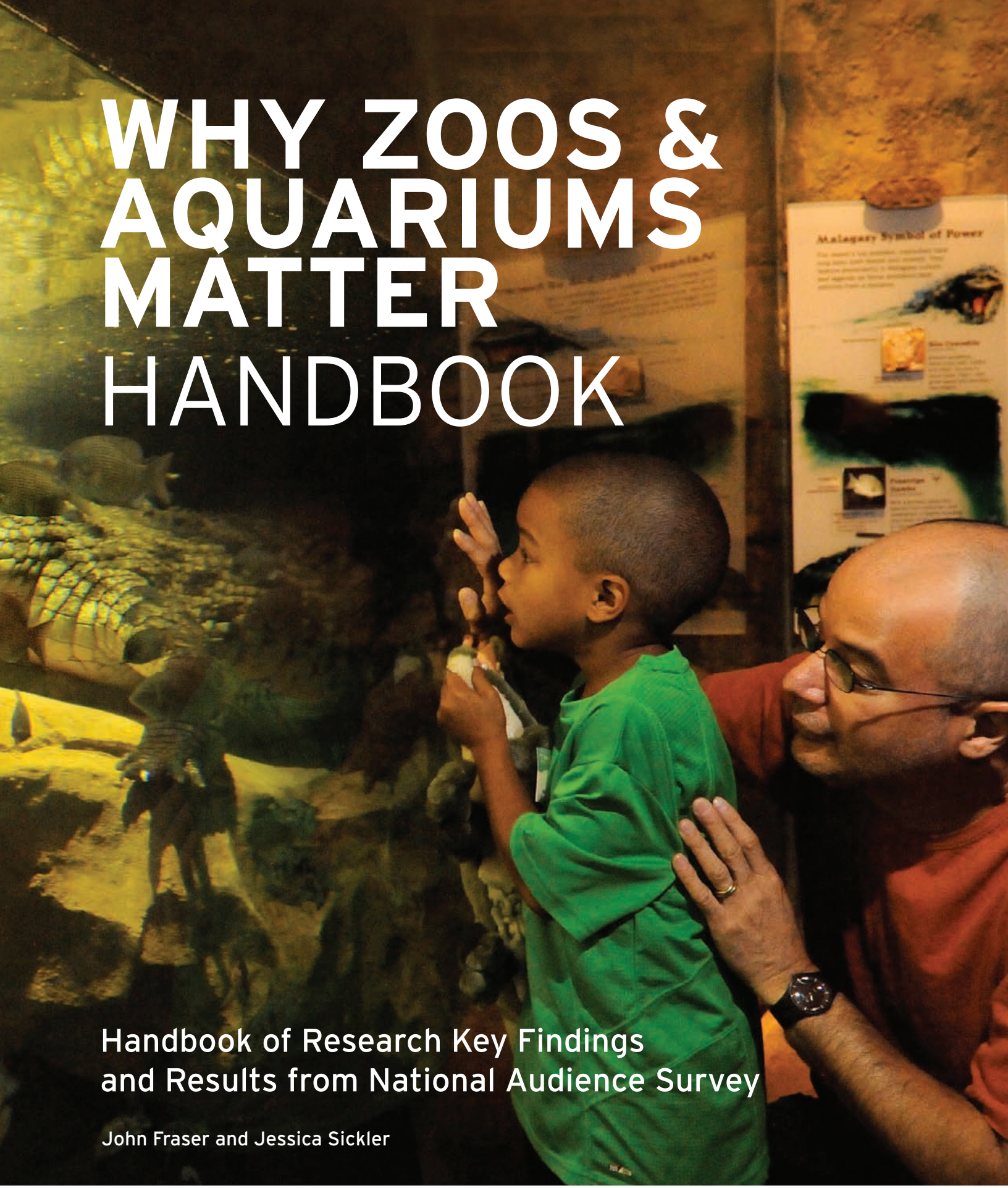

WHY ZOOS & AQUARIUMS MATTER HANDBOOK

Handbook of Research Key Findings and Results from National Audience Survey

John Fraser and Jessica Sickler

ASSOCIATION OF ZOOS & AQUARIUMS
WILDLIFE CONSERVATION SOCIETY
MONTEREY BAY AQUARIUM
NSF
INSTITUTE of Museum and Library SERVICES
INSTITUTE FOR LEARNING INNOVATION

The **Wildlife Conservation Society** saves wildlife and wild lands through careful science, international conservation, education, and the management of the world's largest system of urban wildlife parks. These activities change attitudes toward nature and help people imagine wildlife and humans living in sustainable interaction on both a local and a global scale. WCS is committed to this work because we believe it essential to the integrity of life on Earth.

Wildlife conservation involves both a practical understanding of the science of biodiversity loss and how human behavior can change to reduce our impact on the biosphere. The Public Research and Evaluation Program operated within the WCS Institute from 2006 through 2008 to aid WCS and other conservation organizations in achieving their missions by providing timely and practical social science research and evaluation into the human dimensions of wildlife conservation. These dimensions include understanding how people understand conservation concepts, key motivators for engaging in conservation activities and what it will require to develop new social norms that promote a more conservation-minded society. This publication represents the culmination of three years of research into how zoos and aquariums are valued in American society in order to provide knowledge to these conservation minded institutions about how they can better meet their conservation mission.

The Association of Zoos and Aquariums (AZA), founded in 1924, is a nonprofit organization dedicated to the advancement of accredited zoos and aquariums in the areas of animal care, wildlife conservation, education and science. AZA is North America's leading accrediting organization for zoos and aquariums and accredits only those institutions that have achieved rigorous standards for animal care, education, wildlife conservation and science. With its 217 accredited members, AZA is building North America's largest wildlife conservation movement.

The AZA Mission

AZA-accredited zoos and aquariums are places where people connect with animals. AZA is dedicated to excellence in animal care and welfare, conservation, education, and research that inspires respect for animals and nature. AZA strives to:

- Establish and maintain excellent professional standards in all AZA institutions through the accreditation program.
- Provide AZA members with the best possible services and best practices.
- Establish and promote high standards of animal care and welfare.
- Promote and facilitate collaborative conservation programs.
- Advocate for effective governmental policies for its members and for wildlife.
- Strengthen and promote conservation education programs for the public and professional development for its members.
- Raise awareness of the collective impact of AZA members and their programs.

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WHY ZOOS & AQUARIUMS MATTER HANDBOOK

Handbook of Research Key Findings and Results from National Audience Survey

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INSTITUTE of Museum and Library SERVICES

November 19, 2008

Dear Readers,

Federal support for museums through the Institute for Museum and Library Services (IMLS) is based on the premise that museums are valuable community organizations providing rich opportunities for learning and civic engagement. Yet, until recently, there has been a paucity of systematic and evidence-based research on the public impact of museums.

Therefore, since 2005, the IMLS Office of Museum Services has funded research projects under the auspices of the National Leadership Grant program. These grants support projects that 'raise the bar' in museum research and practice. Funded projects have national impact and generate findings that, through broad dissemination, move the field forward. This project was funded in the program's inaugural round.

Why Zoos and Aquariums Matter: Working with Community Perceptions to Achieve Your Goals draws on the illuminating research conducted as part of the IMLS-funded study. Its findings provide useful information about the perceptions of the public at large as well as specific insights into the views of particular audience segments.

We are proud to have supported this project and confident that its results will contribute to improved practice, inform future policy discussions, and spawn additional studies. We also acknowledge and thank the project's principal investigators, John Fraser and Jessica Sickler, for their commitment to the broad and timely dissemination of the project's results.

Sincerely,

Anne Imelda R. Radice
Director

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We would also like to thank the members of our advisory groups whose guidance and expertise strengthened the project throughout its evolution: Annette Berkovits, Association of Zoos and Aquariums, Paul Boyle, Louise Bradshaw, Robert Buchanan, Center for Survey Research and Analysis at University of Connecticut, Zahava Doering, Caroline Eichman, Sarah Gillman, John Gwynne, Joe Heimlich, Steve Johnson, Jan Kaderly, David Karns, Christine Kraus, Shelly Lakly, Matthew McCarthy, Denise McLean, Don Moore, Jackie Ogden, Kathryn Owen, Andrew Pekarik, Kent Redford, Diana Reiss, Eric Rienhart, Karen Tingley, Cynthia Vernon, Kathleen Wagner, Dan Wharton, and Linda Wilson.

Finally, we would like to thank the Institute for Museum and Library Services, especially the support of Dan Lukash and Marsha Semmel, for funding this research and giving us the opportunity to explore these new questions.

FORWARD

We are pleased to introduce this new publication produced for AZA by our colleagues at the Wildlife Conservation Society's *WCS Institute*. AZA and all of its many members are committed to advancing conservation through active work to restore habitats for animals, by studying animals in our zoos and aquariums in ways that inform good policy about the management of these animals in the wild, and through our active work as educators promoting conservation values in our communities.

In 2001, AZA embarked on its first major multi-institutional research project to understand why zoos and aquariums matter to society in the conservation arena. Funded by the National Science Foundation, that project bore its first fruit in a literature review published in 2002 and a subsequent publication in 2006 ("Why Zoos and Aquariums Matter"), which confirmed that zoo and aquarium visits do contribute to positive conservation knowledge, attitudes, and behaviors in adult visitors. However, rather than focusing on single-visit experiences, the study suggested that we should focus, instead, on the knowledge and values that zoo and aquarium visitors develop over time, because those who visit our institutions usually visit more than once and share the knowledge they gain as part of a larger, conservation community.

With this publication, we are pleased to share with our members results from our on-going national efforts to understand the ways in which the work of zoos and aquariums matters to society and to assist zoos and aquariums in being more effective conservation leaders. With support from the Institute for Museum and Library Services, John Fraser, Jessica Sickler and their team at the Wildlife Conservation Society have conducted a major research project, which reveals that zoos and aquariums are accomplishing their missions. This work went well beyond thinking about the people who visit our parks. Not only can we confirm that zoos and aquariums are valued as conservation organizations by the general public, but we now have a better understanding of what it means for an institution to be an important part of a community.

This research explores the social context in which we work, from the perspectives of political leaders to the media landscape that filters press releases and reports on our conservation efforts. It presents results on how teachers across the nation value zoological school trips, and what the underlying motivations are for parents to bring their children for family experiences at our institutions.

Like any useful research, these results and the training workshops that complement this publication inspire us to ask new questions about how we can be better conservation organizations. These findings should help each AZA member institution question how effectively it is meeting its own mission, assess its program offerings, and identify community partners with whom it can build trust in a shared conservation vision. We hope this second publication of results from our ongoing, national studies furthers a trend that, ultimately, will help us all succeed in our collective mission of effectively involving people in personal conservation action.

Paul Boyle,
Senior Vice President, Conservation & Education
Association of Zoos & Aquariums

INTRODUCTION

In order to better understand how the public values zoos and aquariums in their communities and lives, the research team at the Wildlife Conservation Society, on behalf of the Association of Zoos and Aquariums, undertook a three-year, multi-phase research project to document and describe this public value, with funding support from the Institute of Museum and Library Services.

In the first phase, the research team conducted a review of the literature on zoos, aquariums, and assessments of value. Advisory panels of experts in the field were also consulted to help define key stakeholder groups, areas of value to delve into with qualitative research, and approaches that might be used for such research. Qualitative research began with in-depth interviews and focus groups with community representatives, internal and external stakeholders, and visitor groups to begin to understand the public's perceptions of the role played by zoos and aquariums in society.

The second phase involved targeted research into the value areas that emerged in the initial phase, including the development of several quantitative surveys, which were implemented with targeted audiences (i.e., teachers, parents, volunteers, general public) nationwide. This was a first effort to get a baseline assessment of public perceptions across the United States, and comprises the bulk of the information presented in this handbook. It is interesting to note that the results were overwhelmingly positive, with strong and consistent public support for the conservation work, social value, and personal experiences fostered by zoos and aquariums. The nuances of these positive values suggest new ways that zoos and aquariums can focus their conservation education efforts by working with these perceptions.

The final phase of this project has been the dissemination of this study's results and applications within the zoo, aquarium, museum, and research communities. One component of sharing the results of this project is a series of workshops, in which zoo and aquarium professionals are able to spend time delving into the research findings and considering in detail how these findings apply to their institutions, their work, and the conservation mission of zoos and aquariums.

This handbook is intended to support that training program and the work of zoo and aquarium professionals who are engaged in reflecting on community perceptions and their impact on institutional practice. This handbook provides the reader with summaries, data, and analysis from much of the research conducted through this project. It is comprised of two overarching sections, each with a different purpose:

Section 1
Summaries of Key Findings and Implications

These narrative descriptions of key research findings summarize and report the findings from multiple studies done on a common theme or with a common audience group. They are designed to summarize the results in an easily readable format, highlighting results of interest to zoo and aquarium professionals.

These summaries are designed for use with the Why Zoos and Aquariums Matter training program, and thus, are thematically organized to correspond to that workshop's outline, objectives, and activities. However, the summaries are also useful for sharing and distributing overviews of the research and the findings.

Section 2
Detailed Data from National Survey Panels

The second section provides more detailed reporting on the data obtained from quantitative surveys of national panels of the general public, parents, and educators. This information is meant to supplement the summaries of key findings by providing specific detail on the data. Readers can examine this more detailed information to enhance understanding of information presented within the summaries regarding specific perceptions of value or differences between demographic groups or populations. Information and data in this section are presented primarily within tables and charts, with some contextual information alongside each sub-section.

SECTION 1

SUMMARIES OF KEY FINDINGS AND IMPLICATIONS

Zoos and Aquariums as Educational Institutions

Background

Across various community stakeholder groups, a common theme was a characterization of zoos and aquariums as educational. The specifics of this characterization varied, as did the way in which each population valued the contribution. The following summarizes how each group described the educational value of zoos and aquariums.

1. KEY FINDINGS

1.1. General Public

The public at large placed a high value on the role of the zoo and aquarium in teaching children about the natural world, respect for living creatures, as a place for parents and children to discover new things together, and as an educational resource for children in the community. Parents particularly valued zoos and aquariums for teaching.

The public somewhat confines the zoo/aquarium's role as a source of environmental information to direct links with animals. The zoo is valued strongly for information on animal endangerment and conservation, but value diminishes for less animal-centric environmental topics. The pattern is the same for aquariums, although they tend to be slightly more valued than zoos for information on non-animal environmental topics (e.g., water/energy conservation, pollution).

1.2. Teachers and Administrators

While only a small proportion takes classes on field trips to zoos (15%) or aquariums (7%), the vast majority of educators see great educational value are in these institutions. The highest areas of value were in:

1) educating about animals and habitats,
2) teaching students to value animals and natural resources, and
3) learning through close-up experiences with living animals.

The value of a fun field-trip experience was also rated highly, but in conjunction with learning experiences. Teachers also value the zoo and aquarium for providing information on all environmental topics slightly more strongly than the public at large.

The educational value is seen in what is provided for students, not for teachers. Fewer than half value zoos/aquariums' curriculum materials or professional development training. There was moderate support for the importance of alignment of programs with State Educational Standards, which was slightly more valued by public school teachers.

1.3. Political Leaders

Political leaders widely assign zoos/aquariums the responsibility of teaching children about animals, nature, and environmental issues as a support of the public school system. They express trust that zoos/aquariums are effectively doing this, but most cannot describe exactly what they expect is being taught, nor do they focus on any evidence of such services. The characterization that the zoo is educational is more of an overall trust in the zoo/aquarium's judgment.

1.3. Media

The media turn to zoos and aquariums as authorities to provide the public with information about the lives and care of animals, an authority that is rooted in the facility's collections rather than specific knowledge of the staff. They also tend to value the zoo as an authoritative education resource for local human-wildlife interactions, (i.e., bears in the suburbs).

1.4. Zoo/Aquarium Volunteers

Volunteers personally value the zoo/aquarium for providing them with lifelong learning opportunities. Many initially join due to an interest in animals, and feel their lives are enriched by the continued education about wildlife, global issues, and conservation concerns.

Many volunteers (particularly those working as docents) feel strongly about their contribution to the institution's educational mission. They value the zoo/aquarium as a crucial tool for educating school-children about animals, science, and conservation. They articulate how their service is a key mechanism for achieving conservation goals through teaching.

1.5. Spiritual Leaders

All religious representatives interviewed acknowledged an educational value of zoos/aquariums, although most focused only on the broadly positive value of public education, especially for children. A few discussed the possibility of zoo/aquarium animals as supportive of religious teaching, including seeing animals that figure in their faith traditions or teachings.

1.6. Field Biologists

Field biologists tended to feel that one of the positive attributes of zoos/aquariums was their effort and ability to inform the public about animals' situations and plight in the wild. They appreciated exhibits that depicted the actual state and struggles of habitats and wild populations or that described field work being done. However, there was also a need expressed to see more evidence that visitors were learning these things through exhibits.

A few field biologists personally valued zoos/aquariums in their early lives for being a venue that inspired their love of and commitment to animals, spurring them down their career path.

Several who had past opportunities to collaborate with zoo/aquarium animal staff reported strong value of the broad taxonomic knowledge of zoo/aquarium animal staff and what that knowledge brought to their own field work. Similarly, animal staff's expertise in animal handling and care was seen as a tool for educating field staff to improve their work.

1.7. The Anti-Zoo Argument

We surveyed the general public to assess the level of affiliation with zoo-aquarium mission and the level of affiliation with the anti-zoo argument, to look for its prevalence.

- The vast majority identify zoos and aquariums with the dual mission of education and worldwide conservation. Education is rated slightly higher than conservation.

- The majority of the general public feels that zoos and aquariums adequately care and provide for the animals in their care.

- Only 9% of the public adamantly feels that zoos are inhumane and animal captivity is wrong. 6% feel this way about aquariums. Another 4 to 7% of the public are sympathetic to these ideas.

Family Matters

Background

Several studies were conducted to examine parents' perceptions of zoo and aquarium visitation, and how perceptions contrast with the general public who are not parents. The findings that follow are from national surveys with zoo-goers, aquarium-goers, and the general public.

1. KEY FINDINGS

1.1. Bonding

Zoos

97% of parents reported visiting zoos mainly with their families, and 42% reported "spending time with family" as the primary reason (other than seeing animals) for visiting zoos. 45% stated "to do something fun/enjoyable" as the driving reason, but further analysis of that 45% shows that nearly all characterized their enjoyable experiences as very tied into experiences with their children (see chapter on Defining Enjoyment in Zoos for further detail).

The opportunity for bonding was a very strong motivation for visiting among 37% of parents, and a moderately strong motivation for another 23%.

Parents valued zoos quite strongly as a place:

1) to spend time with family (in nature),
2) to learn and discover together, and
3) to relax with family.

Further, all zoo activities that included sharing and togetherness were very high in value.

Aquariums

97% of parents reported visiting mainly with their families, but only 33% reported "spending time with family" as the primary reason (other than seeing animals) for visiting aquariums. 50% stated "something fun/enjoyable" as the driving reason.

As a visit motivator, feelings about the opportunity for bonding were similar to zoos: 35% of parents said it was a very strong reason, and another 23% saw it as moderately strong.

Parents valued aquariums for the same bonding experiences that they did for zoos, with all parents placing equally strong emphasis on sharing and togetherness in zoos and aquariums.

1.2. Appreciation Of Nature

Somewhat more strongly than even bonding, parents valued the opportunity for connecting with living animals and nature.

A majority of parents agreed very strongly that nature experiences are a crucial part of childhood and that zoos and aquariums are good places for children to experience and appreciate nature and animals. In fact, these sentiments were the most strongly supported in the survey as a whole:

1) Appreciating living animals (average rating 6.35 out of 7)
2) Experiencing nature and living animals (average rating 6.28 out of 7)
3) Nature experiences are an important part of childhood (average rating 6.28 out of 7)

1.3. Empathy, Care, and Moral Development of Children

Among these elements, the most highly valued in relation to zoos and aquariums were:

1) Teaching children to respect all living creatures
2) Developing care for nature (plans, animals, and the environment)
3) Sharing what I [the parent] value about nature with my child

These results were nearly identical for both zoos and aquariums.

These empathetic values were mostly centered on concepts of nature, but moderate support also emerged in the broader value of teaching children to respect others. In general, they did not value the zoo and aquarium for explicit teaching of values, but the experience itself is seen to help children develop empathy and caring.

2. IMPLICATIONS

Parents value both zoos and aquariums in ways that aid them in having important experiences with their children and that promote learning, values, and concerns that they feel are important. There were no major differences between zoos and aquariums.

The strength with which bonding value was emphasized by parents was striking. Nearly half of all surveyed felt that spending time together as a family was the single most important reason why they come to the zoo. Nearly all of the others focused on "fun and enjoyable experiences," but further research into this factor shows that their personal definitions of fun and enjoyment at the zoo are centered on experiences with their children.

The fact that parents indicated they feel nature experiences are essential to childhood and that they highly value zoos/aquariums for providing nature experiences suggests that emphasis on these areas could align mission and parental desires.

Outside of family bonding and nature experiences, there was a surprisingly strong emphasis on values related to empathy development in children. With ratings nearly as high as those for learning about living creatures, and in some instances higher than bonding, parents indicated a value of the zoo for teaching children to respect and care about nature and living creatures. This was seen as an expression of sharing parental values for nature with children. For some parents, it even extended to teaching children to respect and value other humans.

These findings related to empathy development confirmed many of the personal narratives that were heard in early phases of qualitative interviews with parents. This quantitative study shows that this was not an isolated or anecdotal phenomenon. Rather, the value of the zoo as a tool for instilling an important humane and empathetic way of thinking in children was of great importance to many parents.

Volunteers' Perceptions of Zoos and Aquariums

Background

A two-phase study was conducted. Qualitative interviews were conducted with volunteers at New York zoos to develop concepts about what volunteers value about their experiences, their motivations, and their environmental values. These interviews were followed by a national study of 2,462 volunteers from over 50 zoos and aquariums to learn about the same criteria and their environmental behaviors. This summary presents results from the quantitative study.

1. KEY FINDINGS

1.1. Love for and Sense of Affinity with Animals

Most volunteers have a deep, life-long caring for and interest in animals, and they choose to volunteer at a zoo or aquarium because they desire to be involved at a place that cares about animals. Many report that they joined as a zoo or aquarium volunteer as part of a life-commitment to saving animals, and/or that they find the nature experience at zoos and aquariums restorative.

One of the rewarding elements of volunteering is furthering their love of animals through continued education and learning about individual animals, species, and conservation issues.

In relation to this, a large portion (43%) would describe themselves as animal rights activists, seeing this label as being in line with their interest in animal care and protection. 23% strongly disagree with this label, tending to associate it with extremist groups that counter zoo/aquarium activities. The rest are somewhat indifferent about the label.

1.2. Social Networks

Most did not know other volunteers before joining, but quickly discovered people who shared their values about animals and nature within the group. This affinity leads to important social relationships that frequently extend beyond volunteerism. This social network becomes so strong that for most it becomes the prime motivator for remaining as a volunteer.

They have a high sense of collective self-esteem connected to their volunteer group. They feel personal pride as a group member, that their group is highly valued and respected within the community, and consider their role as a zoo/aquarium volunteer to be a defining aspect of their identity. They feel that their personal identity is linked with that of their fellow volunteers and the group as a whole.

1.3. Volunteers as Environmental Activists

Compared to the American population, zoo/aquarium volunteers are far more concerned about the environment in general and on specific issues (e.g., pollution, global climate change). They are also significantly more likely to:

1) donate more money to conservation causes,
2) express willingness to forego some quality of life to protect the environment, and
3) support taxes and costs to protect nature.

Zoo/aquarium volunteers also have a greater sense of self-efficacy regarding what they can do to protect the environment than the American public, and are more likely to make individual efforts by recycling, reducing driving, and other pro-environmental behaviors. Similarly, they are twice as likely to have signed petitions or donated money for environmental causes.

While volunteers are twice as likely as the average American to have attended a protest about an environmental issue, this represents only 7% of all volunteers. Most volunteers appear to be averse to mass public displays of dissent, and generally prefer to support the environmental causes through individual action, donation, and, most importantly, by teaching others about nature through their work in the zoo/aquarium. This type of public communication about environmental issues is for them an equally important and valuable way of promoting environmental causes.

The longer someone volunteers, the more likely they are to become more committed to environmental protection, and to recruit others into the cause.

2. IMPLICATIONS

The social networks within the volunteer corps are very strong and central to the success and strong functioning of the group. Volunteers are motivated by their social interactions and relationships within the group, as well as by the feedback they receive about the group's work. Across the country, it can be seen that the value of membership can be very insular and self-supporting, but that with proper nurturing, validation, and institutional support, the networks could be enhanced and the impact increased.

The results show how powerful the social bonds created can be for volunteer retention, and how important volunteer retention can be for achieving conservation goals. Although volunteers do not enter the group looking to cultivate these friendships, they are important for success. Consequently, it seems that there is an opportunity and need for strategies and structures to enhance these relationships and strength of the group.

Volunteers appear to change their behaviors as a result of interaction with the institution, increasingly incorporating conservation-minded behaviors into their own lives. They actively carry the conservation message well beyond the zoo/aquarium's property line, but are not necessarily comfortable in a strident activist role. Institutions could utilize this network's commitment to spread the reach of conservation messages into their larger community networks and beyond traditional in-park services.

Institutions have an opportunity to support and develop volunteers' individual commitment to conservation causes by engaging their natural affinity for animals and building upon their sense of collective identity with their group. It cannot be stressed enough how important the feeling of respect, inclusion, and peer-to-peer socializing is to their prolonged commitment to the organization and the volunteer corps.

Media Perceptions of Zoos and Aquariums

Background

A two-phase study was conducted. In phase one, interviews were conducted with Public Relations (PR) representatives from 32 AZA facilities to gather their experience with news media and how these outlets perceive zoos and aquariums. In phase two, interviews were conducted with 19 news reporters, producers, and editors from various media outlets to obtain their perspectives on the value of zoos and aquariums as sources of information.

1. KEY FINDINGS

1.1. PR Representatives

PR representatives provided an overview of how media stories and reports use their zoos/aquariums as sources of authority for the public. These provide a measure of the topics about which zoos and aquariums are perceived to be an authority in the community.

Animals within the Zoo/Aquarium – These stories center on the animals and events within the zoo/aquarium, including new exhibits, births, deaths, and the lives of the animals. These are primarily driven by the zoo/aquarium itself, through press releases publicizing events and driving attendance.

Animals within the Community – These stories address local wildlife issues or concerns, especially when humans and wildlife come into contact, such as bears in suburban communities. These stories are reporter-driven, with the media seeking out the zoo/aquarium as expert and authority. They are seen as the authority for giving "the layperson the view of an animal issue," emphasizing the zoo/aquarium's strength in public communication.

Public Crises – Occasionally, reporter-driven stories also address crises that emerge in media, such as zoonotic disease or crisis events at other zoos (e.g., escaped animals). For these stories, the zoo/aquarium is sought as an authority to address and assuage community fears from the local perspective.

Research and Science – This type of reporter-driven story is generally rare and more common for aquariums or zoos connected to larger research institutions or facilities. Again, the zoo/aquarium is the authority to communicate science to a layperson audience. Few PR representatives indicated that these types of stories were generated through their institutions' press releases, but were typically in response to reporter inquiry.

1.2. Media Reporters, Producers, and Editors

When producing a story that involves a zoo or aquarium, the type of information sought and the focus of the story will vary according to what sort of an interest the reporter takes in the subject. The interviewees were generally found to fall into two categories:

"Local Attraction" reporters. These reporters' primary focus is the zoo or aquarium as a local institution. They tend to:

- rely on zoo/aquarium press releases.
- focus on events, new exhibits, changes at the zoo/aquarium.
- stick to stories that are limited in scope or are without greater context.
- not see the zoo/aquarium as a scientific authority.
- use the zoo/aquarium to fill airtime or pages.

"High Conservation Interest" reporters. These reporters have more passion for environmental stories. They tend to:

- dislike press releases and/or PR "spin" efforts.
- produce in-depth, investigative, contextual stories.
- use government or research institutions as authorities on conservation topics, rather than zoos and aquariums.
- see zoos as authorities on the lives, caring, and biology of animals.
- see aquariums as authorities on the broader ocean environment.
- attach more scientific authority to larger institutions.

1.3. Controversial Events and Media Coverage

Controversial events at zoos and aquariums, such as escaped animals or injuries, can trigger media inquiries into their own local institutions to assuage the public's concerns. In addition, groups opposing animals in captivity often stage protests and other events to invite media coverage. While the media often do not give these groups and protests much credibility, they feel a responsibility to cover them as news events. Zoos and aquariums are then forced to defend their practices to maintain the trust of the public.

2. IMPLICATIONS

As the primary contact point for media outlets, PR departments have considerable influence over the content and tone of media coverage by both the quantity and variety of press releases, and the chosen spokespersons.

PR representatives believe that they are seen as the local authority on animal biology and habitats, as well as conservation issues, and this would seem to be confirmed by frequent inquiries into press releases on these topics. Analyzing the reporter's side of this interaction, however, reveals a reporter demand for low-cost stories that focus on local events. Specific scientific expertise comes attached to primary research institutions, rather than zoos and aquariums in general.

Zoos and aquariums see themselves as community resources promoting awareness of conservation issues. However, most press releases they produce cover events and exhibits with an implied or overt goal of increased attendance and show fewer ties to conservation.

In the minds of reporters, zoos and aquariums are seen primarily as local attractions whose immediate goals are to increase attendance. Although most reporters see zoos and aquariums as inherent authorities on animals, they do not immediately attribute conservation or environmental expertise to these facilities.

When PR departments are contacted for expert animal information, the reporters are much happier when they are given a scientist, rather than a PR professional.

Who is covering the zoo, and why, makes an enormous difference in its portrayal in the news. Ultimately, the credibility and scientific authority of a zoo's message rests on the reporter that covers them, and how he or she chooses to present the institutions to the audience.

Religious Representatives' Perceptions of Zoos and Aquariums

Background

Through consultation interviews with twelve leaders, counselors, and representatives from a variety of faiths, the perceived connections, conflicts, value, and relevance of zoos and aquariums to spiritual and faith-based communities and traditions were examined.

1. KEY FINDINGS

1.1. Direct Value of Zoos

Leaders described some elements that they saw as direct values of zoos, or ways in which they felt zoos and aquariums could be valuable to their faith. These values fell into four themes:

Didactic Value (using specific animals as object lessons for religious teachings):

- Providing first-hand encounters with animals featured in faith traditions
- Illustrating particular animal features that figure in kosher dietary laws (Jewish)

Spiritual/Inspirational Value:

- Witness God's glory as creator and/or Creation as pertinent to the faith
- Illustrating the duality of existence/inherent cruelty of nature and life (Tao)

Modeling Values:

- A place that exemplifies injunctions to care for, respect, and/or not harm animals
- A place where humans perpetuate the existence of certain animals that might become extinct if left in the wild.

Educational Value (general social value of education, not explicitly spiritual):

- A number did not identify the educational purpose as directly spiritual. The educational value was a generalized social good, and even as offsetting the issue of animal confinement that their religion might otherwise find problematic.
- Social value as wholesome entertainment or fellowship value, which are part of church mission, but not explicitly spiritual connections

1.2. Belief about Value of Nature

Far richer potential connections between faiths and zoos' conservation missions emerged in discussions about a core beliefs about religious value of nature. These were areas leaders saw as important, but often did not associate with zoos.

Nature as God's Creation:

- Value for all of nature and wildlife, seeing it as the product of God's creation. An emphasis was placed on awe and inspirational value of beholding nature in this

mindset, and nature as a route to being closer to God.
- This was often more strongly connected to experiences with nature than with wildlife.

Stewardship Responsibility:

- Common belief that it is a human responsibility to care for God's creation, be stewards of the Earth and natural resources, and pass them on to the next generation.

Live Simply:

- Doctrine and direct teaching in some faiths about the importance of reducing consumerism, resource use, and waste.

Importance of Knowing and Understanding Nature:

- A diverse group of faiths emphasized the value of learning about and understanding the natural world in order to be good worshipers and stewards. A clear emphasis was that awe and wonder alone were insufficient, and that learning about nature was crucial.

1.3. Areas of Potential Conflict

By and large, interviewees saw very little overt conflict between their communities' values and zoos/aquariums. When pressed, the conflicts they could distinguish or imagine:

- Captivity (although all who cited this, felt that educational value outweighed it)
- Poor care or conditions for animals ("bad zoos" were conflict with doctrine of care-taking)
- Wild capture of animals (though none were sure if this practice actually happens)
- Breeding issues, such as cloning, cross-breeding species (again, none knew if such practices happen)
- Interpretation – One leader (Evangelical) indicated that aggressive interpretation about over-population (i.e., implying world would be better without humans) could be a conflict

1.4. Views on Evolution

Expected to be a more contentious issue, it proved to be of little concern for the sample of religious leaders interviewed. None expressed serious concerns with the theory of evolution being presented in the zoo context. There were two main viewpoints:

- Why would evolution even come up? The zoo is about neither evolution nor creation.
- Even if there is disagreement, it is not a big deal for evolution to be presented in a zoo.

Religious leaders often had points of disagreement with a theory of evolution dependent solely on random mutation and chance. Either directly or indirectly, many did not accept that "natural selection" is fueled only by random variation. Rather, their interpretation allowed for influence of some higher power:

- The complex process of evolution served to underline the mastery of God's creation
- Cited belief in both "intelligent design" and evolution, which they saw as compatible
- Belief that we can never fully know the manner through which this took place. While it's positive to explore theories of the origin of man or the universe, it's unacceptable to argue any one theory as a final and true explanation.

None of those interviewed were proponents of the young earth, literalist Creationist viewpoint. Two (Evangelical and Lutheran) specifically discussed the contrasts between their congregations and this belief system. They described this minority population as a group that would never be willing to engage in dialogue with an institution such as a zoo or aquarium.

2. IMPLICATIONS

By and large, spiritual leaders did not immediately link zoos or aquariums to their religious practice. Their perceptions tend to focus on using the animal collection for illustration, education, and, in some cases, modeling principles of caring for animals.

However, there were many deep value connections between faith groups and zoos in the area of nature, animals, and the importance of humans taking responsibility for care of the planet. While motivations may be different for faith groups and zoo staff, the goals and values were the same. This suggests an opportunity to build bridges toward conservation within communities.

Zoos may find that addressing the concept of evolution may receive better support if the focus on conflict-prone issues, such as randomness, is avoided. However, the indication that leaders more likely connect the zoo with teaching about care for animals, and do not associate it with evolution teaching, raises questions about the priority of evolution as a leading concept in understanding conservation concerns.

Political Leaders' Perceptions of Zoos and Aquariums

Background

A qualitative study was conducted over two years with people holding positions of political power in the New York City metropolitan region, including elected political leaders, aides, and appointees from the city, state, and federal levels. While many interviewees were familiar with New York's zoos and aquariums, the study included political leaders whose primary reference zoo or aquarium was not part of the Wildlife Conservation Society.

1. KEY FINDINGS

1.1. Memories and Personal Experience

The most common reference informing their opinions was based on positive family memories and personal experience at specific zoos and aquariums. They see the zoo/aquarium, in large part, as visitors. Many noted that they prefer to attend zoos/aquariums as a casual family visitor than in their role of public official, with some describing it as a "day off" from their role in governance.

All agreed that zoos and aquariums are very popular with their constituents and thus valuable civic amenities.

There was clear agreement that zoos and aquariums are media magnets that can provide a useful venue for supporting the politicians' goals and positive (feel good) stories surrounding issues that concern them.

1.2. Social Services

Political leaders attribute to zoos/aquariums the role and responsibility to teach children about nature and animals. They could provide little in the way of concrete description of how or why zoos/aquariums do this, but there was an underlying trust that they have delegated that responsibility to the experts at these institutions.

They feel that zoos and aquariums have a responsibility to support the school system but could not recall evidence or scale of how such activities are occurring, even though some acknowledged that such data may be available.

They believe zoos and aquariums afford members of the community with restorative nature experiences, particularly as it supports building positive family relationships. Some leaders describe zoos/aquariums as a venue for families to escape from fragmented and over-programmed modern lives, acting as a venue for "quality time."

Some also believe that zoos/aquariums serve social bridging functions, connecting otherwise disparate communities to build a sense of social reciprocity and trust. Because of the diversity and cultural range of audiences, it allows them to share a space and see the diversity of the community.

1.3. Captive Animals

Political leaders place a high level of trust and authority in zoo or aquarium employees. They feel that the staff (particularly animal care staff) have a great deal of trustworthiness to speak and advocate on concerns about all animal care and, to an extent, environmental topics. They enjoy the opportunity to interact with and hear from those who care for animals.

Generally, they feel that zoos/aquariums are responsible and ethical in animal care and well-being, contrasting them very positively against circuses, for example. They also value the zoo/aquarium for providing local information on pet care or humane treatment of other animals that fall within their areas of concern.

While they feel slight regret at animals in captivity, they see it as necessary and outweighed by the social benefits that make these institutions important amenities in their communities.

They accord little credibility to animal rights activist/extremist views, but recognize that they must give their constituents equal opportunity to express their opinions and must be careful with how they address controversy in a public setting.

1.4. Place Identity

They give zoos/aquariums the responsibility for ensuring the community is aware of global environmental issues, and to act as representations of how their community expresses its concern for nature.

They feel zoos/aquariums, among all cultural institutions, are exemplary of positive democratic values because of the demographic variation and broad community base of visitors, being accessible, used, and valued by all of the community.

1.5. Money

They are very aware of the great expense of a zoo or aquarium associated with the care of living animals, but feel that having the zoo/aquarium is a necessary amenity in society. Politicians ponder where the cost-benefit can be controlled without losing the social services.

Zoos and aquariums are perceived to be site-based service providers, working in and serving their local constituency. Politicians' priority is squarely on the value that can be brought to their constituents. Consequently, work happening beyond the local area (i.e., international conservation) can be seen as monetary resources being diverted away from the community's benefit. Political leaders express stronger interest in services or even conservation projects that are focused on local issues and habitats.

Environmental advocacy positions can be challenging for politicians in circumstances where the advocacy conflicts with other political priorities. In these circumstances, they see themselves supporting the zoo/aquarium in its social service role, but not in advocacy or adversarial instruction on contentious behaviors or topics. They do recognize that the zoo has a higher degree of perceived authority with the general public on environmental issues and feel that care is needed in how this authority is used.

2. IMPLICATIONS

The role of zoos and aquariums in the sector of providing local services appears to be the paramount factor in politicians' support for these institutions. Whether these services are of a social, educational, or conservation nature, political leaders repeatedly emphasized their interest in what a zoo or aquarium can provide for local communities and constituents. While zoos and aquariums may be committed to international conservation efforts, the promotion of these efforts without mention of local services may be problematic. Careful balance of how the institutions' activities serve local communities may have greater influence on political leaders.

The credibility that zoos and aquariums have with political leaders regarding animal care represents an issue-area with great potential for establishing leadership and influencing policy. Leveraging this credibility and authority through political relationships could provide opportunity to advance animal care or welfare policy beyond collections issues to increase support for the zoo/aquarium and its concerns.

Zoos and aquariums serve a metaphoric function as landmarks of animal care for the community, which is a reputation that is maintained through continued demonstration of responsible care and interest in the well-being of the animals in their facilities. This trust gives zoos and aquariums authority in relationships with political leaders, but must be carefully maintained, as a loss of credibility could undermine policy efforts.

Conservation Biologists' Perceptions of Zoos and Aquariums

Background

Thirty field biologists were interviewed to discover how they regard zoos and aquariums. Each scientist was asked about his or her feelings, experiences, ideas, and recommendations regarding these institutions to determine how they consider zoos and aquariums to contribute or not contribute to the mission of conservation.

1. KEY FINDINGS

1.1. Professional Background

Field biologists interviewed worked in different regions of Asia, Africa, North America, or South America. Most were raised in either the U.S. or the U.K., while several grew up in Japan, Africa, or South America. Most had important intersections with zoos and aquariums in either their personal or professional lives. It should also be noted that some where affiliated with WCS, which made the Bronx Zoo a point of reference, but many spoke of a variety of institutions encountered in their lives.

1.2. Changing Perceptions of Zoos and Aquariums

Many of the interviews revealed how field biologists' perceptions of zoos and aquariums have changed over time, shifting between positive and negative depending on various types of experiences in zoos/aquariums and in the field. There is no single pattern for their opinions or these changes. Below is a summary of some of the more common narratives behind such changes.

As young children, most of the field biologists developed an attachment to animals due to their exposure to and experiences with pet animals, animals in natural environments, or animals in zoos.

For the majority who visited zoos as children, their memories could be organized in one of three ways:

- Positive memories – zoos were a catalyst for their career path
- Neutral or distant memories – zoos' influence on career was limited or unknown
- Negative memories – limited/no influence on career; some influence on current opinion of zoos

Field biologists who had positive memories of the zoo as a child (roughly half of the sample) often indicated that their feelings for zoos changed over time. Some described an increased sense of regret about the lived experience of animals in captivity. Experiences that they attributed this change to include:

- Seeing iconic zoo animals when visiting wild places as a young adult and realizing the complexity of their lives in the wild
- Observing animals and their interactions in an ecosystem as adults, in their field work as biologists

1.3. Professional Assessment of Zoos and Aquariums

More than half of the field biologists had, at some point in their lives, felt a degree of mistrust in the mission and ability of zoos and aquariums to act as conservation advocates. Some factors contributing to this feeling are outlined below.

Most field biologists believed that zoos/aquariums were valuable if they were participating in conservation. While many saw the nation's largest zoos and field programs as exemplary models, they also felt that the average American zoo was not making significant contributions to conservation. They saw limits to these zoos' participation in the wild as well as to their ability to communicate the relevancy of those issues to the public. In considering the value of a zoo or an aquarium, field biologists identified the following factors:

Positive Aspects of Zoos/ Aquariums	Negative Aspects of Zoos/ Aquariums
Taxonomic knowledge of staff	Lives of animals
Public awareness about issues	Cost of operation
Creating positive memories	Lack of links to the field
Animal handling skills of staff	Limited evidence of learning
Money for conservation	Visitor behavior toward animals

Some WCS-affiliated staff also indicated that their feelings for zoos shifted while working at WCS. Experiences and observations that lead to this shift:

- Cages were replaced with naturalistic settings
- Some animals lived content lives
- Exhibits generated funding
- Exhibits informed the public about the animals in the wild

1.4. Potential Synergies between Field Biologists and the Zoo

Field biologists who had collaborated with zoo staff (i.e., curators, vets, educators, exhibit designers) both at the zoo and in the field saw these interactions as mutually beneficial. They felt they gained taxonomic and animal care knowledge from zoo/aquarium staff and thought the zoo/aquarium staff benefited from an active role in field conservation efforts. These field biologists regretted the infrequency of field visits by zoo/aquarium staff.

Some field biologists described seeing conditions at non-U.S. zoos that they felt were appalling in terms of animal welfare and conservation concerns (i.e., illegal wildlife trade). They saw a potential role for American institutions to offer guidance and support to these impoverished zoos and communities to educate and improve conditions.

Some also witnessed non-U.S. zoos that contributed to the mission of conservation by educating local people about the plants and animals that they coexist with. Field biologists felt that American zoos could enhance this potential by assisting and training staff at non-U.S. zoos.

2. IMPLICATIONS

Zoos and aquariums often promote and highlight the work of conservation biologists through exhibits and programs, but building these relationships for greatest impact requires attention to the perceptions of these professionals. For instance, conservation biologists' concerns about the efficacy of zoos in conservation, education, and change suggest the need for communication of empirical evidence of the zoo/aquarium's impact and unique contributions as conservation advocates.

The potential for negative perceptions among conservation biologists about zoos, aquariums, and their actual contribution to conservation is something for zoo/aquarium professionals to keep in mind. These findings suggest that field biologists may not believe there is a shared conservation mission or activities with zoos/aquariums, which could result in public or internal conflict. Preparation to address these concerns directly when conflict arises is of key importance.

Where opportunities have existed, professional bridges between conservation biologists and zoo/aquarium animal care staff resulted in increased mutual respect, learning, and partnerships in conservation. While uncommon, examples offer models for how the skills of each group can benefit the work of the other, and how new partnership opportunities can link in-situ and ex-situ scientists in a common goal.

Defining Enjoyment in Zoos

Background

Although visitors frequently describe zoo and aquarium experiences as fun and enjoyable, a challenge with these terms is that the perception of enjoyment is inherently subjective and personal. Focusing on the subjectivity of this topic, Q-methodology was used to investigate visitors' perceptions of what makes the zoo experience enjoyable. This methodology uncovers complex and distinct, social perspectives on a topic.

1. KEY FINDINGS

Analysis revealed four distinct social perspectives that characterize a unique array of zoo-going attributes that characterize an enjoyable experience, as well as those that do not define an individual's enjoyment.

1.1. Perspective A

The social experience within the family group is the defining factor for enjoyment. These are typically adults who visit with their children and derive enjoyment from spending time as a family (particularly with young children), children's enjoyment, and the sense of providing beneficial experiences. All social experiences outside of the family group do not contribute to a fun day. High value is also placed on seeing and experiencing animals, especially up-close and active. This includes opportunities for entertainment, via shows and demonstrations or animals doing things to make them laugh. Cognitive stimulation, discovering new things, or understanding a connection with the conservation mission, do not contribute to their enjoyable experiences.

1.2. Perspective B

This perspective has some commonalities with Perspective A, as it is also focused on enjoyment derived from the social experience of family at the zoo. However, key distinctions show two different ways of defining a fun family experience. While these visitors emphasize the value of their children's enjoyment and experiences, they derive very little personal enjoyment value from any experiences related to the animals, particularly in the area of sensation-seeking or entertainment. They, in fact, react strongly against statements that suggest interaction between humans and animals. They do, however, attribute a great deal of enjoyment to cognitive stimulation, particularly discovering and learning new things. These visitors also see connection with the conservation mission of the zoo as a factor of enjoyment. Further, these individuals uniquely derive enjoyment from the peace, tranquility, and natural, outdoor setting of the zoo.

1.3. Perspective C

These visitors emphasize the experience of seeing the animals at the zoo, with the social aspects of visitation not contributing to, or even detracting from, their enjoyment. The focus on animal-related enjoyment includes cognitive stimulation of learning and discovering new things about animals, as well as the physical experience of being close to, seeing, and hearing living animals. Enjoyment also came from feeling appreciation, awe, personal connection, and a sense of special privilege related to the animals seen at the zoo. The zoo is, for these visitors, more about the personal experience of viewing and appreciating animals. It should be noted, while some of these are visitors who attend alone, it also includes people who come in groups, but derive enjoyment from the animal experience and not from the social experience.

1.4. Perspective D

This is the most uncommon of the perspectives, represented by just two participants, but is strong in its distinction from the family- and animal-focused narratives. These visitors also define enjoyment through social experiences, but via experiences with friends in a casual, leisurely environment, not experiences with family. Free-form exploration and learning about one's companion(s) were notably high for this perspective. There was also strong enjoyment in sensation-seeking experiences that were not as motivating for the other perspectives, including feelings of excitement and fear and seeing animal-visitor interactions. Non-enjoyable factors are primarily related to children, shows and demonstrations, feeling familiar with the zoo, or getting information from zoo staff.

2. IMPLICATIONS

It is notable that two of the four perspectives are very focused on the social experiences within a visiting family group. This echoes findings of national surveys with parents who emphasized the value of the zoo/aquarium as a place to spend time with their family. This study shows that such social experiences are not only valued but, for some parents, are the experiences that create and define an enjoyable visit.

These descriptions show the unique, and sometimes conflicting, interests of visitors. This provides four distinct lenses through which to view exhibits and programs within an institution. Different types of experiences and designs will foster enjoyment in different types of visitors and can be examined in this light.

Understanding what experiences drive different visitors within the zoo could allow for the cultivation of new audiences. Perspective D, for instance, shows a segment of visitors who are not interested in the child-based activities, but these individuals use the visit to create a set of experiences that match their unique desires for the day. This somewhat unusual and rarely represented visitor may represent an audience that could be expanded by zoos.

Although connection with the zoo's conservation mission contributes to enjoyment for only one segment of the audience, it does not mean that zoos cannot engage other types of visitors in conservation thinking. This research sheds light on possible techniques and approaches to messaging that might be most appealing, engaging, and memorable for different types of visitors.

This study was limited to perceptions of zoos. However, the great similarities between zoos and aquariums in the value research as a whole suggests that many aspects of these findings could be equally applicable for aquariums.

Public Perceptions of the Moral Criticisms of Zoos and Aquariums

Background

Public arguments and critiques against the legitimacy and morality of zoos and aquariums are a matter of concern to zoo and aquarium professionals. The question is whether, and to what degree, the public adheres to these types of anti-zoo/aquarium perceptions. This research began first with a review of these anti-zoo/aquarium arguments themselves, to classify the types of arguments made and their bases for critiquing zoos. Then, national surveys, were used to assess how strongly the public at large associated with the ideas underpinning these arguments.

Four Types of Anti-Zoo/Aquarium Arguments

1. Zoos/Aquariums are immoral because they keep animals captive, denying them the right of freedom and free agency. Through philosophical reasoning, this argument contends that confinement and denial of freedom in zoos and aquariums creates suffering in animals. This suffering is unacceptable and characterizes the zoo as immoral and inhumane.

2. Zoos/Aquariums do not adequately meet the psychological and physiological needs of animals. The specific critiques that can be categorized in this way cover a range of tones. Some are particularly strident arguments that suggest there is virtually no way for any captive environment to meet the needs of animals' behavioral, social, and psychological needs. There are others that make distinctions between "good zoos," that strive to provide a high degree of care, enrichment, and serving all of an animal's needs, and "bad zoos" or "roadside zoos," characterized as not directing activities toward the good of the animals or the species. These critiques are generally defined by animal behavioral researchers who base animal welfare judgments on scientific research and empirical evidence.

3. Zoos/Aquariums are not actually exhibiting the wild animals and nature that they claim. The basis of this argument is that the captive breeding of zoo and aquarium operations has separated the animal populations in zoos from those in the wild, and this new, genetically separated population, might be considered a new evolutionary branch, subject to pressures of human management, rather than natural selection. In this view, therefore, collection animals are no longer the same as their counterparts in the wild.

4. Zoos/Aquariums misrepresent what they are actually displaying and achieving with their parks. The arguments within this set are to some degree more aesthetic critiques of zoo and exhibit design, and express concerns about the zoo/aquarium's legitimacy based on an inaccurate representation of nature. One argument proposes that the over-exposure of rare animals makes them less rare to visitors and the marketing of these displays is inauthentic and objectifying. Others focus on the commercialization, merchandizing, and theming that make zoos indistinguishable from fictional portrayals of nature. Others suggest that the artificial nature displays mislead visitors by perpetuating the idea that nature excludes human interaction except in manners that are negative. In all of these, the contention is that the design forms of the zoo/aquarium are incapable of delivering the interpretive stories they claim.

1. KEY FINDINGS

Overall, the public does not agree with any of these critiques of zoos, aquariums, and their legitimacy at achieving conservation and education objectives. Combining the responses to these types of anti-zoo/aquarium arguments in the national survey with the data that shows extremely high value placed on zoos' and aquariums' role in conserving wildlife and educating the public about animals and habitats, it seems that these arguments do not resonate in the minds and perceptions of the public at large.

The first argument, that keeping animals in captivity, in and of itself, is an immoral practice, was strongly supported (a rating of 7) by only 7% of the public for zoos and 5% of the public for aquariums. Another 8% for zoos and 7% for aquariums showed moderate support for this idea (a rating of 6). The majority of the public (55% in zoo and aquarium panels) fell into the neutral ranges (ratings of 3 to 5) on this question. This underscores the common narrative heard by visitors that while they, regret that animals are not free and wild to some degree, they do not feel it is immoral to keep animals in zoos and aquariums, and they see the benefits to conservation and public education inherent in the zoo/aquarium.

As for the second argument, that zoos/aquariums are immoral because they do not properly provide for animals' natural needs, the disagreement is even stronger. Only 6% of the public talking about zoos and 5% about aquariums felt strongly that zoos/aquariums are inhumane in this way. Nearly half of both samples (49% about zoos; 48% about aquariums) supported rather strongly (rating of 6 or 7) that zoos/aquariums do provide adequately for animals to live natural lives. There is a faith in the public mind that zoos/aquariums have the animals' best interest and health in mind.

The third argument focused on whether the animals in zoo/aquarium collections could be considered wild animals. This mindset is least prevalent in the public mind, with people feeling certain that zoo/aquarium animals are still wild, although there were some differences between perceptions of zoos and aquariums on this point. For zoo animals, 60% of the public feel rather strongly (6 or 7) they are still wild animals, and only 14% feel rather strongly that they are not wild animals. Aquarium animals were slightly less perceived as wild, with 43% saying strongly that they are still wild, and 17% feeling that growing up in captivity makes them not wild.

The fourth, aesthetically-based critique is less about public perceptions than of design and intent criticism. However, the public was surveyed on how they perceived the balance of the zoo/aquarium's educational and entertainment functions, exploring to some degree if the public perceives that the commercialization and entertainment of zoos/aquariums is at the expense of any educational experience. The results showed overwhelming disagreement that entertainment excludes education in zoos and aquariums, with only 8% for zoos and 7% for aquariums strongly agreeing (6 or 7) that zoos/aquariums have no educational value.

SECTION 2

DETAILED DATA FROM NATIONAL SURVEY PANELS

Methodology and Analysis

DATA

The data in this handbook derive from four nationwide panels (surveys) conducted by the Wildlife Conservation Society (WCS) and the University of Connecticut's Center for Survey Research and Analysis (CSRA) from February 8 – 19, 2008. One panel used the general population for respondents, two panels used parents, and one panel used K-12 educators.

Each of the questionnaires had a zoo and an aquarium form, with respondents answering questions about either zoos or aquariums. Respondents generally received the same battery of demographic and other reference items. The items in the four surveys were designed by WCS and CSRA, based on findings from first-phase qualitative research with informant population groups. Creation of items was guided by the over-arching value themes that they sought to explore, such as interpersonal bonding, connection to nature, or source of environmental information. These themes became the structure for examining and analyzing the data and for presentation in this handbook.

The general population data were weighted according to U.S. Census figures for race and ethnic background and education. Age and gender were not weighted, as the data reflects U.S. Census figures. The other data files were not weighted, as there are no similar baseline Census data about the characteristics of parents and educators.

Because they often used the same question wording, the two parent panels were combined into one parent data file for this report. One parent panel contained a high degree of women (~90%). However, analyses of the value item means across both panels for similar items suggest that the high degree of women in one of the panels did not bias the results, as the mean scores across the value items were quite similar for identical questions. Moreover, the minor differences found are not systematically skewed in one direction (higher or lower).

When preparing the data, researchers scanned for invalid responses. In particular, researchers searched the data files for respondents answering the same way for nearly every value item. When cleaning the files, researchers did not want to exclude individuals who answered the same way across only one value battery, as the similarity in value questions within a battery might reasonably warrant the same answer (e.g., all 1's, all 4's, or all 7's, etc.). However, only removing respondents that answered the same way across all value batteries would include many individuals that answered invalidly -providing only one different response across all value items. Therefore, researchers concluded that respondents would be excluded when they used the exact same response category across multiple, but not all value batteries. Using this method, 86 respondents were removed from the general population data file, 202 were removed from the parent data file, and 236 were removed from the educator data file. The general population panel contained 1174 valid respondents; the parent combined panel contained 2381 respondents; the educator panel contained 983 respondents.

STATISTICAL ANALYSIS

The data were analyzed using SPSS 16.0 for the PC. Using the six value themes identified, each individual value item fell into at least one of these value themes; many fit into more than one value theme. The data presented here primarily focus on analyzing one of these themes across populations (general public, parents, and educators) and subgroups (demographic, behavioral, and psychographic). The frequency of answers across response categories, the central tendency of responses (mean), as well as the dispersion of responses around the mean (standard deviation) are displayed for each value item.

The value item means for zoos were compared to the parallel aquarium value item means. This approach helped answer the question: do individuals similarly value aquariums and zoos? To avoid trivial interpretation, value differences are highlighted only when surpassing one half response category on a seven point scale. Very few differences of even this modest magnitude were found, suggesting that individuals share very similar attitudes toward the value of zoos and aquariums.

The value item means for the general population were compared to the parent and educator value item means. This approach helps answer the question: does the value placed in aquariums and zoos differ across populations? Value differences are reported; these differences are highlighted only when surpassing one half response category on a seven-point scale. Very few differences of even this modest magnitude are found, suggesting that these different populations share very similar attitudes toward the value of zoos and aquariums. Because these populations share similar opinions, the general population sample is used to further analyze subgroup differences.

The first task when considering subgroup differences in opinions was to search systematically for attitude dimensions within each value theme. Many value questions tap into the same underlying attitude, making repeated analyses across many questions redundant. An exploratory factor analysis was conducted. A principal components factor analysis, using oblique rotation due to the likelihood of the factors covarying, was used within each theme. Direct oblimin rotation allows the factors to correlate with each other rather than assuming rigidly orthogonal factors that have very low correlations. All value items that fit into the theme were entered into the factor analysis; dimensions (e.g., factors or components) in the data are revealed. Specifically, factors having at least eigenvalues of 1 are extracted. Both the aquarium and zoo factors are examined. Discretionary judgment is used to determine the number of components to extract. If, for example, a factor was excluded in the zoo analysis because of an eigenvalue of .9, but a similar factor had an eigenvalue of 1.1 in the aquarium analysis, the .9 zoo component could be included despite its borderline magnitude. This improves the consistency across zoo and aquarium factors and is appropriate given the exploratory nature of the analyses. The most representative value item within each of these dimensions is used in the next step when exploring subgroup differences.

Next, these representative value items were correlated with the demographic, behavioral, and psychographic items within the general population questionnaire. A statistically significant correlation coefficient indicates a linear relationship between the value item and the demographic, behavioral, or psychographic item. In many cases, the questionnaire offered categorical choices to respondents (i.e., catholic, or protestant, or secular, etc.). Because correlation requires at least an ordinal scale, these categorical questions are made into dichotomous dummy variables (yes category or no category). Because some categories contain very low numbers of respondents (below ~50) and would not be appropriate for further analysis, the report contains those dummy variables with categories of over ~50.

Taken together, the correlations in this report suggest that the demographic, behavioral, and psychographic items only weakly associate with the representative value items. In other words, individuals, regardless of their demographic, behavioral, and psychographic traits, tend to share similar attitudes toward the value of zoos and aquariums.

Despite these modest correlations, the chapters further explore some of these relationships. In those cases where significant correlations are found, the demographic, behavioral, and psychographic items are broken into their respective response categories. Then, to comprehend the precise nature of the relationship, the tables report the representative value items' mean scores across these demographic, behavioral, and psychographic response categories.

Overview of National Sample

The WCS Public Research and Evaluation Program conducted extensive research to better understand the perceived value of zoos and aquariums. Six themes of how the public characterized zoo/aquarium value in their lives emerged from this research:

- Source of Environmental Information and Action Messaging
- Connection to Personal, Moral, Family Values, Traditions, and Faiths
- Interpersonal Bonding and Social Capital
- Connection with Nature and Animals
- Value for Teaching, Learning, and Skill Development
- Moral Critique of Zoos/Aquariums

To validate previous findings and explain the association of each value area for various populations, WCS, in collaboration with CSRA, designed and conducted four nationwide web-based panels (surveys) from February 8 - 19, 2008. One panel used the general population for respondents, two panels used parents, and one panel used K-12 educators.

Each of the questionnaires had a zoo and an aquarium form, with respondents answering questions about either zoos or aquariums. The general population panel contained 1174 valid respondents; the parent combined panel contained 2381 respondents; and the educator panel contained 983 respondents.

This following are some of the key data from the quantitative WCS panels (surveys) of the general public, parents, and educators. Each survey question fell into at least one of the six value themes; many fit into more than one value theme. The sections that follow primarily focus on analyzing the dominant themes across populations and subgroups (demographic, behavioral, and psychographic).

Generally, the sections are written to focus on summary results for action planning.

Key Findings from National Panels

1. Overall, respondents across all three populations have generally positive opinions about both zoos and aquariums with regard to the six value themes—from the institutions' role as a source of environmental information and action messaging to the moral character of zoos and aquariums. (Most value items have mean scores above 4 on a 1 to 7 scale.)

2. Zoos and aquariums are valued similarly by the general public, parents, and educators. Very few differences of even modest magnitude are found when comparing value item means for zoos with the parallel aquarium value item means. This finding is notable in showing that although zoos and aquariums are very different facilities, when it comes to their value, the public perceives them in nearly identical ways. Both serve the same role and value function in the lives of the public.

3. While some items on the panels (surveys) for the general public and parents differed, there was commonality in that both groups especially value zoos and aquariums as places to:

- Educate individuals about animals and habitats, as an information source for endangered animals, and as places that are important in worldwide conservation efforts to preserve species. (theme 1)
- Appreciate living animals and develop care for nature (nature experiences are viewed as an important part of childhood). (theme 2)
- Spend time with friends and family in a nature environment. (Parents also value the institutions as places to discover new things together.) (theme 3)
- Appreciate living animals and to experience nature and living animals. (theme 4)
- Educate individuals and children about animals, habitats, and the natural world. (theme 5)

4. Within each theme, we saw which qualities were relatively less valued than those highlighted above. Comparatively, the general public value zoos and aquariums less as places:

- That are an information source for water and energy conservation in homes, or recycling. (theme 1) – Broad environmental topics that seem unrelated to animals

- Where they can think about spiritual beliefs, or find a spiritual connection within nature. (theme 2)
- Where friends and family can become closer to each other. (theme 3)
- Where they can find a spiritual connection within nature, or restore their connection with the natural world. (theme 4)
- That provide information on how people can help protect the environment. (theme 5)

5. Among the items addressed by parents in their surveys (which was a somewhat different battery of questions than given to the general public), parents placed comparatively less value on zoos and aquariums as places:

- That are an information source for how we can help protect the environment, or to receive explicit direction on how we can each conserve to help the environment. (theme 1)
- Where they can talk with their children about their religious beliefs, think about their spiritual beliefs, or find a spiritual connection within nature. (theme 2)
- Where they can share experiences with zoo staff, get to know new friends better, or share experiences with other zoo/aquarium-goers. (theme 3)
- Where they can find a spiritual connection within nature or restore their connection with the natural world. (theme 4)
- Where they can share their knowledge about animals or nature or where their children can learn how to behave appropriately in public. (theme 5)

6. Educators especially value zoos and aquariums:

- As an information source for endangered animals, for educating students about animals and habitats, and as an information source for wildlife conservation and protection. Educators particularly value aquariums as a place to help students to value animals and natural resources. (theme 1)
- As places for educating students about animals and habitats. Zoos are valued more by educators as a place that provides a fun, field trip experience, whereas aquariums are especially valued as a place that allows students to learn from close-up experiences with living animals. (theme 5)

7. Educators place the lowest comparative degree of value on zoos and aquariums:

- As information sources for water and energy conservation in homes, on global climate change, or recycling. (theme 1)
- As places that provide opportunities for professional development and that provide curricula and materials to use in the classroom. (theme 5)

8. All three populations—the general public, parents, and educators—strongly disagree that zoos and aquariums are only useful for entertainment and do not have any educational value; educators more strongly disagree than the general population. (theme 5) This shows that the public at large does see the educational value of zoos and aquariums.

9. Individuals, regardless of their background, tend to share similar attitudes toward the value of zoos and aquariums. Across the theme areas, demographic, behavioral, and psychographic traits only weakly associate with value items. Despite the weak association between value items and demographic, behavioral, and psychographic traits, certain themes displayed differences by these traits. These differences are detailed in the themed sections.

10. The few differences that existed between sub-groups of individuals are explored in the following sections. Most notably, there are few consistent patterns in characteristics that influence difference in values across the themes. Two points of particular interest:

- One of the more common influencers on the perception of value is the frequency with which adults recall visiting zoos and aquariums with family in their childhoods. Those who visited zoos and aquariums frequently as a child, tend to have more positive and stronger values of zoos/aquariums as adults, as opposed to those who visited occasionally or not at all. This suggests that strengthening relationships with existing family visitors and members is cultivating a future adult audience with a greater sense of the zoo/aquarium's value and potential.

- There are virtually no regional differences in responses to value items. Respondents in the Northeast, South, Midwest, and West characterize the value of zoos in nearly identical ways. Similarly, the size of someone's community (urban or rural) has virtually no impact on their perception of value. While we know that these regions and communities are very different in a number of ways, these findings indicate that all of these individuals value zoos and aquariums in essentially the same ways.

Sample Characteristics: **General Population and Parents**

Table 1. Demographic, Behavioral, Psychographic Characteristics of General Population and Parent Samples

Characteristic	General Population		Parents*	
	Percent	*N*	Percent	*N*
How often do you typically visit zoos?		1064		2381
I've never been to a zoo	4		1	
Not since I was a child	15		4	
Not for many years	33		20	
Once every few years	23		32	
Once per year	14		22	
Twice per year	6		12	
Three or more times per year	4		10	
How often do you typically visit aquariums?		1064		2381
I've never been to an aquarium	16		9	
Not since I was a child	12		6	
Not for many years	32		24	
Once every few years	25		34	
Once per year	10		17	
Twice per year	3		6	
Three or more times per year	2		4	
Are you a member of a zoo?		1064		2381
Yes	4		10	
No	96		90	
Are you a member of an aquarium?		1064		2381
Yes	1		4	
No	99		96	
Gender		1064		2381
Male	48		26	
Female	52		74	
Age		1064		2381
18-24	0		1	
25-34	1		18	
35-54	46		67	
55-69	29		14	
70+	24		0	
Children under 18 in household:		1057		2381
None	71		0	
1	13		24	
2	10		41	
3	3		24	
4	1		7	
5	0		2	
6	1		1	
7+	0		1	
Region		1064		2381
Northeast	16		23	
Midwest	22		30	
South	40		30	
West	21		17	
Islands	1		0	
Size of Community:		1064		2381
Large city with 250,000 people or more	28		22	
City with 50,000 to less than 250,000 people	25		23	
Small city with 25,000 to less than 50,000	15		18	
Town with 5,000 to less than 25,000 people	17		20	
Farm or rural area	15		17	
Income		971		2180
Less than $15,000	15		5	
$15,000 to less than $25,000	21		10	
$25,000 to less than $35,000	15		15	
$35,000 to less than $50,000	16		22	
$50,000 to less than $75,000	18		20	
$75,000 to less than $100,000	7		14	
Over $100,000	8		14	

Characteristic	General Population		Parents*	
	Percent	*N*	Percent	*N*
Highest level of education completed		1059		2366
Less than high school (0-11)	9		2	
High school degree (12)	31		23	
Some college (1-3 years)	22		31	
Associates degree (2 years)	7		12	
College graduate (4 years)	19		22	
Post graduate (Masters, PhD, etc.)	11		10	
Hispanic or Latino origin		1050		2351
Yes	11		3	
No	89		97	
Racial or ethnic group most identify with		1048		2345
African American	11		5	
Asian	4		3	
Native American	1		1	
White	78		90	
Other	7		2	
Visited zoo/aquarium with parents as child		968		2205
Very often	10		11	
Occasionally	74		75	
Never	15		14	
Own pet(s)		1064		2381
Yes	63		77	
No	37		23	
Participate in outdoor, nature-related activities		1064		2381
Never	13		4	
Less than once a month	38		29	
Once a month	15		18	
A few times a month	17		28	
Once a week	7		9	
More than once a week	9		12	

Characteristic	General Population		Parents*	
	Percent	*N*	Percent	*N*
Religious Affiliation		954		2119
Roman Catholic	20		22	
Protestant/other non-denominational Christian	47		51	
Atheist/Realist/Humanist	4		2	
Jewish	3		3	
Mormon	2		2	
Pagan/Wiccan	1		1	
Jehovah's Witness	0		1	
No affiliation	22		17	
Attend your place of worship		961		2153
A few times a week	11		12	
Once a week	20		26	
Once or twice a month	7		10	
A few times a year	11		12	
Only on religious holidays	3		3	
Rarely	25		21	
Never	23		17	
On political matters, generally consider self to be		715		1618
Progressive/very liberal	9		5	
Liberal	24		17	
Moderate	31		32	
Conservative	26		35	
Very conservative	7		9	
Libertarian	3		2	

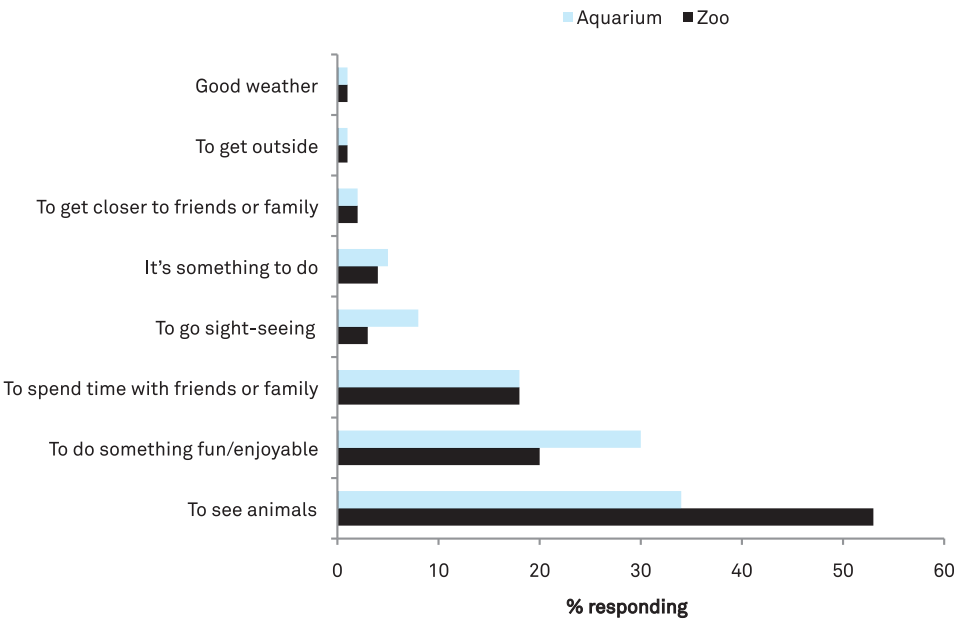
* Parents screened to be parent or primary care-taker of a child under the age of 18.
Note: Variation in sample sizes on individual questions due to respondents' ability to decline to answer certain items.

The general population was asked why they typically go to zoos or to aquariums. The most common response for both was “to see animals,” although far more so for zoos. This suggests a difference in the primary qualities attracting visitors to each facility, with animals having a stronger influence on zoo-goers than on aquarium-goers

Table 2. Why people go to the zoo/aquarium (without follow-up): General Population

Item	ZOO	AQUARIUM
	% Responding	% Responding
To see animals	53	34
To do something fun/enjoyable	20	30
To spend time with friends or family	18	18
To go sight-seeing	3	8
It’s something to do	4	5
To get closer to friends or family	2	2
To get outside	1	1
Good weather	1	1

Figure 1. Why people go to the zoo/aquarium (without follow-up): General Population

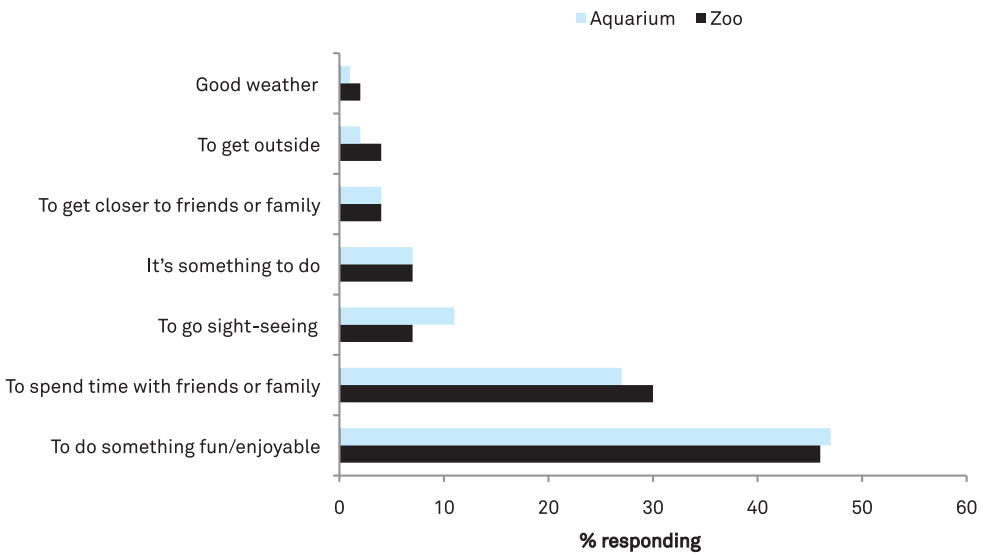


Because seeing animals is inherent to zoos and aquariums, a follow-up was asked to this question, having these respondents select a secondary reason for visiting, other than animals. By compiling these answers with the data from the prior question, there is a picture of what draws the public to zoos/aquarium, other than the animal collections. In this case, zoos and aquariums have nearly identical profiles of what interests visitors.

Table 3. Other than "to see animals," why people go to the zoo/aquarium: General Population

Item	ZOO	AQUARIUM
	% Responding	% Responding
To do something fun/enjoyable	46	47
To spend time with friends or family	30	27
To go sight-seeing	7	11
It's something to do	7	7
To get closer to friends or family	4	4
To get outside	4	2
Good weather	2	1

Figure 2. Other than "to see animals," why people go to the zoo/aquarium: General Population



Sample Characteristics: **Educators**

To better understand the respondents in the educator panel, the remaining tables specify the subject and grade level taught by educators in the panel survey.

Table 4. Grade taught, by subject

Item	K-2	3-5	6-8	9-12	Total
	% Responding				
General Classroom	47	38	16	8	27
Arts	8	10	14	6	6
Math	2	4	13	13	8
Reading	14	15	17	19	16
Science and Technology	4	7	10	14	9
Social Studies	1	1	6	13	6
Special Education	18	18	15	17	19
Other	7	7	9	9	10
N	318	316	268	278	895

Table 5. Grade taught, by subject (condensed)

Item	K-2	3-5	6-8	9-12	Total
	% Responding				
General Classroom	47	38	16	8	27
Science and Technology	4	7	10	14	9
Other	49	55	74	77	64
N	318	316	268	278	895

Table 6. Subjects taught by educators in grades K-2

Item	K-2	Other	Total
	% Responding		
General Classroom	47	17	27
Arts	8	5	6
Math	2	12	8
Reading	14	17	16
Science and Technology	4	11	9
Social Studies	1	8	6
Special Education	18	19	19
Other	7	11	10
N	318	577	895

Table 7. Subjects taught by educators in grades 3-5

Item	3-5	Other	Total
	% Responding		
General Classroom	38	22	27
Arts	10	4	6
Math	4	11	8
Reading	15	16	16
Science and Technology	7	9	9
Social Studies	1	8	6
Special Education	18	19	19
Other	7	11	10
N	316	579	895

Table 8. Grades taught by educators in grades 6-8

Item	6-8	Other	Total
	% Responding		
General Classroom	16	32	27
Arts	14	3	6
Math	13	6	8
Reading	17	15	16
Science and Technology	10	8	9
Social Studies	6	6	6
Special Education	15	20	19
Other	9	10	10
N	268	627	895

Table 9. Grades taught by educators in grades 9-12

Item	9-12	Other	Total
	% Responding		
General Classroom	8	36	27
Arts	6	6	6
Math	13	6	8
Reading	19	14	16
Science and Technology	14	6	9
Social Studies	13	2	6
Special Education	17	19	19
Other	9	10	10
N	278	617	895

Table 10. Sites where educators take students on field trips (N=895)

	% Responding
Zoo	15
Aquarium	7
Other field trip sites	48
No field trips	50

Table 11. Sites where educators take students on field trips among educators who teach one grade-level exclusively

	K-2	3-5	6-8	9-12
	% Responding			
Zoo	13	15	4	4
Aquarium	32	21	9	8
Other field trip sites	73	76	48	37
No field trips	26	22	49	61
N	139	107	122	191

Theme 1
Source of Environmental Information and Action Messaging

This section presents tables and figures that present data from each of the three panels (general population, parents, and educators) regarding how these populations value the role of zoos and aquariums as a source of environmental information and action messaging (Theme 1). These data present their responses to Theme 1 value items and provide analysis to examine significant differences between populations and by demographic, psychographic, and behavioral categories. Detail on the methods and statistical analysis is provided on pages 30-31 of this handbook.

Highlights:

- The general public, parents, and educators generally have positive opinions about the role of zoos and aquariums as a source of environmental information and action messaging.
- The general public and parents especially value zoos and aquariums as places to educate individuals about animals and habitats, and as important in worldwide conservation efforts to preserve species.
- Compared to other items within this theme, the general public places the lowest degree of value on zoos and aquariums as an information source for water and energy conservation in homes, and as an information source for recycling.
- Compared to other items asked within this theme, parents place the lowest degree of value on zoos and aquariums as information sources for how we can help protect the environment and as a place to receive explicit direction on how we can each conserve to help the environment. Although, they still place a higher value on this attribute than does the general population. Further, parent panels were not asked the full list of specific environmental topics that the general public was.
- Educators especially value zoos and aquariums as an information source for endangered animals, as places for educating students about animals and habitats, and as an information source for wildlife conservation and protection. Educators particularly value aquariums as a place to help students to value animals and natural resources.
- Educators place the lowest comparative degree of value on zoos and aquariums as information sources for water and energy conservation in homes, as information sources for global climate change, and as information sources for recycling.
- For all populations, they more strongly connected zoo and aquarium value as a source of environmental information to topics directly related to animals. The more broad and disconnected from animals that a topic was, the lower the zoo/aquarium's value in communicating about it.

General Population

Table 1.1. Zoo/Aquarium as Source of Environmental Information and Action Messaging: General Population

Frequency, mean, and standard deviation of value ratings

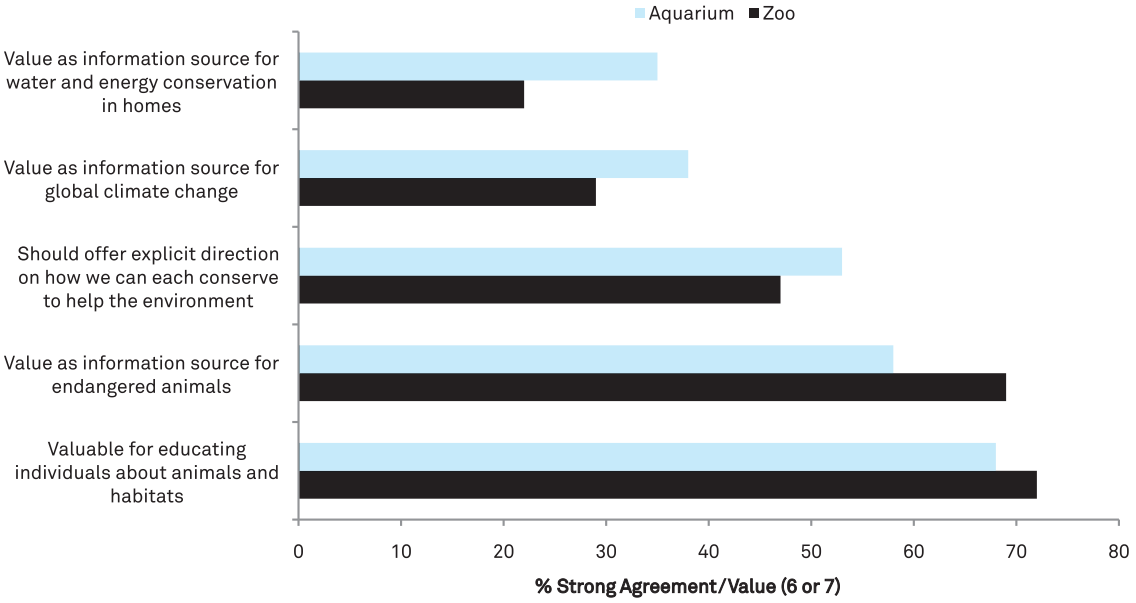
Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*
	% Responding									
Zoos are valuable for educating individuals about animals and habitats (a)	0	1	3	7	18	28	44	6.00	1.15	615
Aquariums are valuable for educating individuals about animals and habitats (a)	2	0	2	10	17	24	44	5.90	1.29	449
Value as information source for endangered animals (Zoo) (b)	2	1	3	8	17	25	44	5.89	1.35	615
Value as information source for endangered animals (AQ) (b)	3	2	4	11	22	26	32	5.56	1.45	449
Zoos are important in worldwide conservation efforts to preserve species (a)	1	2	3	11	18	27	39	5.80	1.32	615
Aquariums are important in worldwide conservation efforts to preserve species (a)	2	2	3	16	18	27	33	5.59	1.41	449
Value as information source for wildlife conservation and protection (Zoo)(b)	2	2	5	10	19	25	37	5.66	1.44	615
Value as information source for wildlife conservation and protection (AQ) (b)	3	2	3	16	17	29	30	5.50	1.47	449
Zoos should offer explicit direction on how we can each conserve to help the environment (a)	2	3	5	19	24	21	26	5.26	1.47	615
Aquariums should offer explicit direction on how we can each conserve to help the environment (a)	3	3	3	19	19	29	24	5.33	1.46	449
That provides information on how we can help protect the environment (Zoo) (a)	5	4	6	16	22	21	27	5.14	1.68	615
That provides information on how we can help protect the environment (AQ) (a)	3	4	7	14	24	25	24	5.23	1.54	449
Value as information source for restoring and cleaning-up habitats and ecosystems (Zoo) (b)	6	4	7	16	23	24	20	4.99	1.68	615
Value as information source for restoring and cleaning-up habitats and ecosystems (AQ) (b)	3	2	6	19	22	25	23	5.25	1.46	449
Value as information source for ocean conservation/over fishing (Zoo) (b)	8	6	10	20	22	19	15	4.60	1.75	615
Value as information source for ocean conservation/over fishing (AQ) (b)	4	2	6	16	20	26	27	5.33	1.55	449
Value as information source for global climate change (Zoo) (b)	9	7	8	25	22	15	14	4.45	1.75	615
Value as information source for global climate change (AQ) (b)	5	5	9	19	24	21	17	4.84	1.64	449
Value as information source for pollution (Zoo) (b)	10	8	9	23	22	14	14	4.35	1.80	615
Value as information source for pollution (AQ) (b)	5	2	10	21	22	23	18	4.95	1.58	449
Value as information source for recycling (Zoo) (b)	13	9	11	25	16	15	11	4.12	1.85	615
Value as information source for recycling (AQ) (b)	7	5	10	26	22	15	14	4.52	1.68	449
Value as information source for water and energy conservation in homes (Zoo) (b)	15	12	14	20	18	12	10	3.90	1.86	615
Value as information source for water and energy conservation in homes (AQ) (b)	6	4	14	23	19	18	17	4.62	1.69	449

a – Agreement scale – 1 “Strongly Disagree”, 7 “Strongly Agree”

b – Value scale – 1 “Not at all”, 7 “A lot”

Figure 1.1. Zoo/Aquarium as Source of Environmental Information and Action Messaging: General Population

Percent of sample expressing strong value for selected items



- There are notable differences in the general public's value ratings for zoos as compared to aquariums on three items in this value theme (shown in Table 1.2 and Figure 1.2).

Table 1.2. Zoo/Aquarium as Source of Environmental Information and Action Messaging: General Population

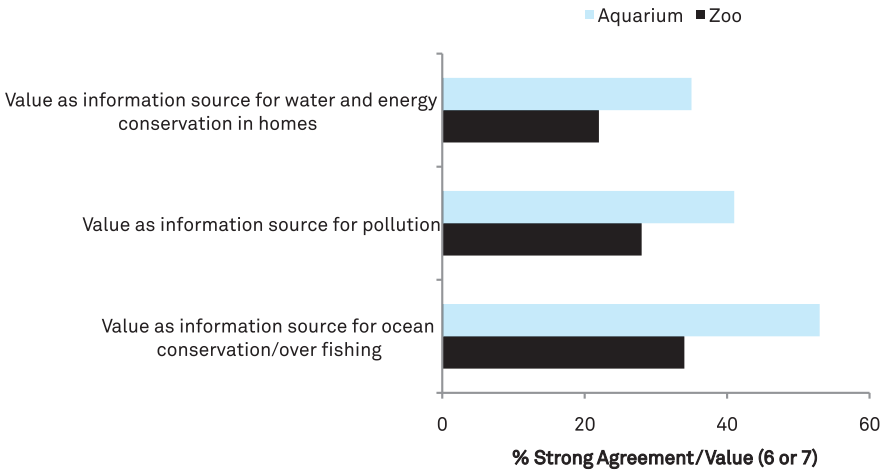
Mean ratings of value with differences between value of zoos and value of aquariums

Item	ZOO	AQUARIUM
	Mean	Mean
Value as information source for ocean conservation/over fishing	0	5.33
Value as information source for pollution	4.35	4.95
Value as information source for water and energy conservation in homes	0	4.62

* Notable differences in values for Zoos vs. Aquariums

Figure 1.2. Zoo/Aquarium as Source of Environmental Information and Action Messaging: General Population

Percent of sample expressing strong value for items with notable differences between zoos and aquariums



* Notable differences in values for Zoos vs. Aquariums

Parents

Table 1.3. Zoo/Aquarium as Source of Environmental Information and Action Messaging: Parents

Frequency, mean, standard deviation, and difference from general public panel of value ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*	Difference*
	% Responding										
Zoos are valuable for educating individuals about animals and habitats (a)	0	0	1	6	11	28	53	6.24	1.02	1240	0.24
Aquariums are valuable for educating individuals about animals and habitats (a)	0	0	1	6	15	27	51	6.17	1.05	1141	0.27
Zoos are important in worldwide conservation efforts to preserve species (a)	1	1	2	8	17	27	45	5.98	1.20	1240	0.18
Aquariums are important in worldwide conservation efforts to preserve species (a)	1	1	2	13	18	27	39	5.82	1.23	1141	0.23
Zoos should offer explicit direction on how we can each conserve to help the environment (a)	2	2	5	14	20	26	31	5.53	1.42	1240	0.27
Aquariums should offer explicit direction on how we can each conserve to help the environment (a)	1	2	4	16	22	24	32	5.56	1.36	1141	0.23
That provides information on how we can help protect the environment (Zoo) (a)	2	2	5	15	20	26	30	5.49	1.42	1240	0.35
That provides information on how we can help protect the environment (AQ) (a)	2	1	4	13	21	26	33	5.60	1.38	1140	0.37

a – Agreement scale – 1 “Strongly Disagree”, 7 “Strongly Agree”

* - Difference of mean from General Public

- There are no notable differences in parents' values of zoos as compared to aquariums in this value theme.
- Parents gave higher ratings than the general public on all parallel items in this value theme. However, none was more than half a response category higher.

Educators

Table 1.4. Zoo/Aquarium as Source of Environmental Information and Action Messaging: Educators

Frequency, mean, standard deviation, and difference from general public panel of value ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*	Difference*
	% Responding										
Value as information source for endangered animals (Zoo) (c)	1	2	3	7	10	30	47	6.03	1.27	504	0.14
Value as information source for endangered animals (AQ) (c)	1	1	3	7	17	37	36	5.91	1.15	479	0.35
Zoos are valuable for educating students about animals and habitats (a)	1	1	1	7	16	35	40	6.01	1.11	503	0.01
Aquariums are valuable for educating students about animals and habitats (a)	2	0	0	4	16	35	43	6.09	1.12	479	0.19
Value as information source for wildlife conservation and protection (Zoo) (c)	1	2	3	8	13	32	41	5.91	1.28	504	0.25
Value as information source for wildlife conservation and protection (AQ)(c)	0	1	4	8	19	35	32	5.79	1.20	479	0.29
Zoos are important in worldwide conservation efforts to preserve species (a)	1	1	2	10	22	34	30	5.74	1.21	503	-0.06
Aquariums are important in worldwide conservation efforts to preserve species (a)	0	1	3	13	21	37	24	5.62	1.16	479	0.03
Value as information source for restoring and cleaning-up habitats and ecosystems (Zoo) (c)	2	3	6	11	21	31	27	5.46	1.43	504	0.47
Value as information source for restoring and cleaning-up habitats and ecosystems (AQ) (c)	1	1	3	11	20	33	31	5.71	1.23	479	0.46
Sharing specific ways people can help to care for the environment (Zoo) (c)	4	3	6	16	23	28	20	5.17	1.53	504	n/a
Sharing specific ways people can help to care for the environment (AQ) (c)	2	3	4	12	25	31	23	5.41	1.38	479	n/a
Value as information source for ocean conservation/Over fishing (Zoo) (c)	3	8	10	17	22	22	18	4.85	1.64	504	0.25
Value as information source for ocean conservation/Over fishing (AQ) (c)	0	2	5	12	22	30	29	5.59	1.30	479	0.26
Value as information source for pollution (Zoo) (c)	4	8	9	22	21	20	15	4.70	1.63	504	0.35
Value as information source for pollution (AQ) (c)	1	2	5	13	25	29	26	5.49	1.29	479	0.54
Value as information source for recycling (Zoo) (c)	4	8	11	23	19	20	14	4.63	1.64	504	0.51
Value as information source for recycling (AQ) (c)	2	5	10	20	24	23	17	4.97	1.49	479	0.45
Value as information source for global climate change (Zoo) (c)	8	6	10	20	24	17	16	4.58	1.75	504	0.13
Value as information source for global climate change (AQ) (c)	4	4	8	18	22	24	20	5.01	1.60	479	0.17
Value as information source for water and energy conservation in homes (Zoo) (c)	7	11	13	23	18	16	13	4.34	1.74	504	0.44
Value as information source for water and energy conservation in homes (AQ) (c)	2	6	10	19	21	25	17	4.95	1.52	479	0.33

a – Agreement scale – 1 “Strongly Disagree”, 7 “Strongly Agree”

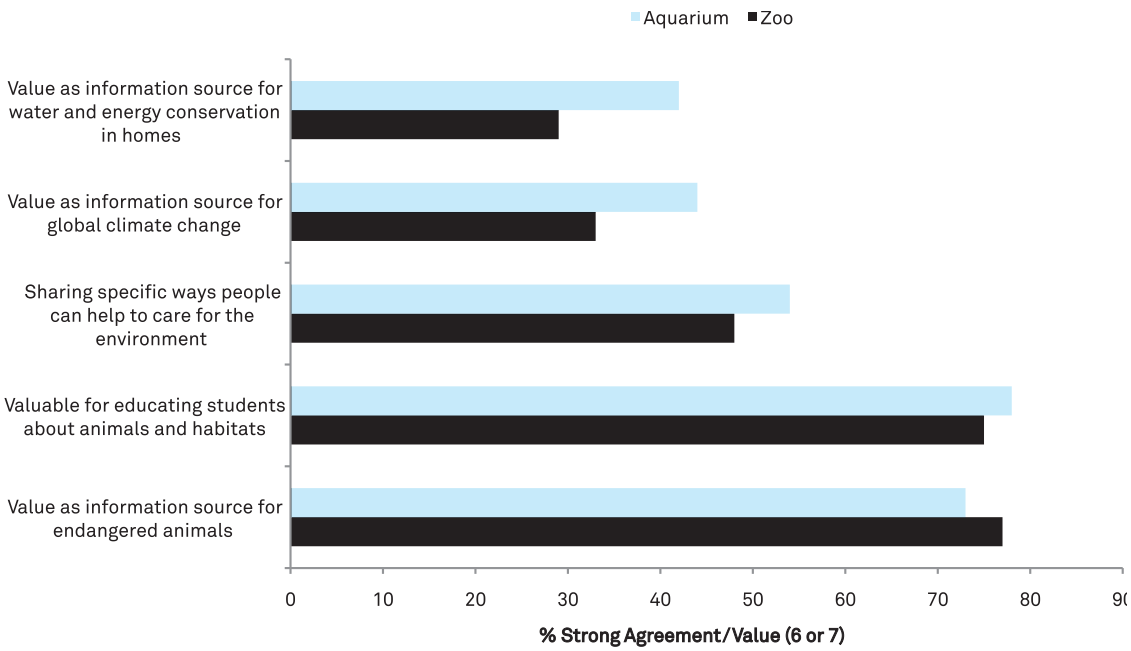
c – Value scale – 1 “Not at all valuable”, 7 “Extremely valuable”

d – Importance scale – 1 “Not at all important”, 7 “Extremely important”

* - Difference of mean from General Public

Figure 1.3. Zoo/Aquarium as Source of Environmental Information and Action Messaging: Educators

Percent of sample expressing strong value for selected items



- Educators gave higher ratings than the general public on most items in this value theme. However, only two items were more than half a response category higher.
- There are notable differences in educators' value ratings for zoos as compared to aquariums for three statements in this value theme (shown in Table 1.5 and Figure 1.4).

Table 1.5. Zoo/Aquarium as Source of Environmental Information and Action Messaging: Educators

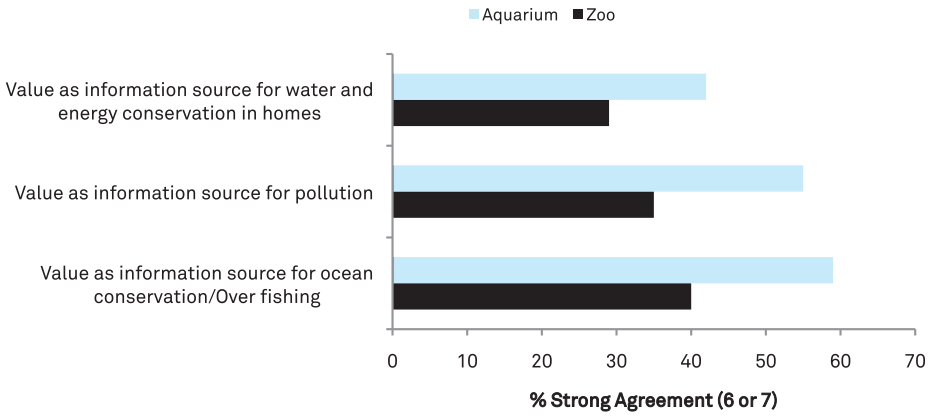
Mean ratings of value with differences between value of zoos and value of aquariums.

Item	ZOO	AQUARIUM
	Mean	Mean
Value as information source for ocean conservation/over fishing (c)	4.85	5.59
Value as information source for pollution (c)	4.70	5.49
Value as information source for water and energy conservation in homes (c)	4.34	4.95

c - Value scale - 1 "Not at all valuable", 7 "Extremely valuable"

Figure 1.4. Zoo/Aquarium as Source of Environmental Information and Action Messaging: Educators

Percent of Sample Expressing Strong Agreement for Items with Notable Differences between Zoos and Aquariums



Significant Differences in Value by Sub-Groups

Factor analysis of the general population's ratings of value in this theme showed two underlying values. One was a cluster of statements that related to broader environmental issues, such as recycling, energy conservation, climate change. The second was connected to statements that were explicitly animal-focused, such as endangered animals, protecting wildlife, or saving animal habitats. Analysis explored responses by demographic and behavioral characteristics to see if there were significant differences in how segments of the population valued zoos and aquariums according to these two factors.

The following table lists the salient demographic, psychographic, and behavioral characteristics for which there was a significant (although weak) relationship with one or both of the factors. The mean rating given by those representing each characteristic (e.g., men, women, people over age 65) is listed, showing which characteristics correspond to higher and lower values. Blank spaces in the table indicate that no significant relationship exists.

Table 1.6. Zoo/Aquarium as Source of Environmental Information and Action Messaging: General Population

Relationships between demographic characteristics and value assigned to Theme 1 factors.
Number represents sub-group's mean rating of value.

Demographic/Psychographic Characteristic	FACTOR 1		FACTOR 2	
	Mean Value of Z/A for Broad Environmental Issues		Mean Value of Z/A for Wildlife Conservation	
	Zoo	Aquarium	Zoo	Aquarium
Participation in Nature Activities				
Very frequent (>once per week)	4.48	5.07	6.28	5.75
Very infrequent (never)	3.85	3.81	5.27	5.18
Zoo Visitation				
More often (3+ times per year)		5.50		5.99
Less often (not for many years)		4.33		5.60
Aquarium Visitation				
More often (3+ times per year)		5.31	6.42	
Less often (not for many years)		4.12	5.73	
Zoo/aquarium with parents as a child				
Very often		4.93	6.45	
Never		3.88	5.78	
Age				
younger cohorts (<40)	4.47	4.89		
older cohorts (>65)	3.74	4.16		
Community Size				
Large City	4.56		5.98	
Rural	3.88		5.68	
Hispanic Origin				
Hispanic	4.92	5.10		
Non-Hispanic	4.00	4.47		

Agreement scale - 1 "Strongly Disagree", 7 "Strongly Agree"

Theme 2
Connection to Personal, Moral, Family Values, Traditions, and Faiths

This section presents tables and figures that present data from each of the three panels (general population, parents, and educators) regarding how these populations value zoos and aquariums as connectors to personal, moral, family values, traditions, and faiths (Theme 2). These data present their responses to Theme 2 value items and provide analysis to examine significant differences between populations and by demographic, psychographic, and behavioral categories. Detail on the methods and statistical analysis is provided on pages 30-31 of this handbook.

Highlights:

- The general public, parents, and educators have generally positive opinions about the role of zoos and aquariums as connectors to personal, moral, family values, traditions, and faiths.
- The general public and parents especially value zoos and aquariums as places to appreciate living animals. Nature experiences are viewed as an important part of childhood.
- The general public places the lowest comparative degree of value on zoos and aquariums as places where they can think about spiritual beliefs, and where they can find a spiritual connection within nature.
- Parents place the lowest comparative degree of value on zoos and aquariums as places where they can talk with their children about their religious beliefs, where they can think about their spiritual beliefs, and where they can find a spiritual connection within nature.
- Overall, parents associated the zoo and aquarium with values of appreciating and respecting life and other creatures, instilling these values in children through experience. However, they do not value it for explicitly teaching about, discussing, or extolling family, religious, or moral lessons. It is a less directed, more free-form experience of modeling values, rather than teaching them.

General Population

Table 2.1. Connection to Personal, Moral, Family Values, Traditions, and Faiths: General Population

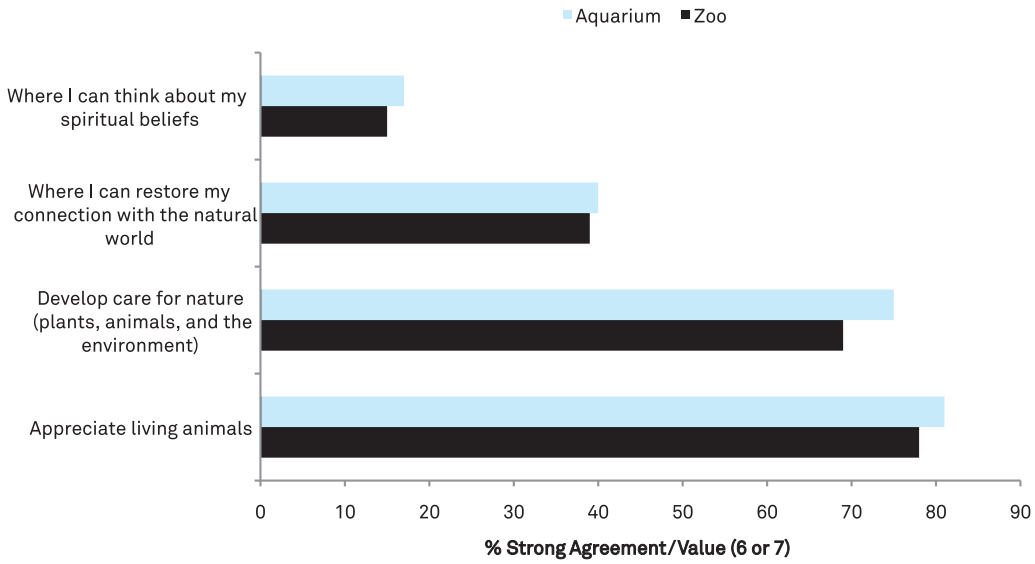
Frequency, mean, and standard deviation of value ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*
	% Responding									
Appreciate living animals (Zoo) (c)	2	1	2	6	11	24	54	6.14	1.27	615
Appreciate living animals (AQ) (c)	2	0	1	6	12	29	52	6.18	1.14	449
Nature experiences are an important part of childhood (Zoo) (a)	0	0	3	7	15	26	50	6.12	1.11	615
Nature experiences are an important part of childhood (AQ) (a)	1	1	3	7	14	23	51	6.08	1.22	449
I would feel that an important part of a child's life was missing if he or she were not able to get out and enjoy nature from time to time (Zoo) (a)	1	1	2	9	10	26	51	6.07	1.24	615
I would feel that an important part of a child's life was missing if he or she were not able to get out and enjoy nature from time to time (AQ) (a)	2	1	3	7	14	24	50	6.01	1.32	449
Develop care for nature (plants, animals, and the environment) (Zoo) (c)	2	1	3	9	16	25	44	5.87	1.36	615
Develop care for nature (plants, animals, and the environment) (AQ) (c)	1	2	4	6	13	31	44	5.97	1.27	449
The zoo is an important institution in our community (a)	3	1	4	10	17	23	42	5.73	1.49	480
The aquarium is an important institution in our community (a)	4	1	6	19	17	23	29	5.23	1.57	292
Where I can get away from the every day stresses of life (Zoo) (a)	4	5	6	15	22	20	28	5.17	1.67	615
Where I can get away from the every day stresses of life (AQ) (a)	4	3	7	15	25	23	24	5.20	1.56	449
Where I can restore my connection with the natural world (Zoo)(a)	6	5	7	19	24	18	21	4.87	1.71	615
Where I can restore my connection with the natural world (AQ) (a)	4	7	8	16	25	23	17	4.90	1.64	449
Where I can find a spiritual connection within nature (Zoo) (a)	12	9	12	24	16	14	13	4.18	1.85	615
Where I can find a spiritual connection within nature (AQ) (a)	12	10	14	22	17	13	13	4.09	1.86	449
Where I can think about my spiritual beliefs (Zoo) (a)	23	16	14	21	11	7	8	3.33	1.87	615
Where I can think about my spiritual beliefs (AQ) (a)	20	16	15	21	12	8	9	3.51	1.90	449

a – Agreement scale – 1 "Strongly Disagree", 7 "Strongly Agree"
c – Value scale – 1 "Not at all valuable", 7 "Extremely valuable"

Figure 2.1. Connection to Personal, Moral, Family Values, Traditions, and Faiths: General Population

Percent of sample expressing strong value for selected items



- There are no notable differences in the general public's values of zoos as compared to aquariums in this value theme.

Parents

Table 2.2. Connection to Personal, Moral, Family Values, Traditions, and Faiths: Parents

Frequency, mean, standard deviation, and difference from general public panel of value ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*	Difference*
	% Responding										
Appreciate living animals (Zoo) (c)	0	0	1	4	10	25	59	6.35	0.97	1240	0.21
Appreciate living animals (AQ) (c)	0	0	1	4	11	26	58	6.35	0.94	1140	0.17
Nature experiences are an important part of childhood (Zoo) (a)	0	0	1	5	12	24	57	6.28	1.03	1240	0.16
Nature experiences are an important part of childhood (AQ) (a)	0	0	1	7	13	24	55	6.24	1.03	1140	0.16
Where I can teach my children to respect all living creatures (Zoo) (a)	1	0	2	7	14	28	48	6.10	1.11	1240	n/a
Where I can teach my children to respect all living creatures (AQ) (a)	0	1	2	8	17	27	44	5.99	1.17	1140	n/a
Develop care for nature (plants, animals, and the environment) (Zoo) (c)	0	0	2	8	16	25	47	6.03	1.18	1240	0.16
Develop care for nature (plants, animals, and the environment) (AQ) (c)	0	1	2	7	16	25	50	6.12	1.11	1140	0.12
Where I can share what I value about nature with my child/children (Zoo) (a)	1	1	4	11	21	29	33	5.70	1.28	623	n/a
Where I can share what I value about nature with my child/children (AQ) (a)	1	2	2	13	20	26	36	5.73	1.30	572	n/a
The zoo is an important institution in our community(a)	3	2	4	12	14	24	41	5.66	1.56	1074	-0.07
The aquarium is an important institution in our community (a)	3	4	6	17	16	23	31	5.32	1.62	745	0.09
Where I can teach my children to respect others (Zoo) (a)	2	3	5	17	21	24	27	5.34	1.48	1240	n/a
Where I can teach my children to respect others (AQ) (a)	2	3	6	16	22	24	26	5.31	1.47	1140	n/a
Where my child/children can learn how to behave appropriately in public (Zoo) (a)	4	6	9	19	24	19	20	4.91	1.61	623	n/a
Where my child/children can learn how to behave appropriately in public (AQ) (a)	6	4	7	22	21	19	21	4.89	1.70	572	n/a
Where I can talk to my child/children about family values (Zoo) (a)	6	7	12	23	21	17	15	4.57	1.68	623	n/a
Where I can talk to my child/children about family values (AQ) (a)	7	7	16	22	21	14	14	4.41	1.70	572	n/a
Where I can find a spiritual connection within nature (Zoo) (a)	11	8	14	22	19	14	11	4.18	1.78	623	0.00
Where I can find a spiritual connection within nature (AQ) (a)	11	10	15	22	19	13	11	4.09	1.78	572	0.00
Where I can think about my spiritual beliefs (Zoo) (a)	19	14	19	20	15	8	6	3.45	1.76	623	0.12
Where I can think about my spiritual beliefs (AQ) (a)	19	17	16	23	13	7	6	3.38	1.76	572	-0.13
Where I can talk with my child/children about our religious beliefs (Zoo) (a)	30	17	16	19	10	6	3	2.89	1.70	623	n/a
Where I can talk with my child/children about our religious beliefs (AQ) (a)	32	17	15	20	7	5	4	2.83	1.73	572	n/a

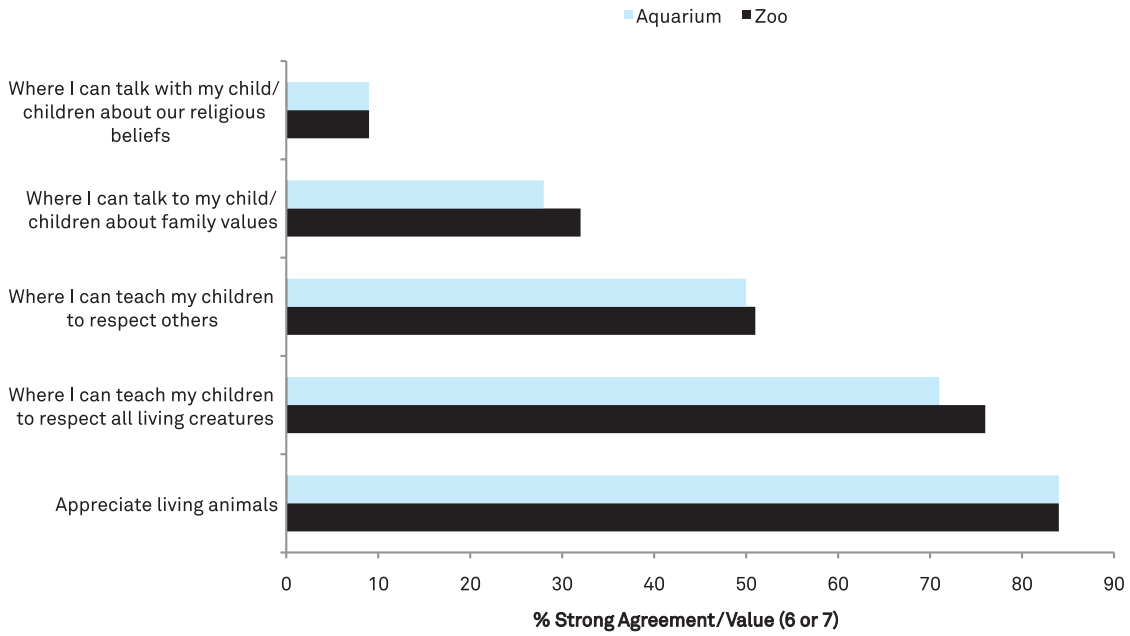
a – Agreement scale – 1 "Strongly Disagree", 7 "Strongly Agree"

c – Value scale – 1 "Not at all valuable", 7 "Extremely valuable"

* – Difference of mean from General Public

Figure 2.2. Connection to Personal, Moral, Family Values, Traditions, and Faiths: Parents

Percent of sample expressing strong value for selected items



- There are no notable differences in parents' values of zoos as compared to aquariums in this value theme.
- There are no notable differences in parents' values as compared with those of the general public in this value theme.

Educators

Table 2.3. Connection to Personal, Moral, Family Values, Traditions, and Faiths: Educators

Frequency, mean, standard deviation, and difference from general public panel of value ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*	Difference*
	% Responding										
Helping students to value animals and natural resources (Zoo) (c)	3	3	3	9	15	35	33	5.68	1.43	504	n/a
Helping students to value animals and natural resources (AQ) (c)	1	2	2	9	17	36	33	5.79	1.25	479	n/a
Helping students develop concern for nature (plants, animals, and the environment) (Zoo) (c)	2	2	4	10	17	31	33	5.63	1.44	504	n/a
Helping students develop concern for nature (plants, animals, and the environment) (AQ) (c)	2	1	2	11	18	32	34	5.75	1.29	479	n/a

c – Value scale – 1 "Not at all valuable", 7 "Extremely valuable"

* – Difference of mean from General Public

- There are no notable differences in educators' values of zoos as compared to aquariums in this value theme.
- Educators and the general public were asked different items in this value theme, and are thus not compared.

Significant Differences in Value by Sub-Groups

Factor analysis of the general population's ratings of value in this theme showed two underlying values. One was a cluster of statements that related to values directly tied to care, appreciation, and learning about animals and nature. The second was connected to statements that focused on spiritual beliefs or a spiritual connection with nature. Analysis explored responses by demographic and behavioral characteristics to see if there were significant differences in how segments of the population valued the zoo and aquarium according to these two factors.

The following table lists the salient demographic, psychographic, and behavioral characteristics for which there was a significant (although weak) relationship with one or both of the factors. The mean rating given by those representing each characteristic (e.g., men, women, people over age 65) is listed, showing which characteristics correspond to higher and lower values. Blank spaces in the table indicate that no significant relationship exists.

Table 2.4. Connection to Personal, Moral, Family Values, Traditions, and Faiths

Relationships between demographic characteristics and value assigned to Theme 2 factors. Number represents sub-group's mean rating of value.

Demographic/Psychographic Characteristic	FACTOR 1		FACTOR 2	
	Value of Z/A for Care/Learning about Nature		Value of Z/A for Spiritual Connection	
	Zoo	Aquarium	Zoo	Aquarium
Age				
younger cohorts	5.67	5.22	4.35	
oldest cohort	6.24	6.07	3.93	
Zoo/aquarium with parents as a child				
Very often	6.66		4.92	4.55
Occasionally/Never	5.99		3.96	3.54
Participation in Nature Activities				
Very frequent			4.40	4.93
Never			3.50	3.57
Gender				
Female	6.03		4.37	
Male	5.78		3.98	
Income				
Lowest	5.67		4.51	
Highest	6.16		3.52	
Aquarium Visitation				
More often	6.66			5.32
Less often	5.63			3.77
Zoo Visitation				
More often	6.46			
Less often	3.85			
Education				
High School Diploma or lower			4.47	
Some College or higher			3.98	

Agreement scale - 1 "Strongly Disagree", 7 "Strongly Agree"

Theme 3
Interpersonal Bonding and Social Capital

This section presents tables and figures that present data from each of the three panels (general population, parents, and educators) regarding how these populations value zoos' and aquariums' role in facilitating interpersonal bonding and social capital (Theme 3). These data present their responses to Theme 3 value items and provide analysis to examine significant differences between populations and by demographic, psychographic, and behavioral categories. Detail on the methods and statistical analysis is provided on pages 30-31 of this handbook.

Highlights:

- The general public, parents, and educators generally have positive opinions about the role of zoos and aquariums in facilitating interpersonal bonding and social capital.
- The general public and parents especially value zoos and aquariums as places to spend time with friends and family in a nature environment. Parents additionally value the institutions as places to discover new things together.
- Among the items asked of the general population in this theme, they place the lowest comparative degree of value on zoos and aquariums as places where friends and family can become closer to each other.
- Among the items asked of parents in this theme, they place the lowest comparative degree of value on zoos and aquariums as places where they can share experiences with zoo staff, get to know new friends better, and share experiences with other zoo/aquarium-goers.
- Parents are not interested in the value of bridging (connecting with people outside of one's group) Neither parents nor the general public expresses their value of interpersonal bonding in terms of actively getting closer to one's own group. Instead, the value is focused on the general attribute of spending time together.

General Population

Table 3.1. Bonding/Social Capital: General Population

Frequency, mean, and standard deviation of value ratings

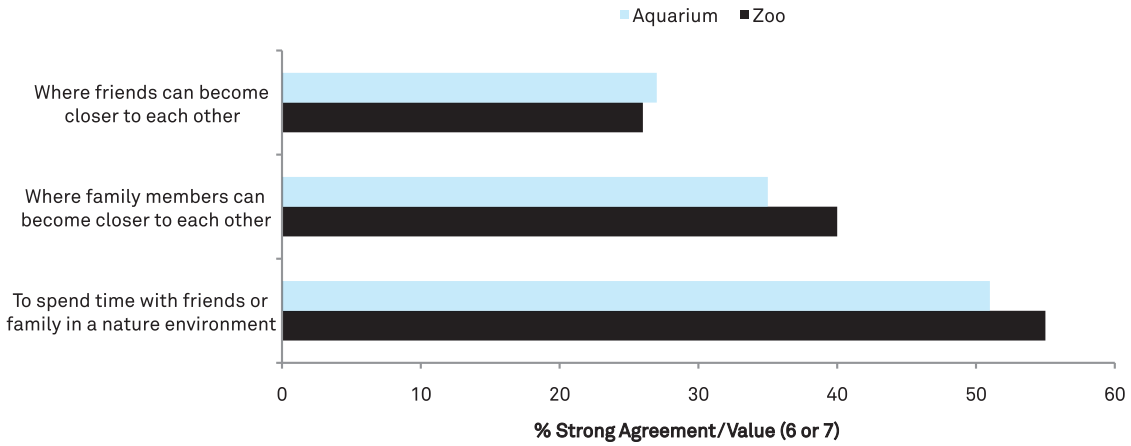
Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*
	% Responding									
I have fond memories of good times at the zoo with family and friends (a)	4	2	6	12	18	22	36	5.48	1.62	615
I have fond memories of good times at the aquarium with family and friends (a)	4	2	5	13	24	20	31	5.37	1.57	449
To spend time with friends or family in a nature environment (Zoo) (b)	3	3	5	14	21	27	28	5.40	1.48	615
To spend time with friends or family in a nature environment (AQ) (b)	4	2	3	15	25	25	26	5.35	1.47	449
To relax with friends or family (Zoo) (b)	4	3	3	16	23	28	24	5.32	1.49	615
To relax with friends or family (AQ) (b)	4	2	4	19	24	26	22	5.21	1.49	449
Where family members can become closer to each other (Zoo) (b)	4	5	7	17	27	20	20	4.98	1.61	615
Where family members can become closer to each other (AQ) (b)	5	5	6	24	26	19	16	4.80	1.57	449
Where friends can become closer to each other (Zoo) (b)	4	9	12	24	25	13	13	4.48	1.61	615
Where friends can become closer to each other (AQ) (b)	7	7	10	28	21	14	13	4.43	1.67	449
How strongly does the opportunity to become closer to friends and family influence your decision to visit a zoo (b)	13	6	10	20	21	15	15	4.35	1.90	615
How strongly does the opportunity to become closer to friends and family influence your decision to visit an aquarium (b)	11	9	7	21	24	14	15	4.40	1.85	449

a – Agreement scale – 1 “Strongly Disagree”, 7 “Strongly Agree”

b – Value scale – 1 “Not at all”, 7 “A lot”

Figure 3.1. Bonding/Social Capital: General Population

Percent of sample expressing strong value for selected items



- There are no notable differences in the general public's values of zoos as compared to aquariums in this value theme.

Parents

Table 3.2. Bonding/Social Capital: Parent

Frequency, mean, standard deviation, and difference from general public panel of value ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*	Difference*
	% Responding										
Spending time with family at the zoo (b)	1	1	3	9	19	30	37	5.85	1.21	617	n/a
Spending time with family at the aquarium (b)	1	1	3	9	17	32	37	5.83	1.27	568	n/a
To spend time with friends or family in a nature environment (Zoo) (b)	1	1	3	10	22	29	35	5.77	1.25	1240	0.37
To spend time with friends or family in a nature environment(AQ) (b)	1	1	3	10	23	29	33	5.72	1.23	1140	0.37
Learning or discovering new things together (Zoo) (b)	1	1	5	9	22	31	32	5.70	1.28	617	n/a
Learning or discovering new things together (AQ) (b)	1	1	3	10	20	29	35	5.73	1.32	568	n/a
I have fond memories of good times at the zoo with family and friends (a)	3	2	4	12	17	23	40	5.68	1.49	1240	-0.20
I have fond memories of good times at the aquarium with family and friends (a)	3	4	6	13	19	21	33	5.39	1.61	1140	-0.02
To relax with friends or family (Zoo) (b)	2	1	2	12	23	28	32	5.65	1.31	1240	0.33
To relax with friends or family(AQ) (b)	1	2	4	13	23	28	29	5.54	1.34	1140	0.33
Seeing their responses to animals (Zoo) (b)	1	2	6	11	22	26	32	5.56	1.40	617	n/a
Seeing their responses to animals (AQ) (b)	1	1	4	12	20	27	35	5.67	1.36	568	n/a
Where family members can become closer to each other (Zoo) (b)	2	2	5	16	26	24	25	5.36	1.40	1240	0.36
Where family members can become closer to each other (AQ) (b)	2	3	8	18	24	23	23	5.19	1.48	1140	0.39
Sharing what I know about animals or nature (Zoo) (b)	3	6	10	21	24	21	16	4.82	1.55	617	n/a
Sharing what I know about animals or nature (AQ) (b)	3	7	10	23	24	17	15	4.68	1.57	568	n/a
Spending time with friends at the zoo (b)	6	4	8	22	23	20	17	4.76	1.66	617	n/a
Spending time with friends at the aquarium (b)	5	7	11	17	26	20	15	4.70	1.64	568	n/a
How strongly does the opportunity to become closer to friends and family influence your decision to visit a zoo (b)	7	5	8	19	23	20	17	4.76	1.72	1240	0.41
How strongly does the opportunity to become closer to friends and family influence your decision to visit an aquarium (b)	8	8	8	19	23	18	17	4.64	1.77	1140	0.24
To share experiences with other zoo-goers (b)	12	13	20	23	16	10	7	3.74	1.70	617	n/a
To share experiences with other aquarium-goers (b)	14	16	17	22	17	10	5	3.62	1.72	568	n/a
To get to know a new friend better (Zoo) (b)	16	16	20	22	13	8	5	3.43	1.69	617	n/a
To get to know a new friend better (AQ) (b)	18	20	19	21	13	7	3	3.26	1.66	568	n/a
To share experiences with zoo staff or volunteers (b)	16	18	20	20	14	8	5	3.39	1.70	617	n/a
To share experiences with aquarium staff or volunteers (b)	16	18	19	25	13	7	2	3.31	1.58	568	n/a

a – Agreement scale – 1 "Strongly Disagree", 7 "Strongly Agree"

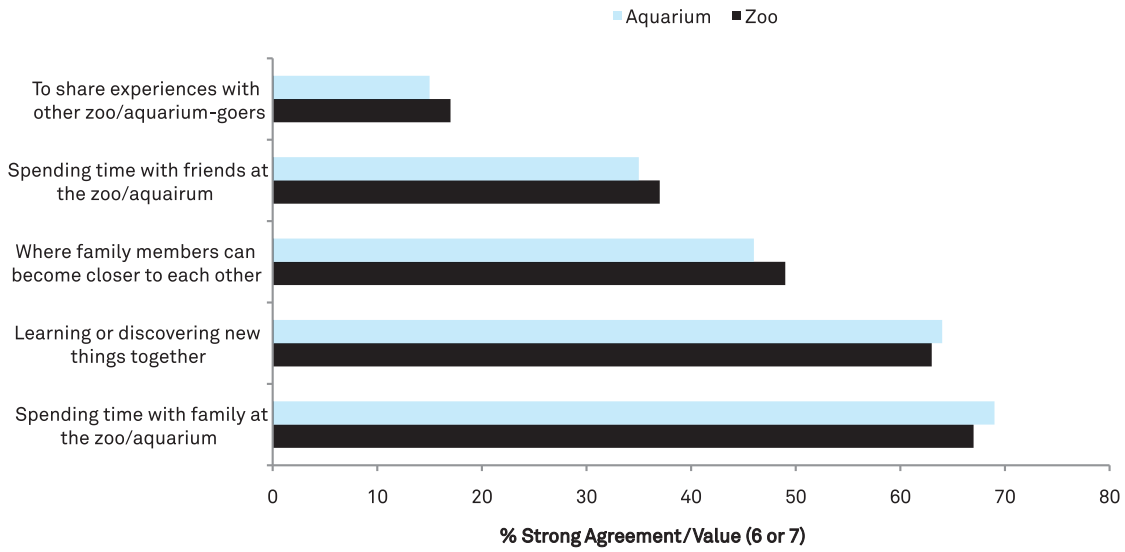
b – Value scale – 1 "Not at all", 7 "A lot"

* – Difference of mean from General Public

- There are no notable differences in parents' values of zoos as compared to aquariums in this value theme.
- There are no notable differences in parents' values as compared with those of the general public in this value theme.

Figure 3.2. Bonding/Social Capital: Parent

Percent of sample expressing strong value for selected items



- Educators were not asked questions that pertained to this value theme.

Significant Differences in Value by Sub-Groups

Factor analysis of the general population's ratings of value in this theme showed one underlying value, that of spending time or bonding with family and/or friends. Analysis explored responses by demographic and behavioral characteristics to see if there were significant differences in how segments of the population valued zoos and aquariums according to this factor.

The following table lists the salient demographic, psychographic, and behavioral characteristics for which there was a significant (although weak) relationship with one or both of the factors. The mean rating given by those representing each characteristic (e.g., men, women, people over age 65) is listed, showing which characteristics correspond to higher and lower values. Blank spaces in the table indicate that no significant relationship exists.

Table 3.3. Bonding/Social Capital: General Population

Relationships between demographic characteristics and value assigned to Theme 3 factors. Number represents sub-group's mean rating of value.

Demographic/Psychographic Characteristic	FACTOR 1	
	Value of Z/A for Relaxing w/ Family/Friends	
	Zoo	Aquarium
Zoo/aquarium with parents as a child		
Very often	5.84	5.36
Never	4.99	4.69
Participation in Nature Activities		
Very frequent (>once per week)	5.61	5.43
Very infrequent (never)	4.97	4.53
Zoo Visitation		
More often (3+ times per year)	5.69	5.79
Never	5.05	3.73
Aquarium Visitation		
More often (3+ times per year)		5.46
Less often (not for many years)		4.80
Gender		
Female	5.46	
Male	5.16	

Agreement scale - 1 "Strongly Disagree", 7 "Strongly Agree"

Theme 4
Connection with Nature and Animals

This section presents tables and figures that present data from each of the three panels (general population, parents, and educators) regarding how these populations value zoos' and aquariums' potential to connect individuals with nature and animals (Theme 4). These data present their responses to Theme 4 value items and provide analysis to examine significant differences between populations and by demographic, psychographic, and behavioral categories. Detail on the methods and statistical analysis is provided on pages 30-31 of this handbook.

Highlights:

- The general public, parents, and educators generally have positive opinions about the role of zoos and aquariums in facilitating a connection with nature and animals.
- Among the items asked of the general public in this theme, they place and parents especially value zoos and aquariums as places to appreciate living animals and to experience nature and living animals.
- The general public places the lowest comparative degree of value on zoos and aquariums as places where they can find a spiritual connection within nature and as places where they can restore their connection with the natural world.
- Among the items asked of parents in this theme, parents place the lowest comparative degree of value on zoos and aquariums as places where they can find a spiritual connection within nature and where they can restore their connection with the natural world.
- Zoos and aquariums are very strongly seen as places to experience and connect with animals and nature. This is one of the most strongly associated values seen in these surveys. This value is more focused on tangible aspects of experiencing nature, and less on the abstract idea of restoring a connection. Further, there is a strong feeling among all of the panels that nature experiences are a crucial part of childhood, which suggests a utility for the zoo/aquarium.

General Population

Table 4.1. Connection with Nature and Animals: General Population

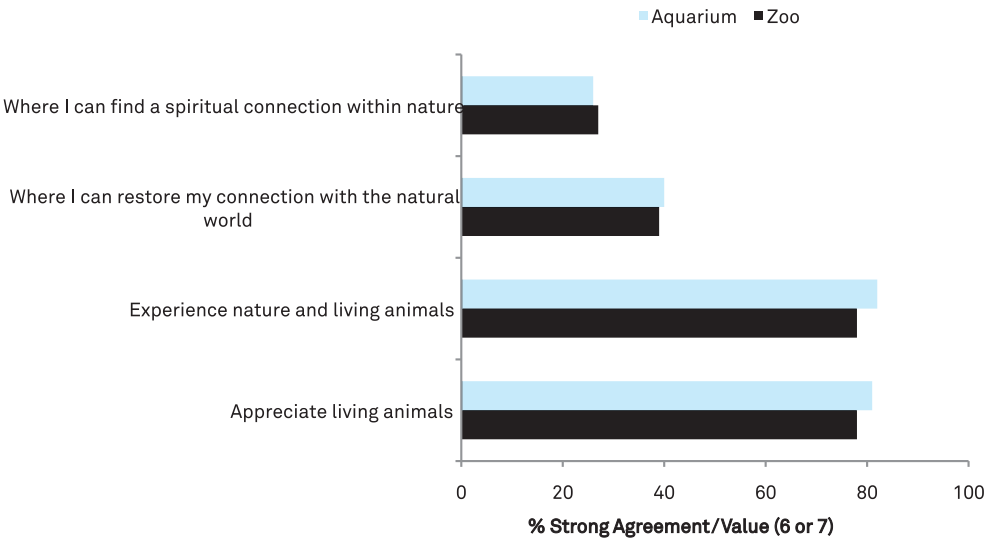
Frequency, mean, and standard deviation of value ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*
	% Responding									
Appreciate living animals (Zoo) (c)	2	1	2	6	11	24	54	6.14	1.27	615
Appreciate living animals (AQ) (c)	2	0	1	6	12	29	52	6.18	1.14	449
Nature experiences are an important part of childhood (Zoo) (a)	0	0	3	7	15	26	50	6.12	1.11	615
Nature experiences are an important part of childhood (AQ) (a)	1	1	3	7	14	23	51	6.08	1.22	449
Experience nature and living animals (Zoo) (c)	1	1	2	6	13	28	50	6.10	1.22	615
Experience nature and living animals (AQ) (c)	1	1	1	5	11	29	53	6.20	1.16	449
I would feel that an important part of a child's life was missing if he or she were not able to get out and enjoy nature from time to time (Zoo) (a)	1	1	2	9	10	26	51	6.07	1.24	615
I would feel that an important part of a child's life was missing if he or she were not able to get out and enjoy nature from time to time (AQ) (a)	2	1	3	7	14	24	50	6.01	1.32	449
Develop care for nature (plants, animals, and the environment (Zoo) (c)	2	1	3	9	16	25	44	5.87	1.36	615
Develop care for nature (plants, animals, and the environment (AQ) (c)	1	2	4	6	13	31	44	5.97	1.27	449
To spend time with friends or family in a nature environment (Zoo) (b)	3	3	5	14	21	27	28	5.40	1.48	615
To spend time with friends or family in a nature environment (AQ) (b)	4	2	3	15	25	25	26	5.35	1.47	449
That helps my child/children to learn about the natural world (Zoo) (a)	8	1	3	16	13	25	34	5.38	1.75	615
That helps my child/children to learn about the natural world (AQ) (a)	6	1	2	10	17	27	37	5.60	1.63	449
Where I can restore my connection with the natural world (Zoo)(a)	6	5	7	19	24	18	21	4.87	1.71	615
Where I can restore my connection with the natural world (AQ)(a)	4	7	8	16	25	23	17	4.90	1.64	449
Where I can find a spiritual connection within nature (Zoo) (a)	12	9	12	24	16	14	13	4.18	1.85	615
Where I can find a spiritual connection within nature (AQ) (a)	12	10	14	22	17	13	13	4.09	1.86	449

a – Agreement scale – 1 "Strongly Disagree", 7 "Strongly Agree"
b – Value scale – 1 "Not at all", 7 "A lot"
c – Value scale – 1 "Not at all valuable", 7 "Extremely valuable"

Figure 4.1. Connection with Nature and Animals: General Population

Percent of sample expressing strong value for selected items



- There are no notable differences in the general public's values of zoos as compared to aquariums in this value theme.

Parents

Table 4.2. Connection with Nature and Animals: Parents

Frequency, mean, standard deviation, and difference from general public panel of value ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*	Difference*
	% Responding										
Appreciate living animals (Zoo) (c)	0	0	1	4	10	25	59	6.35	0.97	1240	0.21
Appreciate living animals (AQ) (c)	0	0	1	4	11	26	58	6.35	0.94	1140	0.17
Experience nature and living animals (Zoo) (c)	0	0	2	5	11	26	56	6.28	1.02	1240	0.18
Experience nature and living animals (AQ) (c)	0	0	1	4	11	26	57	6.34	0.94	1140	0.14
Nature experiences are an important part of childhood (Zoo) (a)	0	0	1	5	12	24	57	6.28	1.03	1240	0.16
Nature experiences are an important part of childhood (AQ) (a)	0	0	1	7	13	24	55	6.24	1.03	1140	0.16
That helps my child/children to learn about the natural world (Zoo) (a)	0	0	2	6	14	29	49	6.16	1.05	1240	0.78
That helps my child/children to learn about the natural world (AQ) (a)	0	0	1	7	14	27	50	6.16	1.06	1140	0.56
Where I can teach my children to respect all living creatures (Zoo) (a)	1	0	2	7	14	28	48	6.10	1.11	1240	n/a
Where I can teach my children to respect all living creatures (AQ) (a)	0	1	2	8	17	27	44	5.99	1.17	1140	n/a
Develop care for nature (plants, animals, and the environment) (Zoo) (c)	0	1	2	8	16	25	47	6.03	1.18	1240	0.16
Develop care for nature (plants, animals, and the environment) (AQ) (c)	0	1	2	7	16	25	50	6.12	1.11	1140	0.15
To spend time with friends or family in a nature environment (Zoo) (b)	1	1	3	10	22	29	35	5.77	1.25	1240	0.37
To spend time with friends or family in a nature environment (AQ) (b)	1	1	3	10	23	29	33	5.72	1.23	1140	0.37
Where I can share what I value about nature with my child/children (Zoo) (a)	1	1	4	11	21	29	33	5.70	1.28	623	n/a
Where I can share what I value about nature with my child/children (AQ) (a)	1	2	2	13	20	26	36	5.73	1.30	572	n/a
Where I can restore my connection with the natural world (Zoo) (a)	2	6	10	16	24	20	22	5.00	1.59	623	0.13
Where I can restore my connection with the natural world (AQ) (a)	4	3	8	18	25	23	20	5.04	1.54	572	0.14
Where I can find a spiritual connection within nature (Zoo) (a)	11	8	14	22	19	14	11	4.18	1.78	623	0
Where I can find a spiritual connection within nature (AQ) (a)	11	10	15	22	19	13	11	4.09	1.78	572	0

a – Agreement scale – 1 “Strongly Disagree”, 7 “Strongly Agree”

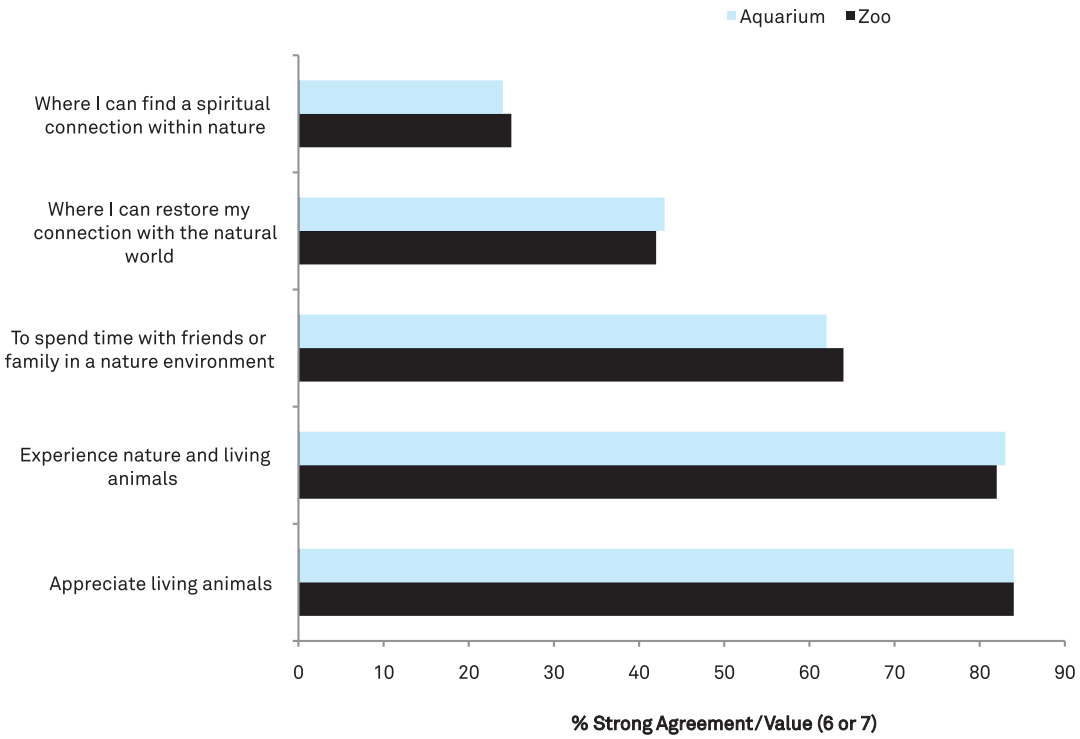
b – Value scale – 1 “Not at all”, 7 “A lot”

c – Value scale – 1 “Not at all valuable”, 7 “Extremely valuable”

* – Difference of mean from General Public

Figure 4.2. Connection with Nature and Animals: Parents

Percent of sample expressing strong value for selected items



- There are no notable differences in parents' values of zoos as compared to aquariums in this value theme.
- There are notable differences in parents' value ratings as compared to those of the general public for two statements in this value theme (shown in Table 4.3). However, this difference is likely due to the wording of "my child" in the prompt. If the parent panel is compared to only parents of children under 18 from the general public panel, the mean value scores are nearly identical.

Table 4.3. Connection with Nature and Animals: Parents

Mean ratings of value with differences between parent and general public panels

Value	Mean Value Rating	
	Parents	General Public
Value zoo for helping my child learn about natural world	6.16	5.38
Value aquarium for helping my child learn about the natural world	6.16	5.60

Agreement scale - 1 "Strongly Disagree", 7 "Strongly Agree"

Educators

Table 4.4. Connection with Nature and Animals: Educators

Frequency, mean, standard deviation, and difference from general public panel of value ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*	Difference*
	% Responding										
Helping students to value animals and natural resources (Zoo) (c)	3	3	3	9	15	35	33	5.68	1.43	504	n/a
Helping students to value animals and natural resources (AQ) (c)	1	2	2	9	17	36	33	5.79	1.25	479	n/a
Allowing students to learn from close-up experiences with living animals (Zoo) (c)	3	3	3	9	16	32	34	5.65	1.48	503	n/a
Allowing students to learn from close-up experiences with living animals (AQ) (c)	2	1	3	8	17	33	38	5.85	1.29	479	n/a
Helping students develop concern for nature (plants, animals, and the environment) (Zoo) (c)	2	2	4	10	17	31	33	5.63	1.44	504	n/a
Helping students develop concern for nature (plants, animals, and the environment) (AQ) (c)	2	1	2	11	18	32	34	5.75	1.29	479	n/a
Providing students access to nature (Zoo) (c)	2	3	3	11	21	30	31	5.58	1.42	503	n/a
Providing students access to nature (AQ) (c)	1	2	3	9	20	36	30	5.73	1.25	479	n/a

c – Value scale – 1 "Not at all valuable", 7 "Extremely valuable"

* – Difference of mean from General Public

- There are no notable differences in educators' values of zoos as compared to aquariums in this value theme.
- Educators and the general public were asked different items in this value theme, and are thus not compared.

Significant Differences in Value by Sub-Groups

Factor analysis of the general population's ratings of value in this theme showed three underlying values. The first was direct care and connection with nature and animals. The second focused on a spiritual or personal connection with nature (also explored in Theme 2). The third factor related to connection with nature in childhood. Analysis explored responses by demographic and behavioral characteristics to see if there were significant differences in how segments of the population valued zoos and aquariums according to these three factors.

The following table lists the salient demographic, psychographic, and behavioral characteristics for which there was a significant (although weak) relationship with one or more of the factors. The mean rating given by those representing each characteristic (e.g., men, women, people over age 65) is listed, showing which characteristics correspond to higher and lower values. Blank spaces in the table indicate that no significant relationship exists.

Table 4.5. Connection with Nature and Animals: General Population

Relationships between demographic characteristics and value assigned to Theme 4 factors. Number represents sub-group's mean rating of value.

Demographic/Psychographic Characteristic	FACTOR 1		FACTOR 2		FACTOR 3	
	Value of Z/A for Direct Connection w/ Animals		Value of Z/A for Spiritual Connection		Value of Nature in Childhood	
	Zoo	Aquarium	Zoo	Aquarium	Zoo	Aquarium
Zoo/aquarium with parents as a child						
Very often	6.69		4.92	4.55	6.65	6.18
Occasionally/Never	5.96		3.96	3.54	6.02	5.72
Participation in Nature Activities						
Very frequent	6.44		4.40	4.93	6.57	6.27
Never	5.87		3.50	3.57	5.70	5.61
Gender						
Female	6.23	6.35	4.37		6.29	
Male	5.96	6.04	3.98		5.93	
Pet Owners		6.30	4.32	4.25		6.19
Non Pet Owners		6.04	3.93	3.86		5.91
Age						
younger cohorts (<40)		5.73	4.35			5.72
older cohorts (>65)		6.32	3.93			6.20
Region						
West				4.43		
Non-West				4.00		
Southern	6.25					
Non-Southern	6.01					

Agreement scale - 1 "Strongly Disagree", 7 "Strongly Agree"

Theme 5
Value for Teaching, Learning, Skill Development

This section presents tables and figures that present data from each of the three panels (general population, parents, and educators) regarding how these populations value zoos and aquariums for teaching, learning, and skill development (Theme 5). These data present their responses to Theme 5 value items and provide analysis to examine significant differences between populations and by demographic, psychographic, and behavioral categories. Detail on the methods and statistical analysis is provided on pages 30-31 of this handbook.

Highlights:

- The general public, parents, and educators generally have positive opinions about the role of zoos and aquariums for teaching, learning, and skill development.
- The general public and parents especially value zoos and aquariums as places to educate individuals and children about animals and habitats. Parents also value the institutions as places that help children learn about the natural world.
- Among items asked of the general public in this theme, they place the lowest comparative degree of value on zoos and aquariums as places that provide information on how people can help protect the environment.
- Among items asked of parents in this theme, parents place the lowest comparative degree of value on zoos and aquariums as places where they can share their own knowledge about animals or nature and where their children can learn how to behave appropriately in public.
- Educators especially value zoos and aquariums as places for educating students about animals and habitats. Zoos are valued more by educators as a place that provides a fun, field trip experience, whereas aquariums are especially valued as a place that allows students to learn from close-up experiences with living animals.
- Educators place the lowest comparative degree of value on zoos and aquariums as places that provide opportunities for professional development and that provide curricula and materials to use in the classroom.
- All three populations—the general public, parents, and educators—strongly disagree that zoos and aquariums are only useful for entertainment purposes and do not have any educational value; educators more strongly disagree than the general population.
- Everyone recognized the educational value of zoos and aquariums, especially educators. However, all most strongly value the zoo and aquarium for teaching about animals and habitats, rather than broader concepts or direct teaching and learning of skills or behaviors. Educators also value the qualities of the zoo/aquarium that provide fun field-trip and close-up experiences for students.

General Population

Table 5.1. Value for Teaching, Learning, Skill Development: General Population

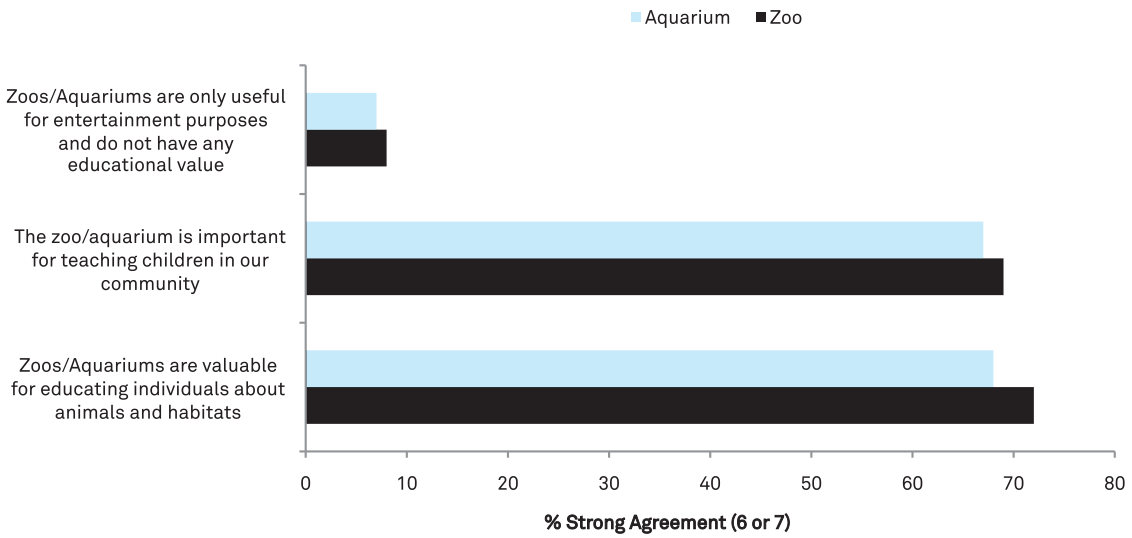
Frequency, mean, and standard deviation of value ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*
	% Responding									
Zoos are valuable for educating individuals about animals and habitats [a]	0	1	3	7	18	28	44	6.00	1.15	615
Aquariums are valuable for educating individuals about animals and habitats [a]	2	0	2	10	17	24	44	5.90	1.29	449
The zoo is important for teaching children in our community [a]	2	2	3	6	18	23	46	5.91	1.36	480
The aquarium is important for teaching children in our community [a]	3	0	2	11	16	28	39	5.77	1.41	292
That helps my child/children to learn about the natural world (Zoo) [a]	8	1	3	16	13	25	34	5.38	1.75	615
That helps my child/children to learn about the natural world (AQ) [a]	6	1	2	10	17	27	37	5.60	1.63	449
That provides information on how we can help protect the environment (Zoo) [a]	5	4	6	16	22	21	27	5.14	1.68	615
That provides information on how we can help protect the environment (AQ) [a]	3	4	7	14	24	25	24	5.23	1.54	449
Zoos are only useful for entertainment purposes and do not have any educational value [a]	52	19	8	7	7	4	4	2.24	1.72	615
Aquariums are only useful for entertainment purposes and do not have any educational value [a]	49	19	9	11	5	4	3	2.28	1.68	449

a – Agreement scale – 1 “Strongly Disagree”, 7 “Strongly Agree”

Figure 5.1. Value for Teaching, Learning, Skill Development: General Population

Percent of sample expressing strong agreement with selected items



- There are no notable differences in the general public's values of zoos as compared to aquariums in this value theme.

Parents

Table 5.2. Value for Teaching, Learning, Skill Development: Parents

Frequency, mean, standard deviation, and difference from general public panel of value ratings

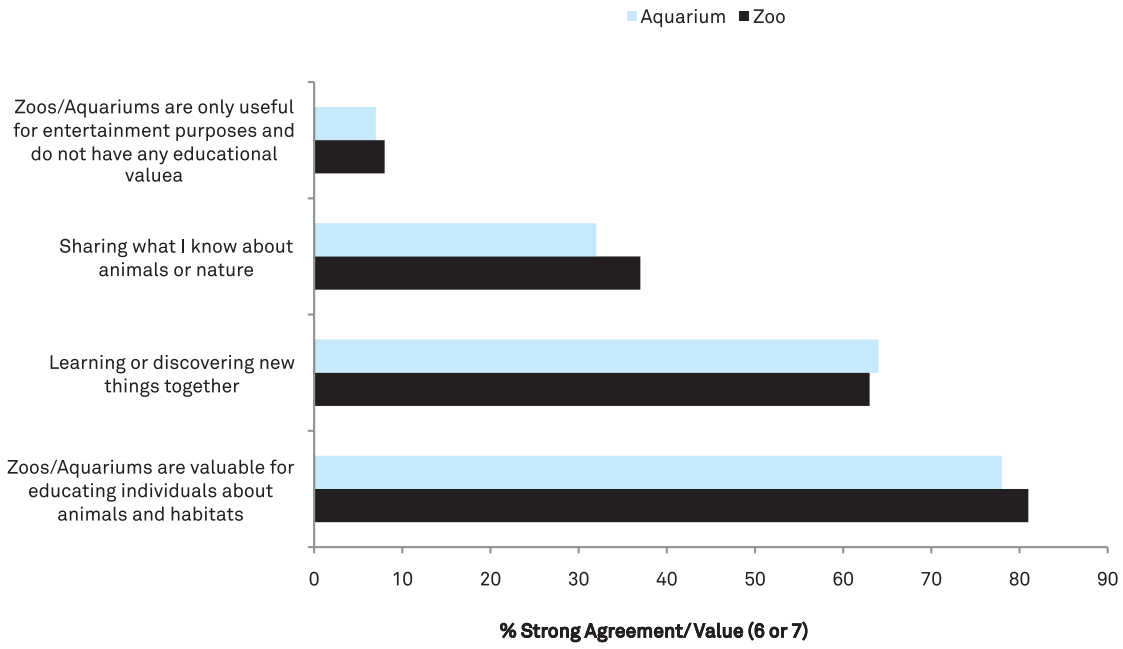
Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*	Difference*
	% Responding										
Zoos are valuable for educating individuals about animals and habitats (a)	0	0	1	6	11	28	53	6.24	1.02	1240	0.24
Aquariums are valuable for educating individuals about animals and habitats (a)	0	0	1	6	15	27	51	6.17	1.05	1141	0.27
That helps my child/children to learn about the natural world (Zoo) (a)	0	0	2	6	14	29	49	6.16	1.05	1240	0.78
That helps my child/children to learn about the natural world (AQ) (a)	0	0	1	7	14	27	50	6.16	1.06	1140	0.56
The zoo is important for teaching children in our community (a)	2	1	3	11	16	25	42	5.83	1.34	1074	-0.08
The aquarium is important for teaching children in our community (a)	2	2	4	13	18	25	35	5.59	1.46	745	-0.18
Learning or discovering new things together (Zoo) (b)	1	1	5	9	22	31	32	5.70	1.28	617	n/a
Learning or discovering new things together (AQ) (b)	1	1	3	10	20	29	35	5.73	1.32	568	n/a
That provides information on how we can help protect the environment (Zoo) (a)	2	2	5	15	20	26	30	5.49	1.42	1240	0.35
That provides information on how we can help protect the environment (AQ) (a)	2	1	4	13	21	26	33	5.60	1.38	1140	0.37
Where my child/children can learn how to behave appropriately in public (Zoo) (a)	4	6	9	19	24	19	20	4.91	1.61	623	n/a
Where my child/children can learn how to behave appropriately in public (AQ) (a)	6	4	7	22	21	19	21	4.89	1.70	572	n/a
Sharing what I know about animals or nature (Zoo) (b)	3	6	10	21	24	21	16	4.82	1.55	617	n/a
Sharing what I know about animals or nature (AQ) (b)	3	7	10	23	24	17	15	4.68	1.57	568	n/a
Zoos are only useful for entertainment purposes and do not have any educational value (a)	58	19	6	5	4	4	4	2.07	1.68	1240	-0.17
Aquariums are only useful for entertainment purposes and do not have any educational value (a)	58	18	7	6	4	3	4	2.01	1.60	1141	-0.27

a – Agreement scale – 1 “Strongly Disagree”, 7 “Strongly Agree” b – Value scale – 1 “Not at all”, 7 “A lot”

* - Difference of mean from General Public

Figure 5.2. Value for Teaching, Learning, Skill Development: Parents

Percent of sample expressing strong value for selected items



- There are no notable differences in parents' values of zoos as compared to aquariums in this value theme.
- There are notable differences in parents' value ratings as compared to those of the general public in this value theme. The differences were only in the statement about the value of zoos/aquariums to "help my child learn about the natural world." As discussed in the previous chapter, the source of this difference is likely the words "my child," causing parents of children over 18 to rate the statement higher than non-parents.

Educators

Table 5.3. Value for Teaching, Learning, Skill Development: Educators

Frequency, mean, standard deviation, and difference from general public panel of value ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*	Difference*
	% Responding										
Zoos are valuable for educating students about animals and habitats (a)	1	1	1	7	16	35	40	6.01	1.11	503	0.01
Aquariums are valuable for educating students about animals and habitats (a)	2	0	0	4	16	35	43	6.09	1.12	479	0.19
Providing a fun, field trip experience (Zoo) (c)	3	2	3	8	17	30	38	5.72	1.48	504	n/a
Providing a fun, field trip experience (AQ) (c)	2	2	3	9	16	31	37	5.77	1.38	479	n/a
Helping students to value animals and natural resources (Zoo) (c)	3	3	3	9	15	35	33	5.68	1.43	504	n/a
Helping students to value animals and natural resources (AQ) (c)	1	2	2	9	17	36	33	5.79	1.25	479	n/a
Allowing students to learn from close-up experiences with living animals (Zoo) (c)	3	3	3	9	16	32	34	5.65	1.48	503	n/a
Allowing students to learn from close-up experiences with living animals (AQ) (c)	2	1	3	8	17	33	38	5.85	1.29	479	n/a
Helping students develop concern for nature (plants, animals, and the environment) (Zoo) (c)	2	2	4	10	17	31	33	5.63	1.44	504	n/a
Helping students develop concern for nature (plants, animals, and the environment) (AQ) (c)	2	1	2	11	18	32	34	5.75	1.29	479	n/a
Fostering students' curiosity about other forms of life (Zoo) (c)	3	2	3	9	22	30	30	5.57	1.45	503	n/a
Fostering students' curiosity about other forms of life (AQ) (c)	2	2	3	9	18	35	33	5.75	1.31	479	n/a
Helping students understand concepts through concrete experiences (Zoo) (c)	2	3	3	11	21	32	28	5.56	1.39	503	n/a
Helping students understand concepts through concrete experiences (AQ) (c)	1	1	2	11	21	33	32	5.77	1.18	479	n/a
Helping students to develop knowledge in science (Zoo) (c)	2	3	4	10	23	31	26	5.46	1.43	503	n/a
Helping students to develop knowledge in science (AQ) (c)	1	0	3	8	24	35	28	5.70	1.19	479	n/a
Offer programs that align with State Curriculum Standards (Zoo) (d)	3	1	5	14	24	28	26	5.42	1.41	504	n/a
Offer programs that align with State Curriculum Standards (AQ) (d)	2	2	5	15	18	28	31	5.54	1.41	479	n/a
Allowing students to learn using different senses (Zoo) (c)	4	3	5	13	21	31	25	5.36	1.53	503	n/a
Allowing students to learn using different senses (AQ) (c)	2	2	5	13	22	28	28	5.45	1.43	479	n/a
Providing curricula and materials to use in the classroom (Zoo) (c)	7	7	9	21	20	22	16	4.67	1.72	503	n/a
Providing curricula and materials to use in the classroom (AQ)(c)	6	5	9	20	23	23	15	4.79	1.64	479	n/a
Providing opportunities for professional development (Zoo) (c)	10	12	13	25	18	17	7	4.06	1.71	504	n/a
Providing opportunities for professional development (AQ) (c)	9	8	16	21	21	17	8	4.21	1.70	479	n/a
Zoos are only useful for entertainment purposes and do not have any educational value (a)	53	31	10	3	1	1	1	1.76	1.10	503	-0.48
Aquariums are only useful for entertainment purposes and do not have any educational value (a)	54	28	11	3	2	1	1	1.78	1.15	479	-0.50

a – Agreement scale – 1 "Strongly Disagree", 7 "Strongly Agree"

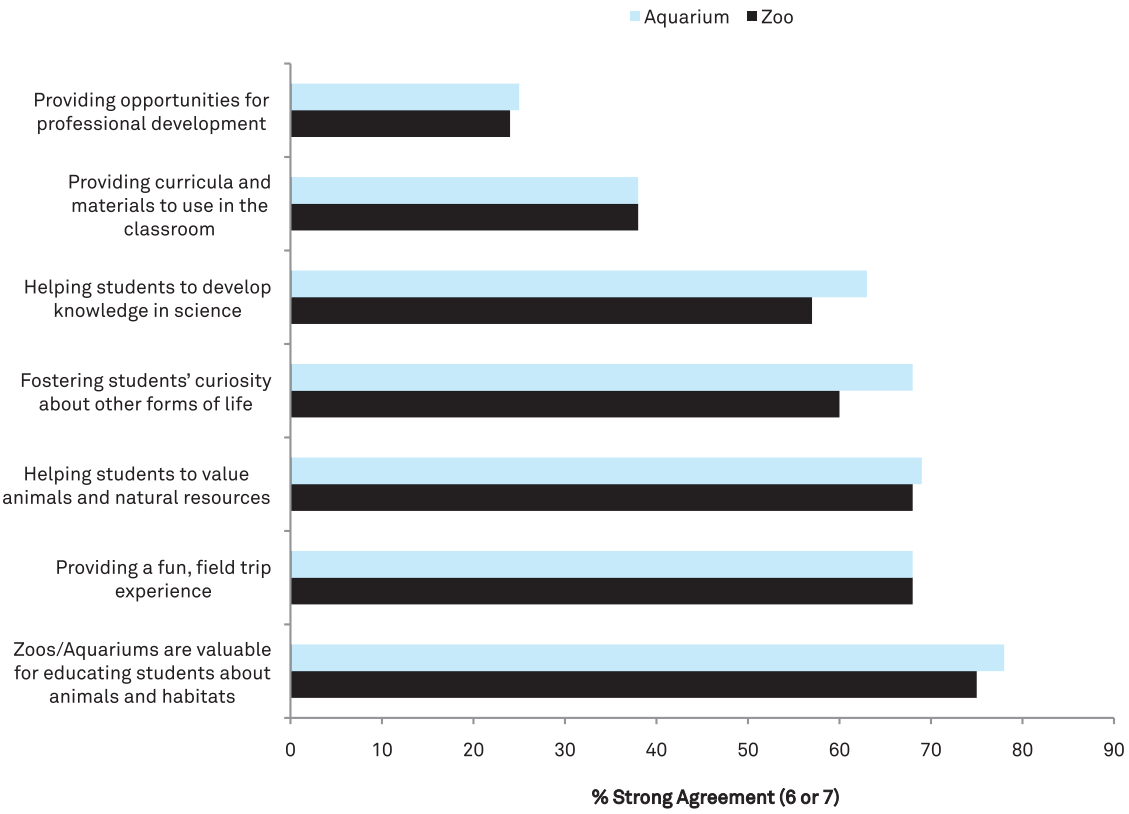
d – Importance scale – 1 "Not at all important", 7 "Extremely important"

c – Value scale – 1 "Not at all valuable", 7 "Extremely valuable"

* - Difference of mean from General Public

Figure 5.3. Value for Teaching, Learning, Skill Development: Educators

Percent of sample expressing strong value for selected items



- There are no notable differences in educators' values of zoos as compared to aquariums in this value theme.
- There are no notable differences in educators' values as compared with those of the general public in this value theme.

Significant Differences in Value by Sub-Groups

Factor analysis of the general population's ratings of value in this theme showed one underlying value, that of educating people about nature and animals. Analysis explored responses by demographic and behavioral characteristics to see if there were significant differences in how segments of the population valued zoos and aquariums according to this factor.

The following table lists the salient demographic, psychographic, and behavioral characteristics for which there was a significant (although weak) relationship with the factor. The mean rating given by those representing each characteristic (e.g., men, women, people over age 65) is listed, showing which characteristics correspond to higher and lower values. Blank spaces in the table indicate that no significant relationship exists.

Table 5.4. Value for Teaching, Learning, Skill Development: General Population

Relationships between demographic characteristics and value assigned to Theme 5 factors. Number represents sub-group's mean rating of value.

Demographic/Psychographic Characteristic	FACTOR 1	
	Value of Z/A for Educating about Animals	
	Zoo	Aquarium
Zoo/aquarium with parents as a child		
Very often	6.55	
Never	5.82	
Participation in Nature Activities		
Very frequent (>once per week)	6.31	
Very infrequent (never)	5.64	
Gender		
Female	6.09	6.07
Male	5.89	5.71
Age		
younger cohorts (<40)		5.54
older cohorts (>65)		6.01

Agreement scale - 1 "Strongly Disagree", 7 "Strongly Agree"

Theme 6
Moral Critique of Zoos/ Aquariums

This section presents tables and figures that present data from each of the three panels (general population, parents, and educators) regarding these populations' feelings about the moral critique of zoos and aquariums (Theme 6). These data present their responses to Theme 6 value items and provide analysis to examine significant differences between populations and by demographic, psychographic, and behavioral categories. Detail on the methods and statistical analysis is provided on pages 30-31 of this handbook.

Highlights:

- The items included in this section were designed to reflect the essential bases of several arguments that have been presented by those who oppose zoos and aquariums. The inclusion of these items and this theme was intended to assess the prevalence of these anti-zoo sentiments, beliefs, and understanding in the public at large
- The general public, parents, and educators generally have positive opinions about the moral character of zoos and aquariums.
- The general public is more likely to agree that animals kept in zoos, compared to aquariums, are still wild. This difference should not be overstated; the value gap is just greater than one half response category.
- Overall the evidence shows that the vast majority of the public disagrees with anti-zoo and anti-aquarium arguments in all of their forms, feeling that zoos and aquariums are valuable parts of society.

General Population

Table 6.1. Moral Critique of Zoos/Aquariums: General Population

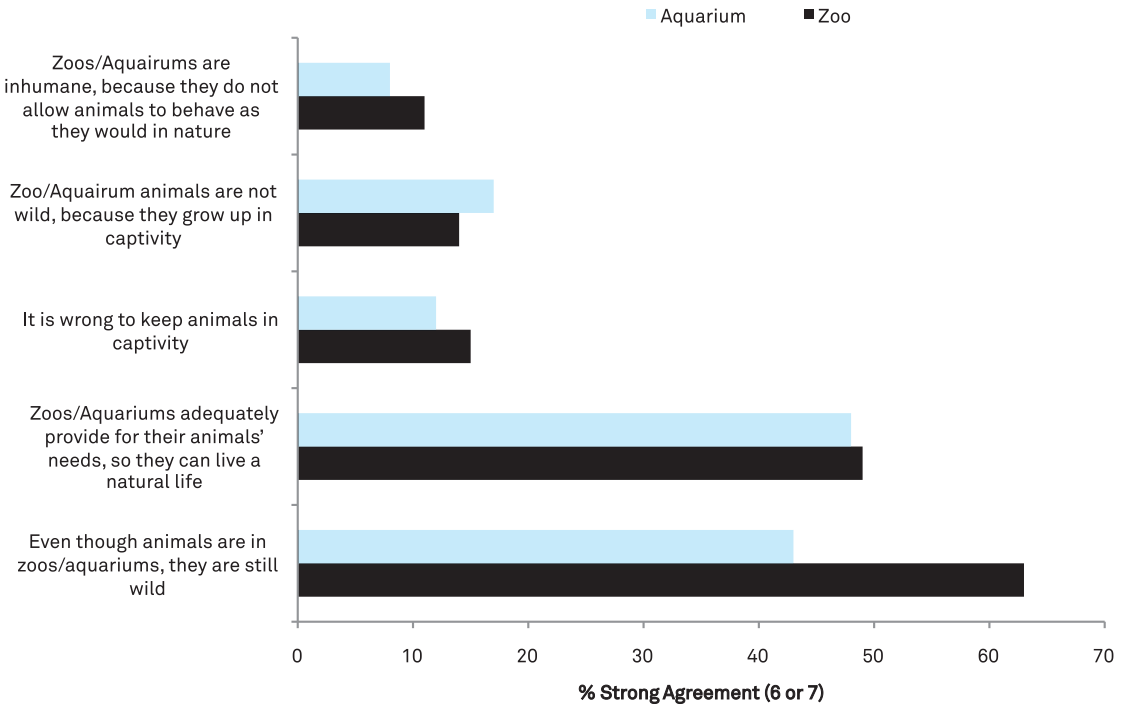
Frequency, mean, and standard deviation of agreement ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*
	% Responding									
Even though animals are in zoos, they are still wild (a)	2	3	5	13	15	24	39	5.61	1.53	615
Even though animals are in aquariums, they are still wild (a)	3	6	7	23	19	21	22	5.01	1.60	449
Zoos adequately provide for their animals' needs, so they can live a natural life (a)	2	3	5	20	22	25	24	5.27	1.44	615
Aquariums adequately provide for their animals' needs, so they can live a natural life (a)	2	2	4	19	24	26	22	5.27	1.41	449
It is wrong to keep animals in captivity (Zoo) (a)	16	13	14	29	12	8	7	3.59	1.74	615
It is wrong to keep animals in captivity (AQ) (a)	16	17	15	27	13	7	5	3.47	1.69	449
Zoo animals are not wild, because they grow up in captivity (a)	26	17	14	16	13	6	8	3.23	1.91	615
Aquarium animals are not wild, because they grow up in captivity (a)	15	13	13	29	14	11	6	3.69	1.72	449
Zoos are inhumane, because they do not allow animals to behave as they would in nature (a)	25	17	14	22	11	5	6	3.17	1.81	615
Aquariums are inhumane, because they do not allow animals to behave as they would in nature (a)	26	21	14	22	9	3	5	2.99	1.71	449

a – Agreement scale – 1 "Strongly Disagree", 7 "Strongly Agree"

Figure 6.1. Moral Critique of Zoos/Aquariums: General Population

Percent of sample expressing strong agreement with moral critique arguments



- Notable difference in agreement between zoos and aquariums.
- There are notable differences in the general public's perception of zoos as compared to aquariums on one item in this value theme (shown in Table 6.2 and Figure 6.1).

Table 6.2. Moral Critique of Zoos/Aquariums: General Population

Mean agreement scores with differences between zoos and aquariums

	Mean Agreement Score	
	Zoo	Aquarium
Even though animals are in zoo/aquarium, they are still wild.	5.61	5.01

Agreement scale – 1 "Strongly Disagree", 7 "Strongly Agree"

Parents

Table 6.3. Moral Critique of Zoos/Aquariums: Parents

Frequency, mean, and standard deviation of agreement ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*
	% Responding									
It is ethically acceptable to keep animals in zoos (a)	2	3	7	25	23	23	18	5.06	1.40	1240
It is ethically acceptable to keep animals in aquariums (a)	2	3	7	22	26	24	17	5.07	1.38	1141

a – Agreement scale – 1 "Strongly Disagree", 7 "Strongly Agree"

- There are no notable differences in parents' perceptions of zoos as compared to aquariums in this theme.

Educators

Table 6.4. Moral Critique of Zoos/Aquariums: Educators

Frequency, mean, and standard deviation of agreement ratings

Item	1	2	3	4	5	6	7	Mean	Std Dev	*N*
	% Responding									
It is ethically acceptable to keep animals in zoos (a)	2	3	8	25	26	24	13	4.95	1.35	503
It is ethically acceptable to keep animals in aquariums (a)	2	2	5	19	28	29	15	5.16	1.34	479
Zoos are inhumane and have no place in my community (a)	43	32	13	8	3	1	1	2.01	1.21	503
Aquariums are inhumane and have no place in my community(a)	48	32	11	5	2	2	0	1.87	1.14	479

a – Agreement scale – 1 "Strongly Disagree", 7 "Strongly Agree"

- There are no notable differences in educators' perceptions of zoos as compared to aquariums in this theme.

Significant Differences in Value by Sub-Groups

Factor analysis of the general population's ratings of value in this theme showed two underlying values. The first centered on the morality of keeping animals in captivity. The second focused on the debate over whether zoo/aquarium animals are still considered to be wild. Analysis explored responses by demographic and behavioral characteristics to see if there were significant differences in how the segments of the population perceived zoos and aquariums according to these two factors.

The following table lists the salient demographic, psychographic, and behavioral characteristics for which there was a significant (although weak) relationship with one or both of the factors. The mean rating given by those representing each characteristic (e.g., men, women, people over age 65) is listed, showing which characteristics correspond to higher and lower values. Blank spaces in the table indicate that no significant relationship exists.

Table 6.5. Moral Critique of Zoos/Aquariums: General Population

Relationships between demographic characteristics and value assigned to Theme 6 factors.
Number represents sub-group's mean rating of value.

Demographic/Psychographic Characteristic	FACTOR 1		FACTOR 2	
	Believe that Captivity is WRONG		Believe that in Z/A Animals are Still Wild	
	Zoo	Aquarium	Zoo	Aquarium
Age				
younger cohorts (<40)	4.31	3.97	5.09	4.30
older cohorts (>65)	3.20	2.97	6.01	5.46
Political Ideology				
Progressive/Very Liberal	4.40	4.25		
Very Conservative	2.91	3.19		
Protestant	3.33		5.84	
Secular	3.95		5.37	
Participation in Nature Activities				
Very frequent			6.26	
Never			5.26	
Zoo Visitation				
Very frequent	3.37			
Never	4.77			
Income				
Lowest (<$15,000/year)	4.03			5.99
Highest (>$100,000/year)	3.34			5.60
Education				
No high school degree			6.15	
Post graduate degree			5.02	
Region				
Midwest	3.26			
Non-Midwest	3.69			
Northeast		3.90		
Non-Northeast		3.38		

Agreement scale - 1 "Strongly Disagree", 7 "Strongly Agree"

NOTES

WHY ZOOS & AQUARIUMS MATTER HANDBOOK

ASSOCIATION OF ZOOS & AQUARIUMS

WILDLIFE CONSERVATION SOCIETY

MONTEREY BAY AQUARIUM

NSF

INSTITUTE of Museum and Library SERVICES

INSTITUTE FOR LEARNING INNOVATION