2	3	4	5
I can do more to help protect marine areas.	1	2	3	4	5

37. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
The needs of humans are more important than those of marine areas.	1	2	3	4	5
The primary value of marine areas is to provide benefits for humans.	1	2	3	4	5
Marine areas exist primarily to be used by humans.	1	2	3	4	5
Marine areas should be protected for their own sake rather than to simply meet the needs of humans.	1	2	3	4	5
Marine areas have value whether humans are present or not.	1	2	3	4	5
I would be offended or upset if there were more limits on human use of marine areas.	1	2	3	4	5
Marine areas should have rights similar to the rights of humans.	1	2	3	4	5
I object to fishing, harvesting, or collecting species from marine areas because it violates the rights of these species.	1	2	3	4	5
The economic values that marine areas provide for humans are more important than the rights of species in these marine areas.	1	2	3	4	5
It is important to take care of marine areas for the future.	1	2	3	4	5
It is important that healthy marine areas exist.	1	2	3	4	5
It is important that future generations can enjoy marine areas.	1	2	3	4	5
I enjoy learning about marine areas.	1	2	3	4	5
It is important that people have a chance to learn about marine areas.	1	2	3	4	5
It is important that we learn as much as we can about marine areas.	1	2	3	4	5
I do *not* enjoy going to marine areas.	1	2	3	4	5
Some of my most memorable experiences occurred in marine areas.	1	2	3	4	5
Visiting marine areas is one of the reasons I take trips outdoors.	1	2	3	4	5

38. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Humans have the right to modify the natural environment to suit their needs.	1	2	3	4	5
Humans were meant to rule over the rest of nature.	1	2	3	4	5
The so-called ecological crisis facing humankind has been greatly exaggerated.	1	2	3	4	5
The earth has plenty of natural resources if we just learn how to develop them.	1	2	3	4	5
The balance of nature is very delicate and easily upset.	1	2	3	4	5
When humans interfere with nature, it often produces disastrous consequences.	1	2	3	4	5
Plants and animals have as much right as humans to exist.	1	2	3	4	5
Humans are severely abusing the environment.	1	2	3	4	5

39. Below are three separate groups of goals that people might prioritize differently.
For EACH group, please RANK the four goals in order of importance to YOU (NO TIES). That is:

1 = the goal that is most important to YOU
2 = the 2nd most important goal
3 = the 3rd most important goal
4 = the least important goal

Group 1. Rank these four goals from 1= most important to 4 = least important.
NO TIES **(DO NOT GIVE ANY OF THESE FOUR ITEMS THE SAME RANK).** **Rank**

- Maintain a high level of economic growth. _____
- See that people have more to say about how things are done at their jobs and in their communities. _____
- Make sure this country has strong defense forces. _____
- Try to make our cities and countryside more beautiful. _____

Group 2. Now repeat for this next set of four goals (1= most important, 4 = least important).
NO TIES **(DO NOT GIVE ANY OF THESE FOUR ITEMS THE SAME RANK).** **Rank**

- Maintain order in the nation. _____
- Give people more to say in important government decisions. _____
- Fight rising prices. _____
- Protect freedom of speech. _____

Group 3. Now repeat again for this final set of four goals (1 = most important, 4 = least important).
NO TIES **(DO NOT GIVE ANY OF THESE FOUR ITEMS THE SAME RANK).** **Rank**

- Maintain a stable economy. _____
- Progress toward a less impersonal and more humane society. _____
- Fight crime. _____
- Progress toward a society in which ideas count more than money. _____

40. Are you: **(check *ONE*)** ☐ Male ☐ Female

41. What is your age? **(write age)** _____ years old

42. Approximately how many years have you lived ***in Oregon***? **(write the number)** _____ year(s)

43. Approximately how many years have you lived ***on the Oregon coast***? **(write the number)** _____ year(s)

44. Do you own or rent / lease the residence where you currently live? **(check *ONE*)** ☐ Own ☐ Rent / Lease ☐ Other

45. Approximately how many years have you lived ***at this current address***? **(write the number)** _____ year(s)

46. Are you or anyone else in your household employed in the commercial fishing industry? **(check *ONE*)** ☐ No ☐ Yes

47. Are you a member of any environmental or marine related organizations (e.g., Sierra Club, Ducks Unlimited)? **(check *ONE*)**

☐ No
☐ Yes → if yes, what organization(s) are you a member of? **(write response)**

_____

48. What is the ***highest*** level of education that you have achieved? **(check *ONE*)**

☐ Less than high school diploma
☐ High school diploma or GED
☐ 2-year associates degree or trade school
☐ 4-year college degree (e.g., bachelors degree)
☐ Advanced degree beyond 4-year degree (e.g., masters, Ph.D., medical doctor, law degree)

THANK YOU! PLEASE RETURN THIS COMPLETED SURVEY AS SOON AS POSSIBLE IN THE ENCLOSED ADDRESSED AND POSTAGE-PAID ENVELOPE

APPENDIX B: NONRESPONSE QUESTIONNAIRE

Opening Script

Hello, my name is _____. I'm calling from Oregon State University regarding a questionnaire about Oregon's marine areas that was sent to your address a few weeks ago.

We have noticed that you have not responded, but your input is very valuable. Instead, we would like you to answer just a few quick questions, which will take less than 2 minutes to complete.

If no (refusal): Sorry to bother you; have a good evening. (hang up and record response code)

If yes: Thank you; I have just a few short questions.

(1). To what extent do you disagree or agree that:
the condition of marine areas in Oregon has improved in recent years?

Strongly Disagree Slightly Disagree Neither Slightly Agree Strongly Agree

Now I am going to ask you a few questions about marine reserves. Some places around the world have protected certain marine areas by designating them as reserves. A marine reserve is an area of the marine environment that is protected from specific uses, especially those that remove or disturb marine life.

(2). How knowledgeable do you feel about the topic of marine reserves in Oregon?

☐ Not Knowledgeable ☐ Slightly Knowledgeable ☐ Moderately Knowledgeable ☐ Extremely Knowledgeable

(3). If you were to be given an opportunity to vote for or against establishing marine reserves in Oregon, how would you vote?

☐ I would vote **for** establishing marine reserves in Oregon
☐ I would vote **against** establishing marine reserves in Oregon

(4). To what extent do you disagree or agree that:
commercial fishing should be allowed in marine reserves in Oregon?

Strongly Disagree Slightly Disagree Neither Slightly Agree Strongly Agree

(5). To what extent do you disagree or agree that:
managers have done a good job communicating with the public about marine reserves in Oregon?

Strongly Disagree Slightly Disagree Neither Slightly Agree Strongly Agree

(6). To what extent do you disagree or agree that:
you trust the Oregon Department of Fish and Wildlife to make good decisions regarding management of marine reserves?

Strongly Disagree Slightly Disagree Neither Slightly Agree Strongly Agree

(7). Approximately how many years have you lived on the Oregon Coast? _____ year(s)

(8). Are you or anyone else in your household employed in the commercial fishing industry? ☐ No ☐ Yes

(9). Finally, what is your age? _____ years old

Then, record their gender, or ask if unsure: ☐ Male ☐ Female

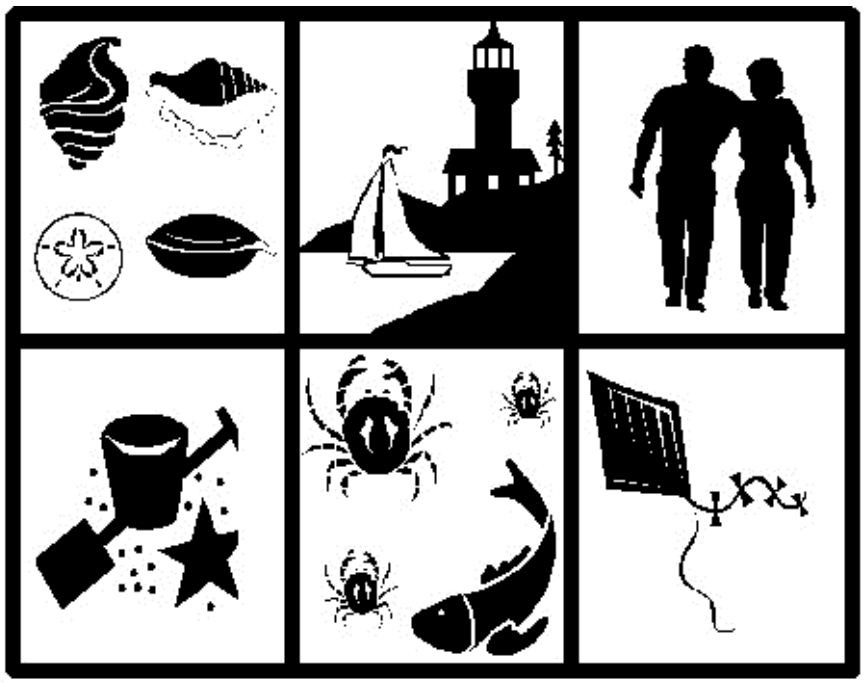
Ending Script (after survey is completed):

That's all the questions that I have; thank you for your time and have a great evening.

APPENDIX C: UNCOLLAPSED TOTAL PERCENTAGES

Your Opinions About Marine Areas in Oregon

Important Questions for Oregon Residents



Please Complete this Survey and Return it in the Envelope as Soon as Possible

Participation is Voluntary and Responses are Confidential

Thank You for Your Participation

A Study Conducted by:

OSU Oregon State University

NATURE Natural Resources, Tourism and Recreation Studies Lab

We are conducting this survey to learn about your opinions regarding marine areas and their management in Oregon. Marine areas are primarily offshore consisting of ocean / sea, not land. Your input is important and will assist resource managers. ***Please complete this survey and return it in the addressed postage-paid envelope as soon as possible.***

1. Please check the activities in which you have ever participated at marine areas in Oregon. **(check *ALL THAT APPLY*)**

88% ***A.*** Sightseeing
38% ***B***. Swimming
86% ***C***. Viewing marine animals (e.g., birds, whales, sea lions)
77% ***D***. Exploring tidepools
13% ***E***. Surfing / boogie boarding
6% ***F.*** Scuba diving / snorkeling
55% ***G***. Non-charter recreational fishing
32% ***H***. Charter recreational fishing
10% ***I***. Commercial fishing
28% ***J***. Non-motorized boating (e.g., canoe, kayak)
43% ***K***. Motorized boating
14% ***L***. Other (write response) _____

2. From Question 1 above, what ***ONE activity*** have you participated in most often at marine areas in Oregon? **(write the letter)**

Letter for activity see report Table 5

3. How much do you believe that each of the following is a threat to marine areas in Oregon? **(circle one number for *EACH*)**

	No Threat		Slight Threat		Moderate Threat			Extreme Threat	
Water pollution.	1%	3%	9%	10%	12%	16%	19%	17%	13%
Other types of pollution (e.g., marine trash, debris).	1	1	7	6	15	13	19	21	18
Overfishing.	4	5	12	13	14	14	17	14	8
People who fish recreationally.	13	21	21	20	13	5	4	2	1
People who fish commercially.	6	8	12	16	14	15	15	8	6
People who purchase / consume seafood.	19	18	17	14	13	8	8	2	2
Wildlife viewers getting too close to marine animals.	11	15	18	20	15	8	6	4	3
Loss or disturbance of marine / coastal habitat.	6	7	12	12	14	13	13	14	10
Invasive / exotic species.	4	3	10	9	13	10	20	16	16
Dams.	7	9	14	13	13	13	15	9	7
Naval or other military operations.	14	14	16	15	10	11	6	7	7
Oil / gas exploration or transport.	6	9	13	10	11	9	11	14	17
Wave energy / power development.	13	15	19	15	15	8	7	4	4
Global climate change.	12	6	11	9	11	8	12	14	18
Changes in water temperature.	5	6	12	12	11	10	14	16	15
Ocean acidification (lower pH, higher acidity).	4	6	8	12	12	11	15	14	18
Rise in sea level.	11	9	12	15	11	8	14	10	10
Tsunamis.	6	8	16	15	12	10	12	9	12

4. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
The condition of marine areas in Oregon has improved in recent years.	4%	17%	45%	32%	2%
The government should do more to help protect marine areas in Oregon.	10	15	24	32	18
Laws protecting marine areas in Oregon are already too strict.	15	31	32	14	8
Managers are doing everything they can to protect marine areas in Oregon.	8	23	39	27	3
Fishing is *not* harming marine areas in Oregon.	6	32	23	27	12
People who fish recreationally are harming marine areas in Oregon.	22	39	24	12	2
People who fish commercially are harming marine areas in Oregon.	8	24	27	32	9
People who purchase / consume seafood are harming marine areas in Oregon.	23	28	33	14	2

5. How much ***influence*** do you believe each of the following individuals or groups ***should have*** in contributing to management of marine areas in Oregon? **(circle one number for *EACH*)**

	No Influence		Some Influence		Moderate Influence			Strong Influence	
People who recreate in marine areas.	3%	4%	15%	20%	16%	19%	9%	7%	7%
People who fish recreationally.	2	4	13	20	17	19	10	8	9
People who fish commercially.	2	3	8	13	18	20	14	3	9
People who live along the Oregon coast.	3	3	7	10	15	16	16	16	16
People who *do not* live along the Oregon coast.	16	16	22	21	10	6	3	2	4
Environmental organizations.	10	6	16	14	11	15	8	11	10
University researchers.	4	3	8	13	11	15	16	17	13
Local port authorities.	4	2	9	14	17	19	16	13	8
Local governments.	4	3	9	13	18	21	14	12	6
Tribal authorities / governments.	7	6	10	14	15	14	13	14	7
Oregon Department of Fish and Wildlife.	1	1	7	9	10	14	19	24	17
Oregon Parks and Recreation Department.	4	2	9	8	15	18	17	17	11
Oregon Marine Board.	3	2	7	10	13	15	19	19	14
Oregon State Police.	6	8	18	11	11	19	12	9	6
Governor of Oregon.	12	6	12	14	12	14	11	11	7
Pacific Fishery Management Council.	3	3	8	10	13	15	18	17	13
US Coast Guard.	4	3	10	11	12	16	17	14	14
US Fish and Wildlife Service.	3	4	8	7	10	12	18	21	18
National Oceanic and Atmospheric Administration.	5	3	7	8	9	11	16	21	20

6. How much ***trust*** do you have in each of the following individuals or groups to positively contribute to management of marine areas in Oregon? **(circle one number for *EACH*)**

	No Trust		Some Trust		Moderate Trust			High Trust	
People who recreate in marine areas.	4%	8%	22%	24%	17%	14%	6%	4%	2%
People who fish recreationally.	3	5	17	24	18	16	8	6	3
People who fish commercially.	5	9	15	17	19	15	9	8	3
People who live along the Oregon coast.	1	3	7	12	22	21	17	10	8
People who *do not* live along the Oregon coast.	21	20	27	14	9	6	1	2	0
Environmental organizations.	15	9	12	15	11	13	12	8	5
University researchers.	5	3	9	9	14	16	14	20	10
Local port authorities.	5	5	10	15	20	20	13	10	3
Local governments.	7	7	12	17	21	19	10	6	2
Tribal authorities / governments.	9	7	14	14	18	15	11	8	4
Oregon Department of Fish and Wildlife.	4	3	9	8	11	18	20	17	10
Oregon Parks and Recreation Department.	6	5	9	12	15	18	17	12	7
Oregon Marine Board.	6	4	9	12	17	15	18	13	7
Oregon State Police.	9	8	13	16	16	16	10	11	4
Governor of Oregon.	17	8	11	17	13	13	9	6	5
Pacific Fishery Management Council.	6	5	10	15	15	18	13	11	8
US Coast Guard.	3	2	8	10	16	14	15	16	15
US Fish and Wildlife Service.	4	4	7	9	12	15	17	18	14
National Oceanic and Atmospheric Administration.	5	5	9	9	10	12	14	16	19

Some places around the world have protected certain marine areas by designating them as **marine reserves**. A marine reserve is an area of the marine environment that is protected from specific uses, especially those that remove or disturb marine life. Around the world, marine reserves have been designated for different purposes such as for research, rebuilding fish populations, protecting habitat, and promoting sightseeing and recreation. Concerns about marine reserves include potential negative impacts to the fishing industry and costs for management and enforcement. The following questions ask about your opinions of marine reserves.

7. Indicate on each of the following scales how you feel about the idea of marine reserves ***in general***. **(circle one number for *EACH*)**

Dislike	9%	9%	17%	26%	39%	Like
Bad	9	9	18	27	38	Good
Negative	9	8	19	25	40	Positive
Harmful	8	7	19	24	43	Beneficial

8. Indicate on each of the following scales how you feel about the idea of establishing marine reserves ***in Oregon***. **(circle for *EACH*)**

Dislike	12%	11%	16%	21%	40%	Like
Bad	12	10	18	21	40	Good
Negative	12	10	17	22	40	Positive
Harmful	10	8	16	23	42	Beneficial

9. What is your opinion regarding the protection or human utilization (use) of marine areas in Oregon? **(check *ONE*)**

3% We should fully utilize marine areas with almost no protection
37% We should mostly utilize marine areas with just a little protection
48% We should mostly protect marine areas with just a little utilization
12% We should fully protect marine areas with almost no utilization

10. If you were to be given an opportunity to vote for or against establishing marine reserves in Oregon, how would you vote? **(check *ONE*)**

69% I would vote **for** establishing marine reserves in Oregon
31% I would vote **against** establishing marine reserves in Oregon

11. How certain are you that you would vote this way? **(check *ONE*)**

4% Not Certain 8% Slightly Certain 41% Moderately Certain 47% Extremely Certain

12. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Most people who are important to me would want me to support establishing marine reserves in Oregon.	10%	12%	29%	34%	15%
Doing what most people who are important to me would want me to do matters to me.	14	19	36	23	9
Other people would expect me to oppose establishing marine reserves in Oregon.	18	24	35	19	5
I am usually motivated to do what other people expect me to do.	43	28	21	7	2
The people in my life whose opinions I value the most would want me to favor establishing marine reserves in Oregon.	11	10	37	27	15
Doing what people in my life whose opinions I value the most would want me to do is important to me.	12	16	37	27	9

13. To what extent do you disagree or agree that marine reserves in Oregon would cause each of the following outcomes? **(circle one number for *EACH*)**

On the Oregon coast, marine reserves would …	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
… benefit marine areas in general.	4%	7%	17%	49%	23%
… not be effective in conserving marine areas.	16	45	22	14	3
… protect the diversity of marine species.	3	7	17	52	21
… increase marine species populations.	2	5	21	54	18
… allow depleted marine species populations to recover.	3	6	16	54	22
… cause some species to become overpopulated.	5	24	39	26	6
… improve the economy.	10	21	40	22	8
… increase tourism.	10	17	34	31	9
… benefit people in local communities.	10	17	29	33	11
… prevent people from using the reserve areas.	4	19	25	36	16
… reduce recreational fishing.	4	20	25	35	16
… reduce commercial fishing.	4	13	23	39	22
… improve scientific understanding of marine areas.	3	6	17	50	24
… allow scientists to monitor marine areas over time.	3	3	14	52	28
… improve our understanding of marine areas.	3	4	17	49	27
… be difficult to enforce.	4	19	25	38	15
... cost a lot to manage.	2	15	28	33	22
… improve the ability to manage marine areas.	7	10	26	45	12

14. To what extent do you believe each of the following possible outcomes of marine reserves in Oregon would be bad or good? **(circle one number for *EACH*)**

	Very Bad	Bad	Neither	Good	Very Good
Benefitting marine areas in general would be…	1%	3%	14%	49%	32%
Not being effective in conserving marine areas would be…	21	48	27	4	1
Protecting the diversity of marine species would be…	1	2	13	54	31
Increasing marine species populations would be…	0	2	16	57	25
Allowing depleted marine species populations to recover would be…	1	0	10	48	41
Causing some species to become overpopulated would be…	7	55	31	6	1
Improving the economy would be…	2	1	14	48	35
Increasing tourism would be…	1	3	21	47	28
Benefitting people in local communities would be…	1	3	12	50	34
Preventing people from using the reserve areas would be…	14	35	30	15	6
Reducing recreational fishing would be…	17	45	28	8	2
Reducing commercial fishing would be…	16	36	25	17	7
Improving scientific understanding of marine areas would be…	1	1	14	48	36
Allowing scientists to monitor marine areas over time would be…	1	2	15	49	33
Improving our understanding of marine areas would be…	1	1	14	44	41
Difficult enforcement would be…	11	47	33	7	2
Costly management would be…	26	46	22	5	2
Improving the ability to manage marine areas would be…	4	4	20	53	20

15. Before receiving this survey, were you familiar with the topic of marine reserves in Oregon? **(check *ONE*)** 29% No 71% Yes

16. How well informed do you feel about the topic of marine reserves in Oregon? **(check *ONE*)**

14% Not Informed 41% Slightly Informed 40% Moderately Informed 4% Extremely Informed

17. How knowledgeable do you feel about the topic of marine reserves in Oregon? **(check *ONE*)**

18% Not Knowledgeable 43% Slightly Knowledgeable 37% Moderately Knowledgeable 3% Extremely Knowledgeable

18. Do you believe that each of the following statements related to marine reserves in Oregon is true or false? Circle "U" for "unsure" if you are not sure if the statement is true or false. **(circle one letter for *EACH*)**

In Oregon …	True	False	Unsure
… the government has been considering marine reserves for the past several years.	71%	2%	28%
… the government has approved marine reserves for this state.	46	7	47
… commercial fishing would be allowed in all marine reserves.	2	67	31
… all marine reserves would include coastal lands such as beaches and coastlines.	29	34	37
… the government has established five marine reserve sites.	30	6	64
… new developments such as wave energy or fish farms would be allowed in all marine reserves.	10	36	55
… non-extractive recreation / tourism activities (e.g., surfing, swimming, diving) would be allowed in all marine reserves.	34	25	42
… keeping fish caught in marine reserves would be allowed in all reserves.	3	58	40
… only scientists and no other people would be allowed in all marine reserves.	12	54	34
… there have been opportunities for public involvement in agency discussions about marine reserves.	58	5	37

19. How often have you done each of the following related to marine reserves in Oregon? **(circle one number for *EACH*)**

	Never		Sometimes		Often
A. Read newspaper articles about marine reserves in Oregon.	21%	19%	28%	22%	11%
B. Listened to radio news / programs about marine reserves in Oregon.	37	18	25	14	6
C. Watched television news / programs about marine reserves in Oregon.	35	23	26	11	5
D. Read magazine articles or books about marine reserves in Oregon.	36	23	23	14	5
E. Read about marine reserves in Oregon on government agency websites.	72	13	7	6	2
F. Read about marine reserves in Oregon on social websites (e.g., Facebook, Twitter).	79	11	6	2	1
G. Read about marine reserves in Oregon on any other websites.	71	15	8	5	1
H. Read about marine reserves in Oregon fishing regulations brochures.	52	15	18	11	5
I. Discussed marine reserves in Oregon with government agency employees.	75	10	8	5	2
J. Learned about marine reserves in Oregon from environmental or community groups.	55	17	15	10	2
K. Learned about marine reserves in Oregon from work or school.	67	12	11	7	3
L. Discussed marine reserves in Oregon with friends or family members.	32	20	24	15	9
M. Attended meetings or presentations about marine reserves in Oregon.	71	11	9	6	2

20. From the list in Question 19 (above), please state the ***ONE*** **source** from which you would ***prefer*** to obtain information about marine reserves in Oregon. **(write the letter)**

Letter for source see report Table 20

21. What ***ONE*** agency or organization do you think is currently responsible for marine reserves in Oregon? **(check *ONE*)**

6% National Oceanic and Atmospheric Administration
10% US Fish and Wildlife Service
1% US Coast Guard
5% Pacific Fishery Management Council
1% Oregon Parks and Recreation Department
34% Oregon Department of Fish and Wildlife
5% Oregon Marine Board
38% Unsure

22. How much do you feel that you understand about each of the following? **(circle one number for *EACH*)**

	Do Not Understand		Slightly Understand		Moderately Understand			Fully Understand	
Purpose of marine reserves in Oregon.	7%	5%	18%	14%	17%	22%	9%	4%	4%
How marine reserves would be managed in Oregon.	15	22	18	19	12	9	4	1	1
Rules / regulations of marine reserves in Oregon.	18	22	19	19	9	6	3	3	1
Where marine reserves are located in Oregon.	19	19	16	13	15	8	6	3	2
Role of science in marine reserves in Oregon.	13	10	18	16	16	11	7	6	4
Role of public involvement in marine reserves in Oregon.	18	14	19	19	13	8	5	3	2

23. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

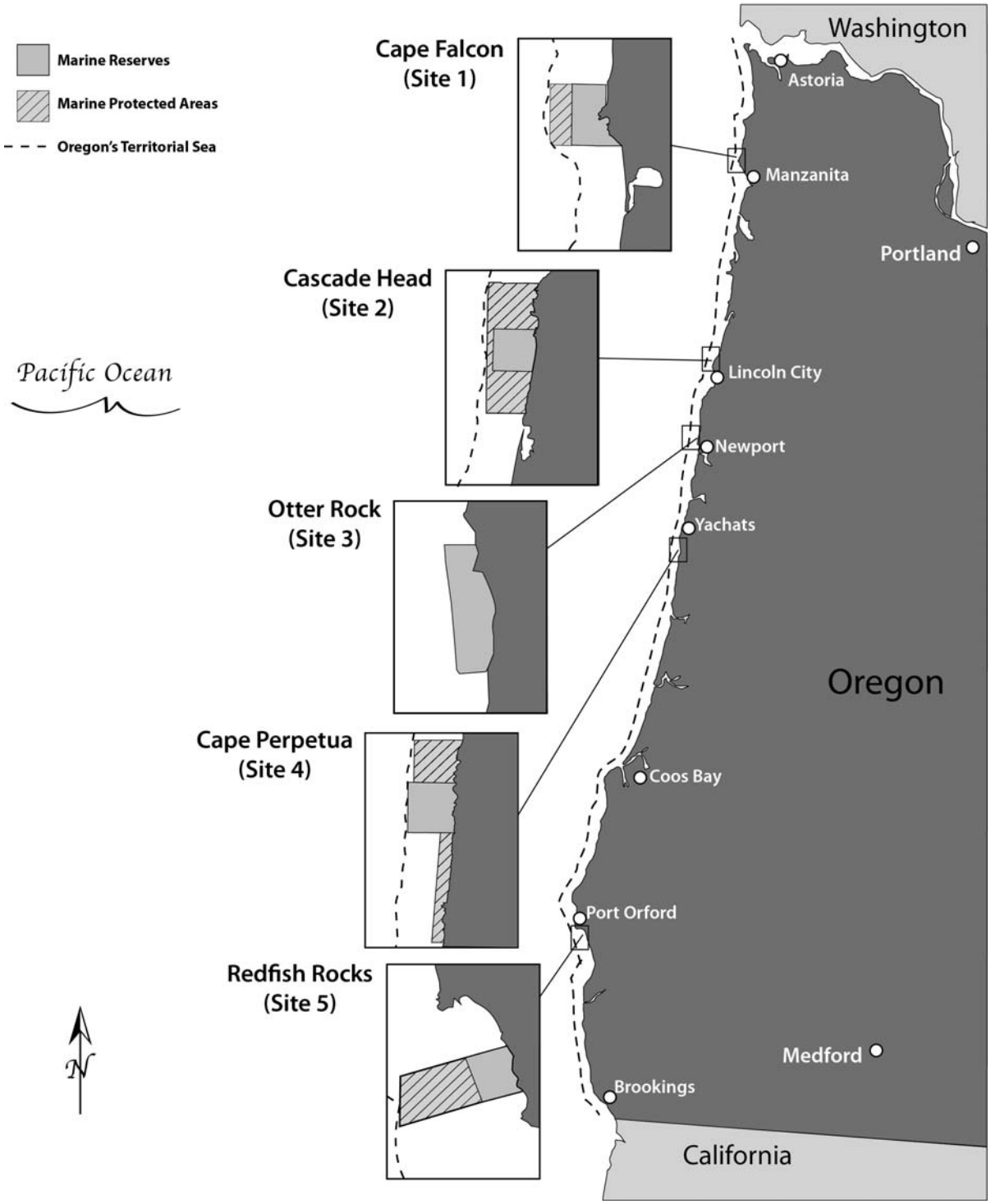
	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Commercial fishing should be allowed in marine reserves in Oregon.	29%	28%	21%	15%	7%
Recreational fishing should be allowed in marine reserves in Oregon.	16	21	25	27	11
Non-extractive recreation / tourism activities (e.g., surfing, swimming, diving) should be allowed in marine reserves in Oregon.	8	10	23	41	18
Scientific research should be allowed in marine reserves in Oregon.	2	1	9	39	49

24. To what extent do you believe that each of the following groups could be impacted by marine reserves in Oregon? **(circle one number for *EACH*)**

	Strongly Harmed by Reserves	Slightly Harmed by Reserves	Not Impacted by Reserves	Slightly Benefit from Reserves	Strongly Benefit from Reserves
People who recreate in marine areas.	12%	32%	26%	22%	9%
People who fish recreationally.	21	38	17	17	7
People who fish commercially.	41	35	8	10	7
Local businesses.	16	25	33	20	6
People who live along the Oregon coast.	12	20	25	26	17
People who *do not* live along the Oregon coast.	3	9	63	17	8
Government agencies.	2	9	41	31	18
Scientists / researchers.	2	3	9	27	60

25. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I intend to support having marine reserves in Oregon.	11%	11%	22%	37%	20%
Managers have done a good job communicating with the public about marine reserves in Oregon.	19	33	34	12	2
I am against establishing marine reserves in Oregon.	32	28	22	10	9
It is easy to access / find information about marine reserves in Oregon.	7	26	50	15	3
I would likely be in favor of implementing marine reserves in Oregon.	11	11	18	40	21


Marine Reserves
Marine Protected Areas
Oregon's Territorial Sea
Cape Falcon
(Site 1)
Cascade Head
(Site 2)
Otter Rock
(Site 3)
Cape Perpetua
(Site 4)
Redfish Rocks
(Site 5)
Pacific Ocean
N
Washington
Astoria
Manzanita
Portland
Lincoln City
Newport
Yachats
Oregon
Coos Bay
Port Orford
Medford
Brookings
California

On the previous page is a map of five marine sites in Oregon. ***These sites are shown as boxes that are lightly shaded or with lines, and are primarily offshore consisting of ocean / sea, not land***. Please answer questions on this page based on these sites.

26. Have you ever visited one or more of the five marine sites identified on the map on the previous page **(*areas offshore that are lightly shaded or with lines, as shown on the map*)**? **(check *ONE*)**

33% No → if no, skip to question 31 below
67% Yes

27. Which of the five marine sites identified on the map on the previous page have you ever visited **(*areas offshore that are lightly shaded or with lines, as shown on the map*)**? **(check *ALL THAT APPLY*)**

22% Site 1 30% Site 2 41% Site 3 35% Site 4 23% Site 5

28. Please check the activities in which you have ever participated at one or more of the five marine sites identified on the map on the previous page **(*areas offshore that are lightly shaded or with lines, as shown on the map*)**. **(check *ALL THAT APPLY*)**

54% ***A.*** Sightseeing
8% ***B***. Swimming
48% ***C***. Viewing marine animals (e.g., birds, whales, sea lions)
39% ***D***. Exploring tidepools
7% ***E***. Surfing / boogie boarding
3% ***F.*** Scuba diving / snorkeling
17% ***G***. Non-charter recreational fishing
9% ***H***. Charter recreational fishing
6% ***I***. Commercial fishing
5% ***J***. Non-motorized boating (e.g., canoe, kayak)
11% ***K***. Motorized boating
5% ***L***. Other (write response) _____

29. From Question 28 above, what ***ONE activity*** have you participated in most often at one or more of the five marine sites identified on the map on the previous page **(*areas offshore that are lightly shaded or with lines, as shown on the map*)**? **(write the letter)**

Letter for activity see report Table 14

30. Thinking about one or more of the five marine sites identified on the map on the previous page **(*areas offshore that are lightly shaded or with lines shown on the map*),** do you disagree or agree with each of the following? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
At least one of these marine sites is very special to me.	3%	4%	21%	18%	16%
At least one of these marine sites is one of the best places for doing what I like to do.	3	4	20	21	12
I am very attached to at least one of these marine sites.	4	6	23	16	13
I would not substitute any other area for doing the types of things that I do in at least one of these marine sites.	5	12	26	10	7
I identify strongly with at least one of these marine sites.	3	6	22	18	12
Doing what I do in at least one of these marine sites is more important to me than doing it in any other place.	5	11	27	11	7

31. If one or more of the five marine sites identified on the map on the previous page **(*areas offshore that are lightly shaded or with lines, as shown on the map*)** is designated as a marine reserve, how unlikely or likely would you do each of the following?

	Very Unlikely	Unlikely	Neither	Likely	Very Likely
Visit the marine sites(s) more often.	19%	23%	37%	18%	4%
Visit the marine sites(s) the same amount.	11	12	31	37	8
Visit the marine sites(s) less often.	19	30	39	8	5
Never visit the marine sites(s) again.	36	20	29	7	7
Participate in a different primary activity in the marine sites(s).	20	23	42	12	4
Go to other nearby or adjacent marine areas instead.	16	23	37	20	5
Go to other marine areas on the Oregon coast instead.	15	22	38	20	6

32. The Oregon Department of Fish and Wildlife is currently responsible for marine reserves in Oregon. To what extent do you disagree or agree with each of the following statements about this agency? **(circle one number for *EACH*)**

I feel that the Oregon Department of Fish and Wildlife …	Strongly Disagree	Slightly Disagree	Neither	Slightly Agree	Strongly Agree
… shares similar values as I do.	6%	11%	28%	45%	9%
… shares similar opinions as I do.	7	13	34	40	6
… shares similar goals as I do.	7	12	36	37	9
… thinks in a similar way as I do.	9	13	42	31	5
… takes similar actions as I would.	10	14	41	29	5

33. To what extent do you disagree or agree with each of the following statements about this agency? **(circle one number for *EACH*)**

I trust the Oregon Department of Fish and Wildlife to …	Strongly Disagree	Slightly Disagree	Neither	Slightly Agree	Strongly Agree
… provide the best available information about marine reserves.	8%	11%	19%	46%	16%
… provide timely information about marine reserves.	9	14	23	40	14
… provide truthful information about marine reserves.	8	10	19	43	21
… provide me with enough information to decide what actions I should take regarding marine reserves.	9	12	25	40	15
… manage marine reserves using the best available information about non-human species in these areas (e.g., fish, birds).	6	11	20	45	18
… manage marine reserves using the best available information about human uses of these areas.	7	12	24	41	16
… work with other organizations to inform management of marine reserves.	6	12	29	41	13
… use public input to inform management of marine reserves.	11	14	27	39	10
… make good decisions regarding management of marine reserves.	9	12	26	39	15

34. Both marine reserves and marine protected areas have been proposed for Oregon. These designations are not the same thing. Do you think each of the following activities would be allowed in Oregon's marine reserves, marine protected areas, both of these types of areas, or neither of these types of areas? Circle "unsure" if you are not sure. **(circle one number for *EACH*)**

	Marine Reserves	Marine Protected Areas	Both Marine Reserves and Protected Areas	Neither Marine Reserves nor Protected Areas	Unsure
Commercial fishing would be allowed in …	3%	7%	7%	53%	32%
Recreational fishing would be allowed in …	8	12	14	31	36
Scientific research would be allowed in …	2	1	80	2	16
Removing any species or habitat would ***NOT*** be allowed in …	10	8	44	11	27
Non-extractive recreation / tourism activities (e.g., surfing, swimming, diving) would be allowed in …	6	7	39	17	31

35. How ecologically healthy do you believe each of the following is in Oregon? **(circle one number for *EACH*)**

	Not Healthy		Slightly Healthy		Moderately Healthy			Very Healthy	
Rivers and streams in Oregon.	2%	7%	9%	11%	24%	22%	17%	6%	2%
Bays and estuaries in Oregon.	2	7	11	15	25	19	16	5	2
Marine areas (ocean) in Oregon.	3	4	7	14	23	19	20	8	3
Marine fish in Oregon.	2	4	8	15	22	18	21	8	4
Other marine animals in Oregon.	1	4	7	13	22	17	22	10	4
Wildlife in Oregon.	2	4	6	11	19	19	25	12	4
Forests in Oregon.	3	5	6	11	17	18	20	13	6

36. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I am aware of impacts that humans can have on marine areas.	1%	3%	9%	60%	28%
My own personal actions can impact marine areas.	3	6	11	52	28
I know that my own behaviors can cause problems in marine areas.	6	13	12	45	24
I feel a personal obligation to help protect marine areas.	1	4	14	49	32
I feel a responsibility to help educate others about protecting marine areas.	2	7	33	41	16
I can do more to help protect marine areas.	3	7	31	41	18

37. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
The needs of humans are more important than those of marine areas.	18%	37%	27%	13%	5%
The primary value of marine areas is to provide benefits for humans.	17	38	22	19	5
Marine areas exist primarily to be used by humans.	25	42	20	11	2
Marine areas should be protected for their own sake rather than to simply meet the needs of humans.	4	10	18	41	27
Marine areas have value whether humans are present or not.	1	2	9	51	37
I would be offended or upset if there were more limits on human use of marine areas.	17	26	25	21	12
Marine areas should have rights similar to the rights of humans.	13	19	33	25	10
I object to fishing, harvesting, or collecting species from marine areas because it violates the rights of these species.	24	32	24	13	8
The economic values that marine areas provide for humans are more important than the rights of species in these marine areas.	19	38	27	11	5
It is important to take care of marine areas for the future.	0	0	6	49	45
It is important that healthy marine areas exist.	0	0	5	46	49
It is important that future generations can enjoy marine areas.	0	0	5	47	47
I enjoy learning about marine areas.	0	2	21	47	30
It is important that people have a chance to learn about marine areas.	0	1	9	55	35
It is important that we learn as much as we can about marine areas.	0	1	12	53	34
I do *not* enjoy going to marine areas.	56	30	10	4	2
Some of my most memorable experiences occurred in marine areas.	3	7	34	32	24
Visiting marine areas is one of the reasons I take trips outdoors.	4	8	31	36	21

38. To what extent do you disagree or agree with each of the following statements? **(circle one number for *EACH*)**

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Humans have the right to modify the natural environment to suit their needs.	28%	36%	18%	14%	5%
Humans were meant to rule over the rest of nature.	36	32	15	12	5
The so-called ecological crisis facing humankind has been greatly exaggerated.	31	30	18	14	6
The earth has plenty of natural resources if we just learn how to develop them.	18	23	19	31	9
The balance of nature is very delicate and easily upset.	2	7	16	46	29
When humans interfere with nature, it often produces disastrous consequences.	3	10	18	42	28
Plants and animals have as much right as humans to exist.	9	12	19	35	25
Humans are severely abusing the environment.	6	13	14	37	30

39. Below are three separate groups of goals that people might prioritize differently.
For EACH group, please RANK the four goals in order of importance to YOU (NO TIES). That is:

1 = the goal that is most important to YOU
2 = the 2nd most important goal
3 = the 3rd most important goal
4 = the least important goal

Group 1. Rank these four goals from 1= most important to 4 = least important.
NO TIES **(DO NOT GIVE ANY OF THESE FOUR ITEMS THE SAME RANK).** **Rank**

- Maintain a high level of economic growth. average = 2.12
- See that people have more to say about how things are done at their jobs and in their communities. average = 2.30
- Make sure this country has strong defense forces. average = 2.72
- Try to make our cities and countryside more beautiful. average = 2.88

Group 2. Now repeat for this next set of four goals (1= most important, 4 = least important).
NO TIES **(DO NOT GIVE ANY OF THESE FOUR ITEMS THE SAME RANK).** **Rank**

- Maintain order in the nation. average = 2.70
- Give people more to say in important government decisions. average = 2.24
- Fight rising prices. average = 3.04
- Protect freedom of speech. average = 2.01

Group 3. Now repeat again for this final set of four goals (1 = most important, 4 = least important).
NO TIES **(DO NOT GIVE ANY OF THESE FOUR ITEMS THE SAME RANK).** **Rank**

- Maintain a stable economy. average = 1.99
- Progress toward a less impersonal and more humane society. average = 2.39
- Fight crime. average = 2.96
- Progress toward a society in which ideas count more than money. average = 2.63

40. Are you: **(check *ONE*)** 58% Male 42% Female

41. What is your age? **(write age)** see report Table 43 years old

42. Approximately how many years have you lived ***in Oregon***? **(write the number)** see report Table 44 year(s)

43. Approximately how many years have you lived ***on the Oregon coast***? **(write the number)** see report Table 44 year(s)

44. Do you own or rent / lease the residence where you currently live? **(check *ONE*)** 75% Own 23% Rent / Lease 2% Other

45. Approximately how many years have you lived ***at this current address***? **(write the number)** see report Table 44 year(s)

46. Are you or anyone else in your household employed in the commercial fishing industry? **(check *ONE*)** 95% No 5% Yes

47. Are you a member of any environmental or marine related organizations (e.g., Sierra Club, Ducks Unlimited)? **(check *ONE*)**
85% No
15% Yes → if yes, what organization(s) are you a member of? **(write response)** _____

48. What is the ***highest*** level of education that you have achieved? **(check *ONE*)**
1% Less than high school diploma
28% High school diploma or GED
28% 2-year associates degree or trade school
24% 4-year college degree (e.g., bachelors degree)
20% Advanced degree beyond 4-year degree (e.g., masters, Ph.D., medical doctor, law degree)

THANK YOU! PLEASE RETURN THIS COMPLETED SURVEY AS SOON AS POSSIBLE IN THE ENCLOSED ADDRESSED AND POSTAGE-PAID ENVELOPE