
Cultural Diversity, Cultural Conflict, and Attitudes Toward Marine Wildlife

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TOWARD MARINE WILDLIFE**

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As coastal cities increase in cultural diversity, attitudes toward marine wildlife also become more diverse. This can impact marine environments as well as result in cross-cultural misunderstandings and conflicts. A survey of 253 visitors to an urban museum was undertaken to explore their attitudes toward marine wildlife and how such attitudes varied with cultural background. This paper summarizes a bivariate analysis of responses. The analysis showed that aesthetic, environmental, and animal rights attitudes correspond with higher rates of wildlife knowledge, interaction and animal preference. Also, these attitudes were positively related to education and household incomes. Most respondents disagreed with statements reflecting utilitarian or negativistic attitudes, but Hispanic and African-American respondents were less likely to disagree with such statements. This finding was supported by analysis of cultural diversity variables such as religion, nativity and home language. Socio-demographic findings linked variables such as education and income levels to various attitudes, and at the same time, these same variables were also found to be linked to various cultural groups (e.g., Asians and whites had higher education and income, Hispanics and African-Americans had lower levels of education and income). Both cultural diversity and socio-economic variables revealed influences in shaping attitudes. However when the sample was stratified by education, race/ethnicity and other aspects of cultural diversity seemed to exert an independent effect. Finally, most respondents indicated low tolerance for traditional practices that can harm animals. Respondents who displayed negativistic attitudes tended to be slightly more tolerant of cultural practices of other groups, but respondents who supported animal rightist, aesthetic, and/or environmentalist, as well as utilitarian attitudes, were less tolerant of culture-specific practices that harm animals. In addition, there were differences in tolerance levels among cultural groups; Hispanic and African-American respondents disagreed with these traditional practices in larger shares than did their white and Asian counterparts. This lack of tolerance could play an element in cross-cultural conflict over attitudes toward animals.

Keywords: Attitudes toward animals, Cross-cultural attitudes, Museum visitors, Marine wildlife

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1. INTRODUCTION

Coastal cities are significantly increasing not only in population numbers but also in cultural diversity. As a result there often exists a variety of culture-specific nature-society relations in one location which are manifest in attitudes towards nature, animals, and in traditional environmental and animal practices. In coastal environs this involves diverse attitudes toward marine wildlife and potential impacts on marine environments. Moreover, cross-cultural conflict can result from misunderstandings concerning various group practices. Understanding the diversity in attitudes toward animals/marine wildlife is a key element in resolving these conflicts and in lessening the impacts of certain culture-specific practices on the environment.

This work, which focuses on diverse cultural attitudes toward marine wildlife, draws upon a conceptual framework which interrelates global, local, and individual level influences on public attitudes toward marine wildlife. This framework has been specifically operationalized at the individual level of the model, which focuses on the links between personal characteristics, and knowledge of, preferences for, interactions with marine wildlife on the one hand, and specific attitudes toward marine wildlife on the other. Univariate results from a survey of visitors

to a local science museum showed a culturally diverse, fairly young and well-educated sample. Most respondents had seen many of the local Southern California marine animals and had a reasonable knowledge level about marine wildlife. In general, respondents exhibited strong aesthetic, animal rightist and environmentalist attitudes, and weak negativistic and utilitarian attitudes.

The purpose of this working paper is to explore respondents attitudes in greater depth. Specifically, the analysis considers: 1) those variables, such as knowledge, preference, and interactions, that the conceptual model suggests are most closely linked to attitudes; and 2) personal characteristics variables that may also influence both proximate variables and by extension, attitudes themselves.

This report is divided into four sections. Section 2 will explicate the methods of analysis. Next, section 3 considers the interrelationship between attitude dimensions themselves, the relationships between variables considered important proximate determinants of attitudes (such as knowledge), and the relationship of such variables to attitudes. In the next section, the relationship of cultural diversity and attitudes will be explored by analyzing significant socio-economic, demographic and cultural diversity variables in relation to attitudes and closely linked variables including knowledge, preferences, and interactions. Lastly, a summary of findings and suggestions for future research will conclude the report.

2. METHODS OF ANALYSIS

A series of simple indices was created to serve as summary measures of knowledge, preferences, and interaction levels. Because the distribution of these scores was highly skewed, for purposes of bivariate categorical variable analysis, the sample was partitioned by quartiles to create variable categories (rather than dividing the score's range into quartiles, for example). In addition, slight adjustments to categories were made in order to insure that identical scores were placed in the same category. In arraying knowledge scores, for instance, the first quartile of the sample includes respondents with knowledge scores ranging from 20% to 50% correct answers, with a few (8) scores of 60% at the upper end of this category. However, since the vast majority of respondents with 60% scores fell into the second quartile, these 8 respondents were shifted into the second group. This same situation characterized the second and third quartiles, and so similar adjustments were made so that the third quartile contains all 70% scores, and the fourth quartile has respondents who scored between 80% and 100% correct. Similar adjustments were made in the quartile partitioning for both the preferences and interactions index variables.

For all of these variables (knowledge, preferences, and interactions), the four quartile categories are labeled "low, moderate, medium, and high." The following table (1) illustrates conventions used for labeling, and category range values for each index variable.

Table 1
Labels and Category Ranges for Index Variables

Quartile description	Knowledge: (Percent correct answers)	Preferences: ¹ (Percent of animals liked)	Interactions: ¹ (Percent of animals "seen")
Low	20-50%	up to 46%	up to 67%
Moderate	60%	53-67%	73-80%
Medium	70%	73-80%	87-93%
High	80-100%	87-100%	100%

The statistical methods consisted primarily of nonparametric contingency table analysis (Chi-Square) and a comparison of means. Attitude means were calculated as a data reduction tool, to facilitate interpretation; except for a correlation analysis of attitude means themselves (see section 3.1), other comparisons of means were not assessed as to statistical significance. The attitude mean scores were calculated based on a range of +2 (strongly agree) to -2 (strongly disagree). Comparison of means allowed results to be more readily compared and gave a clearer idea of directionality for relationships when Chi-Square findings were not statistically significant and tables became harder to interpret.

Another important methodological aspect of the analysis is the use of multiple measures of cultural diversity. In addition to the traditional variable of "race/ethnicity," other measures used were: religion, home language, other language spoken, nativity, and duration of residence. These variables provide a multidimensional overview of the cultural

¹ SAS program divided Preferences and Interactions into discontinuous groupings.

diversity within the sample. In addition, their use allows us to investigate which aspects of culture are more/less associated with attitudes.

Preliminary screening of cultural diversity variables was done in order to discover the extent of colinearity, and for efficiency of analysis and presentation, to enable the selection of a subset of cultural diversity variables for use in detailed comparisons with attitudes and proximate measures, such as knowledge, preferences, and interactions.

3. RELATIONSHIPS BETWEEN AND AMONG ATTITUDES AND KNOWLEDGE, PREFERENCES AND INTERACTIONS

3.1 RELATIONSHIPS BETWEEN ATTITUDE DIMENSIONS

In analyzing the various relationships between knowledge, preferences, and interactions, on the one hand, and attitudes on the other, an important first step is to determine if there is a relationship between individual attitude dimensions. Do these relationships follow expected patterns, that is, did individuals who were in agreement with aesthetic, environmentalist, and animal rightist attitude statements, also disagree with statements reflecting utilitarian and negativistic attitudes? In order to do this, a correlation analysis was performed on attitude means using Pearson correlation coefficients.

It was expected that aesthetic, environmental, and/or animal rights scores would be correlated with each other, and inversely correlated with negativistic or utilitarian attitude scores. Respondents may not place the same value on the practical or use aspect of the animal (which may involve decreasing its numbers, harming or killing it) if they favor the beauty or symbolism of the animal, value the position that the animal holds as part of an ecosystem, or believe in an animal's right to life and

equal consideration. Moreover, individuals would probably not feel fear or indifference (negativistic) towards animals that they value for aesthetic, environmental, or animal rights related reasons.

Results of the correlation analysis generally support these expectations. Coefficient signs are of the expected directions, and six out of ten are statistically significant, although most coefficients values are modest. The largest and most significant positive correlations are between utilitarian and negativistic attitudes (0.54), as well as between aesthetic and animal rightist attitudes (0.22). A fairly strong negative correlation exists between animal rightist attitudes and both negativistic and utilitarian attitudes (-0.29 and -0.34 respectively). While the signs for the other attitude correlations are in the expected direction, correlation coefficients are smaller (Table 2).

Table 2
Correlation Analysis of Attitude Dimensions

	Aesthetic	Environment- alist	Animal Rightist	Negativistic	Utilitarian
Aesthetic	1.00 0.0	0.22* 0.0005	0.33* 0.0001	-0.08 0.1903	-0.14* 0.0258
Environment- alist		1.00 0.0	0.12 0.0669	-0.10 0.1102	-0.09 0.1818
Animal Rightist			1.00 0.0	-0.30* 0.0001	-0.34* 0.0001
Negativistic				1.00 0.0	0.54* 0.0001
Utilitarian					1.00 0.0

(Pearson's r /prob. value)

* Statistically significant at 0.05 level

3.2 RELATIONSHIPS BETWEEN KNOWLEDGE, INTERACTIONS, AND PREFERENCES

In the conceptual framework, proximate determinants of attitudes are knowledge of, preferences for, and interactions with marine wildlife. Moreover, there are reasons to expect that there will be positive relationships among these variables. For example, knowing something about a particular animal may stimulate interest in seeking out interactions, e.g., sightings of animals; conversely, an unexpected interaction with the animal may stimulate interest in acquiring further knowledge. Moreover, a chance sighting of an animal about which one has some prior knowledge or familiarity may reinforce that knowledge and/or the inclination to seek further interactions.

Similarly, a positive relationship between knowledge and preferences is expected because an intellectual interest in an animal may be stimulated due to some preference or fondness for the animal. This curiosity may encourage learning or receptivity to information about the animal. As in the case of interactions, this may be a two-way flow; knowledge about an animal may effect how one feels towards the animal. For example, learning that many sharks are harmless and non-threatening toward humans, and are an integral part of a healthy ocean environment, may increase an individual's level of "liking " for the animal.

Finally, a positive relationship between interactions and preferences is logical because more sightings may lead to a greater interest in, or appreciation for the animal, and thus a higher degree of "liking;" or an affinity that manifests as "liking" may stimulate a willingness to seek out opportunities for interactions.

Analysis of survey results showed that all of these two-way relationships were positive, as expected, although not all such relationships were statistically significant. According to the Chi-Square analyses, the most statistically significant positive relationship was between interactions and preferences (Table 3). This suggests that individuals who like an animal might be inclined to make an extra effort to interact with the animal due to that emotional affinity, and that more interactions (a form of contact) promote a greater degree of "liking."

Table 3
Interactions and Preferences

Preferences	Interactions			
	Low	Moderate	Medium	High
Low	47.1%	20.4%	18%	8.5%
Moderate	29.4%	42.9%	18%	10.6%
Medium	8.8%	16.3%	34%	19.1%
High	14.7%	20.4%	30%	61.7%

Chi-Square value = 50.525

Probability value = 0.001

Analysis also revealed a positive relationship between both knowledge and preferences scores, and knowledge and interactions (Tables 4 and 5). The relationships between knowledge and preferences were statistically significant at a 0.05 level, but the probability value for the knowledge and interactions table was only 0.14. In both cases, Chi-Square values were much lower than was the case for interactions and preferences.

Table 4
Knowledge and Preferences

Preferences	Knowledge			
	Low	Moderate	Medium	High
Low	37.5%	12.2%	20.4%	12.3%
Moderate	25%	36.6%	20.4%	26.2%
Medium	5%	26.8%	18.4%	23.1%
High	32.5%	24.4%	40.8%	38.5%

Chi-Square value = 19.93
Probability value = 0.018

The lack of a statistically significant (albeit positive) relationship between knowledge and interactions may suggest that people may know a lot about an animal but may not take the initiative or have the opportunity to interact. However, it should be noted that even the medium interactions quartile indicates that a respondent has seen 87-93% of the animals (Table 5). This is a very large majority of the animals. The only animal that most of the people had not seen was the cormorant. Therefore, a respondent could have seen all of the animals except the cormorant, and still have fallen into the medium quartile since the high quartile indicated a perfect score of 100%. Thus, essentially those with high knowledge scores are in fact also revealing a high rate of interactions. This suggests that a broader range of animals may be needed for this type of analysis, since those used in the present survey were so uniformly familiar.

Table 5
Knowledge and Interactions

Interactions	Knowledge			
	Low	Moderate	Medium	High
Low	31.7%	22.2%	13%	14.5%
Moderate	22%	28.9%	34.8%	17.7%
Medium	17.1%	28.9%	28.3%	38.7%
High	29.3%	20%	23.9%	29%

Chi-Square value = 13.572
Probability value = 0.138

3.3 KNOWLEDGE, PREFERENCES, INTERACTIONS AND ATTITUDES

Attitude scores were compared to knowledge, preferences, and interactions scores of respondents. In general we expected attitudes to be related in similar ways to knowledge, preferences, and interactions, since these three variables are positively related to each other. But more specifically, we expected that people with higher negativistic and utilitarian attitudes would be expected to have lower knowledge, preference, and interaction scores. A negativistic attitude indicates fear or lack of interest in animals (in this case marine animals), which suggests that respondents displaying this attitude may have little interest in learning about animals for which they feel apathy or fear. The link between utilitarian attitudes and low knowledge scores, may derive from the idea that an animal is only of interest for its use and practical purposes; these types of animals (marine) may often be seen as food sources. In today's society, especially in urban environments, most people are removed from the process of catching, killing, and preparation of animals for food; their only interaction may be to purchase a shrink-wrapped fillet

of fish at the market, and they may in fact have no idea what the animal from which the fillet derived, looked like. Additionally, respondents who display fear of or no interest in marine animals or an interest in them mostly as a resource are likely to have fewer interactions with these animals. Aversion to an animal, moreover, does not encourage interaction or liking, and an interest in an animal's use may be from a more distant impersonal point of view not conducive to interactions or promoting an emotional affinity.

Individuals who display aesthetic, environmentalist, and animal rightist attitudes might be expected to have higher knowledge, preferences and interaction scores. An interest in an animal's beauty or symbolic nature, or how an animal is part of an ecological system, or a concern for the rights of animals might stimulate an interest in knowing more about the animal. These types of attitudes would also encourage a person to see or interact with the animal and not surprisingly, may be based on, or stimulate a liking for, the animal.

Aside from these expectations there were no overarching reasons to expect either positive or negative relations between specific attitudes and knowledge, preferences, or interaction scores.

ATTITUDES AND KNOWLEDGE

With respect to attitudes and knowledge, results of Chi-Square analysis were generally in line with expectations (Table 6). However, results were not statistically significant, with one exception: utilitarian scores were significant and negatively linked to knowledge levels. This relationship is most clearly apparent from a comparison of means: the

highest utilitarian score means are associated with the lowest knowledge category and vice versa. Although not statistically significant in the Chi-Square analysis, the means comparison also showed that aesthetic, environmentalist, and animal rightist attitude scores increased monotonically with knowledge, although differences in some values were sometimes modest.

Table 6
Utilitarian Attitude and Knowledge

Knowledge Score	Attitude: Utilitarian		
	Disagree	No Opinion	Agree
Low	11.9%	30.9%	31.3%
Moderate	26.3%	17.3%	34.4%
Medium	24.6%	25.9%	18.8%
High	37.3%	25.9%	15.6%

Chi-Square value = 18.297
Probability 0.006

ATTITUDES AND INTERACTIONS

Results of Chi-Square analysis of attitudes and interactions were also generally in line with expectations. However, while results for most of the attitudes were not statistically significant², both utilitarian and negativistic scores were significantly and negatively linked to interaction levels (Tables 7 and 8). In addition, the mean attitude score comparisons exactly mirrored the Chi-Square analysis. Thus the highest utilitarian and

² Aesthetic attitude: Chi-Square value, 5.731; probability value, 0.454. Environmentalist attitude Chi-Square value, 10.284, probability value, 0.113. Animal rightist attitude Chi-Square value 5.944, probability value 0.429.

negativistic score means are linked with the lowest interaction category. Again, while not statistically significant in the Chi-Square analysis, the means comparisons for the most indicate positive relationships between interaction levels and aesthetic, environmentalist, and animal rightist attitude scores.

*Table 7
Utilitarian Attitude and Interactions*

Interactions Score	Attitude: Utilitarian		
	Disagree	No Opinion	Agree
Low	12.8%	24.6%	42.3%
Moderate	29.4%	21.9%	11.5%
Medium	30.3%	28.7%	23.1%
High	27.5%	24.6%	23.1%

Chi-Square value = 13.319
Probability value = 0.038

*Table 8
Negativistic Attitude and Interactions*

Interactions Score	Attitude: Negativistic		
	Disagree	No Opinion	Agree
Low	14%	15.6%	51.5%
Moderate	29.4%	15.6%	15.2%
Medium	28.7%	37.5%	21.2%
High	27.9%	31.3%	12.1%

Chi-Square value = 27.092
Probability value = 0.001

ATTITUDES AND PREFERENCES

The Chi-Square analysis of attitudes and preferences followed expectations as well, but relationships were stronger than for interactions and knowledge. For all except aesthetic and environmentalist attitudes, the results are statistically significant; and even for these two attitude types, they are reasonably close (probability values around 0.08). Thus respondents who displayed animal rightist, aesthetic, and environmentalist attitudes had higher preference scores, and those respondents more likely to agree with utilitarian and negativistic attitude statements had lower preference scores (Tables 9, 10, and 11).

*Table 9
Animal Rightist Attitude and Preferences*

Preferences Score	Attitude: Animal Rightist		
	Disagree	No Opinion	Agree
Low	66.7	36.7	18.3
Moderate	33.3	16.7	28
Medium	0	6.7	21.7
High	0	40	32

Chi-Square value = 13.248 Probability value = 0.039

*Table 10
Utilitarian Attitude and Preferences*

Preferences Score	Attitude: Utilitarian		
	Disagree	No Opinion	Agree
Low	14.8%	22.7%	48%
Moderate	24.1%	30.7%	24%
Medium	20.4%	17.3%	16%
High	40.7%	29.3%	12%

Chi-Square value = 17.092 Probability value = 0.009

Table 11
Negativistic Attitude and Preferences

Preferences Score	Attitude: Negativistic		
	Disagree	No Opinion	Agree
Low	18.2%	15.2%	51.8%
Moderate	21.6%	36.4%	37%
Medium	21%	27.3%	0%
High	39.2%	21.2%	11.1%

Chi-Square value = 29.864
Probability value = 0.001

In summary, results of the analysis revealed that overall, there are systematic, and often significant differences in knowledge, interactions, and preferences scores for people with different attitude scores. People with higher utilitarian and negativistic scores have a significantly greater probability of having lower knowledge of animals, lower rates of interactions, and weaker preferences, and vice versa. Thus variables identified as influencing attitude formation—knowledge of, interactions with, and preferences for marine wildlife—do appear to be linked to individual attitudes. A higher level of knowledge, more active interactions, or strong preferences for marine wildlife are in line with attitudes that are centered in support for animal-related issues.

4. CULTURAL DIVERSITY AND ATTITUDES

How are scores for attitudes and those variables linked to attitudes influenced by cultural diversity? This is a complex question to address: cultural diversity is only one socio-economic or demographic feature of

respondents that may be related to attitudes. It is important to understand how these other personal features are linked to attitudes in order to interpret any relationships discovered between cultural diversity and attitudes. In this section we will first address the problem of selecting relevant variables (both socio-economic/demographic and cultural diversity); then analyze how these variables relate to attitudes and the linked variables of knowledge, preferences, and interactions. Finally, we will present results of a subsample analysis technique to control for educational attainment levels, in order to begin to better isolate the role of cultural difference in regard to attitudes.

4.1 RELATIONSHIPS BETWEEN AND AMONG DEMOGRAPHIC AND CULTURAL DIVERSITY VARIABLES *SAMPLE ANALYSIS OF DEMOGRAPHIC AND CULTURAL DIVERSITY VARIABLES*

Comparison of cultural diversity variables with the demographic variables provided more detailed information on the make-up of the cultural groups in the visitor sample and allowed us to screen variables for use in further analysis. Screening was based both on past research concerning relationships among social indicators, and by the further analysis of variable relationships in the data set. Variables within each subset were then cross-tabulated and compared using Chi-Square analysis, and patterns identified. For example, education and income are both strong socio-economic indicators and are almost always highly correlated; in this sample, this was found also to be the case, and thus only one was selected for further analysis. Education was selected because it was the most consistently statistically significant between the two, and was a logical link to the knowledge variable. (Table 12).

	Race/Ethnicity				Religion		Home Language			Other Language	Nativity
Demographic Variables	White (Non-Hispanic)	Hispanic	African-American	Asian (Pacific Islander)	Catholic	"Other" Christian	Spanish	An Asian Language	English	Non-Native Born	
Age											
18-24 years old	18.6%	26.2%	35%	17.7%	25.8%	34.3%	27.8%	0%	25%	21.5%	
25-34 years old	32.7%	36.1%	25%	23.5%	39.4%	28%	36.1%	28.6%	35%	33.9%	
35-44 years old	24.8%	26.2%	25%	41.2%	24.2%	26.1%	30.6%	57.1%	30%	32.3%	
Gender											
Female	47.5%	49.2%	73.9%	55.6%	55.2%	52.6%	52.8%	42.9%	43.9%	46.2%	
Education											
H.S. Diploma / less	12.3%	52.5%	30.4%	5.6%	34.3%	22.4%	71.4%	14.3%	62.5%	39.1%	
Some College	28.7%	33.9%	43.5%	0.0%	35.8%	35.3%	22.9%	0%	15%	20.3%	
B.A. / Graduate Degree	59%	13.6%	26.1%	94.4%	29.9%	42.2%	5.7%	85.7%	22.5%	40.6%	
Annual Household Income											
less than \$20,000	10.2%	40.7%	36.4%	5.6%	28.8%	16.7%	52.8%	0%	51.2%	29.7%	
\$20-\$49,000	31.4%	35.6%	31.8%	38.9%	31.8%	29.8%	44.4%	57.1%	39%	34.4%	
\$50-\$80,000	24.6%	18.6%	27.3%	33.3%	22.7%	29%	2.8%	28.6%	2.4%	20.3%	
above \$80,000	33.9%	5.1%	4.5%	22.2%	16.7%	24.6%	0%	14.3%	7.3%	15.6%	
Household Type											
single parent	16.7%	18.3%	47.8%	22.2%	19.1%	20.3%	10.8%	14.3%	17.1%	18.8%	
two parent	49.1%	75%	26.1%	66.7%	64.7%	51.7%	83.8%	85.7%	68.3%	67.2%	
married couple	6.7%	1.7%	0.0%	0.0%	1.5%	4.2%	2.7%	0%	2.4%	3.1%	
single/other	27.5%	5%	26.1%	11.1%	14.7%	23.7%	2.7%	0%	12.2%	10.9%	
Urban Background	76.1%	84.6%	95.5%	88.2%	89.6%	77.2%	81.1%	71.4%	70.7%	79%	

Overall, analysis of the make-up of the cultural groups revealed that slightly less than one-half of the respondents were white (non-Hispanic), approximately one-quarter Hispanic, while nearly 10 percent of respondents were African-American and 7% Asian (/ Pacific Islander). A higher percentage of African-American respondents (35%) were in the youngest age group (18-24 years old), while the greatest percentage of white and Hispanic respondents (32.7% and 36.1% respectively) were in the next youngest group (25-34 year old) and the highest percentage of Asian respondents (41.2%) were older, between 35-44 years old. The only significant relationship between cultural diversity measures and age was duration of residence: while the majority of respondents marked Southern California residency as over twenty years, or at least 11-20 years, the largest percentage of 18-24 year olds had lived here 11-20 years. This makes sense in relation to their own age.

Gender breakdowns among the various groups showed almost equal percentages of males and females within each group, with the noted exception of African-American respondents, a larger percentage of whom were females (73.9%). However, the only significant relationship was between gender and second language speakers. Of the respondents who spoke a second language, the majority (67.8%) who spoke Spanish as a second language were female (predominantly white, since very few Asian or African-American respondents marked this choice), while amongst those who spoke English as a second language over half are males (presumably Hispanic or Asian).

Racial/ethnic groups differed significantly with regard to education levels. It was expected that whites and Asians, due to higher incomes and

thus better opportunities for education, might have higher education levels than Hispanics and African-Americans. Results followed these expectations; nearly all of the Asian respondents (94.4%) had undergraduate and graduate college degrees (higher than white respondents (59%) with degrees), compared to less than 15% for Hispanics and 26% for African-Americans. Over one-half of Hispanic respondents had the lowest education level (high school diploma or less), compared to almost one-third of African-Americans and only 12% of whites and about 5% of Asians. Close to one-half (43.5%) of African-American respondents marked their education level as "some college," while only one-third of Hispanics, over one-quarter of whites, and zero Asians were in this same category.

Not surprisingly, education was significantly related to many other cultural diversity variables. Most respondents who spoke English or Asian at home had the highest level of educational attainment, while the majority of respondents who spoke Spanish at home were in the lowest education category. Moreover, respondents who spoke a second language and who marked who spoke English as that language had lower education attainment levels, than those who spoke Spanish as a second language. Additionally, Catholics had lower levels of educational attainment compared to respondents whose beliefs were agnostic/atheistic, of other Christian religions, and other religions in general. Native born respondents had higher levels of educational attainment than non-natives. Of non-natives, percentages of respondents in the lowest education level was almost equal to those with the highest education level (39.1% vs. 40.6%), most likely reflecting the polarity between immigrant

Hispanic respondents and immigrant Asian respondents. And finally, almost half of the respondents who had resided in Southern California for 11-20 years had the lowest level of educational attainment when compared to respondents of other lengths of duration of residence.

Since education and income are linked we would expect similar patterns in differences between groups in income levels. Thus not surprisingly, among white respondents, one-third claimed annual income levels above \$80,000, while well over one-third of Asian respondents were in the \$20-49,000 annual income categories, and the largest percentage of Hispanic and African-American respondents made less than \$20,000 annually (40.7% and 36.4% respectively). Income was significantly linked to other "home language" and "other language" in a similar way to education. Higher incomes were generally associated with those who spoke English at home, and who spoke Spanish as a second language (if they spoke a second language). While the largest percentage of both native and non-native respondents were found in the same annual income bracket of \$20-49,000, overall, the majority of non-native born respondents were in the lower income brackets, and the majority of native born respondents were scattered among the higher income brackets.

As for household types, it was expected that African-Americans might be strongly represented in the category of single parent households. The 1990 census figures show that African-Americans differed from other groups in the share of two-parent households and in their larger proportion of single parent (female-headed) families, both of which are related to elevated rates of poverty (Farley 1996, 218). In addition, until recently, reunification provisions of immigration laws would most likely

have affected Hispanic and Asians respondents who could bring their spouses and other family members to join them. Thus, Chi-Square tests indicated statistically significant differences in household types among racial/ethnic groups; African-Americans had the highest percentage of single parent households, compared to the other three groups, where most were in two-parent households. Additionally, statistically significant differences for household type were found based on the home language variable. The vast majority (almost 85%) of all respondents who spoke either Spanish, or an Asian language as their home language lived in two-parent households. Of those who spoke English at home, almost one-half lived in two-parent households, however, one quarter of these respondents were single or lived in a household of unrelated individuals, while one-fifth lived in single-parent households, possibly reflecting the household status of many of the African-American respondents. Moreover, almost one-half of respondents who had lived in Southern California for less than five years lived as singles or with unrelated individuals in their household, compared to all other duration of residence categories which were dominated by two-parent households.

However, few differences were found concerning the "rural/urban background" variable. Statistically significant for both "other language" and religion variables, it only revealed that the majority of respondents who spoke a second language (both Spanish and English), as well as the majority of all respondents of all religious beliefs, grew up in an urban environment. This latter piece of information may reflect the urban location of the survey site.

Chi-Square tests indicated statistically significant differences in relationships regarding other cultural diversity variables. Based on generally accepted ideas concerning native and non-native groups, it was expected that white respondents would tend to be native born, speak English at home, speak Spanish as their second language (if they spoke one), have lived in Southern California for a long time, and most likely would be of a Christian religion; somewhat similar expectations were held for African-Americans. However, expectations for Hispanic and Asian respondents were different. Expectations were that a larger percentage of these groups would be non-native, speak a language other than English at home, and if they spoke a second language, that language would be English. Duration of residence might tend to be shorter, and religious beliefs would tend toward Catholicism for Hispanics and Buddhism (or "other") for Asians. In general, results were in line with expectations, with the exception of duration of residence, since most respondents were long-term Southern California residents, with the exception of Asians (50% of whom had lived here less than five years).

According to Chi-Square tests statistically significant results showed that among racial/ethnic groups, almost all whites and 100% of African-Americans spoke English at home, while over half of both the Hispanic and Asian respondents spoke either Spanish or an Asian language at home (respectively). Of the respondents who spoke another language, almost two-thirds of the Hispanic respondents spoke English as a second language, compared to the vast majority (83%) of Asians, and only 22% of whites. No African-Americans spoke English as a second language. However, very few Asians, African-Americans, or Hispanics spoke

Spanish as a second language, while over three-quarters of whites who spoke another language, spoke Spanish.

Statistically significant differences were also found among racial/ethnic groups regarding religion, nativity, and duration of residence. Over two-thirds of Hispanic respondents marked Catholic as their religious belief, while the vast majority of whites and African-Americans were of "other Christian" beliefs. Over half of the Asian respondents fell into the "other" (religious belief) category, but previous analysis indicated that most Asians were Buddhists. Regarding nativity, virtually all of the white (92%) and African-American (96%) respondents were native-born, compared to the majority of Asians (60%) and Hispanics (81%) who were foreign-born. Half of the Asian respondents had lived in Southern California less than five years, compared to about half of all other groups who had lived here over 20 years.

Comparison of other cultural diversity variables in relation to the native/non-native variable revealed other statistically significant differences. For example, the vast majority of respondents who spoke Spanish or an Asian language as their home language were foreign-born, while the vast majority who spoke English at home who were native-born. Similarly, most of the respondents who spoke Spanish as a second language were native-born, and most who spoke English as a second language were foreign-born. In addition, almost half of non-native respondents marked Catholic for religious belief, while slightly over half of native respondents marked "other Christian."

As for home language, statistically significant differences showed that virtually all respondents who speak Spanish or an Asian language at

home, and who also speak a second language, speak English as that second language. The reverse is true for almost all of the respondents who speak English at home, and speak another language; their second language is Spanish. Additionally, well over half of respondents who speak an Asian language at home have lived in Southern California less than five years, compared to over 43% of respondents who speak Spanish at home who have lived here 11 to 20 years. However, over 60% of respondents who speak English at home are long term residents of over 20 years.

Comparison of religion and home language variables also revealed statistically significant results. Over 70% of those who spoke Spanish at home chose Catholic as the description of their religious belief, compared to well over half of those who spoke English at home who marked "other Christian." Of those who spoke an Asian language at home, nearly 60% indicated "other" as their religious belief (prior analysis revealed this was usually Buddhist).

Overall, the comparison of demographic and cultural diversity variables shows white and Asian respondents as having higher education and income levels than Hispanic and African-American respondents. While Asian respondents tend to be slightly older, African-American respondents tend to be slightly younger and are made up of more single parent households. Additionally, most white and African-American respondents were native-born, spoke English at home, and claimed "other Christian" as their religious belief; while over half of Hispanic and Asian respondents were non-native and spoke Spanish or an Asian language (respectively) at home. Hispanic respondents also tended to be Catholic and, along with whites and African-Americans, tended to be long term

residents (over 20 years). However, a large percentage of those who spoke Spanish at home had lived here for 11 to 20 years. Asians tended toward religious beliefs described as other or Buddhist, and half of the Asian respondents had lived in Southern California less than five years.

SCREENING ANALYSIS OF DEMOGRAPHIC AND CULTURAL DIVERSITY VARIABLES

Since a wide variety of demographic and cultural diversity variables were created in order not to miss any relevant category of information about the respondents sample, there is the possibility that some of these variables may be intercorrelated and actually measuring the same thing. Therefore variables were screened to allow the identification of a subset of socio-economic and demographic measures, as well as a cultural diversity subset. For example, education was consistently linked to income and so only one variable, education, was retained for further analysis. In addition, education was often linked to several cultural diversity variables and thus was kept in order to provide more in depth analysis. Because education and income are significantly related, except where the income variable performs *differently* than education, results for income are not reported. The other demographic variables which remained in the analysis were: age, gender, rural/urban, and household type. Age was retained, even though it has links to income and education; results from an age variable would allow comparisons to prior attitude studies which found significant results based on age. This reasoning is also true for gender, a traditionally important variable and significant in past research; it was therefore chosen as a final variable. Rural/urban background was also retained as a variable, again, due to prior research. Household type turned out to be a

significant variable not only in its reflection of socio-economic status, but in its connections to certain cultural diversity variables.

The cultural diversity variable subset consisted of race/ethnicity, native/non-native, and religion. Race/ethnicity was kept as a subset variable due to its traditional use in survey research and its significance in many comparisons. Native/non-native was consistently linked to home language and other language spoken, and therefore only one variable, native/non-native was retained for further analysis. Home language and other language will only be reported on when they are significant and native/non-native is not. Religion was selected due to its reflection of many cultural diversity measures, especially the connection between Hispanics, Spanish home language speakers, and Catholicism. In addition, religious beliefs often shape perceptions of nature and the environment. Differences in duration of residence did not prove informative and it was not retained as a subset variable. With the exception of Asian respondents, most of the sample were long-time residents of Southern California. Perhaps it is these residents who are more established and aware of, and more likely to attend, local museums. Thus duration of residence will only be reported on when it is statistically significant in a particular analysis.

In addition to revealing appropriate demographic and cultural diversity subsets, the screening analysis also showed that some variables are linked. It is important to keep in mind the implications these linkages may have for looking at attitudes. For example, since race/ethnicity and other cultural diversity measures are linked to education and income it may be difficult to separate out effects if race/ethnicity and

education/income are also linked to attitudes. Therefore, we cannot simply relate one variable to attitudes in a straightforward manner. It is important to realize that these variables relate to each other and collectively interact to effect and produce attitudes.

In the next portion of this section the relationship of both of these subsets of indicators to knowledge, preferences, and interactions, and to attitudes, will be further analyzed.

4.2 SOCIO-ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS AND ATTITUDES

As previously mentioned, the cultural diversity variables are only one part of the socio-economic or demographic features of respondents that may be related to attitudes. Therefore, it is important to understand how these other demographic features are linked to attitudes in order to interpret the cultural diversity findings.

DEMOGRAPHIC VARIABLES AND KNOWLEDGE, PREFERENCES AND INTERACTIONS

Knowledge of marine wildlife and education are logically related; education is one means of acquiring knowledge. Therefore it was expected that education, and possibly age, would be positively related to knowledge. Individuals with higher education levels would be likely to have acquired greater levels of knowledge than those who have fewer years of education. These individuals probably not only have higher incomes but also may be older, due to more years of school and life experience. Results supported expectations and showed that the largest percentage of individuals who had higher knowledge scores also had higher levels of education, income and were older (those over 45 had the highest scores) (Table 13). However,

only education and household type were significant according to Chi-Square analysis (while age—older respondents having higher knowledge scores—was not too far off with a probability value of 0.064). Interestingly, single respondents and those from two-parent households were likely to have the highest knowledge scores (compared to other household types). Respondents from two-parent households are perhaps more able to be involved with their children's education and learning and therefore reap benefits in terms of their own knowledge levels.

Table 13
Knowledge and Significant Demographic Variables

	Knowledge			
	Low	Moderate	Medium	High
Education				
H.S. diploma or less	38.5%	23.1%	23.1%	15.4%
Some college	21.6%	28.4%	20.3%	29.7%
B.A./ Graduate Degree	11.7%	21.4%	28.2%	38.8%
Household Type				
single parent	30.4%	32.6%	19.6%	17.4%
two-parent	23%	17.5%	27%	32.5%
married couple	0%	22.2%	55.6%	22.2
single/other	13%	30.4%	15.2%	41.3%

Education can also be expected to relate to higher *preferences* scores. Higher education might contribute to increased awareness of certain marine animals and income might allow the respondent more opportunities to either learn more or interact more with these animals (since these preferences and interactions are related) which could increase emotional attachments or fondness for animals. Results confirmed a

positive and statistically significant relationship between these variables and preference scores. Moreover, respondents' age was significantly related to preference scores, but not in the expected way (Table 14).

Respondents over 35 years old had the highest preferences scores, which is somewhat surprising since prior studies found that younger individuals are more generally appreciative and affectionately oriented towards animals than older people (Kellert and Berry, 1980). It may be because in this respondent sample many young people have not been exposed to marine animals (even though almost everyone had high interaction rates). Perhaps, since many are inner city youths, they have not had the opportunity to become aware of these animals and develop a liking for them. However, it should be noted that, overall, preferences scores were very high.

Table 14
Preferences and Significant Demographic Variables

	Preferences			
	Low	Moderate	Medium	High
Education				
H.S. diploma or less	37.8%	28.9%	4.4%	28.9%
Some college	21.7%	33.3%	14.5%	30.4%
B.A. or Graduate Degree	13.8%	19.2%	29.8%	37.2%
Age				
18-24 years old	41.7%	25%	16.7%	16.7%
25-34 years old	17.2%	32.8%	20.3%	29.7%
35-44 years old	8.2%	26.5%	22.5%	42.9%
45-54 years old	20%	16%	8%	56%
Over 55	10%	10%	30%	50%

Concerning *interactions*, it is logical to expect that individuals with higher education and by extension, income, would be more likely to have higher interaction scores. Education might contribute to a higher awareness or knowledge of marine wildlife and thus might encourage more interactions. Higher income would facilitate access to marine environments, ability to pay entrance fees to marine theme parks, or even to engage in sports fishing or jet skiing. Again, results confirmed these expectations, but were not statistically significant.

When the income variable was substituted for education, however, results were significant, and clearly indicated that higher incomes were associated with higher interaction scores. However, similar testing of the income variable for knowledge and preferences, revealed no statistically significant results (although education was significantly linked to both knowledge and preferences). Perhaps the ability to interact, fueled by income, is even more relevant than the desire or the interest, in terms of manifesting interactions.

Two other variables were significantly related to interactions: age and gender (Table 15). Respondents over 35 years old had the highest interaction scores, and since these age groups have also had higher preference and knowledge scores this finding simply mirrors the relationship among these three variables. As for gender, males tended toward higher interaction scores while female respondents in general scored in the low to medium range. This may be due to traditional male involvement in salt-water fishing, surfing and other beach sports.

Table 15
Interactions and Significant Demographic Variables

	Interactions			
	Low	Moderate	Medium	High
<i>Income</i>				
less than \$20,000	39.4%	21.2%	15.2%	24.2%
\$20-49,000	21.7%	30.4%	27.5%	20.3%
\$50-\$70,000	13.5%	26.9%	40.4%	19.2%
above \$80,000	12.5%	14.6%	29.2%	43.6%
<i>Age</i>				
18-24 years old	31.3%	29.2%	27.1%	12.5%
25-34 years old	16.4%	39.3%	31.2%	13.1%
35-44 years old	16%	14%	32%	38%
45-54 years old	15.4%	11.5%	30.7%	42.3%
Over 55	15.4%	23.1%	23.1%	38.5%
<i>Gender</i>				
Female	26.8%	28.6%	28.6%	16.1%
Male	13.3%	20.4%	28.6%	37.8%

DEMOGRAPHIC VARIABLES AND ATTITUDE MEASURES

From previous studies we expected attitudes to vary in relation to certain socio-demographic factors. For instance, individuals with higher levels of education and younger individuals generally have more supportive attitudes towards animals (Kellert and Berry 1984, Shaw 1980) and thus are less supportive of utilitarian and negativistic attitudes. Also, Kellert and Berry (1980) found that individuals with higher incomes demonstrated stronger naturalistic and ecologicistic attitudes, with weaker negativistic attitudes. Yet moralistic attitudes were lower among the higher income groups. In addition, gender differences are common: females are more likely to support animal rights while males often have higher utilitarian scores (Kellert and Berry 1980, Wells and Hepper 1995,

Pifer 1996). Based on these studies a positive relationship was expected between socio-economic status, age, and gender in relation to aesthetic and animal rightist attitudes,³ and a negative relationship was expected between these variables and both utilitarian and negativistic attitudes.

Results were generally in agreement with expectations for most of attitude measures. However, utilitarian and negativistic attitudes stood out as varying in relationship to these socio-economic and demographic variables in statistically significant ways. While the majority of all respondents did not agree with either utilitarian or negativistic attitude statements, the younger age groups (18-24) still had the highest percentage of scores indicating agreement with negativistic attitudes.⁴ While this is unexpected, it is important to note that the younger age group also had lower education scores, and results showed that respondents with a high school diploma or less had a higher percentage of scores agreeing with negativistic and utilitarian attitudes. This was reflected in results for income and household types; respondents with an annual income of less than \$20,000, and respondents from single parent households had the highest percentage of scores agreeing with negativistic and utilitarian attitudes (Tables 16 and 17).

³ with the possible exception of income for animal rightist

⁴ Also true for age and utilitarian attitudes, but Chi-Square probability value was 0.141.

Table 16
Utilitarian Attitude and Demographic Variables

Demographics	Attitude: Utilitarian		
	Disagree	No Opinion	Agree
<i>Education</i>			
H.S. diploma or less	33.9%	39%	27.1%
Some college	51.9%	39.2%	8.9%
B.A. or Graduate Degree	60%	30.9%	9.1%
<i>Household Type</i>			
single parent	36.2%	36.2%	27.7%
two-parent	45.3%	42.5%	12.2%
married couple	60%	30%	10%
single/other	76%	20%	4%

Table 17
Negativistic Attitude and Demographic Variables

Demographics	Attitude: Negativistic		
	Disagree	No Opinion	Agree
<i>Education</i>			
H.S. diploma or less	49.2%	22%	28.8%
Some college	70.9%	16.5%	12.7%
B.A./Grad. Degree	75.5%	17.3%	7.3%
<i>Age</i>			
18-24 years old	57.4%	14.8%	27.8%
25-34 years old	68.8%	19.5%	11.7%
35-44 years old	67.2%	19.7%	13.1%
45-54 years old	88.9%	11.1%	0%
Over 55 years old	75%	18.8%	6.3%

Respondents raised in urban environments had statistically significant higher animal rightist scores than those with rural backgrounds (Table 18). People reared in urban environments are less likely to be exposed to practical uses of animals and therefore (as per

previous studies) may be more inclined to support more protective moral positions involving animals. Results were thus in line with expectations.

Table 18
Animal Rightist Attitude and Demographic Variables

Demographics	Attitude: Animal Rightist		
	Disagree	No Opinion	Agree
<i>Rural/Urban Background</i>			
Urban	2%	14.2%	83.8%
Rural	0%	31.7%	68.3%

Slightly over half (56%) of female respondents agreed with animal rightist attitudes while only 44% of males agreed; differences were not statistically significant, however. While this is not as strong a contrast as some studies have found, it is still in line with expected results. Weaker gender differences may indicate greater overall levels of public awareness of animal rights issues, than when earlier studies were done. In addition, however, the lack of significance for gender in this study may be due to the cultural diversity of this sample; previous study samples consisted primarily of white respondents. Also socio-economic differences between white and minority females may soften gender differentials in strength of animal rightist attitudes.

Animal rightist scores did not vary with age in a statistically significant manner, but the youngest group of respondents had a lower percentage of their group in agreement with animal rightist statements. This most likely ties into the lower education finding described earlier.

Income however, varied from expectations based on Kellert's findings. Those with higher income agreed with animal rightist attitudes, again probably reflecting the change in public awareness since Kellert's work.

4.3 CULTURAL DIVERSITY IN RELATION TO ATTITUDE DETERMINATES AND ATTITUDES

In this section we will examine the subset of cultural diversity variables in relation to attitude determinants—knowledge, preferences, and interactions—and to attitudes. Differences among cultural diversity measures in relation to determinants and attitudes will be interpreted in light of information gleaned from the previous examination of the socio-demographic features in these same relationships. This is important in attempting to address the issue raised by the screening analysis: some variables are linked and thus it is difficult to separate out which variables are affecting attitudes. In addition, we will examine how groups differ by individual attitudes, as well as exploring attitude rankings by cultural diversity groups.

CULTURAL DIVERSITY AND KNOWLEDGE, PREFERENCES AND INTERACTIONS

A majority (69.4%) of all respondents achieved a score of between 60-80% correct answers in the *knowledge* section of the survey. However, it was expected that whites and Asians might have higher knowledge scores, since both of these groups consistently acquire higher levels of education. In addition, it was expected that respondents who spoke Spanish at home, non-native respondents, as well as respondents who have not lived in Southern California very long would have lower

knowledge scores. Typically these factors are markers of immigration status and these respondents would likely have faced some obstacles to education and knowledge-enhancing experiences involving exposure to marine wildlife. Religion was also expected to be a factor as it often shapes ideas about nature and environmental values. This variable could also be expected to reflect race/ethnicity and language, given the Catholicism of a majority of the Hispanic population in Southern California (and elsewhere).

Results revealed statistically significant differences between cultural groups; as expected, white and Asian respondents had higher knowledge scores than Hispanic and African-American respondents, at least in part reflecting cultural diversity status differentials between these groups (Table 19). Respondents who spoke Spanish at home tended to have lower knowledge scores, while those who spoke an Asian language at home were polarized between the low and high ends of knowledge scores. This polarization most likely reflects differences between socio-economic levels within Asian groups. New immigrants may not yet speak English, whereas those Asian respondents who were born in the United States, have been here longer, or are here as college students may be fluent English speakers. Nativity and religion also generally followed expectations as the largest percentage of respondents who marked Catholic as their religious belief also had lower knowledge scores. While not among the selected subset of cultural diversity variables, duration of residence was statistically significant in relation to knowledge scores. However, patterns were not distinct, except that respondents who had

lived in the area for over 20 years had higher knowledge scores, perhaps reflecting more exposure to coastal environs and marine life.

*Table 19
Knowledge and Significant Cultural Diversity Variables*

	Knowledge			
	Low	Moderate	Medium	High
Race/ Ethnicity				
White (non-Hispanic)	12.9%	19.8%	27.6%	39.7%
Hispanic	39.6%	24.5%	20.8%	15.1%
African-American	28.6%	38.1%	9.5%	23.8%
Asian (P.I.)	23.5%	17.7%	29.4%	29.4%
Home Language				
English	16.3%	24.7%	24.7%	34.3%
Spanish	46.7%	23.3%	16.7%	13.3%
Asian	33.3%	16.7%	16.7%	33.3%
Native/ Non-Native	15.3%	23.5%	26.5%	34.7%
	37.5%	26.8%	19.6%	16.1%
Religion				
Agnostic/ Atheist	4.8%	14.3%	42.9%	38.1%
Catholic	37.7%	23%	19.7%	19.7%
Other Christian	14%	24.3%	27.1%	34.6%
Other	25%	27.8%	16.7%	30.6%
Duration of Residence				
less than 5 years	20.7%	31%	17.2%	31%
6-10 years	28%	4%	52%	16%
11-20 years	29.6%	33.3%	14.8%	22.2%
over 20 years	16.5%	22.3%	25.6%	35.5%

As for differences in *preferences* for marine wildlife, it might be expected that whites and longer-term Southern California residents would have higher preference scores due to socio-economic advantages and/or more likelihood of exposure to these animals. While not statistically significant, results confirmed that whites showed higher preferences for the listed marine animals than did the other three groups (Table 20). Interestingly, the largest share of African-American and of Asian respondents fell into the lowest preferences score category. Respondents who lived in Southern California for over 20 years tended to have the highest preference scores, with those residing here for less than 20 years scoring at low and moderate levels ("close" probability value of 0.059).

Table 20
Preference and Cultural Diversity Variables

	Preferences			
	Low	Moderate	Medium	High
<i>Race/ Ethnicity*</i>				
White (non-Hispanic)	17.1%	23.8%	21.9%	37.1%
Hispanic	27.6%	31.9%	12.7%	27.6%
African-American	43.5%	18.9%	6.3%	31.3%
Asian (P.I.)	31.3%	25%	25%	18.8%
<i>Duration of Residence</i>				
less than 5 years	20%	36.7%	26.7%	16.7%
6-10 years	9.5%	38.1%	19.1%	33.3%
11-20 years	36.7%	20.4%	16.3%	26.5%
over 20 years	17.7%	24.3%	17.7%	40.2%

* *Race/Ethnicity* Chi-Square value = 11.669
Probability value = 0.233

* *Duration of Residence* Chi-Square value = 16.39
Probability value = 0.059

Respondents who had higher *interaction* scores might be expected to be white, long-term residents of the area who would be more likely to have the resources, awareness, and opportunities to interact with marine wildlife. Residents of inner city areas, predominantly Hispanics and African-Americans, might have more difficulty due to economic constraints on access to coastal or marine recreation areas. Results, while statistically significant, were somewhat mixed (Table 21). Whites and Asians had relatively high scores, but a significant percentage of Hispanic respondents were also in the highest interaction category. This may be due to traditional family gatherings and recreation; the beach, while not always convenient, is inexpensive (i.e., costs are limited to bus fare or parking fee). Also many Hispanics fish on piers as a source of income, recreation, or supplement to groceries. Many Hispanic respondents were from Mexico and perhaps had coastal experiences (and at least rural experiences which may be more conducive to beach recreation or outdoor family recreation).

Table 21
Interactions and Significant Cultural Diversity Variables

	Interactions			
	Low	Moderate	Medium	High
<i>Race/ Ethnicity</i>				
White (non-Hispanic)	12.3%	28.3%	31.1%	28.3%
Hispanic	26.7%	28.9%	15.6%	28.9%
African-American	63.2%	10.5%	5.3%	21.1%
Asian (P.I.)	26.7%	13.3%	46.7%	13.3%

Of particular interest, however, is that nearly two-thirds of African-American respondents (63.1%) were in the low interactions category. Thus in comparison to other groups African-American respondents appeared to have had fewer interactions with marine animals. According to one of the African-American community experts interviewed in the course of survey development, many African-Americans do not customarily recreate at the beach, which could affect possibilities for sightings and interactions with marine wildlife. These respondents may be less apt to drive or have cars (for economic reasons) and not have easy access to coastal areas. Additionally, this could be linked to the survey site which was in an inner city neighborhood.

Duration of residence of respondents, while not quite statistically significant (0.051), indicated that residents who had lived in the area for over 20 years had a tendency to have higher interaction scores.

CULTURAL DIVERSITY AND ATTITUDES MEASURES

Due to the previously established relationship between the attitudes, and knowledge, preferences, and interactions, it was expected that those groups who had higher knowledge, preferences, and interaction scores, i.e., whites and Asians, would likely show stronger support for aesthetic, environmentalist, and animal rightist attitudes. Additionally, based on previous studies respondents with lower education and income are more likely to display utilitarian and negativistic attitudes. Since, in this study, more Hispanic and African-American respondents were represented in these socio-economic categories, it was expected that they might also tend towards greater agreement with utilitarian and

negativistic attitudes than other groups. Additionally, since many Hispanics speak Spanish at home, or speak English as a second language, it was also assumed that these measures of cultural diversity would be characteristic of respondents less likely to disagree with utilitarian and negativistic attitudes. Nativity and duration of residence would be expected to be additional factors. Foreign-born respondents, due to traditional customs, rural background, or residence in economically depressed areas, might view marine wildlife as a food source (stimulating utilitarian attitudes) or, conversely, as not of any interest if they are not seen as relevant to economic mobility or lifestyles (negativistic). Those who have lived in Southern California longer might be expected to have a better appreciation of local marine wildlife and marine environments (simply as a function of more exposure opportunities) and thus be more supportive of aesthetic, animal rightist, and environmentalist attitudes.

Our analysis showed that although the vast majority of each group supported aesthetic, animal rightist, and environmentalist attitudes and did not agree with utilitarian and negativistic attitudes, attitudinal differences were found amongst groups. Although not all were statistically significant, these differences are still worth noting.

While utilitarian and negativistic attitudes were the least popular and supported by only a small percentage of all respondents, variations did occur among groups, although results were not statistically significant (probabilities were 0.096 and 0.094 respectively) (Table 22). The majority did not agree with utilitarian or negativistic attitudes, but a greater percentage of Hispanic and African-American respondents indicated agreement with these attitudes than did whites and Asians.

Table 22
Negativistic and Utilitarian Attitudes by Race/Ethnicity

<i>Race/ Ethnicity</i>	Utilitarian Attitude			Negativistic Attitude		
	Disagree	No Opinion	Agree	Disagree	No Opinion	Agree
White (Non- Hispanic)	57%	33.1%	9.9%	73.7%	16.4%	9.8%
Hispanic	34.4%	44.3%	21.3%	55%	23.3%	21.7%
African- American	45.5%	31.8%	22.7%	54.5%	18.2%	27.3%
Asian (P.I.)	50%	38.9%	11.1%	66.7%	16.7%	16.7%

In addition, we also looked at a relative ranking of attitudes by "percent agree" to allow some comparison of ordering of attitude strength across cultural diversity groups (Table 23). For the total sample overall, the highest percentage agreed with aesthetic attitudes, making this the most widely displayed attitude. This was true also for each cultural diversity group, whether defined by race/ethnicity, nativity, or religion. However, among Asians equivalent shares fell into the environmentalist "agree" category; for whites, Hispanics and African-American respondents this attitude ranked third. Environmentalist attitude agreement also ranks third for Catholics and "other Christians." The "other Christians" and whites had the largest share in the animal rightist "agree" category, more than almost 25 percentage points above Asians, for whom this attitude ranked third, and more than 10 percentage points above African-Americans and non-native respondents, for whom nonetheless this attitude ranked second (tied with environmentalist attitudes). These

results suggest that Asian respondents are less supportive of animal rightist attitudes than are members of the other groups.

Table 23
Attitude Rankings by Cultural Diversity Variables.

Percent of groups agreeing with each attitude.

Attitude	Race/Ethnicity				Nativity	Religion	
	White (Non-Hispanic)	Hispanic	African-American	Asian	Non-Native born	Catholic	"Other" Christian
Aesthetic	97.5%	100%	91.3%	94.4%	98.5%	98.5%	96.5%
Environmentalist	82%	69.5%	72.7%	94.4%	73%	72.7%	77.8%
Animal Rightist	85%	76.7%	72.7%	61.1%	73%	77.9%	83.5%
Utilitarian	9.9%	21.3%	22.7%	11.1%	18.4%	17.7%	14.6%
Negativistic	9.8%	21.7%	27.7%	16.7%	17.2%	14.9%	15.4%

There were clear differences in percentages of agreement with utilitarian and negativistic attitudes across groups. While the smallest share of all groups approved of these attitudes, the percent agreement for utilitarian and negativistic attitudes for Hispanics and African-Americans was almost twice as high as it was for whites and Asians. This, again confirms difference in agreement levels between Asian/whites and Hispanic/African-American respondents for negativistic and utilitarian attitudes.

Moreover, of major importance, and in support of the finding shown in the statistical analysis, Hispanic and African-American respondents' attitude mean scores also differ numerically from whites and

Asian respondents with regard to utilitarian and negativistic attitudes. Similar to the contingency table analysis above, Hispanic and African-American respondents, while not agreeing with utilitarian and negativistic attitudes, have mean scores which are numerically less negative than the mean scores for white and Asian respondents.

Turning to other cultural diversity variables, respondents who spoke Spanish at home, English as a second language, and were Catholic in their religious beliefs, were also likelier to be in agreement with utilitarian attitudes. These respondents were virtually all Hispanic, as no Asian, African-American, or white respondents spoke Spanish at home, and very few (except for whites) spoke Spanish as a second language. These same trends held true for negativistic attitudes, but here only "other language" was significant. Moreover, while nativity was not significant, patterns indicated that non-native respondents were more likely to agree with utilitarian attitudes. (See Table 24 and 25.)

*Table 24
Other Language and Negativistic Attitudes*

	Attitude:		
	Disagree	No Opinion	Agree
<i>Other Language</i>			
English	50%	30%	20%
Spanish	76.3%	13.6%	10.2%

Table 25
Significant Cultural Diversity Variables and Utilitarian Attitudes

	Attitude: Utilitarian		
	Disagree	No Opinion	Agree
<i>Home Language</i>			
English	54.8%	35%	10.2%
Spanish	35.1%	37.8%	27%
Asian	14.3%	71.4%	14.3%
<i>Other Language</i>			
English	36.6%	34.2%	29.3%
Spanish	54.2%	39%	6.8%
RELIGION			
Agnostic/ Atheist	90.5%	4.8%	4.8%
Catholic	38.2%	44.1%	17.7%
Other Christian	47.4%	37.9%	14.7%
Other	60.5%	34.2%	5.3%

Therefore, while not strongly statistically significant, the clearest finding of this analysis was also supported by means scores: Hispanic and African-American respondents were more likely to agree with utilitarian and negativistic attitudes than the other groups. We already know from the demographic analysis that both Hispanics and African-Americans have lower education and income levels, two factors that previous studies, as well as results from this study, have indicated relate to support of utilitarian and negativistic attitudes. In addition, African-American respondents tended to be in the youngest age group and had a larger percentage of single parent households, both statistically significant factors indicating more agreement with negativistic and utilitarian attitudes respectively.

4.4 SUBSAMPLE ANALYSIS

The previous analyses have indicated that socio-economic and demographic factors (education and income, age, household type) as well as cultural features (language, nativity, duration of residence) most likely interrelate to produce attitudes. This was the implication revealed in the screening analysis: some variables are linked and we cannot simply relate a single variable to attitudes in a straightforward manner. In actuality, cultural groups are affected not only by their own cultural traditions and backgrounds, but by the realities of their surroundings and socio-economic situation. As has been shown in several instances in this study, each of these factors (for example, education, income, cultural background) has a bearing on knowledge of, interactions with and preferences for marine wildlife, and thus on attitude formation. Therefore in order to determine which socio-demographic factors and/or cultural background features play the strongest role in forming attitudes and thus make the difference in shaping attitudinal patterns, further research using multivariate analysis is needed.

Yet while this study did not include multivariate analysis, in order to begin to better isolate the role of cultural difference we tried to control other features of demographic variation that could easily lie behind results. In this exploratory exercise, the sample was stratified according to education levels, and the statistics were re-run.

This enabled us to address the following questions: if we control for education, do cultural differences with regard to attitudes still persist? Or do they disappear as significant predictors of attitudes? Different subsamples showed different relationships. For example, according to

Chi-Square analysis, statistically significant results were found for both race/ethnicity and home language in relation to utilitarian attitudes, controlling for education; thus these essentially mirrored the original analysis. Interestingly, results of the sub-sample analysis for home language showed those respondents who spoke Spanish at home had an even higher share of agreement with utilitarian attitudes once we controlled for education. This finding reinforces findings in the original analysis. Similarly, when we controlled for educational attainment levels, the negativistic attitudes sub-sample analysis confirmed that a greater share of respondents who spoke Spanish at home as well as those who spoke English as a second language (primarily Hispanic respondents) tended towards higher agreement with negativistic attitudes (again even a higher percentage than in the original analysis), when compared to respondents who spoke English or an Asian language at home or who spoke Spanish as a second language.

Using the sub-sample technique, analysis of attitude determinants (knowledge of, preferences for, and interactions with marine wildlife) also revealed support for the role of cultural diversity measures. Statistically significant results based on Chi-Square analysis showed differences in levels of interactions with marine wildlife among racial/ethnic groups, controlling for education. White respondents tended toward the highest level of interactions, while Hispanic respondents were equally divided between both the highest and the lowest level, and three-quarters of African-American respondents fell in the lowest interaction category. In addition, among respondents in the same education level, the largest share of whites and African-Americans tended towards the highest level

of preferences for marine wildlife, the largest share of Hispanic respondents were in the lowest interactions category, while Asian respondents were almost equally distributed among the levels of preferences.

As for knowledge of marine wildlife, statistically significant results revealed differences based on race/ethnicity, nativity and religion when controlled for education. The largest share of white respondents were in the highest knowledge score category, while the largest share of both Hispanic and African-American respondents fell into the lowest knowledge score group. The largest share of non-native respondents were in the lowest knowledge score category while native-born respondents tended towards the higher levels of knowledge scores. The largest share of respondents who marked Catholic as their religion fell into the lowest knowledge scores (again these respondents are primarily Hispanic), while agnostics/atheists, and other Christians tended towards higher knowledge scores. Overall these findings were consistent with or even stronger than the findings from the original sample analysis.

This exploratory analysis suggests that when socio-demographic variation is at least partially controlled, cultural diversity plays a role in determining attitudes. Thus various measures of cultural diversity are likely to exert some independent effect. This lends support for further analysis of cultural diversity in relation to attitudes.

5. CULTURAL DIVERSITY AND CROSS-CULTURAL ATTITUDES

This study not only explored differences among cultural groups in attitudes towards marine wildlife, but investigated how individuals from various groups view practices and attitudes of other groups toward animals and marine life. In the interest of furthering understanding about cross-cultural conflict based on varying attitudes towards animals, a specific portion of the survey focused on questions devised to explore cross-cultural attitudes. How did people from one group view traditional practices of another group (of which they were most likely not a member)? As discussed in chapter four, the majority of all respondents indicated that traditional practices that involved harming popular marine wildlife (e.g., whales, sea turtles) or negatively impacted the habitat of marine wildlife were not acceptable. Certain culture-specific practices such as consuming dogs or sacrificing animals for religious purposes were vigorously rejected. Keeping animals such as fish and seafood alive until they were cooked and eaten, was the only practice that respondents did not reject.

However, among cultural and socio-demographic groups, there were differences in levels of disagreement, and sometimes in aspects of agreement with specific questions. In general, it was expected that respondents whose cultural practices were similar to the practice in question might be expected to be more tolerant of the practice. In addition, it was expected that groups who were more firmly based in their own culture (language, religion, nativity) might be less tolerant of another culture's practice. This might be due either to a desire for self-

or group-empowerment from drawing strongly on their own traditions, or due to lack of exposure to another group's practices, and therefore lacking awareness/understanding which usually results in a lack of tolerance. Moreover, groups that had lower education levels and by correlation, income levels (usually African-Americans and Hispanic respondents) might be less tolerant than groups with higher educational and income attainment (whites and Asians). Higher levels of education often correlate to more exposure (reading, for example) to other customs and other ways of thinking; most often this greater awareness of "difference" encourages greater understanding and tolerance. Higher levels of income are conducive to more opportunities to have experiences outside of one's own realm (e.g., travel which may lead to familiarity with other groups' practices) and thus may foster a gain in appreciation/tolerance for traditions different from one's own. However, it should be noted that higher education and income levels have been linked to stronger animal rightist and environmentalist attitudes, thus it is possible that these respondents may indicate less tolerance of traditional practices which are perceived as harming marine wildlife or the environment. In addition, it was also expected that respondents with rural backgrounds might be more tolerant than those raised in an urban environment, due to more likely exposure to other types of interactions with animals (e.g., as food sources).

In general, results followed expectations, although there were some anomalies concerning specific questions which will be discussed below. (Only variables which revealed statistically significant results

according to Chi-Square analysis are discussed.) The vast majority of respondents disagreed with traditional practices that involved hunting and killing of whales, but differences were found among groups in levels of disagreement (i.e., tolerance). A larger share of African-American (95.7%) and Hispanic (86.9%) respondents disagreed with the practice, while a smaller share of whites and Asian respondents (both 72%) disagreed. Statistically significant differences were also found based on income: in general respondents with lower incomes tended to have higher levels of disagreement and those with higher income levels had lower levels of disagreement. (See table 26.) These results followed expectations.

Table 26

Is it OK with you if other cultures hunt and kill whales?

	Yes	No
<i>Race/Ethnicity</i>		
White	27%	73%
Hispanic	13.1%	86.9%
African-American	4.4%	95.7%
Asian	27.8%	72.2%
<i>Annual Income</i>		
less than \$20,000	10.9%	89.1%
\$20-\$49,000	15.2%	84.8%
\$50-\$79,000	31.7%	68.3%
\$80,000 and up	25.9%	74.1%

However, while the majority of all respondents disagreed with the practice of collecting tidepool animals, a greater share of non-native respondents disagreed with the practice than did native born respondents (Table 27). This finding was somewhat surprising as it is commonly thought that the groups who usually collect tidepool

animals are often Hispanic and Asian and are most likely practicing traditional customs. It is logical to assume that these customs would be more strongly ingrained or actively practiced by non-native born respondents who might be "closer" to the practice. Either these particular respondents do not engage in these practices themselves and are actually not tolerant of anyone else doing it either, or these visitors' responses are being influenced due to answering in proximity to the dominant/mainstream group that is surrounding them at the survey site. In addition, respondents with an urban background were less tolerant of tidepool collecting, than respondents who were raised in a rural environment. These urban-raised respondents are less likely to have utilitarian views and more likely to have views supporting the environment.

Table 27
Is it OK with you if other cultures collect tidepool animals?

	Yes	No
<i>Nativity</i>		
Native	35.2%	64.8%
Non-native	21.8%	78.1%
<i>Rural/Urban</i>		
Rural background	46.3%	53.6%
Urban background	28.5%	71.5%

On the topic of keeping animals (such as fish and seafood) alive until they are cooked, overall most respondents agreed with this statement. But agreement and disagreement varied according to cultural features and socio-demographic features (Table 28). Over half of the Hispanic respondents *disagreed* with this idea (58.6%), while

most white, Asian and African-American respondents *agreed* that it was all right to keep seafood alive until it was cooked (64.8%, 61.1% and 56.5% respectively).

Table 28

Is it OK with you if other cultures keep animals (such as fish and seafood) alive until it is time to cook and eat them?

	Yes	No
<i>Race/Ethnicity</i>		
White	64.8%	35.2%
Hispanic	41.4%	58.6%
African-American	56.5%	43.5%
Asian	61.1%	38.9%
<i>Home Language</i>		
English	65.7%	34.3%
Spanish	37.1%	62.9%
an Asian Language	42.9%	57.1%
<i>Other Language</i>		
English	35.9%	64.1%
Spanish	54.2%	45.8%
<i>Education</i>		
HS diploma or less	45.8%	54.2%
Some college	64.9%	35.1%
B.A. or Graduate degree	64%	36%
<i>Duration of Residence</i>		
less than 5 years	58.1%	41.9%
6-10 years	63%	37%
11-20 years	44.8%	55.2%
over 20 years	66.9%	33.1%

This polarity was supported by other cultural variables. Respondents who spoke Spanish at home or who spoke English as a second language (primarily Hispanic respondents) tended to disagree, while two-thirds of the respondents who spoke English at home and/or Spanish as a second language agreed (primarily white and African-American respondents). One aspect of this finding is somewhat surprising; 57% of respondents who speak an Asian

language at home (and who would presumably be the more traditional) did not agree with this practice. Yet, keeping animals alive (not just seafood) until time for preparation for cooking, is a traditional Asian, specifically, Chinese, practice. Thus, these respondents may represent a variety of Asian ancestries and customs. Also, perhaps in an effort to assimilate into mainstream society, these particular respondents (who are likely to be more recent immigrants) may be concerned and hesitant about giving answers which support practices that they presume would be perceived as inappropriate in the dominant culture.

In addition, respondents with an educational attainment of high school or less (predominantly Hispanic respondents in this sample) also tended to disagree, while those respondents with education levels of some college or above tended to agree (African-Americans, whites, and Asian⁵ respondents). One other feature of interest is that over half of the respondents who had lived in Southern California for 11-20 years disagreed, while those who had lived here any other length of time agreed. Respondents who lived here 11-20 years tended to be in the youngest age group, and perhaps had not had much experience with this practice.

Killing animals for religious purposes was not accepted by most respondents, however, a larger share of non-native respondents disagreed with this than did native respondents (Table 29). Again, this was a somewhat surprising finding. Perhaps it is also representative of

⁵ Again, the respondents who speak an Asian language at home, even if more highly educated, may be influenced by the members of the mainstream culture present at the survey site, or their perceptions of what is not acceptable to the dominant group.

a response designed to please "mainstream" thinking, or it may reflect the strong element of Catholicism found in the Hispanic respondent group (who made up 60% of the non-native respondents), a religion which does not support animal sacrifice. Also Santeria may be (a) more familiar to ; (b) more controversial for Catholic Hispanic immigrants, since it is *non-Catholic* and often Latino/Caribbean folks who engage in Santeria—and thus, it is actually more controversial within the Hispanic community.

Table 29

Is it OK with you if other cultures kill animals for religious purposes ?

<i>Nativity</i>	Yes	No
Native	22.2%	77.8%
Non-native	3.1%	96.9%

While the majority of all groups disagreed with eating sea turtles, a larger share of respondents who spoke Spanish at home disagreed when compared to those who spoke English or an Asian language at home (Table 30). Also a larger share of respondents with lower education attainment levels (primarily, Hispanic and African-Americans) disagreed with this practice than did those respondents with higher education levels. Thus results followed expectations for this topic.

Table 30

Is it OK with you if other cultures eat sea turtles ?

	Yes	No
<i>Home Language</i>		
English	28.1%	71.9%
Spanish	8.1%	91.9%
an Asian Language	33.3%	66.7%

(continued)

Table 30 (continued)
Is it OK with you if other cultures eat sea turtles ?

	Yes	No
<i>Education</i>		
HS diploma or less	20%	80%
Some college	19.2%	80.8%
B.A. or Graduate degree	38.2%	61.8%

The only respondents who agreed that it was all right for members of other cultural groups to eat dogs were those who marked agnostic/atheistic as their philosophical belief (Table 31). While all cultural groups indicated disagreement or intolerance for this traditional practice, the largest share were African-American (100%) and Hispanic respondents (96.7%), more so than Asians and whites (72.2% and 61.5% respectively). In comparison to those who spoke English or an Asian language at home, a larger share of those who spoke Spanish at home disagreed. This emphasis on high levels of disagreement by Hispanic respondents was further supported by results indicating that 89.7% of respondents who marked Catholic as their religion (most of these respondents were also Hispanic) disagreed.

Again, surprisingly, a larger share of non-native respondents than native-born respondents disagreed with the practice. Considering that it is primarily an Asian practice, perhaps this reflects the conformity to western thinking that is reflected in this particular group of Asian respondents (who are highly educated). In addition, nearly the majority of non-native respondents were Hispanic and not Asian, so perhaps this group is being more strongly represented. Statistically significant socio-demographic features were also relevant. A greater

share of respondents with lower education and income levels tended to disagree in comparison to respondents with higher education and income levels (not as large a share disagreed). More females than males disagreed. In addition, a larger share of respondents who were brought up in an urban environment disagreed with eating dogs, than did those respondents raised in a rural environment. Rural background respondents may have had experience with eating other non-traditional food source animals and therefore not disagree quite as strongly.

Table 31
Is it OK with you if other cultures eat dogs?

	Yes	No
<i>Race/Ethnicity</i>		
White	38.5%	61.5%
Hispanic	3.3%	96.7%
African-American	0%	100%
Asian	27.8%	72.2%
<i>Religion</i>		
Agnostic/atheist	60%	40%
Catholic	10.3%	89.7%
Other Christian	23.9%	76.1%
<i>Home Language</i>		
English	27.7%	72.3%
Spanish	2.7%	97.3%
an Asian Language	14.3%	85.7%
<i>Nativity</i>		
Native	27.6%	72.4%
Non-native	15.6%	84.4%
<i>Education</i>		
HS diploma or less	15%	85%
Some college	19.3%	80.7%
B.A. or Graduate degree	33.6%	66.4%
<i>Annual Income</i>		
less than \$20,000	10.9%	89.1%
\$20-\$49,000	23.1%	76.9%
\$50-\$79,000	32.2%	67.8%
\$80,000 and up	31%	69%
<i>Gender: Female</i>	17.3%	82.7%
<i>Urban Background</i>	21.2%	78.9%

The final question inquired if it was OK for members of other cultures to leave litter on beaches. The majority of all respondents disagreed with this statement. There were no significant differences found based on any cultural or socio-demographic features.

Thus, overall, results followed expectations, with cultural features, such as race/ethnicity, language, religion and nativity, as well as particular socio-demographic features indicating levels of greater and lesser disagreement (which reflects intolerance of other groups' practices). Hispanic and African-American respondents disagreed in larger shares than did their white and Asian counterparts, with almost all questions. More Hispanic respondents disagreed with these practices than did other cultural groups. This may be associated with religious affiliation which influences an individual's world-view of animals and the environment. It may also indicate that Hispanic respondents had stronger traditions, which may not have been conducive to exposing them to other groups' practices. In addition, these respondents had lower levels of education and income.

The findings of higher disagreement/intolerance by non-native respondents were perhaps the most surprising. While one would think that foreign-born individuals would be more closely associated with their own traditions, some of which were represented in the survey questions (e.g., eating dogs and collecting tidepool animals, often associated with Asian cultures), that does not appear to be the case in this study. It may be that these individuals are from a higher socio-economic/educational background in their country of origin, or are answering in light of accommodating the dominant culture's

expected response. It may also be because 60% of the non-native respondents were Hispanic. In this survey, Hispanic respondents have lower educational attainment and income levels, which may relate to lower tolerance of unfamiliar practices.

Further analysis was done to compare the attitude scores with each cross-cultural question to see if scores vary systematically with these questions. According to Chi-Square analyses, there were some statistically significant differences in tolerance levels (agreeing or disagreeing with a practice) based on various attitudes. The vast majority of respondents who agreed with aesthetic, animal rightist, and/or environmentalist attitudes also disagreed with all of the cross-cultural practices, the one exception being the practice of keeping animals alive until cooking, with which most of the respondent sample agreed. For example, statistically significant results according to Chi-Square analysis showed that 76.2% of respondents who agreed with animal rightist attitudes said "no" to cultural group practices of eating sea turtles, while those who disagreed with this attitude were slightly more tolerant of this practice (50% of those who disagreed with animal rightist statements also disagreed with the practice of eating sea turtles). Respondents who display animal rightist attitudes appear to value the welfare of the animal over the right of a group to practice a cultural tradition. These respondents are thus more likely to be intolerant and to say that this practice is wrong.

Additionally, statistically significant results revealed that 88.2% of respondents who agreed with utilitarian attitudes answered "no" to traditional cultural practices of eating dogs, while those who disagreed with utilitarian attitudes were slightly more tolerant of this practice (67.7%

of those who disagreed with utilitarian attitudes said "no" to eating dogs). Utilitarian attitudes are often linked with rural background, less education, and lower income. Therefore, perhaps respondents who display utilitarian attitudes are actually more traditional themselves in their outlook and perspectives and thus generally less tolerant of "other" ways.

However, respondents who agree with negativistic attitudes are slightly more tolerant of tidepool collection by other groups, than respondents who disagreed with negativistic attitude statements (63.9% of those who agreed with this attitude answered "no" to this practice, while 72.9% of those who disagreed with negativistic attitude statements said "no" to collecting tidepool animals). These respondents who support negativistic attitudes may not have a particular interest or like for the animal, and may not care as much if a cultural practice is perceived as harming an animal or habitat.

Thus, there is a significant relationship between these attitudes and the responses to cultural practices. While negativistic attitudes tend to slightly more tolerance of culture-specific practices, perhaps due to lack of interest in the animal, utilitarian attitudes tend to less tolerance of culturally traditional practices. Notably, respondents who support animal rightist, aesthetic, and/or environmentalist attitudes are less likely to be tolerant of cultural practices. Overall, this suggests these respondents, who value beauty, rights, or environmental importance of animals, are with little exception intolerant of group practices perceived as harming animals or the environment. Essentially, they appear to be placing the

rights of animals and the environment over the rights of groups to practice these types of cultural traditions.

In general, results of analysis of cultural and socio-demographic variables indicate a lack of tolerance between groups for practices which harm animals and the environment, even if these are traditional cultural practices. This lack of tolerance plays a strong element in cross-cultural conflict over attitudes toward animals.

6. SUMMARY

Our analysis indicates that for these respondents, positive relationships exist between knowledge of, interactions with, and preferences for marine wildlife. Moreover, knowledge, preferences and interaction scores are positively related to aesthetic, environmentalist and animal rightist attitudes, but negatively related to utilitarian and negativistic attitudes. Thus these variables do appear to shape attitudes. Respondents who have stronger aesthetic, environmental, and animal rights attitudes toward marine wildlife, also have a tendency to know more about the animals, interact with them more frequently, and like them better. Respondents who appear to place value on an animal's practical qualities or are fearful or disinterested in these animals also may have correspondingly lower incentives to know, interact with, or have a preference for the animals.

In addition, some relationships were noted between different types of attitudes. The clearest relationship involved animal rightist attitudes. Animal rightist attitudes were positively related to environmentalist and aesthetic attitudes, but negatively related to utilitarian and negativistic

attitudes. Those respondents who agreed with statements supporting the rights of marine wildlife, also displayed an interest in their aesthetic qualities, and indicated support for environmental issues affecting marine animals. They did not agree with statements centered on the practical exploitation, or fear or dislike of marine wildlife.

Both expected patterns and surprises were discovered in the relationships between socio-economic and demographic features of respondents and attitudes. Education and income, not surprisingly, were positively related to knowledge, preferences and interactions. Yet, younger respondents had lower interaction and preference scores, showed less support for animal rightist attitudes, and some support for utilitarian and negativistic attitudes. This contrast to previous studies may be related to the cultural make-up of the sample. The largest percentage of younger respondents were African-Americans, and this same group had lower levels of education. Single parent household status was also related to higher utilitarian and negativistic attitude scores. Thus demographics and socio-economic characteristics linked to inner city locales are associated with particular attitude patterns. Another unexpected finding was the lack of significant differences in responses according to gender. This could be a reflection of socio-economic and cultural differences of this sample versus samples used in previous studies, and possibly a reflection of current awareness of animal rights issues in the general public. (However, it should be noted that gender differences could still be strong with regards to *practices*—versus gender attitudes).

Further analysis of cultural diversity and attitudes revealed that white respondents had higher interaction and preferences scores, and both

white and Asian groups had higher knowledge scores. African-Americans however had lower interaction scores and, along with Asian respondents, also had lower preferences scores. Moreover, knowledge, preferences, and interactions varied significantly with other measures of cultural diversity such as language, nativity, duration of residence and religion.

Additionally, there were differences among groups in strength of agreement with the various attitudes. The strongest agreement with animal rightist attitudes was evidenced by white respondents, while the lowest level of agreement with this same attitude was expressed by Asian respondents. Yet, Asian respondents were the group with the highest percentage of their group in agreement with environmentalist attitudes, suggesting that these respondents may be more supportive of environmental values of animals than of the individual animal's rights.

One of the most significant findings was that while a majority of respondents did not agree with utilitarian or negativistic attitudes, the respondent groups who disagreed the least were Hispanic and African-American, findings also supported by analysis of other measures of cultural diversity. Perhaps due to socioeconomic reasons these respondents (who also had lower education and income levels than other groups) viewed marine animals from a perspective of use, and/or with disinterest from their lack of opportunity for exposure and interactions.

These issues and questions call for further research. Using a stratification of the sample to control for education revealed that various measures of cultural diversity are likely to exert some independent effect on determining attitudes. The subsample technique of analysis showed differences among groups in attitude determinants—levels of interactions

with, preferences for, and knowledge of marine wildlife—based on variables of race/ethnicity, nativity and religion. Similarly, analysis of measures of cultural diversity showed differences in attitudes among groups, especially in regards to utilitarian and negativistic attitudes, when controlling for education. In particular, multivariate analysis might reveal those factors playing the strongest role in attitude formation—especially answering questions about whether education, income, household type for example, or cultural background, make the difference in shaping attitudinal patterns. However, results of this analysis have indicated that differences in attitudes between cultural groups do exist and suggests that measures of cultural diversity may contribute to those differences. Moreover, results also showed respondents were not tolerant of traditional practices and attitudes of other cultural groups toward marine wildlife and other animals. Thus there is potential for cross-cultural conflict.

Results of analysis of cross-cultural attitudes revealed the majority of all respondents were not tolerant of traditional practices and attitudes of other cultural groups toward marine wildlife and other animals. Further analysis of these questions based on cultural and socio-demographic features revealed differences in levels of intolerance among particular cultural groups. Specifically Hispanic respondents were less tolerant of practices that harmed animals and the environment. There were parallels between Hispanic and African-American respondents; these two groups usually exhibited greater levels of intolerance than did white and Asian respondents who in most cases answered more similarly. These findings were supported

by a variety of cultural variable responses as well as socio-demographic variables. However, again education and income must be factored in to the equation. Most Hispanics and African-Americans had lower levels of educational attainment and income than did whites and Asians, and these lower levels of these two variables indicated less tolerance of other group practices. Additionally, a significant relationship was found between attitudes and responses to cultural practices. Respondents who displayed negativistic attitudes tended to be slightly more tolerant of cultural practices, while respondents who exhibited animal rightist, aesthetic, and/or environmental attitudes, as well as utilitarian attitudes were less likely to be tolerant of cultural practices. All of these indicators of lower levels of tolerance carry potential for cross-cultural conflict. Therefore future research is suggested to further explore these attitudinal differences between cultural groups in regards to animals and marine wildlife.

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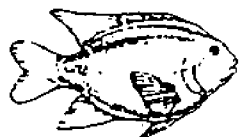
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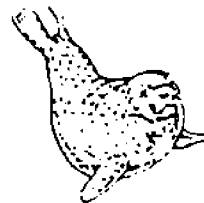
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Appendix A:



OCEAN WILDLIFE SURVEY



1. We would like to know about your museum and aquarium experiences!

1. Is this your first visit to

- Yes
- No → if not, how frequently do you visit? _____

2. What brought you here today? Please mark the box that **BEST** describes the purpose of your visit.

- Family outing
- Particular exhibit
- Look around the museum
- Museum event (such as a community science day, school tour, professional development, lecture)
- IMAX film
- Other reason (please describe): _____

3. Who did you come with?

- Family
- Couple/All adult group
- Alone
- School/Youth Group

4. How often do you visit museums, science centers, zoos, aquariums (large tanks for viewing animals and plants that live in the water), or nature areas?

- Never go
- Every few years
- 1-3 times/year
- 4 or more times/year



5. Thinking about your last visit to an **AQUARIUM**, what did you

Like BEST?
(Please choose only **ONE**.)

- Live Sea Lion or Calif. Sea Otter feeding
- Other live animal shows
- Touch pools (sea creatures you can touch)
- Aquarium tanks with fish and sea life
- Learning about the natural environment
- Learning about science
- Other: _____

Like LEAST?
(Please choose only **ONE**.)

- Animals not properly cared for
- Animals not in natural environment
- Animals should not be touched
- Animals in captivity
- Too noisy or crowded
- Too expensive
- Other: _____

II. What do you like to learn?



1. What would you be most interested in learning ?

(Please choose only ONE.)

- Learning about how the ocean is explored
- Learning about how animals in an aquarium are chosen, fed, etc.
- Learning about how to protect the oceans
- Learning how various people around the world use the oceans, and their thinking about the ocean.
- Other (please describe): _____

2. 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?

(Please choose only ONE.)

- Specific plants and animals
- Whole communities of plants and animals

3. Are you more interested in learning about the 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?

(Please choose only ONE.)

- Plants and animals that live in and around California
- Plants and animals that live in other parts of the world

4. Where do you find out about new things in science?

(Please check ALL that apply:)

- | | |
|-------------------------------------|---|
| <input type="checkbox"/> TV | <input type="checkbox"/> Museums, aquariums, zoos |
| <input type="checkbox"/> Magazines | <input type="checkbox"/> Radio |
| <input type="checkbox"/> Books | <input type="checkbox"/> Internet |
| <input type="checkbox"/> Libraries | <input type="checkbox"/> School |
| <input type="checkbox"/> Newspapers | <input type="checkbox"/> Friends/family |

III. What do you like to do when you go to the Beach?

1. How often do you go to the beach? *(Please choose only ONE.)*

- About once a week or more
- A few times a month
- A few times a year
- Once a year or less
- Never



2. Of these, which is your FAVORITE marine activity? (Please choose only ONE.)

- Going to the beach (sunbathing, swimming, or looking at sea creatures)
- Surfing, boating and other ocean water sports
- Going fishing in the ocean
- Going to a public aquarium or marine theme park
- I do not really like any of the above activities

3. When you go to the beach do you walk by the tide pools to look at the sea creatures?

- (Please check ALL that apply)
- Yes — if so, do you:
 - Pick them up to look at more closely and put back?
 - Collect edible species and take home to eat?
 - Collect animals for your aquarium?
 - Collect for bait?
 - No
 - Never go to the beach

4. Do you ever go saltwater fishing in Southern California?

- Yes
- No

5. Do you ever: Scuba dive? Yes No Snorkel? Yes No Whale watch? Yes No

6. Do you have an aquarium or fish bowl at home or work?

- Yes
- No



7. 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?

- Yes
- No

8. Have you ever participated in a beach clean up?

- Yes
- No



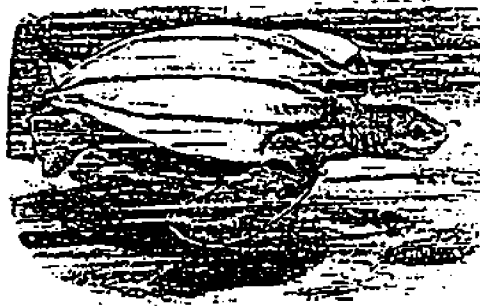
9. Please tell us of any significant experiences you've had with marine wildlife (such as a "swim along" with dolphins, catching a large fish, seeing an interesting sea creature)?

IV. How much do you know about marine wildlife?

This section consists of a number of statements that deal with people's knowledge of animals. Please indicate if you think they are true or false. Don't worry if a question seems hard. Nobody can answer all of them correctly. **CIRCLE THE LETTER OF YOUR CHOICE.**

T = TRUE, F = FALSE

1. T F Pesticides were a major factor in the decline of Brown Pelicans.
2. T F The gray whale is a threatened or endangered species.
3. T F Sea otters were almost made extinct by oil spills.
4. T F Dolphins are mammals.
5. T F Commercial fishing does not have a strong effect on ocean wildlife because their populations are so large.
6. T F Sea turtles are amphibians.
7. T F It is safe to eat local shellfish harvested in the summer-time.
8. T F Grunion runs occur at low tide.
9. T F A mussel is a mollusk.
10. T F Unlike seals, sea lions can move their rear flippers forward, so they can use all four limbs to run or walk on land.



V. 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 NUMBER.



	Strongly Agree	Agree	No opinion	Disagree	Strongly Disagree
1. Whales are beautiful and majestic and should be protected.	1	2	3	4	5
2. People and companies that pollute the ocean should be forced to pay for clean-up costs.	1	2	3	4	5
3. It is wrong to kill sharks because they have as much right to live as people do.	1	2	3	4	5
4. Fish are slimy and smelly.	1	2	3	4	5
5. It is wrong to force ocean animals such as whales and dolphins to live in captivity.	1	2	3	4	5
6. It's better to train dolphins for entertainment or military use than to leave them in the wild.	1	2	3	4	5
7. Jellyfish should be eliminated because they sting people.	1	2	3	4	5
8. Pelican populations should be controlled because they steal fish from fishermen trying to make a living.	1	2	3	4	5
9. It is wrong to collect tidepool animals because tidepools are delicate environments that are easily damaged.	1	2	3	4	5
10. 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.	1	2	3	4	5
11. There is nothing wrong with harvesting fish by using explosives in the water.	1	2	3	4	5



12. Animals were created by God to benefit people.

Strongly Agree
Agree
No opinion
Disagree
Strongly Disagree

1 2 3 4 5

13. Overfishing should be prohibited even if fishing communities could be hurt.

1 2 3 4 5

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

1 2 3 4 5

VI. What about the ways different cultures traditionally treat marine animals?

Keeping in mind that various cultures treat animals differently, IS IT OK WITH YOU IF THEY:

1. Hunt and kill whales? Yes

No

2. Collect tidepool animals? Yes

No

3. Keep animals (such as fish and seafood) alive until they are ready to be cooked and eaten? Yes

No

4. Kill (sacrifice) animals for religious purposes? Yes

No

5. Eat sea turtles? Yes

No

6. Eat dogs? Yes

No

7. Leave litter on beaches? Yes

No

















VII. Pick Your Favorite Crüter!

The following sections ask about your contacts and preferences about certain marine animals.

HAVE YOU EVER SEEN THESE ANIMALS. AND IF SO WHERE?

Please check ALL that apply.

		If yes: —		Aquarium or museum	At the beach	In the ocean	Movies/TV	Books/newspapers/magazines
1.	Starfish 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Pelican 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Sea Lion	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Dolphin 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Shark 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Kelp Bass 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Abalone 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Sea Gull 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Jellyfish 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Sea Urchin 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Whale 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	Grunion 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	Octopus 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Sea Otter 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	Cormorant 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

WHICH ANIMALS DO YOU LIKE, AND WHY?

Now the fast part! For the following sea animals, quickly check the box that indicates how much you LIKE OR DISLIKE the animal, and then check the box that BEST describes WHY you feel this way.

Example:

Stingray Strongly Like Like No Opinion Dislike Strongly Dislike

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



- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input checked="" type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

16. Starfish Strongly Like Like No Opinion Dislike Strongly Dislike

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



- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

17. Pelican Strongly Like Like No Opinion Dislike Strongly Dislike

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



- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

18. Sea Lion Strongly Like Like No Opinion Dislike Strongly Dislike



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

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

19. Dolphin Strongly Like Like No Opinion Dislike Strongly Dislike



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

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

20. Shark Strongly Like Like No Opinion Dislike Strongly Dislike



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

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

21. Kelp Bass Strongly Like Like No Opinion Dislike Strongly Dislike



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

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

22. Abalone Strongly Like Like No Opinion Dislike Strongly Dislike

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



- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

23. Sea gull Strongly Like Like No Opinion Dislike Strongly Dislike

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



- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

24. Jellyfish Strongly Like Like No Opinion Dislike Strongly Dislike

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



- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

25. Sea Urchin Strongly Like Like No Opinion Dislike Strongly Dislike

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



- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

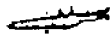
26. Whale Strongly Like Like No Opinion Dislike Strongly Dislike



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

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

27. Grunion Strongly Like Like No Opinion Dislike Strongly Dislike



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

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

28. Octopus Strongly Like Like No Opinion Dislike Strongly Dislike



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

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

29. Sea otter Strongly Like Like No Opinion Dislike Strongly Dislike



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

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

30. Cormorant Strongly Like Like No Opinion Dislike Strongly Dislike



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

- | | | |
|---|---|-------------------------------------|
| <input type="checkbox"/> Attractive | <input type="checkbox"/> Unattractive | |
| <input type="checkbox"/> Interesting | <input type="checkbox"/> Uninteresting | |
| <input type="checkbox"/> Useful | <input type="checkbox"/> Not useful | <input type="checkbox"/> No opinion |
| <input type="checkbox"/> Harmless | <input type="checkbox"/> Harmful | |
| <input type="checkbox"/> Fellow being | <input type="checkbox"/> Lesser animal | |
| <input type="checkbox"/> Ecologically important | <input type="checkbox"/> Ecologically unimportant | |

VIII. Almost done! Now just some quick questions about you!

1. Do you now, or have you ever, owned a pet?

- Yes
 No

2. Have you ever required medical attention due to being injured by an animal?

- Yes
 No

3. Have you ever: *(Check ALL that apply)*

- Been a member of an animal welfare or animal rights organization? Yes No
- Participated in a demonstration or other activity related to animal/welfare rights? Yes No
- Been a member of an environmental/wildlife organization? Yes No
- Participated in a demonstration, clean-up, habitat restoration, or other activity promoting wildlife or the environment? Yes No

AND FINALLY, JUST A FEW BACKGROUND QUESTIONS:

4. How old are you? _____

What is your:

5. Gender? male
 female
6. Education? No high school diploma College graduate
 High school graduate or GED Graduate degree
 Some college
7. Race and ethnicity? White, not of Hispanic origin
 Hispanic/Latino or Latina
 Black, not of Hispanic origin
 American Indian/Alaskan native
 Asian/Pacific Islander
 Do not wish to answer
8. Country of Birth? _____

9. What language do you speak at home? _____

10. What other language(s) do you speak? _____

11. How long have you lived in Southern California?

- | | |
|--|---|
| <input type="checkbox"/> Less than 2 years | <input type="checkbox"/> 11 to 20 years |
| <input type="checkbox"/> 2 to 5 years | <input type="checkbox"/> Over 20 years |
| <input type="checkbox"/> 6 to 10 years | |

12. What is your zipcode? _____

13. Did you grow up in? Country/rural area
 City/town

14. Which of the following best describes your religious/philosophical beliefs?

- Agnostic/Atheistic
- Buddhist
- Christian: Catholic Protestant Other
- Hindu
- Jewish
- Islam
- Other (such as Santeria, New Age, Native American, etc.); please briefly describe: _____

15. Household income? less than \$20,000
 \$20,000 to \$49,000
 \$50,000 to 79,000
 \$80,000 and up

16. Do you have children? Yes → if so, how many? _____
 No

17. What type of household do you live in?

- single parent household, male householder
- single parent household, female householder
- two-parent household
- unrelated individuals

PLEASE FEEL FREE TO ADD ANY COMMENTS ON THE BACK OF THIS PAGE.

Thank you for taking the time to complete this survey. When you have finished please return it to the person at the table.

Further Questions? Contact Lynn Whiteley at (213) 740-0511

Department of Geography, University of Southern California, University Park, Los Angeles, California 90089-0255.

We are grateful to Cabrillo Marine Aquarium for providing artwork that appears in this survey.

Appendix B:

ATTITUDES TOWARD ANIMALS

Naturalistic:	Primary interest and affection for wildlife and the outdoors.
Ecologistic:	Primary concern for the environment as a system, for interrelationships between wildlife species and natural habitats.
Humanistic:	Primar interest and strong affection for individual animals, principally pets.
Moralistic:	Primary concern for the right and wrong treatment of animals, with strong opposition to exploitation or cruelty towards animals.
Scientistic:	Primary interest in the physical attributes and biological functioning of animals.
Aesthetic:	Primary interest in the artistic and symbolic characteristics of animals.
Utilitarian:	Primary concern for the practical and material value of animals or the animal's habitat.
Dominionistic:	Primary interest in the mastery and control of animals typically in sporting situations.
Negativistic*:	Primary orientation an active avoidance of a nimals due to indifference, dislike or fear.

**Hypothetically, the negativistic attitude can be divided into two attitude types: a Neutralistic attitude reflecting a passive avoidance of animals due to indifference; and, a Negativistic attitude characterized by dislike and fear of animals.*

(Knowledge, Affectin and Basic Attitudes Teoward Animals in American Society, Phase III. Stephen Kellert and Joyce K. Berry. Yale Universtiy. U.S. Fish and Wildlife Service funded study, Grant #14-16-009-77-056, 1980. P. 42)