

## **Findings Abstracts**

# **Value Orientations, Awareness of Consequences, and Participation in a Whale Watching Education Program in Oregon**

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Whale watching is a popular and economically important tourism activity that generates at least \$1 billion in annual revenue worldwide (e.g., tours, accommodation, souvenirs) (Hoyt, 2001). Each year, more than nine million people participate in this activity in over 87 countries (Finkler & Higham, 2004; Hoyt, 2001). Although boat-based whale watching is prevalent in many countries, shore-based viewing is becoming popular, and expenditures from these tourists have a substantial impact on local revenue in several places. In Oregon, for example, shore-based whale watching generates over \$1.9 million and attracts more than 126,000 participants each year, double the number of boat-based whale watchers in the state (Hoyt, 2001). Several studies have examined the human dimensions of boat-based whale watching (e.g., Duffus & Dearden, 1993; Orams, 2000). Comparatively little research, however, has focused on shore-based whale watching (e.g., Finkler & Higham, 2004). This findings abstract addresses this knowledge gap.

Whale watching tours and outreach programs provide information and education about marine, wildlife, and conservation issues. Environmental educators believe that these types of tours and programs: (a) influence participants' experiences and perceptions of the environment and species that are the subject of such programs, and (b) facilitate responsible environmental behavior. Environmental education studies have identified several factors that influence pro-environmental behavior including knowledge, attitudes, locus of control, personal responsibility, and verbal commitment (e.g., Hines, Hungerford, & Tomera, 1986; Hwang, Kim, & Jeng, 2000). The social psychology literature has demonstrated that similar factors directly or indirectly influence behavior such as values, value orientations, attitudes, awareness of consequences, and intentions (e.g., Fishbein & Ajzen,

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1975; Fulton, Manfredo, & Lipscomb, 1996; Schwartz, 1977). Value orientations, for example, strengthen fundamental values and are defined by the pattern of direction and intensity among a set of beliefs about an issue (Fulton et al., 1996). Research suggests that wildlife value orientations can be arrayed along a continuum from anthropocentric (i.e., human-centered, utilitarian view of the world) to biocentric (i.e., nature-centered view) (Vaske & Donnelly, 1999). Awareness of consequences is the tendency to become aware of consequences of our behavior on other people, places, and things, and may also shape or strengthen beliefs about how to behave and intentions to behave (Schwartz, 1977).

This findings abstract uses data from individuals who did and did not participate in Oregon's "Whale Watching Spoken Here" marine outreach program to examine the extent to which participation in this program is related to respondents' value orientations and awareness of consequences of personal actions toward the environment in general and whales in particular.

The "Whale Watching Spoken Here" outreach program is offered free of charge to shore-based whale watchers in Oregon. Every year, Oregon Parks and Recreation Department offers this educational program at 28 sites along the Oregon coast during the last week of March and December, and at four sites during the last week of August. These times coincide with the spring, winter, and summer breaks for Oregon schools, and some of the best times to view gray whales (*Eschrichtius robustus*) migrating along the coast. The program is carried out by volunteers (i.e., docents) who receive training to educate participants about whales and the marine environment. Approximately 25% of Oregon's shore-based whale watchers participate in this program.

Data were obtained from on-site visitor surveys administered during the last week of March 2005, December 2005, and March 2006 as part of a larger study conducted at seven sites along the Oregon coast between Cape Perpetua Scenic Area and Boiler Bay State Park. These sites included a Bureau of Land Management outstanding natural area, a scenic area, two interpretive centers, and several state parks. All sites were on the coast and high above the ocean to make it easier for participants to spot whales. Between 10:00 a.m. and 1:00 p.m., there were docents at each site with a sign indicating that they belonged to the "Whale Watching Spoken Here" program. Docents had binoculars/spotting scopes, a small collection of artifacts (e.g., models, baleen, food samples), and printed materials to use when communicating with visitors. Docents informally interacted with visitors by asking and answering questions, explaining how to spot whales, pointing out locations and times of whale sightings, showing artifacts, and providing information about the marine environment, whales, and other wildlife.

Across the seven sites and three data collection periods, 229 visitors completed the survey on-site (response rate=75%). In total, 66% of respondents completed the survey after participating in the "Whale Watching Spoken Here" program by speaking with docents; 34% of respondents had not participated in this educational program before completing the survey.

Respondents were asked the extent to which they disagreed or agreed with eight belief statements about whales and the marine environment (e.g., the marine environment requires our protection, it is important to protect whales, my daily actions affect whales; Table 1). Responses were measured on 5-point scales of 1 "strongly disagree" to 5 "strongly agree." On average, respondents who spoke with a "Whale Watching Spoken Here" docent were significantly more likely to agree that their daily actions affect whales and the marine environment, whales are important for Oregon, it is important to protect whales and the marine environment, and it is important to spend money to protect whales,  $t(189 \text{ to } 193) = 2.01 \text{ to } 3.87, p = .046 \text{ to } < .001$  (Table 1). Effect sizes ( $r_{pb} = .14 \text{ to } .27$ ) suggested that differences between those who did and did not participate in this program were small to medium (Cohen, 1988) or minimal to typical (Vaske,

**Table 1**

Differences in beliefs between visitors who did and did not speak to a “Whale Watching Spoken Here” volunteer/docent before completing the survey

	Spoke with volunteer/docent <sup>a</sup>		<i>t</i> -value	df	<i>p</i> -value	Effect size ( <i>r</i> <sub>pb</sub> )
	No (34%)	Yes (66%)				
Value orientation belief statements						
The marine environment requires our protection	4.50	4.51	0.15	191	.880	.01
It is important to protect the marine environment	4.46	4.62	2.01	193	.046	.14
It is important to protect whales	4.44	4.65	2.88	193	.004	.20
It is important to spend money to protect whales	3.95	4.19	2.12	189	.036	.15
Whales are important for Oregon	3.89	4.32	3.87	191	<.001	.27
Whales need a healthy marine environment to survive	4.52	4.63	1.29	194	.200	.09
Awareness of consequences belief statements						
My daily actions affect whales	3.49	3.78	2.19	190	.029	.16
My daily actions affect the marine environment	3.79	4.13	2.85	192	.005	.20

<sup>a</sup>Cell entries are means on a 5-point scale of 1 “strongly disagree” to 5 “strongly agree.”

Gliner, & Morgan, 2002). Compared to respondents who did not participate in the program, those who did participate were also more likely to agree that the marine environment requires protection and that whales need a healthy environment to survive, but these differences were not statistically significant,  $t(191 \text{ to } 194) = .15 \text{ to } 1.29$ ,  $p = .200 \text{ to } .880$ ,  $r_{pb} = .01 \text{ to } .09$ .

A principal components exploratory factor analysis with varimax rotation was conducted on responses to these eight belief statements. This produced two underlying factors: (a) value orientations toward whales and the marine environment (6 items, eigenvalue=3.97, Cronbach alpha reliability coefficient=.84), and (b) awareness of consequences associated with human behavior on whales and the marine environment (2 items, eigenvalue=1.25, alpha=.81; Table 1). All variable loadings exceeded .40 and were significant at  $p < .001$ , and deletion of any item from its respective factor did not improve reliability. A K-means cluster analysis of these factor items revealed two groups of respondents—those who had: (a) a strong biocentric orientation and awareness of consequences (cluster 1, 46%), and (b) a weaker biocentric orientation and awareness of consequences (cluster 2, 54%). The majority of respondents who spoke with a “Whale Watching Spoken Here” docent (53%) belonged to cluster 1 and had a strong biocentric orientation and awareness of consequences (Table 2). Conversely, 66% of respondents who did not participate in this program belonged to cluster 2 and had a weaker biocentric

**Table 2**

Percentage of visitors in each cluster who did and did not speak to a “Whale Watching Spoken Here” volunteer/docent before completing the survey

Cluster group	Spoke with volunteer/docent <sup>a</sup>		Total
	No (34%)	Yes (66%)	
Cluster 1: strong biocentric orientation and awareness of consequences	34	53	46
Cluster 2: weaker biocentric orientation and awareness of consequences	66	47	54

<sup>a</sup>Cell entries are percentages.  $\chi^2(1, N=183)=5.39, p=.020, \phi=.17$ .

orientation and awareness of consequences. Differences among groups were statistically significant,  $\chi^2(1, N=183)=5.39, p=.020, \phi=.17$ .

Taken together, results showed that compared to visitors who did not participate in the “Whale Watching Spoken Here” program before completing the survey, those who did participate in this program by communicating with a docent were more likely to believe that whales and marine areas are important and require protection. Visitors who participated in the program also had stronger biocentric value orientations and were more aware of consequences of their own actions on whales and the marine environment. It is difficult to determine, however, if participation in this program had a causal influence on shifting respondents’ beliefs to a stronger biocentric orientation and increasing awareness of consequences of human behavior on whales and the marine environment. It is possible that respondents with a strong biocentric orientation and awareness of consequences were more likely to participate in this program simply because they may have been more motivated to learn about marine and wildlife issues. Longitudinal or panel data (e.g., pre, post program) and experimental designs are needed to determine if, how, and to what extent participation in the “Whale Watching Spoken Here” outreach and education program actually changes participants’ beliefs about whales and marine environments.

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