



Social Science Research Agenda 2020

AZA Social Science Research Agenda

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Authors:

Joy Kubarek, PhD (Inform Evaluation & Research); Jackie Ogden, PhD (Natural Leadership); Shelly Grow (AZA); Amy Rutherford (AZA)

Purpose

The AZA Social Science Research Agenda 2020 is intended to be a compass to guide the next decade of social science research by and about zoos and aquariums in the AZA community. It reflects the priorities, trends, and emerging issues that social scientists and practitioners in the AZA community have identified as the most relevant to address to help them meet their missions. While the primary audience for the agenda is the AZA community, its applicability extends beyond the AZA membership to other zoos and aquariums. The key research questions and accompanying sub-questions also hold relevance for the broader informal learning community who may also be grappling with similar issues.

Background

The past 20 years have demonstrated substantial growth in the presence and application of social sciences in zoo and aquarium efforts. In 2010, the first Framework for Zoo and Aquarium Social Science Research was established. Two years later, the AZA Research and Technology Committee produced a white paper detailing research priorities including within social science. The Conservation Education Committee launched a research and evaluation initiative focused on increasing participation in, understanding and application of social science research. The initiative evolved to include mentoring AZA members wishing to engage in this work. More zoos and aquariums have allocated resources internally to create staff roles or hire consultants dedicated toward this work as well as to engaging in external, field-wide efforts such as the long-term research initiative, Why Zoos and Aquariums Matter (<https://wzam.org/>). More recently, AZA members established a Scientific Advisory Group dedicated to Social Science Research and Evaluation (SSRE) to promote and support these efforts within zoos and aquariums.

As a result of these efforts, our collective understanding of the role of zoos and aquariums has greatly improved. However, some questions continue to go unanswered and new ones have come to the forefront of conversation. For example a retrospective literature review found a lack of studies exploring the role of zoos and aquariums in supporting social services (such as health and wellness, working with under-resourced youth and families, and so forth). The work of AZA SAFE: Saving Animals From Extinction (SAFE) beckons attention to be paid toward understanding the role of visitors and communities in supporting the conservation missions of zoos and aquariums. More recent conversations around social change for conservation have elevated the need to study the human dimension of conservation. Questions like these are further compounded by a heightened need to address historical complacency of social inequities. The social conversation has shifted and so must the work of zoos and aquariums. Advancing research and changing times have all culminated in the need and subsequent development of the next social science research agenda for zoos and aquariums.

Process and Timeline

The development of the 2020 social science research agenda was a multi-step, iterative process engaging a broad cross-section of stakeholders over many months (see Figure 1).

Step 1: Research Agenda Meeting

The process began with AZA convening an interdisciplinary group of 23 academics, practitioners, and researchers in March 2020 with funding provided by AZA and the NSF-supported “Why Zoos and Aquariums Matter” project. During this two-day meeting, the group engaged in a critical review of past

research accomplishments, discussion of trends and critical issues (including the emerging coronavirus pandemic as well as increased focus on social justice), and forecasting what the zoo and aquarium community will need to understand better and address in the near future to meet their missions. From this emerged potential key research questions with supporting sub-questions.

Step 2: Synthesis and Drafting

Following the in-person meeting, the potential research questions were narrowed to five with accompanying sub-questions.

Step 3: Systematic Review

Draft research questions and sub-questions were reviewed (via SurveyMonkey or virtual meetings) by the original attendees of the two-day research agenda meeting and an additional group of key stakeholders. The group of key stakeholders included a purposeful sample of academics, practitioners, and researchers, including members of key AZA committees including the Conservation Education Committee, Wildlife Conservation Committee, Diversity Committee, Research and Technology Committee, Trends Committee, Green Scientific Advisory Group, and Social Science Research and Evaluation Scientific Advisory Group.

Figure 1.



Step 4: Professional Peer Engagement

The process continued throughout the summer with additional outreach engagement to gather feedback from representatives of professional peer organizations including the North American Association for Environmental Education (NAAEE), and the Children and Nature Network (CNN); additional external organizations were identified as critical to ongoing feedback on this living document.

Step 5: Board Approval

In July 2020, the AZA Board of Directors was presented with a summary of this work including the five key research questions. The board subsequently approved the key research questions.

Research Agenda Questions

<i>Key Research Questions</i>
1. How can zoos and aquariums help build a more equitable society through critical reflection on their internal operations, culture, and communications? How can zoo and aquarium diversity, equity, access and inclusion (DEAI) efforts support this?
2. What is the role of zoos and aquariums in communities, including in the context of striving for environmental and social justice?
3. What is the role of zoos and aquariums in contributing to social change toward conservation?
4. What is the role of zoos and aquariums in contributing to the development of a person's intellectual, social emotional and physical well-being?
5. How can zoos/aquariums maximize their systemic impact on conservation ¹ ?

See Appendix A for a list of sub-questions for each key research question.

Context and Background

The research questions of this agenda cover a range of topics including issues of social and environmental justice, working within a broad and diverse learning ecosystem, and holistic approaches to conservation. The questions are representative of a shift in the social conversation about the role of public-serving institutions such as zoos and aquariums. Social science research that pursues understanding of the research questions will shape the future of how zoos and aquariums operate, including their engagement with communities and their potential to meet conservation missions.

The following provides a brief description of the context and background conversations or efforts informing these questions.

<p>Key Research Question #1: <i>How can zoos and aquariums help build a more equitable society through critical reflection on their internal operations, culture, and communications? How can zoo and aquarium diversity, equity, access, and inclusion (DEAI) efforts support this?</i></p> <p>This agenda was developed as a global pandemic (COVID-19) converged with a rapidly growing social movement spurred by racial injustices (Black Lives Matter). While these crises were not the impetus for identifying research that would enhance understanding the role of zoos and aquariums within this context, they were emblematic of the bigger changes in the social climate, including expectations of organizations - both for- and non-profit - and provided added urgency and relevance for the agenda. This is where the first key research question prompts zoos and aquariums to take stock of their operations, including work culture, communications, and other business practices. This question is about understanding how the operations of zoos and aquariums may be contributing to the continuation of or could be used to dismantle certain societal norms and privileges that are now seen</p>

¹ The agenda refers to conservation as defined by the AZA, inclusive of In-situ/field conservation efforts (direct impact on animals/habitats in the wild); business sustainability/green practices; connecting animal collection with the wild, (e.g., reintroduction programs, applied research); and conservation education and advocacy.

by many as antiquated and divisive. This question also invites reflection on a historical legacy within the zoological/conservation world that includes colonialism and a focus on the values of western and northern countries. Organizational culture and its role in meeting conservation initiatives was first explored by members of AZA's 2018-2019 Executive Leadership Development Program to support AZA SAFE: Saving Animals From Extinction. In 2019, AZA's Board of Directors created a one-year Conservation Culture Task Force that created a logic model (see Appendix B for outcomes) describing the relationship among organizational culture, conservation practices, visitor engagement, and public perception. It is efforts like these that social science research can inform and support moving forward. As detailed in the sub-questions, there are a number of questions about zoo and aquarium operations, norms, and practices that can be explored.

Key Research Question #2: *What is the role of zoos and aquariums in communities, including in the context of striving for environmental and social justice?*

The second key research question identifies the need to look not only internally at how zoos and aquariums function from the perspective of social equity, but also externally at their role and impact within their communities. In the years leading up to this agenda, community engagement became a more central focus of many zoos and aquariums. However, this was often used as a blanket term for anything a zoo or aquarium did to reach new, more diverse audiences, or to provide increased free or reduced-cost access to the facility. This key research question recognizes that community engagement is a collaborative process with greater complexities and requires sharing of power, co-creation, and transparency among the zoo or aquarium and the communities they serve both locally and globally. Embedded in this question is also the issue of environmental justice. While a complex issue, it is an important one for zoos and aquariums to engage with and look at the opportunity they have to bridge access and opportunity for marginalized populations. Zoos and aquariums' position in communities affords them the opportunity to contribute to solutions rather than perpetuate the problem. For example, zoos and aquariums may help in addressing ways to remove barriers to accessing nature in ways that are safe and culturally relevant. While some zoos and aquariums have already begun to approach such questions, many have not. Research of those zoos and aquariums who are doing this work already could help inform and equip those who are not yet prepared to do so.

Key Research Question #3: *What is the role of zoos and aquariums in contributing to social change toward conservation?*

The third key research question builds on the foundation created by the first two key research questions. The internal and external examination of the work of zoos and aquariums culminates with the question of what they can do to influence social change in the context of their missions. In particular, this focuses on moving beyond support for individual behavior change and conservation action efforts to larger systemic change and long-term changes in social norms, policies, and systems. In 2018, Greta Thunberg emerged as a new voice, the next generation's advocate, for confronting climate change. Her work and the attention it has drawn symbolizes the need for societal level change to mitigate the detrimental effects of climate change. The 2010 AZA framework for social science research also recognized the need to tackle behavior change but reflection on the work done since then showed that these efforts largely focused on the individual rather than the community or

societal level. It has become apparent that in addition to individual behavior change, the world needs governments, corporations, and communities to make changes. There is a clear role here for zoos and aquariums - one that builds on existing engagement within the community and leading by example through equitable internal practices. The sub-questions of this key research question require zoos and aquariums to revisit the impact they intend to make in the world and how they will do that in this context of social change.

Key Research Question #4: *What is the role of zoos and aquariums in contributing to the development of a person’s intellectual, social emotional, and physical well-being?*

The fourth key research question is more aligned with the original intention of the 2010 AZA framework for social science research. This question is about the positioning of zoos and aquariums within an individual’s life experiences, including but not exclusive to education. Education is at the forefront of most zoo and aquarium missions and a substantial amount of research has already been done to understand this impact and potential of zoos and aquariums in this area (e.g., the Why Zoos and Aquariums Matter studies consider zoos and aquariums in the context of the science, technology, engineering, and math (STEM) learning ecosystem). While much has been answered about the educational efforts of zoos and aquariums, there is still much more to be learned, including longitudinal studies on the long term effects of learning experiences; the role of zoos and aquariums in providing social services; possible mental and physical health benefits of zoo and aquarium experiences; how zoos and aquariums evolve to address the changing recognition of what constitutes a family; and how they connect with visitors in the times of crises such as the 2020 coronavirus pandemic. The sub-questions for this key research question use an expanded whole-person approach to learning and thriving, bringing attention to these gaps in our understanding, as well as the need to continue contributing to the growing literature base on intellectual, social, and emotional learning within zoos and aquariums.

Key Research Question #5: *How can zoos/aquariums maximize their systemic impact on “conservation”?*

The fifth and final key research question represents a holistic approach to understanding and advancing conservation. There is now consensus within the field that conservation cannot focus solely on the animal or biological systems. The human dimension of conservation has grown in recent years. When AZA launched SAFE in 2015, it included public and stakeholder engagement as a key component of the conservation action plans. More zoos and aquariums are identifying strategies for directly engaging people in conservation as well as recognizing the importance of community leadership to sustain conservation gains. With this comes the need for related measures to understand what effect these strategies are having on human behavior and subsequently on saving and protecting wildlife. In addition, zoos and aquariums are recognizing the importance of understanding the needs and priorities of people and the impact of potential conservation actions on people and communities. Conservation cannot be done in a vacuum yet oftentimes efforts narrowly focus on an intervention that is specific to the animals’ needs and neglects the human component. Taking this more holistic, multi-faceted approach to conservation is encouraging but more work needs to be done to understand its effectiveness and identify promising practices for zoos and aquariums to adopt.

Action Plan

Reflections on the years following the release of the 2010 framework revealed there was a lack of broad awareness and utilization of the document by the zoo and aquarium community. While a few key researchers embraced the previous agenda, it was not broadly used by graduate programs or the zoo and aquarium community to guide research programs or questions. For this new research agenda to be most useful at helping zoos and aquariums advance their missions, it must be more widely disseminated and embraced as a relevant tool for researchers, academics, and zoo and aquarium professionals moving forward. To that end, the following action plan details intended audiences and strategies to guide the use of the agenda in focusing new research efforts and promoting the application of social science research findings and principles.

Intended Audiences

<i>Audience</i>	<i>Role</i>
AZA Staff, Board, Committees	<p>Support and promote the research efforts of member organizations and partners.</p> <p>Contribute to cultivating multi-institutional research collaborations and seeking funding/or funded partners to support such studies.</p> <p>Represent and advocate for the research efforts within the AZA community and across similar organizations.</p> <p>Review the agenda for continued relevance, monitor the uptake of related research, and compile and communicate related research findings.</p> <p>Integrate into committee and staff work plans as appropriate.</p> <p>As staff, support key committees in their continued use of the Agenda.</p>
AZA Members (incl. organizations, departments, staff)	<p>Integrate the key research questions and resulting research findings into strategic plans as appropriate and possible.</p> <p>Engage in and support multi-institutional research collaborations when the opportunity arises.</p> <p>Allocate resources (staff time, funding, professional development, partnering with local universities) towards research and evaluation efforts when possible.</p> <p>Communicate to staff the importance and value of these research efforts.</p> <p>Interpret the use of social science research findings to your visitors.</p>

	<p>When serving as adjunct staff or advisors to graduate students, encourage exploration related to the key research questions.</p> <p>Utilize the findings from resulting research efforts to improve all aspects of your zoo/aquarium operation; encourage and model application of the research findings to practice.</p>
Academics and Research/Evaluation Professionals	<p>Pursue and support research studies related to the key research questions of the agenda.</p> <p>Communicate findings and help bridge research to practice for zoo and aquarium professionals.</p>
Graduate Students	<p>Pursue and support research studies related to the key research questions of the agenda.</p>

Implementation Strategies

The following strategies are recommendations for how to ensure the agenda is used as a tool rather than a stagnant document. The hope is for this tool to be used and referred to often and guide the social science research activities of the zoo and aquarium community. These strategies focus on the communication and sustainability of the agenda for years to come.

Strategy 1. Annual and Mid-Year Meeting Engagement and Presentation

AZA's semi-annual meetings are a prime opportunity to raise awareness and engagement around the agenda on a regular basis. The meetings provide the opportunity to reflect on the past year's accomplishments and convene stakeholders in conversations about what lies ahead. This can be accomplished in the following ways:

- Presentations of research studies related to the agenda
- Annual review and discussion as standing item at select committee meetings
- Keynote speakers representing significant social science research findings and progress
- Social science research symposium or other convening in conjunction with the annual and/or mid-year meeting

Strategy 2. AZA Committee/SAG Support

A number of AZA committees and scientific advisory groups (SAGs) have a stake in the recommended research within this agenda. These committees have a responsibility to support the communication and implementation efforts of the agenda on a consistent basis, incorporating it into their regular business. Below are recommended activities for these committees:

Committee Activities

<i>Committee or SAG</i>	<i>Activity</i>
Research and Technology Committee (RTC)	<p>Report on agenda progress and activities in reports to the AZA Board of Directors (semi-annual)</p> <p>Include discussion of agenda as standing business item in annual and mid-year meeting agendas (semi-annual)</p> <p>Serve as a conduit for requests or inquiries pertaining to the agenda and in conjunction with the SSRE SAG (on-going)</p> <p>Support the dissemination of research findings through regular contributions to AZA's member magazine, Connect.</p>
Social Science Research and Evaluation (SSRE) SAG	<p>Solicit updates on agenda activities from other committees and members (semi-annual)</p> <p>Coordinate reporting on agenda progress and activities in board reports (annually)</p> <p>Include as standing business item in SAG meetings and/or strategic priority in work plan (monthly)</p> <p>Identify opportunities for promoting/sharing the agenda with research and evaluation staff at member organizations</p> <p>Facilitate a biennial critical review of the agenda progress and opportunities for the immediate future</p>
Conservation Education Committee (CEC)	<p>Report on education-related agenda progress and activities in board reports (semi-annual)</p> <p>Include discussion of agenda as standing business item in annual and mid-year meeting agendas (semi-annual)</p> <p>Identify opportunities for promoting/sharing the agenda with educators at member organizations</p> <p>Identify opportunities for engaging educators at member organizations around the agenda content and/or findings of research</p> <p>Assist in helping educators of member organizations apply the findings of research to their practice</p> <p>Assist in sharing opportunities for members to participate in multi-institutional research projects</p>

Wildlife Conservation Committee (WCC)	Share any agenda-related activities with RTC and SSRE SAG as appropriate and requested
Green SAG	Share RTC, CEC, SSRE SAG communications about the agenda with committee members
Diversity Committee (DC)	Identify opportunities for supporting or improving the agenda when/if appropriate
Trends Committee (TC)	
Human Resources Committee (HRC)	Support members in applying findings from research to practice/operations
Volunteer Management Committee (VMC)	

Strategy 3. Seek and Secure Funding and/or Funded Partners

Time, financial support, and other resources are required to carry out this research. Fortunately, many zoos and aquariums have a history of securing grant funds and working with partners to implement ambitious projects. The Why Zoos and Aquariums Matter studies are a prime example of a funded, multi-institutional effort. Whenever possible, intended audiences of this research agenda should seek funding, integrate reference to the agenda, and collaborate with partners to help make this work happen. This may include some of the following activities:

- Member organizations are encouraged to reference the agenda in grant proposals when pursuing financial support for projects that aligns with the research questions;
- AZA staff or committees should consider creating boilerplate language about the agenda for inclusion in funding requests;
- All intended audiences for the agenda are encouraged to share funding opportunities that may align with the research agenda via various communication channels including the AZA online professional Network;
- AZA can host regular webinars when funding opportunities arise to help connect interested member organizations, academics, and other professionals; and
- AZA and its member organizations should continue to foster strategic partnerships with traditional and non-traditional academic, non-profit, cultural, and/or other practitioners seeking shared goals.

Strategy 4. Cultivate and Maintain Academic Relationships

Academic relationships are an integral part of supporting the research agenda. While some zoos and aquariums may be equipped to carry out this research, many do not have the staff resources or expertise to do so. Even those who do have the necessary resources would benefit from working with academics to pursue this work. The research questions span a number of disciplines and may require

working with academics from these different disciplines. Some of the activities recommended to cultivate and maintain academic relationship are as follows:

- Leverage the AZA student membership to engage with graduate students who may have an interest in conducting research that aligns with the agenda
- Provide informational webinars for academic partners including graduate students to encourage idea exchange, potential matching of research interests, and disseminating relevant findings from recent research
- Utilize adjunct and advisor status of AZA member staff to engage graduate students in research that aligns with the agenda.
- AZA and its member organizations should continue to foster strategic partnerships that may support agenda activities (e.g., Antioch University New England, Oregon State University, Otterbein University)
- Develop strategic partnerships with new universities or departments that have shared goals

Strategy 5. Cross-Pollination in the Global Zoo and Aquarium and Conservation Community

While this is an AZA research agenda, it is important to acknowledge the breadth of research and effective practices uncovered from our international counterparts. Many of the questions identified in the agenda are also relevant to the international zoo and aquarium community. There should be a larger dialogue and collaboration in this international community to help advance the missions of all zoos and aquariums, not just those accredited by the Association of Zoos and Aquariums. To that end, we recommend some of the following activities:

- Develop a communication plan to disseminate and raise awareness of the agenda with AZA's non-U.S. based members.
- Identify key non-U.S. AZA members to help champion the agenda beyond US national borders.
- Encourage non-U.S. AZA members to participate in multi-institutional studies aligned with the agenda.
- Promote agenda and share findings with WAZA and other regional zoological associations; develop strategic partnerships to advance multi-institutional and international studies.

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Appendix A - Sub-Questions

Key Research Question #1: How can zoos and aquariums help build a more equitable society through critical reflection on their internal operations, culture, and communications? How can zoo and aquarium DEAI efforts support this?

Sub-Questions:

Business Practices

1. In what ways can zoos and aquariums effectively address margin vs. mission with stakeholders?
2. What are/have been the tacit and implicit biases and behaviors of zoos and aquariums that perpetuate privilege within our profession?
3. What is/has been the impact of this on meeting missions and on communities left out of the conservation conversation and work we engage in?
4. How do zoos and aquariums design their business differently to maximize equity and avoid perpetuating privilege?
5. How can conservation culture (i.e., bringing the conservation aspects of the organization's mission to life by integrating it into the operation) help drive this?

Relationships

1. How can zoos and aquariums think and work more effectively and collectively in a way that is cognizant of, and committed to rethinking hierarchy, privilege, and representation?
2. What are the pressure points and stressors on staff and constituents (e.g. hierarchy, mission, traditions) that perpetuate privilege?
3. How do zoos and aquariums engage with communities on their needs so that we can deliver on our mission, remain relevant, and support what is important to the community?

Historical and Political Landscape

1. How do zoos and aquariums understand their role in colonization?
2. How can zoos and aquariums effectively address this issue as a community?
3. How does cultural and political discourse impact zoo and aquarium policies, practices, and behaviors (including employee engagement/promotion/recognition/retention)?
4. How does the zoo and aquarium political history impact priorities and practices?
 - a. What is the role of zoos and aquariums in the political economy in this regard?
 - b. What is the role of zoos and aquariums in the civic economy in this regard?

Diversity, Equity, Access, and Inclusion

1. What are effective strategies for zoos and aquariums to cultivate a more diverse audience base, one that better represents the communities they are situated in?
2. In what ways can zoos and aquariums modify their operations/facilities/messaging to meet the needs of different groups/cultures?
3. How can zoo and aquarium staff contribute to understanding and mitigating social imbalances and inequities within their own organizations?

Key Research Question #2: What is the role of zoos and aquariums in communities, including in the context of striving for environmental and social justice?

Sub-Questions:

Contribution to Community

1. What is the role of zoos and aquariums in society and communities?
2. Where do zoos and aquariums have legitimacy with the community (e.g. shared values, career opportunities, economic impact).
3. What is the role of zoos and aquariums with regard to civics, moral development, faith?
4. What is the social good zoos and aquariums can bring to the communities they are situated in?
5. How can zoos and aquariums positively support communities to take action and develop resilience?
6. How can zoos and aquariums serve as collaborators and co-learners with communities?
7. How can zoos and aquariums promote coexistence spaces?
8. What are effective strategies for zoos, aquariums, and communities to bring transparency and two-way dialogue?
9. How do AZA-accredited zoos and aquariums distinguish themselves from “irresponsible” zoos and aquariums?
10. What defines a “good” zoo in the public mind?

Community Engagement

1. What are effective strategies for how zoos and aquariums can best engage their communities?
2. How do zoos and aquariums impact non-visitors (impacting people outside of the zoo setting and including people who cannot afford to visit the zoo or aquarium, or are from cultures that may not visit zoos and aquariums) and detractors/moveable middle?
3. How can learning/engagement experiences be co-designed with audiences/communities?
4. In what ways can zoos and aquariums catalyze conservation ethics and/or amplify existing conservation ethics in the community? How can working with partners assist in this endeavor?
5. How should zoos and aquariums participate in the moral life of our community?
6. How does this relate to “why a zoo”?
7. How can zoos and aquariums foster relationships between young leaders to young people where conservation is targeted?
8. How do zoos and aquariums work with cultures that may not value animals in the same way?

Community Expectations

1. What do communities expect from zoos and aquariums?
2. How can zoos and aquariums optimize collectively within our communities to further our impact?
3. In what ways do zoos and aquariums contribute to the culture of the communities they are situated within? And conversely, how do communities contribute to the culture of zoos and aquariums?
4. To what extent do zoo and aquarium communications and actions with the public and animals impact people’s perceptions of animals (e.g. exhibiting endangered animals, using euthanasia as a management tool)?

Key Research #3: What is the role of zoos and aquariums in contributing to social change toward conservation?

Sub-Questions:

Behaviors

1. What are effective strategies for making conservation behavior change authentic and relevant to individuals?
2. What behaviors/actions are appropriate and feasible for zoos and aquariums to try and influence?
3. How can zoos and aquariums shift focus from simple actions to broader social change (e.g. empowerment/agency/norms)?
4. How can zoos and aquariums better embrace and model conservation behavior and social changes within our own organizations?

Defining and Designing for Impact

1. How has the identity of zoos and aquariums evolved?
2. What contributes to the current identity?
3. How do zoos and aquariums define the change they are seeking – what is the impact?
4. What are the actual measurable outcomes zoos and aquariums seek?
5. How do zoos and aquariums define and measure conservation impacts at both human and wildlife levels? And how does one impact the other?
6. What role do/can zoos and aquariums play beyond a visitor experience?
7. How can zoos and aquariums more effectively use the social sciences to understand the existing socio-ecological systems in the local community?
8. How can zoos and aquariums subsequently use this knowledge to understand how to address these issues?
9. How can zoos and aquariums use existing resources (e.g. social theory) that are out there to inform design of social change programs?

Collaboration

1. How do zoos and aquariums change their cultures away from working as an island toward seeking partners and collaborators toward social change?

Key Research Question #4: What is the role of zoos and aquariums in contributing to the development of a person’s intellectual, social-emotional, and physical well-being?

Sub-Questions:

Learning Landscape

1. What is the role and opportunity of zoos and aquariums in the broader learning ecosystem (e.g. within the community)?
2. What is the role of zoos and aquariums...
 - a. in communities – leadership and building resilience?
 - b. in the ecosystem of informal science?
 - c. in civics and democracy?
 - d. in humanities education (e.g., ethics, philosophy, aesthetics, history, religious studies)?
 - e. in addressing the TEM (technology, engineering, and mathematics) part of STEM?

Life-wide, Life-deep, and Lifelong

1. What role do zoos and aquariums play in lifelong learning experiences? (e.g., need for longitudinal studies)
2. How can zoos and aquariums effectively co-design programs and experiences for different social units?
3. What barriers keep individuals from staying involved with zoos and aquariums as they shift life stages? How can zoos and aquariums think differently to mitigate those barriers or to accompany and serve the needs of people through their life stages?
4. How effective are zoos and aquariums at developing people’s connection to nature?
5. How does a connection to nature subsequently contribute to meeting other mission-related outcomes?

Beyond Learning

1. What role do zoos and aquariums play in “social services”?
2. How do zoos and aquariums contribute to the health and well-being of people?
3. How can zoos and aquariums support communities in times of crisis?

Key Research Question #5: How can zoos/aquariums maximize their systemic impact on conservation?

Sub-Questions:

Role of Social Science

1. How can social science research help advance conservation field work?
2. In what ways does conservation culture influence conservation impact?
3. What are effective practices for putting organization culture to work for conservation impact?
4. How can zoos and aquariums more effectively use social science research and tools to achieve their missions more effectively?
5. How can zoos and aquariums better align and work in concert with the research, tools, and effective practices used by other biological and conservation disciplines, including interdisciplinary approaches such as One Health?
6. How can social science help achieve conservation solutions and reduce threats to wildlife?
7. How can social science research be used to understand human cognitive and affective reactions to different types of species?
8. How can zoos and aquariums enhance people's attitudes to care and protect all species?
9. How can zoos and aquariums optimize a community of practice around a SAFE species (from non-conservation organizations to zoos and aquariums to other conservation non-government organizations)
10. How can zoos and aquariums scale up from individual species to habitat level restoration/conservation/challenges?
11. What are effective strategies for zoos and aquariums to bring a lens of equality and social justice to their field conservation programs?

Conservation Community

1. How can zoos and aquariums share their efforts with other organizations in the conservation space?
2. How can zoos and aquariums collaborate better with others to drive/influence community culture?

Appendix B - Conservation Culture Logic Model Outcomes

	Short Term Outcomes (within 1 yr) <i>What changes within one year if the strategies and tactics are successful?</i>	Mid Term Outcomes (1-3 yrs) <i>What changes in one to three years if the strategies and tactics are successful?</i>	Long Term Outcomes (3-5yrs+) <i>What changes in three to five years and beyond if the strategies and tactics are successful?</i>	Impact <i>How does the situation shift in the future?</i>
Staff, Volunteers, and Stakeholders (Individual)	Staff, volunteers, and other stakeholders are more aware of the organization's conservation efforts.	Staff, volunteers, and other stakeholders feel pride in the organization's conservation efforts.	Staff, volunteers, and other stakeholders feel the organization is a leader in conservation efforts.	Humans and animals thrive together.
	Staff, volunteers, and other stakeholders are more aware of the opportunities to engage in the organization's conservation efforts.	Staff, volunteers, and other stakeholders actively engage in the organization's conservation efforts on a regular basis.		
	Staff, volunteers, and other stakeholders understand how their work contributes toward the organization's conservation efforts.	Staff, volunteers, and other stakeholders feel empowered to contribute to the organization's conservation efforts.	Staff, volunteers, and other stakeholders develop a conservation identity in their professional lives.	
	Staff, volunteers, and other stakeholders feel that their work is important to the organization's conservation efforts.			
	Staff, volunteers, and other stakeholders understand what they can personally do to take conservation action in their daily lives.	Staff, volunteers, and other stakeholders increase their engagement with conservation actions in their daily lives.	Staff, volunteers, and other stakeholders adopt and sustain a conservation ethic in their personal lives.	
	Staff, volunteers, and other stakeholders are confident they can take conservation action in their personal lives.			
	Staff, volunteers, and other stakeholders improve their ability to communicate about the organization's conservation efforts with others.	Staff, volunteers, and other stakeholders regularly share with others what they can personally do to take conservation action in their daily lives.	Staff, volunteers, and other stakeholders are advocates for taking conservation action.	
AZA Zoos and Aquariums (Organizational)	The organization identifies more conservation stories to share with the public.	The organization increases its public communication of its conservation efforts.	The organization is recognized as a major conservation actor locally, regionally, nationally or internationally as appropriate.	
	The organization increases its representation in conservation conversations in the local community/region.	The organization increases the number of collaborations with other conservation organizations in the local community/region.	The organization sees increased support from the local community for its conservation efforts.	
	The organization improves the integration of sustainable practices into the facility operations.	The organization minimizes (decreases) its operation's environmental footprint.	The local community sees the organization as a leader for integration of sustainable practices.	
	The organization improves the integration of conservation messages throughout visitor communications and experiences.	The organization improves the retention and recognition of conservation messages with its visitors.	The organization is unequivocally recognized as a conservation organization by the general public.	
AZA Community (Professional)	The AZA community is recognized as a reputable resource for conservation engagement.	The AZA community increases the number of national and international collaborations with leading conservation organizations.	The AZA community is recognized nationally and internationally as a major contributor to conservation.	
	The AZA community increase their capacity to engage in conservation projects.	The AZA community increase their capacity to lead conservation projects.	The AZA community makes a significant impact on a suite of conservation issues.	
Local Community	Local community members have greater interest to engage in conservation efforts.	Local community members increase their engagement with conservation efforts.	Local community members are the catalyst for conservation change at the local level.	Zoo and aquariums are synonymous with conservation.
	Local community members are motivated to take collective action.			
	Local community members trust zoos and aquariums to facilitate community-wide conservation change.			
	Local community members and zoos and aquariums identify shared goals for conservation change.			