Attitudes Toward Marine Wildlife Among Visitors to an Urban Science Museum

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ATTITUDES TOWARD MARINE WILDLIFE AMONG VISITORS TO AN URBAN SCIENCE MUSEUM

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Cultural Diversity and Attitudes Toward Marine Wildlife
Jennifer R. Wolch • PRINCIPAL INVESTIGATOR

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1. INTRODUCTION

As the coastal urban population has grown both in numbers and diversity, environmental impacts and cross-cultural conflicts have also increased (Burdge 1996, Richards and Creasy 1996, Addessi 1994). While it is important to recognize that the dominant population group (whites of European descent) has a major impact on the coastal environs due primarily to the unsustainable political-economic system in which they are embedded; other impacts and conflicts result from a wide variety of nature-culture traditions co-existing in one geographic locale. The focus of this study is to enhance understanding of a key element of this dilemma: diverse cultural attitudes toward marine wildlife. For the purpose of explicating attitudes toward marine wildlife a conceptual framework has been created that links global, local, and individual level influences on attitude formation. Global-level influences include economic restructuring, increased environmental degradation, diverse cultural attitudes toward nature-society relations, and global social movements around animals; while local level influences include local governments and institutions. Global and local influences interrelate with personal characteristics such as: demographic features, shaping an

individual's knowledge about animals, their interactions with particular animals, and their preferences for specific species. Finally, the intermingling of global, local, and personal influences ultimately produces an individual's attitudes toward animals: in this case, marine wildlife.

For this study, the conceptual framework was operationalized by means of expert interviews and a survey (hereafter referred to as the Attitudes Toward Marine Wildlife Survey (ATMW) or simply "the survey"). The survey was conducted at a museum in urban Los Angeles. The survey instrument focused on the individual level portion of the conceptual model. Themes and questions were designed to reveal an individual's knowledge, preferences, interactions, and ultimately, attitudes about marine wildlife.

The purpose of this chapter is to describe the basic survey results.[1] The next section of this chapter will describe the survey sample, followed by an analysis of each major section of the survey: respondents' museum , aquaria, and marine experiences; knowledge levels; interactions with marine wildlife; and their preferences for marine animals. Responses to a series of attitudinal questions concerning marine wildlife will be assessed next, followed by a description of respondents' cross-cultural attitudes. A final section summarizes these basic findings.

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[1] See Appendix A for complete survey results.

2. DEMOGRAPHIC, SOCIOECONOMIC, AND LOCATIONAL CHARACTERISTICS

Summary

The ATMW Survey asked respondents questions regarding their demographic characteristics, socioeconomic status, and residential location. Results revealed a culturally diverse, relatively young and well-educated respondent sample, with females slightly out-numbering males. While most respondents were white and born in the United States, there were a significant number of a variety of other groups represented as well as foreign-born respondents. Most of the museum visitors surveyed had lived in Southern California for over 20 years and resided in the Greater Los Angeles area. Income levels ranged between $20,000 and $80,000 annually, with almost one-fifth of respondents earning less than $20,000 per year. In addition, the majority of respondents had children and lived in a two-parent household.

2.1 *DEMOGRAPHICS*

Slightly more female respondents than males were represented, and over three-quarters of respondents were under 44 years old (specifically, 56.2% were between 25 and 44 years of age). The sample was predominantly white native English speakers born in the United States, yet there was a sizable number of people of color in the sample, as well as non-native English speakers, and non-English home language, and foreign- born population. In this section on demographics, all references

to 1990 (census) data, unless otherwise specified are from the *1990 Census of Population Social and Economic Characteristics, California.*

Gender

Analysis of the demographic items on the survey reveals a fairly even representation of males and females. However the percentage of females surveyed (52.6%) was slightly greater than the percentage of males (47%), yet is comparable with statistics for Los Angeles County where 50.1% of the population was female and 49.9% male as of 1990 (Hall and Gaquin 1997).

Age

Due to restrictions established by museum policies, visitors under 18 years of age were eliminated from participation in the survey, thus the ages ranged from 18 to 79 years old. Ages were grouped according to 1990 census question groupings. The highest percentage of respondents were those who were 25 to 34 years old (30.6%), slightly higher, but not dramatically different from the 26.8% of Los Angeles county residents who in 1990 were over 18 years old and were between the ages of 25 to 34.

The next largest block were the 35 to 44 years old (25.6%), followed by the 18 to 24 years old (21.9%), and only 10.8% of the sample were between 45 and 54 years old. These figures are somewhat comparable to the percentage of Los Angeles county residents over 18 years of age, specifically, 20.5% were between 35-44 years old, 16.7% were between 18-24 years of age, and 12.9% between 45-54 years old.

The greatest majority (52.5%) (when combining groups) were respondents who were between 18 and 34 years old, while only 7.8% of all respondents were over the age of 55. In comparison, 43.5% of Los Angeles County residents over 18 years were between 18-34 years old, but 23% were 55 and over. Older age groups (over 75) may be less likely to be represented in a visitor survey sample due to mobility impairments.

"Race"/ethnicity

Slightly less than half (48.2%) of the respondents reported their race/ethnicity as white (non-Hispanic), while 41.9% claimed minority racial/ethnic group status. Of the total sample, Hispanics made up 24.1% , blacks 9.1%, Asians 7.1%, and American Indians 1.6%. It should be noted that 9.9% either claimed "other" or did not answer the question. The 1990 Census indicates the ethnic make-up of Los Angeles County in 1990 was: white (non-Hispanic): 40.8%, Black (non-Hispanic): 10.5%, Asian: 10.8%, Hispanic : 37.8%, and American Indian and other: 0.5% (Turner and Allen 1990). While the 1990 census figures indicate some differences between the racial/ethnic make-up of Los Angeles county and the groups represented by survey respondents, e.g., there are more whites in the survey respondent group and fewer Hispanics than in the Los Angeles county figures; nonetheless, there are some strong similarities. The percentages of Blacks and Asians of both Los Angeles county and survey respondents are closely comparable.

Nativity and Language

While almost three-quarters of the sample (71.9%) were born in the United States, almost one-quarter (23.7%) were foreign-born. Foreign-born respondents were from a wide variety of countries with most hailing from Latin America, especially Mexico. A significant number of respondents were born in Asia, and only a few respondents claimed Europe and the Middle East as their place of birth. In comparison, in Los Angeles County 33% of the population was foreign-born in 1990.

The vast majority of respondents (70.8%) stated that English is their home language. However, of those who spoke a language at home other than English, 78.7% spoke Spanish and 14.9% spoke an Asian language. It should be noted that 10.7% of the respondents did not answer this question. This compares quite closely to 1990 census data, which reveal that English was spoken at home by 55% of the population of Los Angeles County, Spanish was spoken at home by 77% of those who speak a language other than English at home, while 16% of this latter group spoke an Asian language at home.

As for speaking a second language, almost half the respondents stated that they did not speak any other language (45.9%), however, Spanish and English were the most frequently marked as the "other" language spoken.

In response to the question on religious/philosophical beliefs approximately three-fourths of all respondents marked a specific type of Christian religion; 28.5% marked "other Christian" and 26.9% chose

Catholic. The significant share of Catholic responses is most likely correlated with the large proportion of Hispanic respondents.

A table of sample demographic characteristics illustrates specific categories (see Table 1).

Table 1:
Sample Demographic categories

Demographic	Categories	Percent
Age	18-24 years old	21.9
	25-34 years old	30.6
	35-44 years old	25.6
	45-54 years old	10.8
	over 55 years old	7.8
Gender	Male	47
Race/Ethnicity	White (Non Hispanic)	48.2
	Hispanic	24.1
	Black	9.1
	Asian/Pacific Islander	7.1
Nativity	United States	71.9
	Asia	5.2
	Latin America	14.7
	Other countries	9.2
Home Language	English	70.8
	Spanish	14.6
	Asian	2.8

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Table 1: (continued)
Sample Demographic categories

Demographic	Categories	Percent
Other language spoken	Spanish	23.3
	English	16.2
	Asian	3.6
	Other	11.2
	No second language	45.9
Religion	Catholic	26.9
	Protestant & "Other Christian"	46.7
	Jewish	4.7
	Buddhist	3.6
	Agnostic/Atheist	8.3
	other	6.7

2.2 *SOCIOECONOMIC STATUS*

The survey sample was generally well-educated but of mixed economic status. Three-quarters of the respondents had attended college, over 75% had incomes above $20,000, and close to half had incomes above $50,000.

Education

Three-quarters of respondents stated that they had attended college, in contrast to 12.6% who had completed high school, and 11.1% who did not have a high school diploma. Almost half of the respondents (43.8%) were either college graduates (22.5%) or had a graduate degree (21.3%). These are significantly higher educational levels than those for Los Angeles County in 1990; 27% of the general county population were

without a high school diploma, 23% were high school graduates, 29% had some college (including A.A. degrees), while 14% were college graduates and 7% had a graduate degree.

Income

The vast majority of respondents had household incomes of over $20,000 per year with close to half claiming incomes above $50,000. Almost one-third (31.2%) were in the $20,000 to $49,000 annual income group, and close to one-fifth (18.2%) had incomes under $20,000 annually. (See Table 2)

Table 2:
Sample Socio-economic Categories

Socio-economic Status	Categories	Percent
Education	No high school diploma	11.1
	High school graduate or GED	12.6
	Some college	31.2
	College graduate	22.5
	Graduate degree	21.3
Household Income	Less than $20,000/year	18.2
	$20-49,000/year	31.2
	$50-79,000/year	23.7
	$80,000/year and up	22.9

2.3 *LOCATIONAL CHARACTERISTICS*

Most visitors had lived in Southern California for over 20 years, and are thus long term residents of the region. Almost all resided in the Greater Los Angeles area.

Duration of residence

Over half of the respondents (52.2%) had lived in Southern California for over 20 years, while 34% had lived here between 6 to 20 years. Recent arrivals of (less than five years) make up 12.2% of the sample, with 7.9% stating that they have lived here less than two years.

Community of Residence

Virtually all of the visitors resided in the Southern California area especially in Los Angeles, Ventura, and Orange Counties. San Bernadino, Riverside, Santa Barbara, Kern, and San Diego counties also had a small representation within the sample, however. Overall, 77.6% of respondents resided in Los Angeles County, 16.4% were located in the other Southern California counties, and 6% of the visitors surveyed resided out of the Southern California area.

The vast majority of visitors resided in Los Angeles County. Residence by regional subareas, which closely approximate those used by the Los Angeles County Planning Department,[2] was strongly weighted toward the central portions of the county. Over 40% of the sample resided in the West, Central, East Central, Southeast, South, and Southwest areas of the Greater Los Angeles area (see Appendix A for city/region correspondences). The highest percentage of respondents (20.8%) lived in the Central area. Another well-represented area was the West San Gabriel Valley (11.2%), while 7.6% resided in the San Fernando Valley.

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[2] See Appendix B, Los Angeles County Department of Planning Regional Chart.

Rural/urban background

Almost 80% of the respondents stated that they grew up in a city or town. Only 16.6% claimed a country or rural background. Table 3 illustrates sample locational characteristics.

Table 3:
Sample Locational Characteristics Categories

Locational Characteristics	Categories	Percent
Duration of Residence in Southern California	Over 20 years	52.2
	11 to 20 years	23.3
	6 to 10 years	10.7
	2-5 years	4.3
	Less than 2 years	7.9
Community of Residence	Central & East Central (Los Angeles)	22.4
	Southwest, Southeast & South (Los Angeles)	19.6
	San Gabriel Valley (West & East)	16
	San Fernando & Burbank/Glendale	12
	West (Los Angeles)	6.8
	Other Southern California counties	16.4
Rural/urban background	city/town	79.1
	country/rural	16.6

3. MUSEUM, AQUARIUM, AND MARINE EXPERIENCES

The museum where the survey was conducted was a collaborative partner in this research effort. Therefore the survey included questions

which were relevant to the museum, and which also served as an appropriate "warm-up" section in the survey. Analysis of these questions showed that respondents came to the museum primarily in family groups either for the purpose of a family outing (33.2%) or to see an IMAX show (22.5%). Over 40% visit 1-3 times per year with an additional 25.3% who visit 4 times or more per year. In addition, most respondents visit museums, science centers, zoos, aquaria, or nature centers between 1 and 4 times per year.

Respondents were also asked what they liked and disliked about their last visit to an aquarium (Table 4). Viewing aquarium tanks filled with fish and sea life was chosen as what was "liked best" by 27.7% of respondents and 18.6% chose touch pools. The perception that "animals were not properly cared for" was marked as what respondents liked least (18.6%). It is interesting to note, however, that when the responses to "animals in captivity" (12.3%) and "animals not in natural environment" (11.5%) are combined, the resulting percentage (23.8%) becomes the highest overall response. This may suggest that issues of removing animals from their natural environment may be important to respondents. This is particularly significant since the majority of respondents had never been a member of any animal welfare/rights, environmental, or wildlife organization, nor had they participated in activities promoting wildlife or the environment.

Table 4:
What Respondents liked best and least about prior aquarium visit.

Thinking about your last visit to an aquarium:

What did you like BEST?	Percent	**What did you like LEAST?**	Percent
Aquarium tanks	27.7%	Animals not properly cared for	18.6%
Touch Pools (with sea creatures)	18.6%	Too noisy or crowded	17%
Live sea lion or sea otter feedings	15%	Too Expensive	14.2%
Learn about natural environment	9.9%	Animals in Captivity	12.3%
Learn about science	7.9%	Animals not in natural environment	11.5%
Other live animal show	6.3%	Animals should not be touched	5.1%
Other	13%	Other	5.5%
No Answer *Frequency missing = 0*	1.6%	No Answer	15.8%

When it comes to learning about the ocean environment, respondents were interested in how the ocean is explored (35.2%) and how to protect the ocean (23.3%). Respondents were also most interested in learning about whole communities of plants and animals (73.9%) (versus individual plants and animals) and about plants and animals in other parts of the world (65.2%) rather than local flora and fauna.

As for where respondents learn new things about science, television and museums/aquariums/zoos are tied (66.0%), with magazines (56.5%) as the second most popular source. The high percentage of respondents who indicated television as a source is not a surprise given the powerful impact on the general population of this medium. Acknowledging that this is a self-selected sample (they have chosen to come to the museum), nonetheless, it is relevant that museums/aquaria/and zoos scored on a par with television.

Inquiries about visitors' beach-going activities showed that most visited the beach a few times per year and claimed that their favorite marine activity was simply "going to the beach." Going to a public aquarium/marine theme park was the next most popular choice.

4. KNOWLEDGE ABOUT MARINE WILDLIFE

A variety of questions dealt with factual knowledge concerning marine wildlife. The questions were designed to incorporate underlying categories which would reflect respondents' knowledge about: taxonomy of marine species, biological characteristics, endangerment of species, local issues, and ecological issues. Some questions contained more than one category. In addition, four animal groups: fish, birds, marine mammals, and invertebrates, were represented in the questions. Specific animals mentioned in the questions are currently, or were historically[3]

[3] Sea otters were historically found off of the Channel Islands and Catalina Island, and while not currently resident in the area, most people are familiar with them.

local to the Southern California coastal area. Questions were posed in "true/false" format. A simple knowledge score was created based on each respondent's number of correct answers to this set of questions. The maximum possible score was 100%. Very few respondents (1.7%) achieved this maximum score but conversely an even smaller number (0.9%) scored in the lowest percentile of achieving 20% of correct answers. The majority (69.4%) of respondents' scores ranged between 60-80% correct; specifically, 24.1% answered 60% of the questions correctly, 24.6% received a correct score of 70%, and 20.7% answered 80% correctly.

For the overall categories, the highest score was reflected by the one ecological question which concerned the impact of commercial fishing on ocean wildlife, which 83.8% of respondents answered correctly. Knowledge scores for taxonomic, endangerment issues and local knowledge categories were also relatively high—76.64%, 74.67%, and 70.9% (respectively) responses to these categories were correct. Knowledge of biological characteristics was the category in which the lowest percentage of respondents answered questions correctly (61.5%). The taxonomic category response may be somewhat misleading as one question asking if dolphins were mammals, received the highest correct score of all the knowledge questions (92.43% answered it correctly), while at the same time another taxonomic question, which queried if sea turtles were amphibians, received the second lowest score (of all of the knowledge questions). The popularity of dolphins could account for this difference.

In addition to the sea turtle question, the two other questions that most respondents answered incorrectly asked about an endangerment issue: ("sea otters were almost made extinct by oil spills)" and a local knowledge/ biological characteristics question: ("grunion runs occur at low tide"). Two-thirds and 56.4% respectively, answered these questions correctly. These results suggest that while individuals may be aware that a particular species is endangered, they may be unclear as to the actual cause of endangerment (in this case it was due to over-hunting). The comparatively low score on the grunion question supports the overall findings of the lower ranking of knowledge of biological characteristics in the knowledge categories.

As for questions relating to specific animal groups, questions regarding marine mammals averaged the highest scores (76.0%) for correct answers, although the only question which dealt with birds received the single highest score of all (79.03% answered it correctly). However, the "bird" question asked if pesticides were a major factor in the decline of Brown Pelicans, and therefore may reveal more knowledge about endangerment issues (brown pelicans and pesticides have been well publicized for many years in Southern California) than specific knowledge about birds. The high response to marine mammals on the other hand, may truly indicate a greater knowledge about them as they are very popular animals who, as we will see later, respondents often felt were "fellow beings."

Questions about topics which related to fish and invertebrates exhibited lower average scores as 70.1% and 71.8% of these questions were answered correctly. These are animals with which people may not feel a close association.

The following table (Table 5) lists the knowledge questions used in the survey instrument and the percentage of correct and incorrect responses by respondents.

Table 5:
Knowledge Questions

Knowledge Section Questions	Correct Answer	Incorrect Answer
1. Pesticides were a major factor in the decline of Brown Pelicans. *(Correct answer is "True.") Missing=5*	79%	21%
2. The gray whale is a threatened or endangered species. *Correct answer is "True.") Missing=3*	78.4%	21.6%
3. Sea Otters were almost made extinct by oil spills. *(Correct answer is "False.") Missing=4*	33.3%	66.7%
4. Dolphins are mammals. *(Correct answer is "True.") Missing=2*	92.4%	7.6%

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Table 5: (continued)
Knowledge Questions

Knowledge Section Questions	Correct Answer	Incorrect Answer
5. Commercial fishing does not have a strong effect on ocean wildlife because their populations are so large. *(Correct answer is "False.") Missing=5*	**83.9%**	**16.1%**
6. Sea turtles are amphibians. *(Correct answer is "False.") Missing=5*	**36%**	**64%**
7. It is safe to eat local shellfish harvested in the summer-time. *(Correct answer is "False.") Missing=2*	**78.1%**	**21.9%**
8. Grunion runs occur at low tide. *(Correct answer is "False.") Missing=10*	**43.6%**	**56.4%**
9. A mussel is a mollusk. *Correct answer is "True.") Missing=4*	**73.5%**	**26.5%**
10. Unlike seals, sea lions can move their rear flippers forward, so they can use all four limbs to walk on land. *Correct answer is "True.") Missing=8*	**66.5%**	**33.5%**

5. MARINE WILDLIFE PREFERENCES

Respondents were given a list of fifteen animals and asked to indicate how strongly they liked or disliked the animals (on a five-point Likert scale) and "why" they felt this way. In terms of liking of disliking the marine animals, the majority of the respondents indicated that they liked most of the animals. "Interesting," "attractive" and "no opinion" were the most frequently given responses as to "why".

5.1 *PREFERENCES FOR SELECTED MARINE ANIMALS*

Responses analyzed according to animal groups revealed marine mammals to be the most well-liked grouping (by 84.9% of the respondents). Over half of all the respondents liked animals in the invertebrate (63.8%) and bird (57%) groups, while only slightly more than one-third of the sample chose "like" responses for fish (36.3%). The four top favorite marine animals were: dolphins (91.7%), whales (85.8%), sea lions (83.4%), and sea otters (79%). Two marine mammals, dolphins and whales, were the only animals that the majority of respondents marked "strongly like" (74.7% and 60.1% respectively). Sea lions were chosen as "strongly liked" by 47.4% of the museum visitors. And not a single respondent chose any of the "dislike" responses for dolphins (it was the only animal that achieved zero percent in this area). It is interesting to note that these animals are most apt to be seen as "fellow beings" (and also received the highest percentages in that "why" response category, too), while animals most different from people received lower scores.

Well over half of respondents had "no opinion" about cormorants (60.9%), grunion (58.1%), and kelp bass (57.3%). Abalone and sea urchins also had "no opinion" as the highest of their individual "like/dislike" percentages. These animals are not only more different from people than the other animals on the list, but also, as in the case of the cormorant, less often seen.

While no animals were described as disliked by a majority of respondents, the few animals that received any percentage of responses in that area were animals that are often perceived as dangerous to humans or "pest" species. These animals were: sharks, who were disliked by 15.4% of the respondents, jellyfish (14.7%) and sea gulls (11.1%). Only 6.3% disliked octopus, and all other "dislike" scores were extremely low, in the 0-5% range. Table 6 lists the marine animals used in the survey and the visitors responses of "like/dislike."

Table 6:
Marine Wildlife Preferences

Marine Animal	Strongly Like	Like	No Opinion	Dislike	Strongly Dislike
Starfish *No answer 3.6%*	3.4%	50.2%	11.5%	0	0.4%
Pelicans *No answer 4%*	25.7%	49%	16.6%	3.6%	1.2%
Sea Lions *No answer 8.3%*	47.4%	36%	7.9%	0.4%	0
Dolphins *No answer 5.1%*	74.7%	17%	3.2%	0	0
Sharks *No answer 4.7%*	30.8%	35.2%	13.8%	10.3%	5.1%
Kelp Bass *No answer 4%*	13.4%	23.3%	57.3%	1.2%	0.8%
Abalone *No answer 5.9%*	23.3%	26.9%	41.9%	0.8%	1.2%
Sea Gulls *No answer 4.7%*	23.3%	38.7%	22.1%	8.7%	2.4%
Jellyfish *No answer 5.1%4.3%*	18.6%	36%	26.5%	11.9%	2.8%
Sea Urchins *No answer 0.8%*	21.7%	34.4%	35.2%	4.7%	0.8%
Whales *No answer 7.9%*	60.1%	25.7%	5.9%	0.4%	0
Grunion *No answer 3.2%*	13.8%	22.5%	58.1%	2%	0.4%

(continued)

Table 6: (continued)
Marine Wildlife Preferences

Marine Animal	Strongly Like	Like	No Opinion	Dislike	Strongly Dislike
Octopus *No answer 3.2%*	29.6%	44.3%	16.6%	5.1%	1.2%
Sea Otters *No answer 3.6%*	48.2%	30.8%	17%	0.4%	0
Cormorants *No answer 3.6%*	16.2%	18.2%	60.9%	0.8%	0.4%

5.2 *WHY ANIMALS ARE LIKED OR DISLIKED*

In terms of why these animals were liked or disliked, respondents were given a list of responses and asked to choose the single answer that *best* described why they liked or disliked the animal. These response choices contained underlying categories which were the same categories used in the attitude section of the survey. The ten choices (plus a "no opinion" option) and their corresponding attitude typology are as follows:

- **"Fellow being/lesser animal"** (*Animal Rightist:* concern for the rights and welfare of individual animals and on the right and wrong treatment of animals and nature by humans)

- **"Harmless/harmful"** (*Negativistic:* avoidance of animals due to indifference, dislike, or fear)

- **"Ecologically important, ecologically unimportant"** (*Environmentalist:* interest in animal-related issues, based on ecology, science, or an interest in nature)

- **"Useful/not useful"** (*Utilitarian:* concern for the practical value of animals and/or the mastery or control of nature)

- **"Attractive/unattractive"** (*Aesthetic:* interest in the artistic/beauty and symbolic characteristics of animals)

There was a wide variety of responses to this question. Of all the possible responses, the largest percentage (24.0%) of respondents chose "interesting" as the reason why they liked an animal (in this section of the survey this was representative of the characteristics of the "ecologically important" category). This was closely followed by "no opinion" (23.8%), and "attractive" (13.9%) was the third most popular response. The large percentage of "no opinion" may be related to the fact that respondents who chose "no opinion" for their "like/dislike" response about the animal would most logically also mark "no opinion" as the reason why. However, respondents that liked (or even disliked) an animal, might mark one of several other choices as to why (interesting, attractive, useful, etc.). The number of options may have "spread out" the results, therefore magnify the concentration of "no opinion" answers.

Animals most often cited for their attractiveness were dolphins (30.4%), starfish (27.7%), sea otters (25.3%), and whales (19%); while animals most cited as interesting were: octopus (an invertebrate) (39.5%), sea lions (36.8%), and starfish (34.8%), pelicans were ranked slightly higher than whales (29.2% vs. 28.9%) in this category.

The next most popular response choice was "ecologically important" (7.4%). There were differences in "ecological importance" noted among the animals, with sharks (14.2%), sea gulls (10.3%), and whales (9.9%) getting the three highest scores in that area. A small percentage of respondents (6.3%) chose "fellow being" as the best description of why; and while dolphins (both 11.5%) and sea lions (11.1%) shared top billing in that department, interestingly, sea gulls were not far behind at 9.1%. Perhaps the reason the response in this category is so low is a result of only allowing respondents one choice. Thus while ecological importance might possibly be relevant to an individual it is not their "best" reason for liking/disliking the animal.

A very low percentage of museum visitors who were surveyed chose "usefulness" as the reason "why" they liked an animal (5.6%). The animals perceived as most useful were kelp bass and abalone, obviously as food items.

A summary table of descriptions of "why" respondents liked/disliked each marine animal, follows on the next page (Table 7).

Table 7:
Why Respondents Liked or Disliked a Listed Marine Animal.

Table 7:
Why Respondents Liked or Disliked a Listed Marine Animal.

SECTION 7 (Subsection B), part B: "Why?" Do You Like or Dislike These Animals?

	Attractive	Interesting	Useful	Harmless	Fellow Being	Ecologically Important	Unattractive	Uninteresting	Not useful	Harmful	Lesser Animal	Ecologically Unimportant	No Opinion	Other >1ans.	No Answer
Starfish	27.7	34.8	1.2	7.9	3.2	4	1.2	0.4	0	0	0	0	9.5	9.1	1.2
Pelican	13.8	29.9	6.3	5.1	5.9	8.3	2.4	2	0.4	0.8	0.4	0.4	15.4	7.9	1.6
Sea Lion	16.6	36.8	2.4	5.5	11.1	6.3	0.8	0	0	0	0	0	7.5	10.7	2.4
Dolphin	30.4	24.1	5.9	2.4	11.5	7.1	0.8	0	0	0	0	0	2.8	13	2
Shark	5.9	25.3	5.9	1.2	6.3	14.2	1.6	0	0	16.6	0	0	10.7	9.5	2.8
Kelp Bass	4.3	6.7	11.1	3.6	5.5	6.3	1.5	1.6	0	0.4	0.4	0	49.4	3.2	4
Abalone	13	11.1	11.5	4	2.8	5.5	2	0.4	1.2	0.4	0.4	0	40.3	4.3	3.2
Sea Gull	12.3	16.2	7.5	3.6	9.1	10.3	2.8	2.4	0.8	2	0.8	0.8	21.7	6.7	3.2
Jellyfish	13	24.9	4.3	2.4	3.6	5.9	1.6	0	0.8	10.3	0.4	0	24.5	5.9	2.4
Sea Urchin	10.3	27.3	3.2	3.2	2.4	6.3	2	0.4	0.8	2.8	0.4	0	31.2	5.1	2.8
Whale	19	28.3	3.2	4	11.5	9.9	0.4	0	0	0.4	0.4	0.4	6.3	12.3	3.6
Grunion	2.8	13	4.3	2.8	4.3	7.9	1.6	1.6	0.4		0.4	0	54.5	2.8	3.6
Octopus	9.5	39.5	6.7	1.2	5.5	5.1	5.5	0.8		1.6	0	0	15	6.7	2.8
Sea Otter	25.3	26.1	4	2	7.5	6.7	0.4	2.4	0	0	0	0.4	14.2	9.1	2
Cormorant	5.9	14.6	4.3	2	4	4.7	1.2	2.4	0.4	0	0	0.4	54.9	2	3.2
Total for each animal															
Frequency	253														
Percent	100														

6. INTERACTIONS WITH MARINE WILDLIFE

Several types of interaction questions were asked. One set inquired about marine and beach experiences with marine wildlife, and a second section explored respondents' visual contact with a specific list of marine animals.

In terms of beach experiences, the vast majority (77.1%) of respondents indicated that they walk by tidepools when they visited the beach, but only looked at the tidepool animals (52.2% of those that walked by tidepools). Very few of the respondents collected the animals for food or other reasons (8.8% of those that walked by tidepools collected animals). Whale watching was a popular activity for 47.4% of the visitors, but the majority of respondents did not scuba dive or snorkel. These visitors had little or no experience in handling or caring for marine wildlife, nor had very many participated in a beach clean up (25.7% and 23.7% respectively). While the majority of respondents (56.1%) indicated that they had not had a significant experience with marine wildlife, of those who had (43.9%), the most frequent responses were:

- seeing whales, dolphins or other marine mammals;
- snorkeling or swimming with marine wildlife; and
- catching a large or unusual fish.

A separate interaction section inquired about visual contact with a listed group of animals. The list of fifteen animals included representatives of the same four animal groups used in the knowledge

and preferences section: birds, fish, marine mammals, and invertebrates found in the Southern California coastal zone. Respondents were asked if they had ever seen the animals. Well over one-half of all of the respondents had seen all of the animals in the list with the exception of a cormorant; only about one-third (35.2%) had been able to identify this animal. The most often-seen animals (with scores of 90% or greater) were either common coastal animals, seagulls and pelicans, or extremely popular charismatic animals, dolphins and whales. Somewhat surprisingly, the two animals seen by the greatest number of respondents were an invertebrate: the starfish, an attractive animal found in most aquaria and the beach; and the dolphin (94.9% and 94.7% respectively). Seen by only slightly less respondents (approximately 80- 87%) were two other marine mammals, sea lions and sea otters, as well as sharks (highly popularized through the media) and another invertebrate, the jellyfish (another animal found in most aquaria).

Animals less frequently seen were two types of fish and invertebrates. The sea urchin (invertebrate) was seen by over three-quarters of respondents, still a rather significant majority (this animal is another popular aquaria constituent as well as being found in local tidepools). Less often seen, however, were abalone (not as easily accessible since they are usually bottom dwellers), kelp bass, and grunion. Kelp bass and grunion had only been seen by slightly more than half of the respondents (51.8% and 54.5% respectively).

In addition to noting if they had ever seen these animals, respondents were asked to check all the appropriate responses which described where they had seen them. Most of the animals were seen at an aquarium or museum, although "at the beach" was where most respondents had seen pelicans, sea gulls, and grunions. Whales were most frequently seen at the "movies/TV", with "seen at an aquarium/museum" a close second. In general "movies/TV" was the second most often marked location for seeing all of the animals except for starfish, kelp bass, abalone and sea otters; the second ranked place for these particular animals was the beach, or in the case of kelp bass, the ocean. Interestingly, while abalone were seen most often in an aquarium/museum , the second ranked location was in books/newspapers/magazines.

On the following page, Table 8 displays the percent of animals seen by respondents and the locations that respondents have seen the animals. Respondents were asked to mark all places they had seen the animal.

Table 8:
Where Respondents Have Seen Listed Marine Animals

SECTION 7 (Subsection A), part B" If So Where?" Have You Seen These Animals?						
(Respondents were asked to mark all places they had seen the animal.)						
	SEEN?	WHERE? (%)				Books/newspapers
	% Yes	Aquarium/Museum	At the Beach	In the Ocean	Movies/TV	/magazines
Starfish	94.9	63.6	53.8	32.4	42.7	41.1
Pelican	93.7	28.1	71.5	30.8	41.5	36
Sea Lion	87.7	58	35	32	43	36
Dolphin	94.5	65	28	46	53	42
Shark	87.7	64	17	26	55	41
Kelp Bass	51.8	30.4	9.5	19.8	15	13.4
Abalone	66	37.5	22.5	17	22.9	24.5
Sea Gull	93.7	35.6	73.5	27.7	40.7	32.8
Jellyfish	85.4	50.2	37.5	30	39.5	33.2
Sea Urchin	76.7	51.4	30.4	24.1	34.4	28.5
Whale	90.1	47.8	19	40.3	54.2	40.3
Grunion	54.5	17.8	30	11.1	19.8	13.8
Octopus	83	53.4	13.8	16.2	51	37.5
Sea Otter	79.8	53.8	22.5	26.5	43.5	35.2
Cormorant	35.2	16.6	13.4	10.7	15.8	11.1
Total frequency = 253						

7. ATTITUDES TOWARD MARINE WILDLIFE

A typology of attitudes was used to determine the distribution of attitudes toward marine wildlife among respondents. Respondents were asked to indicate their strength of agreement/disagreement with statements about various marine animal-related issues, using a five value Likert scale. As described earlier (in the preferences section) the attitude categories are:

- *Animal Rightist:* interest in the rights and welfare of individual animals and on the right and wrong treatment of animals and nature by humans
- *Negativistic:* avoidance of animals due to indifference, dislike, or fear
- *Environmentalist:* interest in animal-related issues, based on ecology, science, or an interest in nature.
- *Utilitarian:* concern for the practical value of animals and/or the mastery or control of nature
- *Aestheticism:* interest in the artistic/beauty and symbolic characteristics of animals

In general, most respondents supported protecting marine wildlife, even when that support conflicts with human interests such as convenience, jobs, or economic needs. Respondents also agreed with statements that one should protect sharks because sharks have as much right to live as people do, and disagreed with statements such as, "jellyfish should be eliminated because they sting people." However, almost half of

the respondents agreed with a statement depicting animals as created by God to benefit people; about one-third disagreed and nearly one-fifth had no opinion. The topic of elimination of non-native species proved the most controversial.

In terms of the overall attitude scores, generally the attitudes most strongly exhibited were aesthetic, animal rightist and environmentalist. Museum visitors surveyed weighed in strongly against utilitarian and negativistic attitudes. Each group will be discussed in greater detail in the following sections.

Aesthetic attitudes

An interest in artistic/beauty and symbolic characteristics of animals is indicative of an aesthetic attitude. As mentioned in an earlier chapter, consideration was given to eliminating this category based on Kellert's own comments.[4] Ultimately, one question was included as a test to find if respondents demonstrated this attitude toward animals in the marine environment. Results showed that respondents overwhelming supported the single question that represented the aesthetic category: "I think whales are beautiful and should be protected" (96.8% agreed with this statement). However, since it is only one question and concerns a very popular, charismatic mammal, this may not prove to be the best indicator of aestheticism, yet it does indicate that it may be valuable to explore this category further in future attitudinal research. In addition,

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[4] He noted that the aesthetic attitude did not yield an adequate empirical measure when calculating attitude scales (Kellert & Berry 43, 1980, Kellert 1993)

there are two qualifiers within the question: "beautiful" and "should be protected." It is possible that people are responding to one or the other. This raises the question if respondents meant that whales should be protected *because* they are beautiful or are there other reasons, such as ecological importance or their value as "fellow beings?" Within the preferences section of the survey the phrase which ranked highest as why respondents liked/strongly liked whales was "interesting," with "attractive" as the second most popular response. However, having acknowledged this potential weakness, there is still relevance to the high scores of this category as has been shown by the support in the preferences section for "interesting" and "attractiveness" as the two top reasons that respondents liked an animal. Table 9 reveals responses to this question.

Table 9:
Aesthetic Attitude Question.

Question	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
Whales are beautiful and should be protected. *(missing=1)*	76.2%	20.6%	2.4%	0%	0.8%

Animal rightist attitudes

A large majority of respondents (81.5%) supported statements that measured animal rightist attitudes, which represent an interest in the

individual animals and on the right and wrong treatment of animals and nature. For example, by agreement or disagreement with a particular attitude statement, they strongly indicated that animals (sharks) have as much right to life as people do and that forcing ocean animals such as whales and dolphins to live in captivity is wrong. The method of harvesting marine life is also an issue, as revealed by the strong disagreement with the statement: "There is nothing wrong with harvesting fish by using explosives in the water" (over 80% of the respondents disagreed). Similarly, most respondents indicated that it was appropriate to "concern oneself with saving dolphins and whales (even) when so many people need jobs, food and health care." The animal rightist questions are presented in Table 10, as follows:

Table 10:
Animal Rightist questions.

Question	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
It is wrong to kill sharks because they have as much right to life as people do. *(missing=1)*	40.5%	29.8%	18.3%	9.1%	2.4%
It is wrong to force ocean animals such as whales and dolphins to live in captivity. *(missing=1)*	27%	28.6%	23.4%	17.9%	3.2%

(continued)

Table 10: (continued)
Animal Rightist questions.

Question	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
There is nothing wrong with harvesting fish by using explosives in the water. *(missing=2)*	2.8%	6%	9.2%	19.9%	62.2 %
It is wrong to concern oneself with saving dolphins and whales when so many people need jobs, food and health care. *(missing=0)*	4.3%	7.9%	13.8%	42.3%	31.6 %

Environmentalist attitudes

Almost equally as many respondents displayed environmentalist attitudes (77.6%) as showed animal rightist attitudes. Environmentalist attitudes were measured by questions concerning animal-related issues, based on ecology, science, or an interest in nature. Overall, most respondents supported protecting marine wildlife, even when that support conflicts with human interests and needs. Respondents overwhelming indicated support for making ocean polluters pay clean up

costs (95.3%). Impacts that deplete marine wildlife such as tidepool collecting and overfishing were also of concern to respondents.

The statement which proved the most controversial involved elimination of non-native species in order to protect native animals. Responses varied from 26.3% "no opinion", to 24.7% "agree", and 22.7% "strongly disagreed". Combining the "strongly disagree" and "disagree" percentages revealed that almost half the respondents (44.2%) disagreed with eliminating of exotic species even if it is to protect native ones.

Table 11 illustrates Environmentalist attitude questions and responses.

Table 11:
Environmentalist attitude questions.

Question	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
People and companies that pollute the ocean should be forced to pay for clean up costs. *(missing=0)*	76.3%	19%	4%	0.8%	0%
It is wrong to collect tidepool animals because tidepools are delicate environments that are easily damaged. *(missing=0)*	34.4%	36%	20.2%	6.3%	3.2%

(continued)

Table 11: (continued)
Environmentalist attitude questions.

Question *(continued)*	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
It is OK to eliminate a non-native species, such as wild pigs or goats on Catalina Island, in order to protect native island animals. *(missing=2)*	4.8%	24.7%	26.3%	21.5%	22.7%
Overfishing should be prohibited even if fishing communities could be hurt. *(missing=1)*	25.8%	42.9%	20.2%	6.3%	4.8%

Utilitarian attitudes

Very few (13.6%) respondents displayed a utilitarian attitude, one which indicates an interest in the practical value of animals and/or the mastery or control of animals. For example, respondents did not support controlling certain species, for instance Brown Pelicans, even if there were economic conflicts, such as interfering with income for American fishers. Neither did respondents feel it was better to train or use dolphins for anthropocentric uses rather than leave them in the wild. Finally, the

question that caused the widest spread of responses stated that "Animals were created by God to benefit people." Of the total respondents, nearly one-half agreed (48.9%), almost one-third (31.4%) disagreed and close to one-fifth (19.8%) had no opinion about the statement. Questions and responses are shown in Table 12.

Table 12:
Utilitarian attitude questions.

Question	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
It's better to train dolphins for military use than to leave them in the wild. *(missing=0)*	6.7%	6.7%	16.2%	38.3%	32%
Pelican populations should be controlled because they steal fish from fishermen trying to make a living. *(missing=1)*	6%	3.2%	16.3%	34.9%	39.7%
Animals were created by God to benefit people. *(missing=1)*	30.2%	18.7%	19.8%	18.3%	13.1%

Negativistic attitudes

There was little agreement with the statements reflecting negativistic attitudes, which are attitudes indicating fear or disinterest in animals. Overall only 14.4% of respondents displayed this attitude. For instance, three-quarters (75.8%) of the respondents disagreed with the idea that jellyfish should be eliminated because they stung people. This finding implies that a species perceived as mildly dangerous, or able to inflict pain or discomfort, should not be eliminated for that reason. However, the statement that "fish are slimy and smelly" garnered a wider variety of responses, with almost half of the respondents (48.4%) disagreeing with the statement, one-third agreed, and almost one-fifth (18.3%) had no opinion. Table 13 contains Negativistic attitude questions and responses.

Table 13:
Negativistic attitude questions.

Question	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
Fish are slimy and smelly. *(missing=1)*	10.7%	22.6%	18.3%	29%	19.4%
Jellyfish should be eliminated because they sting people. *(missing=1)*	4.8%	3.6%	15.9%	33.3%	42.5%

8. CROSS-CULTURAL ATTITUDES

Separate attitude questions were devised in order to explore cross-cultural attitudes. How do people from one group view the traditional practices of another cultural group (of which most likely they are not a member)? Is it acceptable if someone from a different group practices their own traditions with which the outsider might not agree? According to the results overall, respondents were unwilling to accept another culture's traditional practices if they involved harming popular charismatic marine animals such as whales or sea turtles. And certain culture-specific priorities were vigorously rejected, e.g., consuming dogs. Neither was it acceptable if members of another culture negatively impacted the habitat of marine wildlife by collecting tidepool animals or littering beaches; in fact, 96% of the respondents disapproved of littering beaches. Nor were religious reasons an acceptable "excuse," as over 80% disapproved of killing or sacrificing animals for religious purposes. The only practice which respondents tolerated was keeping animals (such as fish and seafood) alive until they are ready to be cooked and eaten. Thus overall there is little tolerance exhibited towards culture-specific animal practices falling outside the bounds of mainstream U.S. norms. Cross cultural questions are in Table 14.

Table 14:
Cross Cultural attitude questions.

Keeping in mind that various cultures treat animals differently, is it OK with you if they:	**Yes**	**No**	**No Answer**
Hunt and kill whales?	20.9%	79.1%	0
Collect tidepool animals?	31.2%	68.4%	0.4%
Keep animals (such as fish and seafood) alive until they are ready to be cooked and eaten?	58.9%	39.9%	1.2%
Kill (sacrifice) animals for religious purposes?	17.4%	81.4%	1.2%
Eat sea turtles?	27.3%	71.9%	1.8%
Eat dogs?	24.1%	75.1%	1.8%
Leave litter on beaches?	3.6%	96%	0.4%

9. SUMMARY

The results of the Attitudes Toward Marine Wildlife Survey reveal a culturally diverse, relatively young and fairly well-educated respondent sample. This sample group has some regular exposure to museums, aquaria and science/nature centers. They have seen many of the local marine animals of Southern California, and are reasonably knowledgeable

about marine wildlife topics. Most of their visual interactions occur at museums or aquariums, with experiences through movies and TV as the next most extensive exposure to marine wildlife. In addition they have strong preferences for marine mammals, but also like invertebrates and birds. If they have an opinion about liking (or disliking) an animal it is usually given in terms of aesthetic values and interest levels.

Attitudes most strongly exhibited, in addition to aesthetic attitudes, are animal rights and environmentalist attitudes. Three of the attitude categories used in this study were very similar to the attitude typologies used by Kellert, however results vary. Almost a quarter of museum visitors surveyed are utilitarian in their attitudes toward marine wildlife, which strongly concurs with Kellert's findings. However, aesthetic values in this survey were found to be significantly higher; this finding may relate to survey design, but results from the "why" portion of the preferences section support this strong display of aesthetic attitudes. In addition this may also reflect differences in the ability to interact with marine wildlife. For most people, experiences with marine animals are visual, hence their appeal or ranking for preferences may reflect that distance—most of these animals are not easily touched.

Another significant difference in displayed attitudes is in the negativistic attitude findings. Of all the museum visitors surveyed, only 14.4% of respondents displayed a negativistic attitude. In this study a negativistic attitude indicates both fear or cruelty behavior and avoidance of animals. Kellert's work showed over one-third of the American

population strongly oriented to neutralistic and negativistic attitudes (35% combined percentages); it was second only to humanistic and moralistic scores (35% and 20% respectively). Thus, these visitors exhibited much lower negativistic attitudes toward marine mammals than the general American public did toward animals in the late 1970's. However, it does raise the question: would the results have changed if rats or cockroaches had been asked about? Marine species are not generally perceived as too threatening or pesky.

Overall, the support for animal rightist attitudes and environmentalist attitudes were equally high (70.4% and 69.7% respectively). As pointed out in earlier chapters, animal rightist attitudes were not studied in Kellert's original survey work, as they were not part of main stream consciousness as they are today. However, current studies which have focused on this topic concur with the strong support that respondents in this survey showed for this type of attitude (Driscoll 1992, Herzog et al 1991, Pifer et al 1994).

As for the environmentalist attitude, respondents showed strong support for animal-related issues, based on ecology, science, or an interest in nature. Differences are noted however between Kellert's original studies which explored ecologistic, naturalistic, and scientistic attitudes separately. Even if those particular typologies are combined together, however, only 18% of Kellert's sample were oriented towards these type of attitudes, compared to 70.9% support in this study.

In summation, museum visitors support protecting marine wildlife, even when that support conflicts with human interests such as convenience, jobs, or economic needs. In this light the results of the cross-cultural attitudes questions may not be so surprising after all, as respondents reveal little or no tolerance of the traditional practices toward animals of various cultural groups if it means ultimate harm to wildlife or habitat. We will explore more fully the connection between attitudes, cultural and socio-demographic features, and tolerance of ways of treating animals specific to particular cultural groups in the next chapter.

Appendix B

Department of Regional Planning, Los Angeles
Correspondence Table Planning Area To City

PLANNING AREA	*CITY*
Santa Clarita Valley	Santa Clarita
Antelope Valley	Lancaster Palmdale
San Fernando	San Fernando Los Angeles (Pt)
Burbank/Glendale	Burbank Glendale Los Angeles (Pt)
West San Gabriel Valley	Pasadena La Canada/Flintridge Alhambra Monterey Park San Gabriel South Pasadena Rosemead Temple City Arcadia Monrovia Sierra Madre Bradbury Duarte El Monte South El Monte Whittier (Pt)
East San Gabriel Valley	Baldwin Park Irwindale Pomona Claremont La Verne San Dimas Diamond Bar La Puente Industry Walnut West Covina
Malibu/Santa Monica Mtns.	Agoura Hills Hidden Hills Westlake Village

West	Los Angeles (Pt) Beverly Hills Santa Monica
Central	Los Angeles (Pt) Culver City West Hollywood
East Central	Compton Lynwood Carson (Pt) Bell Maywood Huntington Park Montebello South Gate Vernon Los Angeles (Pt) Commerce Cudahy Bell Gardens
Southeast	Cerritos Downey Paramount Norwalk Bellflower Artesia Hawaiian Gardens Lakewood Whittier (Pt) Santa Fe Springs Pico Rivera La Mirada
South	Los Angeles (Pt) Carson (Pt) Compton (Pt) Signal Hill Long Beach Lakewood (Pt)
Southwest	Gardena Inglewood Hawthorne Torrance Los Angeles (Pt) Lawndale Palos Verdes Est Lomita Rancho Palos Verdes El Segundo Hermosa Beach Manhattan Beach Redondo Beach
Channel Islands	Avalon

Appendix C
Attitudes Toward Marine Wildlife Survey Results

SECTION 1: WE WOULD LIKE TO KNOW ABOUT YOUR MUSEUM AND AQUARIUM EXPERIENCES!

S1Q1: Is this your first visit?

Approximately 64% of the respondents had previously visited the museum, while 35.6% were first time visitors, and 13.8% visit 2 or 3 times per year. 19.8% of the respondents indicated only that it was not their first visit, and did not indicate how often they came

S1Q1	Frequency	Percent
Yes	90	35.6
No, with no reason	50	19.8
2 to 3x per year	35	13.8
Once a year	23	9.1
Other	13	5.1
Every 2-3 years	13	5.1
4 to 6x per year	11	4.3
Over 10 years	8	3.2
Every 4-6 years	6	2.4
7 to 8x per year	3	1.2
No answer	1	0.4
Total	253	100%

S1Q2: What brought you here today?

For 33.2% of the respondents the purpose of the museum visit was a family outing, 22.5% came to see IMAX, and 18.2% came for an unspecified reason 12.3% came to look around the museum

S1Q2	Frequency	Percent
Family outing	84	33.2
IMAX	57	22.5
Other	46	18.2
Look around museum	31	12.3
Museum event	23	9.1
Particular exhibit	12	4.7
Total	253	100%

S1Q3: Who did you come with?

Most respondents (56.9%) came with their family to the museum. couples and all-adult groups comprised 18.6% of the visitors. while 16.2% came as part of a school/youth group

S1Q3	Frequency	Percent
Family	144	56.9
Couple/all adult	47	18.6
School/youth group	41	16.2
Alone	15	5.9
Other	5	2
No answer	1	0.4
Total	253	100%

S1Q4: How often do you visit museums. science centers. zoos. aquariums. or nature areas?

The majority of respondents. 40.3%. visit museums. aquariums. etc.. 1 to 3 times per year. while 26.1% visit every few years. and 25.3% visit 4 or more times per year.

S1Q4	Frequency	Percent
1-3x per year	102	40.3
Every few years	66	26.1
4x or more per year	64	25.3
Never go	20	7.9
No answer	1	0.4
Total	253	100%

S1Q5A: Thinking about your last visit to an aquarium: What did you like BEST?

Aquarium tanks were chosen by 27.7% of the respondents for what they liked best about aquariums. 18.6% chose touch pools and 15% chose live sea lion or sea otter feedings

S1Q5BEST	Frequency	Percent
Aquarium tanks	70	27.7
Touch pools (with sea creatures)	47	18.6
Live sea lion or sea otter feeding	38	15
Other	33	13
Learn about natural environment	25	9.9
Learn about science	20	7.9
Other live animal show	16	6.3
No answer	4	1.6
Total	253	100%

S1Q5B: Thinking about your last visit to an aquarium: What did you like LEAST?

Of the respondents who answered this question, 18.6% did not like it when animals were not well cared for, 17% objected to noisy crowds, and 14.2% thought aquarium fees were too expensive

S1Q5LEAS	Frequency	Percent
Animals not properly cared for	47	18.6
Too noisy or crowded	43	17
Too expensive	36	14.2
Animals in captivity	31	12.3
Animals not in natural environment	29	11.5
Other	14	5.5
Animals should not be touched	13	5.1
No answer	40	15.8
Total	253	100%

SECTION 2: WHAT DO YOU LIKE TO LEARN?

S2Q1: What are you most interested in learning?

Learning about how the ocean is explored interests 35.2% of respondents while 23.3% are interested in how to protect the oceans, and 22.1% want to know how various people around the world use the oceans and their thinking about the oceans

S2Q1	Frequency	Percent
How the ocean is explored	89	35 2
How to protect the oceans	59	23.3
How various people use oceans	56	22 1
How aquarium animals are chosen	30	11 9
Other	18	7 1
No answer	1	0 4
Total	253	100%

S2Q2: Are you more interested in learning about specific plants and animals, like brown kelp and sea otters, or are you more interested in learning about whole communities of plants and animals, like Asian rain forests and Pacific coral reefs?

The majority of respondents, 73.9%, are more interested in learning about whole communities of plants and animals, and 25.3% are interested in specific plants and animals

S2Q2	Frequency	Percent
Whole communities of plants/animals	187	73 9
Specific plant and animals	64	25.3
No answer	2	0 8
Total	253	100%

S2Q3: Are you more interested in learning about plants and animals that live in and around California, or about plants and animals that live in other parts of the world, for example in Antarctica or a South East Asian Rain Forest?

The majority of respondents, 65.2%, are more interested in learning about plants and animals that live in other parts of the world and 34 4% are interested in California s plants and animals

S2Q3	Frequency	Percent
Plants/animals in other parts of world	165	65 2
Plants/animals living in California	87	34 4
No answer	1	0 4
Total	253	100%

S2Q4: Where do you find out about new things in Science?

Respondents in this section were asked to check all that apply. Results indicate that TV and museums/aquariums/zoos are where the majority of these visitors (66%) find out new things about science. Magazines (56.5%), books (40.7%), and newspapers (39.5%) are the next most popular sources of information about science.

S2Q4	YES		NO	
	Frequency	Percent	Frequency	Percent
TV	167	66.0%	86	34.0%
Museums, aquariums, zoos	167	66.0%	86	34.0%
Magazines	143	56.5%	110	43.5%
Books	103	40.7%	150	59.3%
Newspapers	100	39.5%	153	60.5%
School	90	35.6%	163	64.4%
Libraries	85	33.6%	168	66.4%
Friends/family	67	26.5%	186	73.5%
Internet	49	19.4%	204	80.6%
Radio	37	14.6%	216	85.4%

Total Frequency = 253
Total Percent = 100%

SECTION 3: WHAT DO YOU LIKE TO DO WHEN YOU GO TO THE BEACH?

S3Q1: How often do you go to the beach?

The majority of respondents (53.4%) visit the beach a few times per year, while 20.9% visit the beach a few times per month. 15.8% go to the beach once a year or less

S3Q1	Frequency	Percent
Few times a year	135	53.4
Few times a month	53	20.9
Once a year or less	40	15.8
Once week or more	21	8.3
Never	4	1.6
Total	253	100%

S3Q2: Of these, which is your FAVORITE marine activity?

For the majority of respondents (53.8%) their favorite marine activity is simply going to the beach 20.2% of the respondents prefer going to a public aquarium or marine theme park, and 11.1% prefer to go surfing, boating, or participate in other ocean water sports.

S3Q2	Frequency	Percent
Going to the beach	136	53.8
Public aquarium/theme park	51	20.2
Surf/boating/ocean sports	28	11.1
Fishing in the ocean	15	5.9
I do not like any of the above	15	5.9
Other	7	2.8
No answer	1	0.4
Total	253	100%

S3Q3 Part A: When you go to the beach do you walk by the tide pools to look at sea creatures? If so, do you do any of the following? Please check ALL that apply.

Most respondents, 77%, walk by the tidepools when they go to the beach

S3Q3	Frequency	Percent
Yes	195	77.1
No	52	20.6
Never go to the beach	4	1.6
No answer	2	0.8
Total	253	100%

S3Q3 Part B: If so, do you do any of the following? Please check ALL that apply.

The majority of respondents who walk by the tidepools to look at sea creatures (52.2%) pick them up to look at more closely and put them back. Only 3.6% of these particular respondents collect animals for their aquariums, and 2.8% collect edible species to eat.

S3Q3 part B	YES Frequency	Percent	NO Frequency	Percent
Pick them up to look more closely and put them back?	132	52.2	121	47.8
Collect animals for your aquarium?	9	3.6	244	96.4
Collect edible species and take home to eat?	7	2.8	246	97.2
Other?	6	2.4	247	97.6
Collect for bait?	0	0	253	100
No answer	47	18.6	206	81.4

Total Frequency = 253
Total Percent = 100%

S3Q4: Ever go saltwater fishing in Southern California?

The majority of respondents, 71.5%, do not go saltwater fishing in Southern California.

S3Q4	Frequency	Percent
No	181	71.5
Yes	72	28.5
Total	253	100%

S3Q5: Do you ever do any of the following?

While the overall majority of respondents do not go scuba diving (84.6%) or snorkeling (58.9%), close to half of the respondondents, 47.4%, go whale watching.

	YES Frequency	Percent	NO Frequency	Percent	NO ANSWER Frequency	Percent
S3Q5C Whale watch?	110	43.5	120	47.4	23	9.1
S3Q5B Snorkel?	78	30.8	149	58.9	26	10.3
S3Q5A Scuba Dive?	30	11.9	214	84.6	9	3.6

Total Frequency = 253
Total Percent = 100%

S3Q6: Do you have an aquarium or fish bowl at home or work?

The majority of respondents, 68.4%, do not have an aquarium or fish bowl at home or at work.

S3Q6	Frequency	Percent
No	173	68.4
Yes	80	31.6
Total	253	100%

S3Q7: Have you ever handled or cared for ocean wildlife, for example, in an environmental class in school or a rehabilitation center where sick or injured animals are cared for?

The majority of respondents, 74.3%, have not handled or cared for ocean wildlife.

S3Q7	Frequency	Percent
No	188	74.3
Yes	65	25.7
Total	253	100%

S3Q8: Have you ever participated in a beach clean up?

The majority of respondents, 75.5% have not participated in a beach clean up.

S3Q8	Frequency	Percent
No	191	75.5
Yes	60	23.7
No answer	2	0.8
Total	253	100%

S3Q9: Please tell us of any significant experiences you've had with marine wildlife (such as a "swim along" with dolphins, catching a large fish, seeing an interesting sea creature)?

While the majority of respondents, 56.1%, did not indicate that they had a significant experience with marine wildlife, the remaining group of respondents, 43.9%, indicated one or more significant experiences. Of those respondents who had marine wildlife experiences 15.8% reported seeing whales, dolphins, or other marine mammals, 11.9% had significant experiences while swimming or snorkeling with marine life, and 6.7% had some other type of marine wildlife experience. 5.1% reported catching large or unusual fish as their significant experience.

	YES		NO	
	Frequency	Percent	Frequency	Percent
Seeing whale, dolphins, etc.	40	15.8%	213	84.2%
Swim/snorkel with marine life	30	11.9%	223	88.1%
Other	17	6.7%	236	93.3%
Catching large/unusual fish	13	5.1%	240	94.9%
Seeing unusual sea creatures	11	4.3%	242	95.7%
Shark experiences	7	2.8%	246	97.2%
Tidepool experiences	7	2.8%	246	97.2%
Ocean boat experiences	7	2.8%	246	97.2%
Public marine exhibits	6	2.4%	247	97.6%
Touch experiences with sea animal	4	1.6%	249	98.4%
Sea turtle release/sightings	2	0.8%	251	99.2%
Rescuing/saving marine life	0	0.0%	253	100.0%
"None" and No Answer	142	56.1%		
Total Frequency = 253				
Total Percent = 100%				

SECTION 4: HOW MUCH DO YOU KNOW ABOUT MARINE WILDLIFE?

The majority of the respondents answered 60% to 80% of the questions correctly. Specifically, knowledge scores for respondents revealed that 24.1% of the respondents answered 60% of the questions correctly. 24.6% of the respondents answered 70% correctly and 20.7% of the respondents answered 80% correctly. Only 1.7% achieved 100% correct score and .9% received a 20% correct score.

The 3 questions that most respondents answered incorrectly asked: if "sea otters were almost made extinct by oil spills", if "sea turtles are amphibians", and if "grunion runs occur at low tide."

TRUE OR FALSE?

S4Q1: Pesticides were a major factor in the decline of Brown Pelicans.
(Correct answer is "True")

	Frequency	Percent
Right Answer	196	79
Wrong Answer	52	21
Total	248	100%
Missing = 5		

S4Q2: The gray whale is a threatened or endangered species.
(Correct answer is "True".)

	Frequency	Percent
Right Answer	196	78.4
Wrong Answer	54	21.6
Total	250	100%
Missing = 3		

S4Q3: Sea otters were almost made extinct by oil spills.
(Correct answer is "False")

	Frequency	Percent
Right Answer	83	33.3
Wrong Answer	166	66.7
Total	249	100%
Missing = 4		

S4Q4: **Dolphins are mammals.**
(Correct answer is "True".)

	Frequency	Percent
Right Answer	232	92.4
Wrong Answer	19	7.6
Total	251	100%
Missing = 2		

S4Q5: **Commercial fishing does not have a strong effect on ocean wildlife because their populations are so large.**
(Correct answer is "False".)

	Frequency	Percent
Right Answer	208	83.9
Wrong Answer	40	16.1
Total	248	100%
Missing = 5		

S4Q6: **Sea turtles are amphibians.**
(Correct answer is "False".)

	Frequency	Percent
Right Answer	90	36
Wrong Answer	160	64
Total	250	100%
Missing = 5		

S4Q7: **It is safe to eat local shellfish harvested in the summer-time.**
(Correct answer is "False".)

	Frequency	Percent
Right Answer	196	78.1
Wrong Answer	55	21.9
Total	251	100%
Missing = 2		

S4Q8: Grunion runs occur at low tide.
(Correct answer is "False".)

	Frequency	Percent
Right Answer	106	43.6
Wrong Answer	137	56.4
Total	243	100%
Missing = 10		

S4Q9: A mussel is a mollusk.
(Correct answer is "True")

	Frequency	Percent
Right Answer	183	73.5
Wrong Answer	66	26.5
Total	249	100%
Missing = 4		

S4Q10: Unlike seals, sea lions can move their rear flippers forward, so they can use all four limbs to walk on land.
(Correct answer is "True".)

	Frequency	Percent
Right Answer	163	66.5
Wrong Answer	82	33.5
Total	245	100%
Missing = 8		

Overall Knowledge scores:

	Frequency	Percent
0-20% of answers correct	2	0.9
21-30% of answers correct	3	1.3
31-40% of answers correct	15	6.5
41-50% of answers correct	29	12.5
51-60% of answers correct	56	24.1
61-70% of answers correct	57	24.6
71-80% of answers correct	48	20.7
81-90% of answers correct	18	7.8
100% of answers correct	4	1.7
Total	232	100%
Missing = 21		

SECTION 5: SPEAK YOUR MIND! (GIVE US YOUR OPINION!)

This set of questions asks your opinion about various animal-related issues. There are no right or wrong answers. Please indicate your opinion by circling the appropriate response

Overall, most respondents support protecting marine wildlife, even when that support conflicts with human interests such as convenience, jobs, or economic needs.

Specifically, most respondents agree with statements regarding protecting whales because they are beautiful, sharks because they have as much right to live as people do, and that people and companies that pollute the ocean should pay clean-up costs. Most respondents disagree with statements which depict "fish as slimy or smelly", which suggest "controlling pelican populations in order to protect the interests of fishermen", or which state that "it is better to train dolphins for entertainment or military use rather than to leave them in the wild."

However, of particular interest is respondents' reaction to the statement, "Animals are created by God to benefit people." 30.2% of the respondents "Strongly Agreed" followed by 19.8% who marked "No Opinion." and another 18.7% who "Agreed."

The statement which prompted the widest variety of responses involved the elimination of non-native species in order to protect native animals. 26.3% of respondents marked "No opinion." 24.7% marked "Agree." while another 22.7% "Strongly Disagreed."

S5Q1: Whales are beautiful and should be protected.

S5Q1	Frequency	Percent
Strongly Agree	192	76.2
Agree	52	20.6
No Opinion	6	2.4
Disagree	0	0
Strongly Disagree	2	0.8
Total	252	100%

Missing = 1

S5Q2: People and companies that pollute the ocean should be forced to pay for clean-up costs.

S5Q2	Frequency	Percent
Strongly Agree	193	76.3
Agree	48	19
No Opinion	10	4
Disagree	2	0.8
Strongly Disagree	0	0
Total	253	100%

Missing = 0

S5Q3: It is wrong to kill sharks because they have as much right to live as people do.

S5Q3	Frequency	Percent
Strongly Agree	102	40.5
Agree	75	29.8
No Opinion	46	18.3
Disagree	23	9.1
Strongly Disagree	6	2.4
Total	252	100%

Missing = 1

S5Q4: Fish are slimy and smelly.

S5Q4	Frequency	Percent
Strongly Agree	27	10.7
Agree	57	22.6
No Opinion	46	18.3
Disagree	73	29
Strongly Disagree	49	19.4
Total	252	100%

Missing = 1

S5Q5: It is wrong to force ocean animals such as whales and dolphins to live in captivity.

S5Q5	Frequency	Percent
Strongly Agree	68	27
Agree	72	28.6
No Opinion	59	23.4
Disagree	45	17.9
Strongly Disagree	8	3.2
Total	252	100%

Missing = 1

S5Q6: It's better to train dolphins for entertainment or military use than to leave them in the wild.

S5Q6	Frequency	Percent
Strongly Agree	17	6 7
Agree	17	6.7
No Opinion	41	16.2
Disagree	97	38.3
Strongly Disagree	81	32
Total	253	100%

Missing = 0

S5Q7: Jellyfish should be eliminated because they sting people.

S5Q7	Frequency	Percent
Strongly Agree	12	4 8
Agree	9	3.6
No Opinion	40	15.9
Disagree	84	33.3
Strongly Disagree	107	42.5
Total	252	100%

Missing = 1

S5Q8: Pelican populations should be controlled because they steal fish from fishermen trying to make a living.

S5Q8	Frequency	Percent
Strongly Agree	15	6
Agree	8	3.2
No Opinion	41	16 3
Disagree	88	34 9
Strongly Disagree	100	39 7
Total	252	100%

Missing = 1

S5Q9: It is wrong to collect tidepool animals because tidepools are delicate environments that are easily damaged.

S5Q9	Frequency	Percent
Strongly Agree	87	34.4
Agree	91	36
No Opinion	51	20.2
Disagree	16	6.3
Strongly Disagree	8	3.2
Total	253	100%
Missing = 0		

S5Q10: It is OK to eliminate non-native species, such as wild pigs or goats on Catalina Island, in order to protect native island animals.

S5Q10	Frequency	Percent
Strongly Agree	12	4.8
Agree	62	24.7
No Opinion	66	26.3
Disagree	54	21.5
Strongly Disagree	57	22.7
Total	251	100%
Missing = 2		

S5Q11: There is nothing wrong with harvesting fish by using explosives in the water.

S5Q11	Frequency	Percent
Strongly Agree	7	2.8
Agree	15	6
No Opinion	23	9.2
Disagree	50	19.9
Strongly Disagree	156	62.2
Total	251	100%
Missing = 2		

S5Q12: Animals were created by God to benefit people.

S5Q12	Frequency	Percent
Strongly Agree	76	30.2
Agree	47	18.7
No Opinion	50	19.8
Disagree	46	18.3
Strongly Disagree	33	13.1
Total	252	100%

Missing = 1

S5Q13: Overfishing should be prohibited even if fishing communities could be hurt.

S5Q13	Frequency	Percent
Strongly Agree	65	25.8
Agree	108	42.9
No Opinion	51	20.2
Disagree	16	6.3
Strongly Disagree	12	4.8
Total	252	100%

Missing = 1

S5Q14: It is wrong to concern oneself with saving dolphins and whales when so many people need jobs, food and health care.

S5Q14	Frequency	Percent
Strongly Agree	11	4.3
Agree	20	7.9
No Opinion	35	13.8
Disagree	107	42.3
Strongly Disagree	80	31.6
Total	253	100%

Missing = 0

SECTION 6: WHAT ABOUT THE WAYS DIFFERENT CULTURES TRADITIONALLY TREAT MARINE ANIMALS?

The vast majority of respondents indicated that it was not OK if other cultures' traditional practices involved harming whales (79.1%), tidepool animals (68.4%), sea turtles (71.9%), or dogs (75.1%). Neither was it all right to sacrifice animals for religious purposes (81.4%) or to leave litter on beaches (96.0%). The only cultural practice deemed "OK" by the majority of respondents (59.9%) was keeping animals, such as fish and seafood, alive until they are ready to be cooked and eaten.

KEEPING IN MIND THAT VARIOUS CULTURES TREAT ANIMALS DIFFERENTLY IS IT OK WITH YOU IF THEY:

S6Q1: OK to hunt and kill whales?

S6Q1	Frequency	Percent
Yes	53	20.9
No	200	79.1
No Answer	0	0
Total	253	100%

S6Q2: OK to collect tidepool animals?

S6Q2	Frequency	Percent
Yes	79	31.2
No	173	68.4
No answer	1	0.4
Total	253	100%

S6Q3: Ok to keep animals (such as fish and seafood) alive until they are ready to be cooked and eaten?

S6Q3	Frequency	Percent
Yes	149	58.9
No	101	39.9
No answer	3	1.2
Total	253	100%

S6Q4: OK to kill (sacrifice) animals for religious purposes?

S6Q4	Frequency	Percent
Yes	44	17.4
No	206	81.4
No answer	3	1.2
Total	253	100%

S6Q5: OK to eat sea turtles?

S6Q5	Frequency	Percent
Yes	69	27.3
No	182	71.9
No answer	2	0.8
Total	253	100%

S6Q6: OK to eat dogs?

S6Q6	Frequency	Percent
Yes	61	24 1
No	190	75 1
No answer	2	0.8
Total	253	100%

S6Q7: OK to leave litter on beaches?

S6Q7	Frequency	Percent
Yes	9.	3.6
No	243	96
No answer	1	0.4
Total	253	100%

SECTION 7 (Sub section A): HAVE YOU EVER SEEN THESE ANIMALS? AND IF SO, WHERE?

With the exception of the cormorant, the majority of the respondents reported having seen all of the animals listed. Respondents were asked to check ALL of the places they had seen the animals, thus in "If so where?" tables, cumulative percents add up to more than 100%. "Aquarium or museum" was the most frequently marked answer for where animals were seen, although for some animals (pelicans, sea gulls, and grunions) "at the beach" was the most frequent response. At the "movies/TV" was the next most common place that most animals were seen. Whales were most frequently seen at the "movies/TV" (with "seen at aquarium/museums" a close second).

(Note: A table of marine animals and "where seen" is included at the end of this section.)

S7Q1: Have you ever seen a starfish?

S7Q1	Frequency	Percent
Yes	240	94.9
No	10	4
No answer	3	1.2
Total	253	100%

	If so where?			
	YES		NO	
	Frequency	Percent	Frequency	Percent
Aquarium/museum	161	63.6%	92	36.4%
At the beach	136	53.8%	117	46.2%
In the ocean	82	32.4%	171	67.6%
Movies/TV	108	42.7%	145	57.3%
Books/news/magz	104	41.1%	149	58.9%

S7Q2: Have you ever seen a pelican?

S7Q2	Frequency	Percent
Yes	237	93.7
No	13	5.1
No answer	3	1.2
Total	253	100%

	If so where?			
	YES		NO	
	Frequency	Percent	Frequency	Percent
Aquarium/museum	71	28.1%	182	71.9%
At the beach	181	71.5%	72	28.5%
In the ocean	78	30.8%	175	69.2%
Movies/TV	105	41.5%	148	58.5%
Books/news/magz	91	36.0%	162	64.0%

S7Q3: Have you ever seen a sea lion?

S7Q3	Frequency	Percent
Yes	222	87.7
No	22	8.7
No answer	9	3.6
Total	253	100%

If so where?

	YES		NO	
	Frequency	Percent	Frequency	Percent
Aquarium/museum	148	58%	105	42%
At the beach	89	35%	164	65%
In the ocean	81	32%	172	68%
Movies/TV	108	43%	145	57%
Books/newsp/magz	90	36%	163	64%

S7Q4: Have you ever seen a dolphin?

S7Q4	Frequency	Percent
Yes	239	94.5
No	7	2.8
No answer	7	2.8
Total	253	100%

If so where?

	YES		NO	
	Frequency	Percent	Frequency	Percent
Aquarium/museum	165	65%	88	35%
At the beach	70	28%	183	72%
In the ocean	116	46%	137	54%
Movies/TV	134	53%	119	47%
Books/newsp/magz	105	42%	148	58%

S7Q5: Have you ever seen a shark?

S7Q5	Frequency	Percent
Yes	222	87.7
No	21	8.3
No answer	10	4
Total	253	100%

If so where?

	YES		NO	
	Frequency	Percent	Frequency	Percent
Aquarium/museum	161	64%	92	36%
At the beach	43	17%	210	83%
In the ocean	66	26%	187	74%
Movies/TV	138	55%	115	45%
Books/newsp/magz	104	41%	149	59%

S7Q6: Have you ever seen a kelp bass?

S7Q6	Frequency	Percent
Yes	131	51.8
No	110	43.5
No answer	12	4.7
Total	253	100%

If so where?

	YES		NO	
	Frequency	Percent	Frequency	Percent
Aquarium/museum	77	30.4%	176	69.6%
At the beach	24	9.5%	229	90.5%
In the ocean	50	19.8%	203	80.2%
Movies/TV	38	15.0%	215	85.0%
Books/newsp/magz	34	13.4%	219	86.6%

S7Q7: Have you ever seen an abalone?

S7Q7	Frequency	Percent
Yes	167	66
No	80	31.6
No answer	6	2.4
Total	253	100%

If so where?

	YES		NO	
	Frequency	Percent	Frequency	Percent
Aquarium/museum	95	37.5%	158	62.5%
At the beach	57	22.5%	196	77.5%
In the ocean	43	17.0%	210	83.0%
Movies/TV	58	22.9%	195	77.1%
Books/newsp/magz	62	24.5%	191	75.5%

S7Q23: How much do you like or dislike sea gulls?

S7Q23A	Frequency	Percent
Strongly Like	59	23.3
Like	98	38.7
No Opinion	56	22.1
Dislike	22	8.7
Strongly Dislike	6	2.4
No Answer	12	4.7
Total	253	100%

Check the word that BEST describes why you feel this way:

S7Q23B	Frequency	Percent
No Opinion	55	21.7
Interesting	41	16.2
Attractive	31	12.3
Ecologically important	26	10.3
Fellow being	23	9.1
Useful	19	7.5
Harmless	9	3.6
Unattractive	7	2.8
Uninteresting	6	2.4
Harmful	5	2
Lesser animal	2	0.8
Ecologically unimportant	2	0.8
Not useful	2	0.8
Other answer or >1 answer	17	6.7
No Answer	8	3.2
Total	253	100%

S7Q24: How much do you like or dislike jellyfish?

S7Q24A	Frequency	Percent
Strongly Like	47	18.6
Like	91	36
No Opinion	67	26.5
Dislike	30	11.9
Strongly Dislike	7	2.8
No Answer	11	4.3
Total	253	100%

Check the word that BEST describes why you feel this way:

S7Q24B	Frequency	Percent
Interesting	63	24 9
No Opinion	62	24 5
Attractive	33	13
Harmful	26	10.3
Ecologically important	15	5.9
Useful	11	4 3
Fellow being	9	3.6
Harmless	6	2 4
Unattractive	4	1 6
Not useful	2	0.8
Lesser animal	1	0 4
Other answer or >1answer	15	5 9
No Answer	6	2 4
Total	253	100%

S7Q25: How much do you like or dislike sea urchins?

S7Q25A	Frequency	Percent
Strongly Like	55	21.7
Like	87	34.4
No Opinion	89	35.2
Dislike	12	4 7
Strongly Dislike	2	0 8
No Answer	8	3.2
Total		

Check the word that BEST describes why you feel this way:

S7Q25B	Frequency	Percent
No Opinion	79	31.2
Interesting	69	27.3
Attractive	26	10.3
Ecologically important	21	8 3
Useful	8	3.2
Harmless	8	3.2
Harmful	7	2.8
Fellow being	6	2.4
Unattractive	5	2
Not useful	2	0 8
Lesser animal	1	0 4
Uninteresting	1	0 4
Other answer or >1 answer	13	5 1
No Answer	7	2.8
Total	253	100%

S7Q26: How much do you like or dislike whales?

S7Q26A	Frequency	Percent
Strongly Like	152	60.1
Like	65	25.7
No Opinion	15	5.9
Dislike	1	0.4
Strongly Dislike		
No Answer	20	7.9
Total	253	100%

Check the word that BEST describes why you feel this way:

S7Q26B	Frequency	Percent
Interesting	73	28.9
Attractive	48	19
Fellow being	29	11.5
Ecologically important	25	9.9
No Opinion	16	6.3
Harmless	10	4
Useful	8	3.2
Harmful	1	0.4
Lesser animal	1	0.4
Ecologically unimportant	1	0.4
Unattractive	1	0.4
Other answer or >1 answer	31	12.3
No Answer	9	3.6
Total	253	100%

S7Q27: How much do you like or dislike grunion?

S7Q27A	Frequency	Percent
Strongly Like	35	13.8
Like	57	22.5
No Opinion	147	58.1
Dislike	5	2
Strongly Dislike	1	0.4
No Answer	8	3.2
Total	253	100%

Check the word that BEST describes why you feel this way.

S7Q27B	Frequency	Percent
Attractive	7	2.8
Lesser animal	1	0.4
No Opinion	138	54.5
Interesting	33	13
Useful	11	4.3
Harmless	7	2.8
Fellow being	11	4.3
Ecologically important	20	7.9
Unattractive	4	1.6
Uninteresting	4	1.6
Not useful	1	0.4
Other answer or >1 answer	7	2.8
No Answer	9	3.6
Total	253	100%

S7Q28: How much do you like or dislike an octopus?

S7Q28A	Frequency	Percent
Strongly Like	75	29.6
Like	112	44.3
No Opinion	42	16.6
Dislike	13	5.1
Strongly Dislike	3	1.2
No Answer	8	3.2
Total	253	100%

Check the word that BEST describes why you feel this way:

S7Q28B	Frequency	Percent
Interesting	100	39.5
No Opinion	38	15
Attractive	24	9.5
Useful	17	6.7
Fellow being	14	5.5
Unattractive	14	5.5
Ecologically important	13	5.1
Harmful	4	1.6
Harmless	3	1.2
Uninteresting	2	0.8
Other answer or >1 answer	17	6.7
No Answer	7	2.8
Total	253	100%

S7Q29: How much do you like or dislike sea otters?

S7Q29A	Frequency	Percent
Strongly Like	122	48.2
Like	78	30.8
No Opinion	43	17
Dislike	1	0.4
Strongly Dislike	0	0
No Answer	9	3.6
Total	253	100%

Check the word that BEST describes why you feel this way:

S7Q29B	Frequency	Percent
Interesting	66	26.1
Attractive	64	25.3
No Opinion	36	14.2
Fellow being	19	7.5
Ecologically important	17	6.7
Useful	10	4
Uninteresting	6	2.4
Harmless	5	2
Ecologically unimportant	1	0.4
Unattractive	1	0.4
Other answer or >1 answer	23	9.1
No Answer	5	2
Total	253	100%

S7Q30: How much do you like or dislike cormorants?

S7Q30A	Frequency	Percent
Strongly Like	41	16.2
Like	46	18.2
No Opinion	154	60.9
Dislike	2	0.8
Strongly Dislike	1	0.4
No Answer	9	3.6
Total	253	100%

Check the word that BEST describes why you feel this way:

S7Q18B	Frequency	Percent
Interesting	93	36.8
Attractive	42	16.6
Fellow being	28	11.1
No Opinion	19	7.5
Ecologically important	16	6.3
Harmless	14	5.5
Useful	6	2.4
Unattractive	2	0.8
Other answer or >1 answer	27	10.7
No Answer	6	2.4
Total	253	100%

S7Q19: How much do you like or dislike dolphins?

S7Q19A	Frequency	Percent
Strongly Like	189	74.7
Like	43	17
No Opinion	8	3.2
Dislike	0	0
Strongly Dislike	0	0
No Answer	13	5.1
Total	253	100%

Check the word that BEST describes why you feel this way:

S7Q19B	Frequency	Percent
Attractive	77	30.4
Interesting	61	24.1
Fellow being	29	11.5
Ecologically important	18	7.1
Useful	15	5.9
No Opinion	7	2.8
Harmless	6	2.4
Unattractive	2	0.8
Other answer or >1 answer	33	13
No Answer	5	2
Total	253	100%

S7Q20: How much do you like or dislike sharks?

S7Q20A	Frequency	Percent
Strongly Like	78	30.8
Like	89	35.2
No Opinion	35	13.8
Dislike	26	10.3
Strongly Dislike	13	5.1
No Answer	12	4.7
Total	253	100%

Check the word that BEST describes why you feel this way:

S7Q20B	Frequency	Percent
Interesting	64	25.3
Harmful	42	16.6
Ecologically important	36	14.2
No Opinion	27	10.7
Fellow being	16	6.3
Attractive	15	5.9
Useful	15	5.9
Unattractive	4	1.6
Harmless	3	1.2
Other answer or >1 answer	24	9.5
No Answer	7	2.8
Total	253	100%

S7Q21: How much do you like or dislike kelp bass?

S7Q21A	Frequency	Percent
Strongly Like	34	13.4
Like	59	23.3
No Opinion	145	57.3
Dislike	3	1.2
Strongly Dislike	2	0.8
No Answer	10	4
Total	253	100%

Check the word that BEST describes why you feel this way:

S7Q21B	Frequency	Percent
No Opinion	125	49 4
Useful	28	11 1
Interesting	22	8 7
Ecologically important	16	6.3
Fellow being	14	5.5
Attractive	11	4 3
Harmless	9	3.6
Unattractive	4	1 6
Uninteresting	4	1.6
Harmful	1	0 4
Lesser animal	1	0 4
Other answer or >1 answer	8	3 2
No Answer	10	4
Total	253	100%

S7Q22: How much do you like or dislike abalone?

Strongly Like	59	23.3
Like	68	26.9
No Opinion	106	41 9
Dislike	2	0.8
Strongly Dislike	3	1.2
No Answer	15	5.9
Total	253	100%

Check the word that BEST describes why you feel this way:

S7Q22B	Frequency	Percent
No Opinion	102	40 3
Attractive	33	13
Useful	29	11 5
Interesting	28	11.1
Ecologically important	14	5.5
Harmless	10	4
Fellow being	7	2.8
Unattractive	5	2
Not useful	3	1 2
Harmful	1	0.4
Lesser animal	1	0 4
Uninteresting	1	0.4
Other answer or >1 answer	11	4 3
No Answer	8	3.2
Total	253	100%

Check the word that BEST describes why you feel this way:

S7Q30B	Frequency	Percent
No Opinion	139	54.9
Interesting	37	14.6
Attractive	15	5.9
Ecologically important	12	4.7
Useful	11	4.3
Fellow being	10	4
Uninteresting	6	2.4
Harmless	5	2
Unattractive	3	1.2
Ecologically unimportant	1	0.4
Not useful	1	0.4
Other answer or >1 answer	5	2
No Answer	8	3.2
Total	253	100%

SECTION 7 (Subsection B), part B: "Why?" Do You Like or Dislike These Animals?

	Attractive	Interesting	Useful	Harmless	Fellow Being	Ecologically Important	Unattractive	Uninteresting	Not useful	Harmful	Lesser Animal	Ecologically Unimportant	No Opinion	Other Plans	No Answer
Starfish	27.7	34.8	1.2	7.9	3.2	4	1.2	0.4	0	0	0	0	9.5	9.1	1.2
Pelican	13.8	29.9	6.3	5.1	5.9	8.3	2.4	2	0.4	0.8	0.4	0.4	15.4	7.9	1.6
Sea Lion	16.6	36.8	2.4	5.5	11.1	6.3	0.8	0	0	0	0	0	7.5	10.7	2.4
Dolphin	30.4	24.1	5.9	2.4	11.5	7.1	0.8	0	0	0	0	0	2.8	13	2
Shark	5.9	25.3	5.9	1.2	6.3	14.2	1.6	0	0	16.6	0	0	10.7	9.5	2.8
Kelp Bass	4.3	8.7	11.1	3.6	5.5	6.3	1.6	1.6	0	0.4	0.4	0	49.4	3.2	4
Abalone	13	11.1	11.5	4	2.8	5.5	2	0.4	1.2	0.4	0.4	0	40.3	4.3	3.2
Sea Gull	12.3	16.2	7.5	3.6	9.1	10.3	2.8	2.4	0.8	2	0.8	0.8	21.7	6.7	3.2
Jellyfish	13	24.9	4.3	2.4	3.6	5.9	1.6	0	0.8	10.3	0.4	0	24.5	5.9	2.4
Sea Urchin	10.3	27.3	3.2	3.2	2.4	8.3	2	0.4	0.8	2.8	0.4	0	31.2	5.1	2.8
Whale	19	28.3	3.2	4	11.5	9.9	0.4	0	0	0.4	0.4	0.4	6.3	12.3	3.6
Grunion	2.8	13	4.3	2.8	4.3	7.9	1.6	1.6	0.4		0.4	0	54.5	2.8	3.6
Octopus	9.5	39.5	6.7	1.2	5.5	5.1	5.5	0.8		1.6	0	0	15	6.7	2.8
Sea Otter	25.3	26.1	4	2	7.5	6.7	0.4	2.4	0	0	0	0.4	14.2	9.1	2
Cormorant	5.9	14.6	4.3	2	4	4.7	1.2	2.4	0.4	0	0	0.4	54.9	2	3.2
Total for each animal															
Frequency	253														
Percent	100														

SECTION 8: ALMOST DONE! NOW JUST SOME QUICK QUESTIONS ABOUT YOU!

S8Q1: Do you now, or have you ever, owned a pet?

The vast majority of respondents, 89.9%, have owned a pet

S8Q1	Frequency	Percent
Yes	227	89.7
No	23	9.1
No answer	3	1.2
Total	253	100%

S8Q2: Have you ever required medical attention due to being injured by an animal?

Most respondents, 69.2%, have never required medical attention due to being injured by an animal

S8Q2	Frequency	Percent
No	175	69.2
Yes	76	30
No answer	2	0.8
Total	253	100%

S8Q3: Have you ever (been a member or participant of the following:)?
Check ALL that apply.

The majority of respondents have not been a member of or a participant in any animal welfare/rights, environmental, or wildlife organization. Neither have they participated in activities promoting wildlife or the environment

S8Q3	YES Frequency	YES Percent	NO Frequency	NO Percent	NO ANSWER Frequency	NO ANSWER Percent
Been a member of an animal welfare or animal rights organization?	37	14.6	214	84.6	2	0.8
Participated in a demonstration or other activity related to animal welfare/rights?	20	7.9	230	90.9	3	1.2

(continued on next page)

Been a member of an environmental/wildlife organization?	69	27.3	181	71.5	3	1.2
Participated in a demonstration, clean-up, habitat restoration, or other activity promoting wildlife or the environment?	75	29.6	175	69.2	3	1.2

Total frequency = 253
Total Percent = 100%

S8Q4: How old are you?

Over half (52.5%) of the respondents are under 34 years old, while over one-third (36.4%) of all respondents are between the ages of 35 and 54

	Frequency	Percent
Between 18 and 24 years old	55	21.9
Between 25 and 34 years old	77	30.6
Between 35 and 44 years old	64	25.6
Between 45 and 54 years old	27	10.8
Between 55 and 59 years old	2	0.8
Between 60 and 64 years old	9	3.6
Between 65 and 74 years old	5	2
Over 75 years old	1	0.4
Total	240	100%

Missing = 13

S8Q5: What is your gender?

Although gender was almost equally represented in the sample, females made up a slight majority at 52.6% while males constituted 47.0% of the sample

S8Q5	Frequency	Percent
Male	119	47
Female	133	52.6
No Answer	1	0.4
Total	253	100%

S8Q6: What is your education?

Most respondents had some college education (31.2%), were college graduates (22.5%) or had completed a graduate degree (21.3%). High school graduates (12.6%) and those without a high school diploma (11.1%) were not as strongly represented in the sample.

S8Q6	Frequency	Percent
No High School diploma	28	11.1
High School Graduate or GED	32	12.6
Some College	79	31.2
College Graduate	57	22.5
Graduate Degree	54	21.3
Other	1	0.4
No Answer	2	0.8
Total	253	100%

S8Q7: What is your race/ethnicity?

Almost half of the respondents, 48.2%, were White (non-Hispanic origin). Hispanics made up 24.1% of the sample; Blacks, 9.1%, and Asians (and Pacific Islanders) 7.1%.

S8Q7	Frequency	Percent
White (NonHispanic)	122	48.2
Hispanic/Latino or Latina	61	24.1
Black, not of Hispanic origin	23	9.1
American Indian	4	1.6
Asian & Pacific Islander	18	7.1
Other	8	3.2
RefuseTo Answer	12	4.7
No Answer	5	2
Total	253	100%

S8Q8: What is your country of birth?

Most respondents, 71.9%, were born in the United States. Of those who were not born in the United States, 52% are from a Latin American country (38% of foreign-born were from Mexico), and 18% claim an Asian country as their place of birth.

United States	182	71.9
Asia	13	5.2
Latin America	37	14.7
(including Mexico with 10.7% & n=27)		
Europe	8	6.4
Middle East	2	0.8
Other	5	2
No Answer	6	2.4
Total	253	100%

S8Q11: How long have you lived in Southern California?

The majority of the respondents, 52.2%, have lived in Southern California for over 20 years. 23.3% have lived here for 11 to 20 years, and 10.7% for 6 to 10 years.

S8Q11	Frequency	Percent
Over 20 years	132	52.2
Eleven to 20 years	59	23.3
Six to 10 years	27	10.7
Two to 5 years	11	4.3
Less than 2 years	20	7.9
Other	3	1.2
No Answer	1	0.4
Total	253	100%

S8Q12: What is your zip code?

Over three-fourths (77.6%) of the museum visitors surveyed reside in Los Angeles County, while 16.4% live in other Southern California counties, and 6% of respondents reside outside of Southern California.

Total LA County F=194 %=77.6	Frequency	Percent
Zip codes approximating		
Los Angeles County regions:		
Antelope Valley	2	0.8
San Fernando	19	7.6
Burbank/Glendale	11	4.4
West San Gabriel Valley	28	11.2
East San Gabriel Valley	12	4.8
Malibu/Santa Monica Mountains	0	0
West	17	6.8
Central	52	20.8
East Central	4	1.6
Southeast	16	6.4
South	8	3.2
Southwest	25	10
Other Southern California Counties:	41	16.4
Kern .8%		
Ventura 7.6		
Santa Barbara 1.2		
Orange 2.8		
San Diego .8		
Riverside 1.6		
San Bernadino 1.6		
Outside of Southern California	17	6
Total	252	100
Missing =1		

S8Q16: Do you have children?

Over half of the respondents, 57.7% do not have children

S8Q16	Frequency	Percent
Yes	146	57.7
No	104	41.1
No answer	3	1.2
Total	253	100%

If so, how many children?

Almost half of the respondents, 45.5%, did not have any children. The percentages in the following table are based on only those respondents who stated that they had children. Of those museum visitors surveyed who had children 42.7% had two children and 28.9% had one child

		Frequency	Percent
Number of children	1	40	28.9
	2	59	42.7
	3	20	14.7
	4	10	7.3
	5	4	2.9
	6	2	1.4
	8	2	1.4
	12	1	0.7
	Total	138	100%

S8Q17: What type of household do you live in?

Over half of the respondents, 54.9%, live in a two-parent household. 10.7% live in a male single parent household. 8.7% live with unrelated individuals, while 8.3% live in a female single parent household

S8Q17	Frequency	Percent
Two parent	139	54.9
Single parent, male	27	10.7
Unrelated individuals	22	8.7
Single parent, female	21	8.3
Married couple	10	4
Single	10	4
Other	19	7.5
No Answer	5	2
Total	253	100%

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