



insight evaluation services

**Maryland Zoo in Baltimore**  
***Junior Zoo Crew Summer Service Learning Program***  
**Summative Evaluation Summary Report**

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## INTRODUCTION

Since 1982, the Maryland Zoo in Baltimore (MZB) has been offering middle and high school students the opportunity to participate in a Summer Service Learning Program identified over the years as Junior Keepers (JK), Project Wild (PW) and Junior Zoo Crew (JZC). The Junior Zoo Crew Program (Program), as it has been called since 2004, invites teenagers between 14 and 17 years old to “become part of the Zoo.” Specifically, the Program is designed to help students: (1) gain hands-on volunteer experience while learning the value of community service; (2) gain an appreciation for wildlife and wildlife conservation; (3) identify personal and career goals; (4) learn valuable life skills to better prepare for the future.

Students who are interested in participating in the Program must submit an application, and if accepted, must adhere to a conduct and attendance policy. Over the course of the four-week Program, students spend time participating in classroom lessons and performing service projects for the Zoo. In the classroom lessons, students learn about the mission of the MZB, its animal inhabitants and its role in conservation; service projects include weeding, cleaning and other maintenance tasks, as well as preparing enrichment items for the animals, developing education materials, and working at the Education Outposts (EdZOOcation Stations), where students share with the visiting public their knowledge about the animals at the MZB.<sup>1</sup>

## EVALUATION QUESTIONS

In Spring 2009, the MZB engaged Insight Evaluation Services (IES) to conduct a summative evaluation to assess the long-term impact of the JZC Program on its past participants.<sup>2</sup> In particular, the MZB was interested in addressing the following areas of interest:

1. The demographic profile of Program participants, as well as how and why participants are attracted to the Program and what support they get from their parents;
2. The extent to which the Program meets participants’ expectations, as well as offers a satisfactory volunteer experience that also increases their appreciation for the value of community service;
3. The influence of the Program on participants’ academic/career plans and personal goals, including the ability of the Program to encourage their appreciation for the environment, wildlife conservation, animal care/management, and teachers/teaching;
4. The impact of the Program in developing participants’ self-confidence, as well as their skills in leadership, teamwork, problem-solving, and making/maintaining friendships.

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<sup>1</sup> This summarizes the structure of the Program that has been in effect since 2003.

<sup>2</sup> The summative evaluation of the JZC Program is modeled on a similar evaluation conducted for a similar program in terms of its overarching goals. See: Storksdieck, M., Haley-Goldman, K. & Jones, M.C. (2002). *Impact of the New York Hall of Science Career Ladder Program on its former Participants*. Unpublished research study. Annapolis, MD: Institute for Learning Innovation.

## METHODS

Data to inform these questions were collected using a web-based survey and follow-up telephone interviews. Specifically, IES collaborated with the MZB to develop a questionnaire to be posted online.<sup>3</sup> This web-based survey primarily sought quantitative data (such as via rating scales) about the impact of the JZC Program but included a few open-ended questions, as well.

The MZB used SurveyMonkey.com® to distribute the web survey and collect alumni responses. On July 17, 2009, all past participants for whom the Zoo had a mailing address (n=375) were sent a postcard inviting them to respond to the survey; the postcard included the website address for the survey. Given that the Zoo also had an email address for 173 of those past participants follow-up reminders (that included the link to the survey) were emailed to these participants on July 20 and then again on July 30. The survey was “officially” closed on August 2, 2009.<sup>4</sup> A total of 66 past participants responded to the request to complete the web survey.<sup>5</sup>

IES and the MZB also developed a semi-structured, open-ended telephone interview guide to gather more detail about how or in what ways the Program had an impact on past participants. The telephone interview was designed mainly to follow up on specific responses provided on the web survey; based on a preliminary review of the web survey data, a few new questions were asked, as well. The MZB drew up a list of alumni to be contacted from the pool of 47 web survey respondents who said they would be willing to provide additional information about their experience in the JZC Program.<sup>6</sup> From August 10 through August 20, 2009, IES conducted follow-up telephone interviews with a total of 14 past participants.

Interview responses are intended to supplement and augment the web survey data. Consequently, they are reported in the next section as such. This report provides a summary of the findings.<sup>7</sup>

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<sup>3</sup> Given the MZB’s need for an efficient and economical way to gather feedback, it was determined that a web-based survey would be the most effective data collection method. For more information on the benefits of web-based surveys, see: Parsons, C. (2007) Web-Based Surveys: Best Practices Based on the Research Literature. *Visitor Studies*, 10 (1), pgs. 13-33.

<sup>4</sup> The web survey was actually left open for a few days after the official closing date (until August 12, 2009), which allowed an additional eight alumni to complete it.

<sup>5</sup> Of these 66, four (6%) abandoned the survey after completing the first page of questions.

<sup>6</sup> The criteria used to select these alumni included gender, ethnicity/race, year of participation and academic/career choices. Specifically, it was important to the MZB to include a variety of alumni in the sub-sample and not necessarily those who were representative of the web survey sample. In addition, the interview sample was intentionally biased towards alumni who indicated that the Program had a positive impact on them. This strategy is the same as that used in the assessment of the Science Career Ladder Program in which the focus of the interviews with past participants was on the “realized potential” of the Program. [Storkskieck, M. et. al. (2002).]

<sup>7</sup> Unless otherwise noted, this report uses the following code to describe the percentage of responses: a few (20% or less), some (21%-40%), many (41%-60%), most (61%-80%), the majority (more than 80%).

## RESULTS AND DISCUSSION

### I. The demographic profile of Program participants, as well as how and why participants are attracted to the Program and what support they get from their parents.<sup>8</sup>

#### Alumni's demographic profile

- To determine who they are, the web survey asked alumni a series of questions about their gender, age and ethnicity. As Table 1 below indicates, the majority of alumni who responded to the web survey were female, Caucasian and under 25 years old.

**Table 1. Characteristics of alumni who completed the web survey.**

Demographic Characteristics	Alumni who completed web survey (n=66)
<b>Gender:</b>	
Male	14% (n=9)
Female	86% (n=57)
TOTAL	100% (n=66)
<b>Age:</b>	
Under 20 years old	59% (n=39)
20-25 years old	33% (n=22)
26-30 years old	0% (n=0)
31-35 years old	1.5% (n=1)
36-40 years old	5% (n=3)
Provided no response	1.5% (n=1)
TOTAL	100% (n=66)
<b>Race/Ethnicity:</b>	
Caucasian	91% (n=60)
African American	6% (n=4)
Asian	3% (n=2)
Provided no response	1.5% (n=1)
TOTAL	101.5% (n=66)*

\*Percentage sums to more than 100% as one participant indicated more than one ethnicity.

<sup>8</sup> Responses may sum to more than 100% in this and remaining sections of the report because more than one response was accepted for some questions. In addition, counts in this and remaining sections may not total the sample size because alumni were not required to answer every question.

Of the alumni who then participated in a follow-up telephone interview, the majority were Caucasian; most were female and under 25 years old.

**Table 2. Characteristics of alumni who participated in a follow-up interview.**

<b>Demographic Characteristics</b>	<b>Alumni who were interviewed (n=14)</b>
<b>Gender:</b>	
Male	29% (n=4)
Female	71% (n=10)
TOTAL	100% (n=14)
<b>Age:</b>	
Under 20 years old	36% (n=5)
20-25 years old	43% (n=6)
26-30 years old	0% (n=0)
31-35 years old	7% (n=1)
36-40 years old	14% (n=2)
TOTAL	100% (n=14)
<b>Race/Ethnicity:</b>	
Caucasian	86% (n=12)
African American	7% (n=1)
Asian	7% (n=1)
TOTAL	100% (n=14)

- The web survey asked alumni what year they first participated in the JZC Program. As Table 3 below shows, most alumni first participated in the Program between 2003 and 2008.

**Table 3. First year of participation of alumni who completed the web survey.**

<b>First Year of Participation</b>	<b>Alumni who completed web survey (n=66)</b>
1982	1.5% (n=1)
1984	1.5% (n=1)
1986	1.5% (n=1)
1989	1.5% (n=1)
1999	5% (n=3)
2000	1.5% (n=1)
2001	1.5% (n=1)
2002	6% (n=4)
2003	3% (n=2)
2004	15% (n=10)
2005	9% (n=6)
2006	6% (n=4)
2007	17% (n=11)
2008	30% (n=20)
<b>TOTAL</b>	<b>100% (n=66)</b>

As Table 4 below shows, many alumni who were then telephoned first participated in the Program between 2003 and 2008. While it was important to get feedback from more recent alumni because they reflect JZC's current structure, it was also important to talk with older alumni. That is, older alumni have had more time for the impact of the Program to become apparent.

**Table 4. First year of participation of alumni who participated in a follow-up interview.**

<b>First Year of Participation</b>	<b>Alumni who were interviewed (n=14)</b>
1982	7% (n=1)
1984	7% (n=1)
1989	7% (n=1)
1999	7% (n=1)
2000	7% (n=1)
2001	7% (n=1)
2003	7% (n=1)
2004	7% (n=1)
2005	21% (n=3)
2008	21% (n=3)
<b>TOTAL</b>	<b>98% (n=14)*</b>

\*Total does not sum to 100% due to rounding.

The web survey also asked alumni what grade and school they entered in the Fall after their participation in the JZC Program. Table 5 below shows that the largest percentage of alumni said they went into the tenth grade.

**Table 5. Grades alumni entered in the Fall after their participation in the Program.**

<b>Grade entered in the Fall</b>	<b>JZC Program Alumni (n=66)</b>
7 <sup>th</sup> grade*	1.5% (n=1)
8 <sup>th</sup> grade*	4.5% (n=3)
9 <sup>th</sup> grade	20% (n=13)
10 <sup>th</sup> grade	39% (n=26)
11 <sup>th</sup> grade	17% (n=11)
12 <sup>th</sup> grade	12% (n=8)
College Freshman	6% (n=4)
<b>TOTAL</b>	<b>100% (n=66)</b>

\*Alumni who indicated they were starting seventh and eight grade in the Fall were participants of the Program prior to 2003 when the current age requirement was established.

Table 6 on the next page shows that the Program attracted participants from various points in Maryland, and in a few cases, from neighboring states, as well. After their participation in the Program, the largest percentage of alumni (almost 70%) said they attended a public school in the Fall; approximately 25% said they attended a private school and the remaining 5% were homeschooled.

**Table 6. Schools alumni entered in the Fall after their participation in the Program.**

School entered in the Fall	JZC Program Alumni (n=66)
<b>Public:</b>	
Baltimore City College High School	1.5% (n=1)
Baltimore School for the Arts	1.5% (n=1)
Bethesda Chevy-Chase High School	1.5% (n=1)
Broadneck High School	1.5% (n=1)
C. Milton Wright High School	1.5% (n=1)
Catonsville High School	1.5% (n=1)
Chesapeake Senior High School	5% (n=3)
Dallastown Area High School (PA)*	1.5% (n=1)
Dulaney High School	3% (n=2)
Francis Scott Key High School	1.5% (n=1)
Franklin High School	3% (n=2)
Harford Technical High School	1.5% (n=1)
Hereford High School	1.5% (n=1)
Kenwood High School	1.5% (n=1)
Loch Raven High School	5% (n=3)
Marriotts Ridge High School	1.5% (n=1)
North Carroll High School	1.5% (n=1)
North County High School	1.5% (n=1)
Northeast High School	1.5% (n=1)
Northeastern High School (PA)*	1.5% (n=1)
Old Mill High School	1.5% (n=1)
Owings Mills High School	1.5% (n=1)
Parkville Senior High School	3% (n=2)
Perry Hall High School	3% (n=2)
The Seton Keough High School	5% (n=3)
South Carroll High School	1.5% (n=1)
South River High School	1.5% (n=1)
Sparrows Point High School	1.5% (n=1)
Towson High School	8% (n=5)
Western High School	1.5% (n=1)
Western School of Technology and Environmental Science	1.5% (n=1)
<b>Public School Sub-total</b>	<b>69.5% (n=45)</b>
<b>Private:</b>	
Baltimore Lutheran High	1.5% (n=1)
Gilman School	1.5% (n=1)
Indian Creek Upper School	1.5% (n=1)
Institute of Notre Dame	1.5% (n=1)
John Carroll High School	3% (n=2)
Maryvale Preparatory School	1.5% (n=1)
Mount de Sales Academy	1.5% (n=1)
Severn School	5% (n=3)
St. John Vianney High School (NJ)*	1.5% (n=1)
St. Paul's School for Girls	1.5% (n=1)
The Bryn Mawr School	3% (n=2)
Yeshivat Rambam	1.5% (n=1)
<b>Private School Sub-total</b>	<b>24.5% (n=16)</b>
<b>Homeschool</b>	<b>5% (n=3)</b>
<b>TOTAL**</b>	<b>99% (n=64)</b>

\*A Google® search indicated these schools are located outside of Maryland.

\*\*Total does not sum to 100% due to rounding.



- Alumni were also asked a series of questions about their current academic/employment status, the level of schooling they have completed to date and the highest level of schooling completed by someone in their immediate family.

When asked “Where are you now?” alumni could select as many responses as applied to them from a set of choices that also included the opportunity to provide a different (new) answer. As Table 7 below shows, many alumni said they were currently in college or university and some said they were (still) in High School; this is consistent with the fact that most alumni in the sample participated in the Program in the last six years.

**Table 7. Alumni’s current academic/employment status.**

<b>Current academic/employment status</b>	<b>JZC Program Alumni (n=66)</b>
College/University	49% (n=32)*
High School	35% (n=23)
Working part-time	20% (n=13)
Working full-time	18% (n=12)
Between jobs	5% (n=3)
Trade/Vocational School	1.5% (n=1)
Other	1.5% (n=1)**

\*This number includes alumni who are pursuing undergraduate (n=29) or graduate degrees (n=3).

\*\* This respondent noted that she was also engaged in “other” activities (i.e., in addition to working part-time and going to college) “training as an aerial acrobat.”

Note: The percentages in this table are based on 65 replies.

In terms of the level of schooling alumni have completed to date, Table 8 below shows that the largest percentage of alumni have either obtained a High School diploma or are in the process of doing so. Again, this is consistent with the fact that most alumni in the sample participated in the Program in the last six years.

**Table 8. Highest level of schooling completed by alumni.**

<b>Schooling completed by alumni</b>	<b>JZC Program Alumni (n=66)</b>
Still in High School	31% (n=19)
High School diploma	40% (n=25)
Associate’s degree	6.5% (n=4)
BS/BA degree	19% (n=12)
Master’s degree	3% (n=2)
TOTAL	99.5% (n=62)*

\*Total does not sum to 100% due to rounding.

The MZB was also interested in finding out what was the highest level of schooling that had been obtained in alumni's immediate family. In fact, alumni come from highly educated households, with most family members having obtained a BS/BA degree or higher.<sup>9</sup>

**Table 9. Highest level of schooling completed by someone in alumni's immediate family.**

Schooling completed by someone in immediate family	JZC Program Alumni (n=66)
High School diploma	19% (n=12)
Professional Certificate	5% (n=3)
Associate's degree	10% (n=6)
BS/BA degree	24% (n=15)
Master's degree	31% (n=19)
Doctorate degree	11% (n=7)
TOTAL	100% (n=62)

#### How and why alumni were attracted to the Program

- The web survey asked alumni how they first found out about the JZC Program; alumni could select one response from a set a choices that included the opportunity to provide a different (new) answer. As Table 7 on the next page shows, many alumni found out about the Program via word-of-mouth, including from a family member (42%), friend (11%), or teacher/mentor (6%) who told them about it; some looked more proactively for a volunteer opportunity, and either contacted the MZB (23%) or conducted an online search (3%) for programs.
- Alumni were also asked why they wanted to participate in the JZC Program; alumni could select as many responses as applied to them from a set a choices that also included the opportunity to provide a different (new) answer. Not surprisingly, almost all alumni (97%) indicated it was their love for animals that motivated them to participate (see Table 8 on the next page); most also said the Program sounded like something fun to do over the summer (70%); many also said they wanted to get some real work experience (58%).

<sup>9</sup> For comparison purposes, the 2000 Census found that 31.4% of Maryland residents over 25 years of age had a Bachelor's degree or higher. See: <http://quickfacts.census.gov/qfd/states/24000.html>.

**Table 7. How alumni first found out about the JZC Program.**

<b>How alumni first found out about the Program</b>	<b>JZC Program Alumni (n=66)</b>
Family member told me about it.	42% (n=26)
I contacted the Zoo and asked about volunteer opportunities.	23% (n=14)
Friend told me about it.	11% (n=7)
I saw an announcement/flyer about it at the Zoo (including the Zoo's website).	10% (n=6)
Teacher/Mentor told me about it.	6% (n=4)
I saw an announcement/flyer about it at school.	5% (n=3)
I did an online search for animal-related volunteer opportunities.	3% (n=2)
<b>TOTAL</b>	<b>100% (n=62)</b>

**Table 8. Reasons alumni wanted to participate in the JZC Program.**

<b>Reasons to participate</b>	<b>JZC Program Alumni (n=66)</b>
I really love animals.	97% (n=64)
It sounded like something fun to do over the summer.	70% (n=46)
I wanted to get some real work experience.	58% (n=38)
To be with friends and/or meet new people.	33% (n=22)
It fulfilled a community service requirement.	30% (n=20)
To help me make career decisions.	9% (n=6)
I love going to the Zoo.	1.5% (n=1)

What support alumni got from their parents

- The MZB was interested in finding out if alumni’s parents/guardians had supported their decision to participate in the JZC Program. Specifically, alumni were asked whether they agreed with a series of statements about the role their parents/guardians played in making that decision, completing the application and facilitating their transportation to the Zoo. Clearly, as Table 9 below shows, parents/guardians played a large role in alumni’s decision to apply: the majority reported that their parents/guardians were aware of their summer plans and moreover, felt the JZC Program would be a good experience, regardless of the fact that it was not a remunerated position. In addition, the majority said their parents/guardians helped in some way to get them to/from the Program.

**Table 9. Alumni’s agreement with statements about their parents’ or guardians’ role.**

<b>Statements about parent/guardian role</b>	<b>Alumni who agreed with statement</b>	<b>Alumni who disagreed with statement</b>	<b>Alumni who did not agree or disagree with statement</b>
My parent/guardian felt the program would be a good experience for me.*	97% (n=60)	0% (n=0)	3% (n=2)
My parent/guardian helped me with the application process.*	73% (n=45)	24% (n=15)	3% (n=2)
My parent/guardian helped me get to the Zoo every day by providing/arranging transportation (gave me bus fare, got me in a car pool, etc.).*	92% (n=57)	8% (n=5)	0% (n=0)
My parent/guardian wanted me to get a paying summer job instead.**	2% (n=1)	82% (n=50)	16% (n=10)
My parent/guardian had no idea what I was doing over the summer.**	2% (n=1)	93% (n=57)	5% (n=3)

\*Number of alumni who responded to this statement = 62.

\*\*Number of alumni who responded to this statement = 61.

**II. The extent to which the Program meets participants’ expectations, as well as offers a satisfactory volunteer experience that also increases their appreciation for the value of community service.**

Alumni’s expectations for the Program

- The web survey began with an open-ended question regarding what alumni’s expectations were for what they would get out of the JZC Program. In response, most alumni (66%) mentioned the type of work they expected to do, including work directly with the animals and/or the keepers<sup>10</sup>, get “real work experience” that would provide useful life skills, perform “dirty work” or “random jobs that required no skills” and/or work with the public. The following quotes are representative of this response category:

<sup>10</sup> Interestingly, most of these comments came from alumni who participated in the Program between 2003-2008.

“(I expected to) get hands-on experience working with animals.” [Female, under 20, college student majoring in Environmental Science/Political Science]

“The only jobs I was really aware of at that time were the keeper positions and the custodial/Aramark staff, so I was expecting to work in keeper-related areas most of the time.” [Female, 20-25, recent college graduate in veterinary science]

“I expected to get a great hands-on experience that would also be beneficial in all aspects of my life.” [Female, under 20, college student majoring in computer animation]

“...My second expectation was to build on my team-building skills....My third and final expectation was to build upon my leadership skills.” [Female, 20-25, college student majoring in Biology/Pre-Vet and full-time theater supervisor at the National Aquarium]

“I expected that I would be working as a volunteer doing small tasks and cleaning.” [Female, under 20, high school student]

“I wanted to gain valuable experience in educating the public about conservation and environmentalism.” [Female, 20-25, college student majoring in Circus Performance/Fine Art]

Many (53%) mentioned the kinds of knowledge they thought they would gain. In particular, alumni expected to get a better understanding of “how a zoo is run,” learn about animals in general and/or in the MZB’s collection, learn about the MZB, and/or “learn new things” in general. The following quotes are representative of this response category:

“I expected to learn the behind-the-scenes work of a zoo and learn information about the animals.” [Female, 20-25, college student majoring in Biology]

“I expected to get an inside look at the Zoo and broaden my understanding of what it takes to care for so many different species.” [Female, 20-25, college student majoring in Environmental Science]

“I expected to learn a lot about animal husbandry and get background information on what goes on at the Zoo.” [Female, 2000, part-time instructor at the Maryland Therapeutic Riding Center]

“(I expected to) learn more about animals, as well as the day-to-day operations of the Zoo.” [Female, 20-25, Law School student]

“I was expecting to learn about the animal collection at MZB, the history of the MZB and the surrounding gardens and park.” [Female, 20-25, college student]

majoring in Horticulture and part-time animal keeper at the MZB and at the National Aquarium]

In terms of their expectations for the Program, some (22%) hoped to explore or confirm their career choices, with the majority of these specifying that they were interested in learning more about jobs related to the care of animals, for example:

“At that time, I thought I would like to be a zookeeper. My family had visited the Zoo every summer, and it was a very special place to me. The idea of spending more time there, and working alongside the staff and seeing behind the scenes areas was extremely exciting.” [Female, 36-40, Director of Volunteer Programs at the MZB]

“I wanted to have a better understanding about dealing with zoo animals. My goal is to be a wildlife biologist, I would like to work with animals on the endangered species list—specifically wolves...” [Female, under 20, college student majoring in Conservation and Wildlife Restoration]

A few alumni said they hoped to “meet new people” (14%) and “have fun” (10%). Less than 10% each said their expectations included: help the Zoo/“give back a little” (five mentions), “no real expectations” (three mentions), “learn about myself,” “earn service hours,” “see the animals,” and “be in a neat position at the Zoo” (one mention each).

### What alumni got out of the Program

- The web survey then asked alumni about what they felt they got out of the JZC Program. In response, many (45%) mentioned the knowledge they gained, including what it takes to care for animals, the work of zoos, animals in general, general knowledge, and conservation, as follows:

“I learned how hard it is to be a keeper and what a full time job it is to care for these animals. I now have a better appreciation for the work that goes into zoos.” [Male, under 20, high school student]

“First and foremost, I expanded my knowledge about conservation and preservation of wildlife and wild places. Learning all about the AZA and SSP's (Species Survival Plans) really allowed me to gain a new appreciation for all that the Zoo does.” [Female, 20-25, college student majoring in Mass Communications-Public Relations/Advertising]

“... Before participating in the Zoo's summer teen volunteer program, I knew more than the average person about animals and the natural world. But after completing the Program, my knowledge base increased significantly and has been maintained as a foundation upon which my current animal knowledge has grown and flourished.” [Female, 20-25, recent college graduate in veterinary science]

“I learned SO much about the environment, animals, and wildlife. The amount of information I learned about the animals at the Zoo is tremendous.” [Female, under 20, college student majoring in Visual Communication Design]

“I got a stronger interest in conservation and the bridge between animals and humans and how we need to do all we can to take care of that.” [Female, 2000, part-time instructor at the Maryland Therapeutic Riding Center]

Some alumni (40%) said the Program allowed them to explore or confirm their career choices (almost twice as many as said expected to do so), for example:

“Junior Zoo Crew opened my eyes to the amazing career opportunities zoos have to offer.” [Female, 20-25, college student majoring in environmental science and part-time education program instructor]

“My experience at the Zoo helped me to narrow down what fields I was most interested in pursuing for a career.” [Female, 20-25, college student majoring in Homeland Security and Korean linguist in the Army]

“I feel my involvement with the Program helped me to confirm that I really want to pursue Wildlife Conservation and Wildlife Biology as a career.” [Female, under 20, college student majoring in Wildlife Management and Conservation]

Some alumni (35%) said they gained new experience and/or skills. Specifically, alumni mentioned acquiring leadership skills, general work experience or “life” skills, public speaking/communication skills, interpersonal skills, teamwork skills, and teaching skills—skills that ultimately increased alumni’s self-confidence:

“In plain terms, this Program changed my life. I gained skills that will help me academically, socially, and everything in between. I am a comfortable public speaker and I know my way around a barn.” [Female, under 20, college student majoring in Environmental Health]

“I was also pretty shy when I started in the Program and working with the public and developing a lot of knowledge about animals gave me a lot of confidence to do presentations.” [Female, 31-35, computer programmer]

“Being able to talk to complete strangers in a confident and dynamic way is definitely something I gained from participating in the Zoo's summer volunteer program. And, being able to not just talk with complete strangers, but have them become engaged and involved in what I was talking to them about by asking them questions and giving them some hands on experience either with biofacts or animal-related activities was another great gain from the program.” [Female, 20-25, recent college graduate in Veterinary Science]

“I also became much more confident and more outgoing. I learned that with many things—especially teaching—that it's ok and necessary to try and fail so that the next time you try you can get something right. The animals are the easier part—I also got to practice handling people. I learned how to say 'no' without n's, redirect off-questions, and let someone know an idea is bad without them even realizing it. I've gotten so much out of my experience at the Zoo—it's really become part of who I am.” [Female, under 20, high school student]

“The second thing would be working as a team and taking leadership to get the job done. As I said in a previous answer we were always working in teams and I enjoyed that very much. Teamwork is the key to getting things accomplished and to take care of such large mammals. Without teamwork the Zoo would fall apart. It just doesn't take one person, it takes a TEAM!” [Female, 20-25, college student majoring in Biology/Pre-Vet and full-time theater supervisor at the National Aquarium]

Some alumni (27%) said they “met great people” and made friends; a few (20%) said they had a fun/memorable experience, for example:

“The best thing that I got out of this Program was all of the wonderful friends that I made and still keep in touch with. I consider them like family and wouldn't have it any other way.” [Female, 20-25, restaurant server]

“In the shorter term, I got a long string of wonderful memories, and the Program provided a stabilizing influence for a very rocky few years in my adolescence.” [Female, 20-25, college student majoring in Circus Performance/Fine Art]

Regarding what they got out of the Program, less than 10% each said JZC gave them other things, including: an opportunity for personal growth, such as gaining self-esteem (five mentions); a change in life/lifestyle, such as becoming a vegetarian (five mentions); a “fulfilling” way to “give back” to the Zoo (four mentions); “a sense of belonging to the Zoo community;” “bragging rights” about the “cool” volunteer job; “a stronger love for animals;” “many community service hours;” and free admission to the Zoo (one mention each).

- To further probe what alumni perceived they got out of the Program, alumni who were telephoned were asked: “What was the most valuable aspect of the JZC Program for you?” While many repeated some part or all of their web survey response (i.e., out of the list of things they mentioned on their web survey), most offered new responses (things they had not mentioned before).

Specifically, many said that the most valuable aspect of their Program experience was the opportunity to work with the animals and/or try out zookeeping, for example:

“Working with the animals. We worked behind the scenes with the keepers and got to see what keepers actually do.” [Female, 31-35, computer programmer]



“I loved working in the Animal Embassy because I got to interact with animals and got to prepare their diets and do more things like that. I learned a lot about cleaning, nutrition, and handling the animals. ” [Female, 20-25, part-time instructor at the Maryland Therapeutic Riding Center]

“...The other zookeepers (and I) who came from the MZB, we were brought up as zookeepers at the MZB. We worked under...the head of all animal programs there and...under her we gained a great work ethic that you don’t always see in the younger zookeepers coming up now. For example, at the MZB we had to pull this enormous hose up the hill to the giraffe enclosure every day to clean, and you knew you had to do it every day—even if it wasn’t necessary to because the giraffes are pretty neat eaters—because [the head of all animal programs] would ask, “Did you do it?” and you better have done it....we learned that there’s a certain way to examine the animals and clean up and do things right.” [Female, 36-40, animal keeper at the National Zoo]

Some said the Program allowed them to explore or confirm their career choices (see first two quotes below); some said they gained a better understanding of the work of zoos (see last two quotes below).

“I wasn’t sure if I wanted a job at the Zoo or work as a zookeeper so I wanted to check that out.” [Male, under 20, college student majoring in Kinesiology]

“Everything that I am today is the result of what I took away from the Junior Keeper Program. Of course, I didn’t learn everything I know now in JK but it certainly kick-started my career.” [Male, 36-40, animal keeper at the National Zoo]

“I learned that working at the Zoo was a lot more than just working with animals; there is a lot that goes on to run a zoo.” [Male, under 20, college student majoring in Biology]

“I got to see the Zoo as a place of entertainment but also different facets, like how they protect different species and how they educate people about what they do.” [Female, under 20, college student with undeclared major]

Some said the Program provided them with general “work experience” and/or new skills, including communication and interpersonal skills (see first quote below); some said the Program offered them a thoroughly enjoyable experience (see last quote below).

“The program taught me how to work together with other people.” [Female, under 20, high school student]

“I really loved the environment of the Zoo, learning and working there. Everyone at the Zoo wants to be there, and everyone was friendly. And, I love working

with animals and also being around people so the Program combined the two things I love.” [Female, under 20, high school student]

A few alumni said that the most valuable aspect of the Program was working with the public to educate them about the Zoo and the animals there (see first quote below); a few said the opportunity to interact with MZB staff was the most valuable for them (see second quote below).

“(The most valuable aspect was) working with the public rather than the behind-the-scenes part.” [Female, 20-25, education specialist at the Maryland Science Center]

“The year I went (2004), the camp counselors were absolutely wonderful. Also I used to come in on Thursdays when there weren’t as many kids there and so I got a lot more personal interaction with the counselors on those days.” [Female, 20-25, college student majoring in Horticulture and part-time animal keeper at the MZB and at the National Aquarium]

Alumni’s satisfaction with the Program

- Alumni were asked to rate their enjoyment of various aspects of the JZC Program using a five-point scale, where 1=“I did not enjoy it at all” and 5=“I enjoyed it very much.” Table 10 below describes the weighted average of alumni’s level of enjoyment with each aspect. Clearly, the majority of past participants enjoyed their overall experience very much. Indeed, later in the web survey, the majority of alumni (89%) highly agreed with the statement “If I had to do it over, I would participate in the Zoo’s summer teen volunteer program again.” In terms of individual aspects of the Program, most alumni assigned very high ratings to their interactions with staff; classroom lessons were enjoyed the least.

**Table 10. Alumni’s level of enjoyment with the Program.**

Aspect of the JZC Program	Weighted average rating of alumni’s level of enjoyment with each aspect (n=66)
Overall experience**	4.78
Interactions with staff*	4.73
Service Projects*	4.44
Interactions with guests*	4.35
Classroom lessons*	3.97

\*\*Rating based on 60 replies.

\*Rating based on 62 replies.

- Given alumni’s high ratings of their interactions with staff, the MZB was interested in finding out how or in what way those interactions contributed to participants’ feelings of satisfaction with the Program. In fact, the follow-up telephone interviews revealed that alumni thought staff were friendly, welcoming and helpful, something that encouraged them

to return to volunteer again. In addition, alumni said staff were appreciative of their contributions, as well as supportive of their efforts providing them with feedback and the opportunity to do things on their own. Several alumni also mentioned staff who mentored them and offered them guidance about career decisions. Following are quotes that provide examples of these sentiments:

“Everyone at the Zoo is so friendly and makes you feel welcome. They would all stop and say ‘Hi’ and made me feel comfortable. And that helped in my decision to come back as a Junior Keeper.” [Female, 20-25, college student majoring in Zoology]

“I had a good connection with one of the trainers in the JZC staff, and I’ve gone back as a Junior Interpreter so it’s nice to see familiar faces and people that I like. Everyone is always happy to be there, so when everyone is there to have a good time that makes it fun to be there. But for me it was more that people were friendly and helpful, helping me benefit from the Program. It was more comfortable to come back.” [Female, under 20, high school student]

“It was nice to be trusted by staff; they thought I was up to the task. I was treated like I belonged. There was also one gardener who was a really positive influence and went out of her way to nurture my passions and interests.” [Male, 20-25, animal keeper at Reston Zoo, VA]

“The staff in the Animal Embassy—they gave us a lot of trust and opportunity to do things on our own and gave us a feeling of independence; they didn’t stand over us and tell us “no, you’re not doing that right,” they just showed us what to do and then let us do it...which is amazing since we were all like 16 at the time.” [Female, 20-25, part-time instructor at the Maryland Therapeutic Riding Center]

“A lot of the keepers I started with when I was in JZC are my co-workers and colleagues now. They gave us a lot of positive feedback and that made me feel that I was doing a good job and motivated me to keep going (to the next level of the Program) and then they became my advocates in getting a job here because they knew how I worked.” [Female, 20-25, college student majoring in Biology/Psychology and part-time animal keeper at the MZB]

As far as staff who made the most difference, alumni who were interviewed mentioned the keepers (nine mentions), JZC staff (six mentions), teachers/education department staff (three mentions), gardener and “everyone” (one mention each); alumni who participated prior to 2003 were more likely to mention the keepers, while alumni who participated in the last five years were more likely to mention JZC staff. This finding is not surprising given that alumni who participated in the Program prior to 2003 said they worked with the animals, and therefore alongside the keepers, quite frequently.

- On the web survey, alumni were also asked to describe a memory of their experience. In response, alumni recalled several aspects of their experience. Not surprisingly, many (41%) mentioned an instance (s) during which they had the opportunity to interact or be involved with the care of the Zoo's animals:

“I suppose one memory I have is giving Stubby a treat with my entire hand in his mouth. But I also love the one when I was able to go with Robert (one of the old bird keepers) to the vet and hold a flamingo's head steady while they gave it meds. That was really wonderful, it was the first experience I had interacting with the animals in such an intimate way... [Female, 20-25, college student majoring in Psychology]

“First, I would have to say is creating a giraffe out of cardboard and paper-maché and painting it to look like a giraffe. We then put it inside the lion enclosure stuffed with horsemeat and watched them attack. We were just feet away inside the lion enclosure and we made a TV and newspaper appearance with this event...I also enjoyed working in the giraffe house and in the farmyard, where I spent most of my time. One of the most memorable moments I have is when we had baby Nubian goats. I was allowed the opportunity to help take the newborns to get biopsies in the Zoo Hospital and then bottle-feed them back in the barns...Another awesome experience was cleaning up the Zebra exhibit, helping clean Frostbite's (Axis Deer) enclosure, and being able to help bring in the Sitatunga one afternoon because they were short on keepers. Awesome, awesome, awesome! [Female, 20-25, college student majoring in Mass Communications-Public Relations/Advertising]

“Being able to contribute to the animals' well being, as well as getting the rare chance to interact with them was an amazing experience. A memory specifically from the JZC portion of my time at the Zoo that really stuck with me was when we got an up close look at the Panamanian Golden Frog project. It was amazing to get to see these frogs up close and get a taste of the project that the Zoo was taking part in.” [Female, under 20, high school student]

When asked to describe a memory of their experience, some (25%) recalled that their interactions with guests stood out (see first two quotes below); a few (20%) offered more general comments, which recalled their overall enjoyment of working at the MZB (see last quote below).

“One day we split into groups for on-grounds interpretation. My group went into the tundra buggy with a few owl feathers and a bear claw. A few guests came through and were mildly interested in what we had to say—the polar bears were much cooler to look at. But soon the younger summer camp kids came storming into the buggy. I went up to a few that weren't completely glued to the windows and starting talking with them about the feathers I had, which they thought were the coolest thing in the world! The kids' excitement rubbed off on me, and I really got into interpretation.” [Female, under 20, high school student]

“I remember trying to get people to look at the raven exhibit rather than the polar bear exhibit and the wonder on the kids’ faces as they learned something they would have just overlooked.” [Male, under 20, high school student]

“I sincerely enjoyed clipping the bamboo outside the lion exhibit just as he was getting breakfast, and listening to the morning sounds around the Zoo.” [Male, under 20, high school student]

When asked to describe a memory of their experience, a few alumni (14%) reflected that their experience in the Program had been a fulfilling/rewarding one (see first quote below); a few others (13%) said their interactions with staff stood out (see second quote below).

“I will carry what I have learned with me, in whatever I do. The Program really helped me grasp the idea of contributing to the community and being a part of something really special.” [Female, under 20, college student majoring in Biology]

“I was able to work with/around mammal keepers and the senior keeper of the (Mammal Department). I remember asking her question after question about her job and her experiences and she was so willing to share...awesome!” [Male, 36-40, animal keeper at the National Zoo]

When asked to describe a memory of their experience, less than 10% each mentioned that their experience in the Program “reaffirmed” or helped them make career choices (four mentions), they enjoyed the group/team-building activities (three mentions), they had small mishaps while working outside (three mentions), “freaking out” over the spiders in the Maryland Wilderness cave, and enjoying the field trip to the Aquarium (one mention each).

- In order to give alumni the opportunity to air any complaints they had about their experience, the web survey asked what they would change about the Program. In response, many (53%) said there was “nothing” they would change (i.e., the Program provides an “enjoyable” experience that “is perfect as it is”), with three adding “...except to make it longer!”

However, a few alumni (15%) indicated that they “would have liked to have a little bit more interaction with the zoo animals.” Less than 10% each had other comments, including: “(The Program) needed to be better organized” (five mentions)<sup>11</sup>; the classroom lessons should place less emphasis on “slideshows” and provide more in-depth content (five mentions); participants need more training before taking out the EdZOOcation carts; “increase awareness of the Program by reaching out to the Biology departments at the high schools in the area;” the application process should be “a bit more selective,” “make the exhibit choices an easier process,” reduce the amount of rotation between jobs, provide more opportunity to

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<sup>11</sup> Three of these comments were from alumni who participated in the Program prior to 2003; the other two comments were from alumni who participated in the Program between 2004-2008.

work with other volunteers, provide more opportunity to work with the public, conduct more service projects outside the Zoo, and “friendlier attitude” (one mention each).

Two alumni felt they could not offer a response to the question regarding what to change about the Program as they had participated in it more than ten years ago.

- During follow-up telephone interviews, alumni were asked: “What was the least valuable aspect of your experience?” In response, some alumni stated there was “nothing” about the Program that was not valuable (i.e., “Everything was useful”). However, some echoed web survey comments that the content imparted during classroom lessons was too basic (see first two quotes below) and some felt that at times they were given tasks that were “not as relevant” (see last two quotes below).

“I did not get much out of the classroom experiences because I went into the program with a lot of familiarity of zoos, conservation and animals...” [Male, 20-25, animal keeper at Reston Zoo, VA]

“I went into it as a rising high school senior and so I already knew some of the content. We did something about biomes for example and I already had studied that, so that information was not as useful for me.” [Female, under 20, college student with undeclared major]

“When I worked in the Farm area where they have the petting zoo and barn, it was more cleaning and stuff, so not as much contact with the animals and it was hard work...it was useful...but it was an activity that I felt didn’t let me learn as much about the Zoo.” [Female, 20-25, part-time instructor at the Maryland Therapeutic Riding Center]

“There’s lot of jobs at the Zoo and they need to get done, but I felt like sometimes there was too much hard labor and not enough learning...” [Female, under 20, high school student]

#### Alumni’s appreciation for community service

- When alumni were asked about the extent to which their participation in the JZC Program helped them understand the value of community service, 64% said “very much,” 21% said “somewhat,” 12% said “a little” and 3% said “not at all.”

While the open-ended web survey responses offered some evidence of the rewarding feelings alumni took away from their volunteer experience, participants who were interviewed provided more detail about how the Program helped them gain a greater appreciation for community service. In fact, many indicated that the experience reinforced their beliefs in the value of helping out (see first two quotes below). Others indicated that the Program opened

their eyes to the benefits (intrinsic and extrinsic) of advancing the mission of the MZB (see last two quotes below).

“My mom always wanted us to volunteer and I just fell in love with helping.”  
[Female, 20-25, college student majoring in Horticulture and part-time animal keeper at the MZB and at the National Aquarium]

“I already understood the value of community service but this experience was more than I had ever done. We weren’t getting paid, but it felt good to give back.” [Male, under 20, college student majoring in Kinesiology]

“I was dreading doing community service but actually I had a great time working at the Zoo and for that reason I decided to continue (volunteering) at the Zoo.”  
[Female, under 20, college student with undeclared major]

“It felt very good to contribute to the work of the Zoo and the important work that they do.” [Male, 20-25, animal keeper at Reston Zoo, VA]

Several alumni also noted that they did not view their participation in the Program as a way to complete service hours, either because it was not a requirement at the time they volunteered at the Zoo or more significantly, because they simply “wanted to be there.” For example:

“I didn’t answer this because this is something that kids have to do now, like they have to do a certain number of hours of volunteer work and I never saw the Program as doing community service. There was value in every single thing we were asked to do and you could not have dragged me away.” [Female, 36-40, animal keeper at the National Zoo]

“I’ve always been into community service, but I wasn’t doing the program for community service. I was doing it because it was something I wanted to do.”  
[Female, under 20, high school student]

- When asked if they are currently active in their communities, the majority of alumni (90%) said they were to some extent; only a few (10%) indicated they were not. Indeed, most alumni who were later interviewed mentioned that they give their time in a variety of ways, including mainly working with or caring for animals, but also participating in environmental projects, tutoring, or just “helping out”:

“I still work at the Zoo as a volunteer twice a month at the Animal Embassy. I also volunteer at the Maryland Therapeutic Riding Center, which works with developmentally challenged kids.” [Female, 31-35, computer programmer]

“Now I don’t do community service as much, but I do volunteer at the humane society and walk the dogs.” [Female, 20-25, college student majoring in Zoology]

“I am active in the community on and off right now—through school I do tutoring and also I’m president of an environmental club. So I’m not volunteering on a regular basis but as often as I can.” [Female, 20-25, college student majoring in Biology/Psychology and part-time animal keeper at the MZB]

“I manage my college softball team and help at other events.” [Male, under 20, college student majoring in Biology]

Alumni who said they were not active in their communities cited lack of time as the main reason for not doing so (e.g., “I don’t have as much time now, I’m starting college next week”).

### **III. The influence of the Program on participants’ academic/career plans and personal goals, including the ability of the Program to encourage their appreciation for the environment, wildlife conservation, animal care/management, and teachers/teaching.**

#### Alumni’s paths after their Program participation

- After their participation in the JZC Program, the majority of alumni (81%) went back to the MZB to volunteer again. Of these, the majority returned as Junior Keepers, some returned as Junior Interpreters and/or a few returned as event volunteers; one other repeated the Program the following summer. In addition, two alumni who came back to work as JK and event volunteers also came back to do other types of volunteer work for the Zoo: the first continues to volunteer at the Animal Embassy twice a month, the second has returned to be “Hoppy the Bunny” for the *Bunny Bonanzoo*.

Those alumni who did not return to the MZB to volunteer again (19%) provided a variety of reasons for not going back, including that they needed a paying job (four mentions), they had other personal/professional commitments (four mentions), they moved away (four mentions), the experience did not meet their expectations (two mentions), they could not easily get to the MZB (two mentions), “I wanted a new volunteer experience,” “I realized animal care/management was not for me,” “I felt that my assistance was not appreciated,” and “I did not receive any information about additional volunteer opportunities” (one mention each).

- Twenty-nine of the web survey respondents indicated that they were currently pursuing an undergraduate degree (see Table 7). Of those, 23 also specified their major, as follows: Biology, (five mentions, including two who noted they were focusing on Psychology and Pre-Veterinary Science); Zoology or Animal Science (five mentions, including two who noted they were focusing on Animal Behavior and either Pre-Vet or Pre-Med); Environmental Science/Health or Wildlife Conservation (five mentions, including one who was focusing on Political Science); Natural Science; Horticulture, Psychology, Computer Animation, Visual Communication Design, Kinesiology, Professional Writing, and Circus Performance/Fine Arts (one mention each).



In short, many of the alumni who were currently pursuing undergraduate degrees were majoring in the natural sciences. These alumni also indicated that their desired occupation was to work with animals in some way (as keepers, veterinarians, researchers, caretakers or trainers; fourteen mentions), doing field research (two mentions) or managing a stable (one mention); two others indicated they were more interested in working with humans, including as an educational program instructor and as a medical doctor (one mention each).

- Eighteen of the web survey respondents had obtained an undergraduate degree (Associate's degree or BS/BA; see Table 8). Of these, most had majored in a natural science, including: Biology (seven mentions), Animal Science or Zoology/Animal Behavior (four mentions), Ecology/Evolutionary Biology and Anthropology/Environmental Studies (one mention each). The remainder had majored in other subjects, including: Psychology, History, Computer Science, Homeland Security and Mass Communications-Public Relations/Advertising (one mention each).
- In terms of graduate degrees, three alumni said they were currently working on their Master's (two in Veterinary Science and one in Law); two already had a Master's degree (one in Computer Science and the other in Technology, Innovation and Education). In addition, a number of alumni indicated they had firm plans to pursue graduate studies, including mainly in such fields as Medicine, Veterinary Science, Wildlife Conservation and Zoo & Aquarium Leadership.
- Twenty-five alumni indicated they were working full- or part-time (see Table 7). Of these, most described their current occupation as: animal keeper at a zoo or aquarium (five mentions), assistant in a kennel/stable/veterinary office (four mentions), director/supervisor at a zoo or aquarium (two mentions), education specialist at a science center, environmental scientist, hospital research technician, computer programmer, Korean linguist in the Army, assistant in a retirement home, circus performer and restaurant server (one mention each); the remainder did not describe their current occupation. Thus, most of the alumni who are currently employed are working in a field that supports, manages, cares for and/or promotes animals and/or the environment.

### Influence of the Program on alumni's academic/career choices

- The majority of alumni (97%) agreed with the statement: "My experience in the Zoo's summer teen volunteer program helped me to define my personal and career goals;" the remaining 3% had "no opinion." When asked about the extent to which the JZC Program helped them make academic/career choices, 53% of alumni said "very much," 31% said "somewhat," 11% said "a little" and 5% said "not at all."<sup>12</sup>

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<sup>12</sup> A review of the surveys of those alumni who said the Program did "not at all" help them make academic/career choices reveals that two were still in high school, with one planning to become a teacher and the other planning to become an environmental engineer; the other had obtained a BS in Biology, and was planning to get a Master's in Veterinary Medicine and work in the field of Wildlife Rescue.

These findings support and reinforce the earlier responses to the open-ended question about what alumni got out of the Program, which revealed that 40% got the opportunity to explore or confirm their career choices. At the same time, it was important to get more detail about how specifically the Program influenced those choices. In fact, when interviewed, some alumni indicated that they went in with a fairly good idea of what they wanted to do. Thus, for them, the Program was the first step towards accomplishing a long-term goal, for example:

“I always suspected that (zookeeping) was what I wanted to do, but the Zoo gave me the practical experience. Anyone can read books about something but you actually have to DO it to learn. The Program gave me the experience that I needed to help start my career as a zoo professional.” [Male, 20-25, animal keeper at Reston Zoo, VA]

“I remember being seven years old and I had this cat that had dandruff and I asked my mom if we could call the MZB and ask the zookeepers if any of the big cats got dandruff, too. And the zookeeper talked with me on the phone about it, he took the time to talk to this little kid and I was hooked! I (became) pen pals with one of the keepers there...and he would write to me and then I would call the Zoo all the time and ask them stuff. Then Brian Rutledge became director and he had come from a zoo where they had a junior keeper program and he wanted to start one here. So they asked me if I wanted to do it, but I had to be 12 and I was 11 at the time. So I did some classes there until I turned 12 and then I was in the very first group of kids who worked as a JK....and I lived at the Zoo—I never missed a day—and by 16 I was a JK supervisor. Then I got hired as a zookeeper, and I worked at the MZB until 1993-94.” [Female, 36-40, animal keeper at the National Zoo]

“I knew I wanted to do something to do with animals but I wasn’t sure what I wanted to major in. Only after doing the JZC program did I know (it was Zoology)...The JZC Program opened the door to becoming a Junior Keeper where I got to work with elephants and started to like working with them. The JK program really gives you the opportunity to help the keepers and work side by side with them, and that really confirmed what I wanted to do. And then I got a referral from the MZB, which helped me to get an internship at an elephant sanctuary in Arkansas.” [Female, 20-25, college student majoring in Zoology]

Some alumni who were interviewed indicated that they had a more general idea of what they would like to do, and doing the Program helped them rule out career choices:

“At the beginning of my summer internship, I was just starting high school so I wasn’t really thinking about careers. I was interested in both animals and computer programming. (Then) I found out what a keeper’s every day job was like, and back then there wasn’t much enrichment or training for keepers so the

job was monotonous...Becoming aware of that is what swayed me to become a computer programmer.” [Female, 31-35, computer programmer]

“I enjoyed the Zoo experience, I just wasn’t sure if I wanted to work there as a career when I grow up. I did like working at the Zoo a lot and went back as a Junior Keeper...but (after that) I decided I didn’t want to do that as a job. When I was a JK, I was at the Animal Embassy handling the animals and it was routine and got boring doing the same thing all the time. I liked handling the animals, that was one of the coolest things I’ve ever done...But caring for them every day and cleaning their cages, that got to be monotonous.” [Male, under 20, college student majoring in Kinesiology]

Some alumni who were interviewed said they had no idea what they wanted to do, and indicated that the Program opened their eyes to new possibilities:

“I had no idea what I wanted to do or where I wanted to go before I volunteered that summer and the Zoo experience helped me figure it out. I chose Horticulture because there aren’t very many programs nearby that have Zoology that I could afford and I like the interaction of plants with animals and there is an affordable program nearby for that.” [Female, 20-25, college student majoring in Horticulture and part-time animal keeper at the MZB and at the National Aquarium]

“The Program helped me realize that there is a lot more to do in environmental science than just doing field research; I have a better idea now of what I could do.” [Female, under 20, college student with undeclared major]

### Alumni’s appreciation for the environment

- When asked about the extent to which their participation in the JZC Program helped them gain an appreciation for the environment, 77% of alumni said “very much,” 21% said “somewhat,” and 2% said “a little.”

Alumni who were interviewed explained that the Program increased their awareness of the environment just by virtue of working near or with animals (see first two quotes below), as well as through the classroom lessons (see third quote below), service projects (see fourth and fifth quote below) and/or their staff interactions (see last quote below).

“I got up close, or pretty close, to the animals and I learned how people can do stuff to harm them.” [Female, under 20, high school student]

“I was completely environment ignorant before the Program and the Zoo educated me about that. And just being around the Zoo and animals you get an appreciation for conservation.” [Male, under 20, college student majoring in Biology]

“We did a lot of activities about pollution; we played a game about water pollution during the lessons. We did a lot of stuff with invasive species so learning to be careful about what pets you get and how they destroy a species if they get out.” [Female, 20-25, college student majoring in Zoology]

“I remember we did a clean up along a beach with some Aquarium volunteers and that showed me how immediate nature is; it was a local project, we didn’t travel far away to do it.” [Female, 20-25, education specialist at the Maryland Science Center]

“Our mantra was ‘Trash is everybody’s job.’ It was a JK motto and I still say it today. I just said it the other day...I saw some trash blowing around and I said: ‘Trash is everybody’s job’ and picked it up and threw it away, and [my colleague] laughed and said I am such a dork (for remembering that phrase). But that’s how it was as a JK, it didn’t matter who you were, you had to do it (pick up trash).” [Female, 36-40, animal keeper at the National Zoo]

“The two ladies (with whom I worked in the Reptile House), they were vegetarians and they gave me books to read and I learned that eating meat is detrimental to wildlife and the whole ecosystem. They also showed me how different chemicals are detrimental to amphibian and reptile populations.” [Female, 20-25, college student majoring in Horticulture and part-time animal keeper at the MZB and at the National Aquarium]

### Alumni’s appreciation for wildlife conservation

- When asked about the extent to which their participation in the JZC Program helped them gain an appreciation for wildlife conservation, 86% of alumni said “very much,” 11% said “somewhat,” and 3% said “a little.”

Alumni who were interviewed indicated that the Program increased their appreciation for wildlife conservation through the classroom lectures about the MZB’s conservation efforts (see first two quotes below), as well as by being around endangered animals (see last two quotes below).

“They had this whole lecture on the Species Survival Plan and it made me see the Zoo and conservation issues in a whole new light and I learned how the Zoo is making such an impact like with the Panamanian Golden Frogs, which are nearly extinct.” [Female, under 20, college student with undeclared major]

“The Zoo taught me four things: Conservation, Education, Recreation and Research. That is what we were taught as a JK and it is true today; that’s what zoos are for.” [Female, 36-40, animal keeper at the National Zoo]

“(I gained appreciation for wildlife conservation) the same way that zoo visitors experience the animals and gain an appreciation for them, but as a volunteer you get a closer and more long-term appreciation and you start to identify yourself as someone who cares about wildlife conservation. Being in that environment every day has an effect on you.” [Female, 20-25, education specialist at the Maryland Science Center]

“I became more familiar with animals that were endangered and I realized how much the Zoo was involved in animal conservation.” [Female, 31-35, computer programmer]

### Alumni’s desire to protect nature/wildlife

- Most alumni (79%) “highly agreed” and the remainder (21%) “somewhat agreed” that protecting nature/wildlife was a priority for them. Indeed, as alumni who were interviewed confirmed, a significant number of past participants indicated that their current or desired profession was in a field that had something to do with the care and support of wildlife or wild places because they cared so much about these things. Furthermore, at least one participant explained that while she did not choose to go into the animal care field, supporting the MZB was important to her and so has continued to volunteer at the Zoo for the last 20 years.

Most alumni who were interviewed added that as a result of doing the Program, they had become more environmentally conscious and, in a few cases, changed their lifestyle, too:

“In the classroom they told us what was going on in the world and we learned how to make less toxic detergents and how should stop using Lysol and stuff like that.” [Female, under 20, high school student]

“You don’t find many programs that change your life the way the JZC Program changed mine. I learned that my actions affect the environment and gave me the curiosity to learn how and why my actions affect the environment.” [Female, 20-25, college student majoring in Horticulture and part-time animal keeper at the MZB and at the National Aquarium]

“I do what I can as one person to recycle and use less water and make a difference. I also try to get my friends to follow the same route.” [Female, 20-25, part-time instructor at the Maryland Therapeutic Riding Center]

### Alumni’s appreciation for animal care/management

- When asked about the extent to which their participation in the JZC Program helped them gain an appreciation for animal care/management, 98% of alumni said “very much” and 2%

said “somewhat.” Indeed, in response to the open-ended question about what alumni got out of the Program, many stated that they learned what it takes to care for animals.

Alumni who were interviewed echoed many of the web survey responses, saying that observing the animal keepers at their jobs (see first two quotes below), helping with the animals (see third and fourth quotes below), and the keeper talks (see last quote below) helped them appreciate all that is involved in the daily care and management of animals.

“Just seeing how much went into it, the detailed planning and research about the animals’ diets—the keepers don’t just throw food in there for them.” [Male, 20-25, animal keeper at Reston Zoo, VA]

“Once you see how much goes on behind the scenes and how (the zookeepers) keep their minds and bodies together doing this every day is amazing.” [Female, 20-25, college student majoring in Horticulture and part-time animal keeper at the MZB and at the National Aquarium]

“That’s really what the Zoo focuses on. This is the animals’ home and we try to make sure they are comfortable and eating the right things and we have games for them—activities that help them feel they are in the wild, like hooking meat onto a running track so that the cheetah has to chase it.” [Female, under 20, high school student]

“The Program taught me how to work around animals and that kind of environment and when you have to take more care and when you have to pay attention...so it taught me to be smart—that’s the best way to put it—because when you work around exotic animals, there is a level of care that is required and you have to learn how to treat each one.” [Male, 36-40, animal keeper at the National Zoo]

“We didn’t do as much hands-on stuff, but the keepers came and talked to us about what they did, so I learned a lot about their job.” [Male, under 20, college student majoring in Biology]

### Alumni’s appreciation for teachers/teaching

- When asked about the extent to which their participation in the JZC Program helped them gain an appreciation for teachers/teaching, 42% of alumni said “very much,” 40% said “somewhat,” 11% said “a little” and 7% said “not at all.”

Some of the alumni who were interviewed said their appreciation for teachers increased as a result of observing how the JZC instructors prepared for and imparted their knowledge (see first two quotes below); some said their appreciation for teachers increased because the JZC instructors were “good” (see third and fourth quotes below); some alumni said their

appreciation for teaching increased after they had their own experiences interacting with Zoo guests (see last quote below).

“Just talking to the other counselors and watching them set up programs and talking to groups, it was just amazing watching how much work they put into doing that.” [Female, 20-25, college student majoring in Horticulture and part-time animal keeper at the MZB and at the National Aquarium]

“We had a Baltimore City schoolteacher supervising the Zoo Lab on weekends and she was great. She worked in the schools and then came to the Zoo to help. Her ethics and the way she managed the class, demanding but flexible, her directions and how much leeway she gave, how much feedback she gave, it was amazing and it’s the way I do things now. It rubbed off on me being around her.” [Female, 36-40, animal keeper at the National Zoo]

“I had really great instructors, they passed on their passion and showed me how a good teacher can inspire others.” [Male, 20-25, animal keeper at Reston Zoo, VA]

“I think the teachers at the Program were fine, they did a good job. My teachers at school, some of them are not so good.” [Female, under 20, high school student]

“I had to interact with children, so that was a new experience trying to get people excited about learning about animals.” [Female, 20-25, college student majoring in Biology/Psychology and part-time animal keeper at the MZB]

Interestingly, some alumni felt there was not a strong teaching component to the Program, either because they did not perceive JZC staff or themselves as teachers, per se:

“In general, I appreciate teachers, my mom was in education. When I worked in the Animal Embassy, I liked the keepers there. But it was more of a mentoring, I didn’t see it as teaching.” [Female, under 20, high school student]

“I didn’t think of myself as a teacher really; I wasn’t the only one up there talking when we did the shows and presentations about the animals...” [Female, 31-35, computer programmer]

- Only a few alumni in the sample indicated an interest in teaching as a profession. One of these is now an education specialist at the Maryland Science Center; she explained that her decision to teach came, in part, from participating in the JZC Program:

“The JZC program was part of a series of volunteer experiences that kind of helped me to realize what it was that I enjoyed. First I went to a small rainforest museum in California, then I did the Program at the Zoo, the next summer I volunteered at Irvine. I liked animals so that is why I did those jobs, and it was over the course of doing them that I figured it out—it was working with people

and the education side of things.” [Female, 20-25, education specialist at the Maryland Science Center]

She went on to explain that she chose to teach in an informal education environment because “the emphasis is on fun—people are there to have fun and do something because it’s fun, as opposed to the formal education environment where you just have to do it.” She added that the JZC Program helped her develop her teaching skills quite a bit:

“The Zoo internship gave me more opportunity to practice because they had the carts and we had to come up with learning goals. The first internship at the rainforest museum, I just took the animals out and showed them to people, not much else. The carts had learning goals; mostly I came up with them but the MZB did want people to take something (content) away from them. I kind of figured out how to work with the carts by watching other educators and then trying things to see what worked for me.” [Female, 20-25, education specialist at the Maryland Science Center]

#### **IV. The impact of the Program in developing participants’ self-confidence, as well as their skills in leadership, teamwork, problem-solving, and making/maintaining friendships.**

##### Alumni’s feelings of self-confidence

- When alumni were asked about the extent to which the JZC Program helped them gain self-confidence, 52% said “very much,” 39% said “somewhat,” 8% said “a little” and 2% said “not at all.”<sup>13</sup>

Many alumni who were interviewed explained that they gained confidence by having to interact with JZC staff, their colleagues and especially, the public; that is, practicing their communication and public-speaking skills gave them or increased their feelings of competence (see first two quotes below); some said they gained confidence when they realized all that they had accomplished and learned during the Program (see last two quotes below).

“At the Zoo I was doing shows and presentations about the animals and talking with the public all the time. You’re wearing a uniform so people come up and ask you things all the time. I also did the artifacts table so people also asked us about that. That experience helped me become more comfortable with people.”  
[Female, 31-35, computer programmer]

“Joining the JZC was definitely out of my comfort zone: you have to talk to all these adults and people you don’t know and never met before, you have to...put yourself out there...” [Female, 20-25, part-time instructor at the Maryland Therapeutic Riding Center]

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<sup>13</sup> Percentages total more than 100% due to rounding.



“In general I’m a fairly confident person and the Zoo gave me some new experiences...I got communication skills...and I feel more comfortable walking up to people and talking to them now.” [Female, under 20, high school student]

“What I have achieved to this point and working with all kinds of animals—from a small animal like a hedgehog to a large animal like a giraffe—all goes back to being a JK. It was all the little things I learned (that summer) that helped me to gain confidence to do all that.” [Male, 36-40, animal keeper at the National Zoo]

A couple of alumni indicated that the experience of having and carrying out responsibilities gave them added confidence in their abilities; a couple of others said that getting positive feedback for a job well done helped them feel more capable.

### Alumni’s leadership skills

- When alumni were asked about the extent to which the JZC Program helped them develop their leadership skills, 53% said “very much,” 29% said “somewhat,” 13% said “a little” and 5% said “not at all.”

In fact, some alumni who were interviewed said they “don’t remember doing leadership type things that first summer,” or as another past participant put it: “I just remember doing what I was told to do.” However, those alumni also noted that when they returned to the MZB to volunteer again, they had the opportunity to “train some of the new kids” and “give oversight to some of the other volunteers.” On the other hand, some alumni said that interacting with the public and being the face of the MZB, as it were, helped them practice taking on a leadership role (see first quote below); some alumni indicated that the Program helped reinforce leadership skills they already had (see second quote below).

“At first I was working with other people and then over time I became more of a leader when I talked to the public and trying to represent the Zoo.” [Female, 20-25, college student majoring in Biology/Psychology and part-time animal keeper at the MZB]

“I think I’m a rather competent leader and I found myself taking on a lot of leadership roles. I remember that at the beginning (of the Program) they had us do a group activity where we had to make a bridge, and I found myself leading the others.” [Female, under 20, college student with undeclared major]

## Alumni's teamwork skills

- When alumni were asked about the extent to which the JZC Program helped them understand the importance of teamwork, 61% said “very much,” 29% said “somewhat,” 7% said “a little” and 3% said “not at all.”

Almost all alumni who were interviewed said they came away from their experience with a much greater appreciation for teamwork, in a few cases mentioning how they learned that it takes good communication and compromise to make teamwork effective. Several noted that service projects were accomplished more efficiently when everyone pitched in, while others said that working at the Zoo helped them realize that taking care of animals requires the efforts of many people working towards a common goal.

“We worked a lot in teams....We weeded a lot and another time we had to paint the rhino barn. We had to work together and be communicative and listen to each other. We also had an activity where we had to design a new zoo and my group picked an exhibit and we each had to give ideas about how to do that. We had to compromise because you want the rhino to have a natural environment, but you want to make it so that the visitors can see him and you also have to think about the safety of the visitors...” [Female, under 20, high school student]

“We always were working together. For example, we had to clean up the polar bear exhibit and if it had just been one person it would have taken so long, but we all worked together and so it took only one hour.” [Female, under 20, high school student]

“With the animal care aspect of the program especially, we had to work together and coordinate chopping up food and stuff.” [Female, 20-25, education specialist at the Maryland Science Center]

“We had a lot of group activities (in JZC) though I do prefer to work by myself. But now working with the Panamanian Golden Frogs and knowing that there are people all over the country working with them to help them survive, that we are working towards the same goal, (I realize that) one person can't do it alone.” [Female, 20-25, college student majoring in Horticulture; part-time animal keeper at the MZB and at the National Aquarium]

A few alumni said that in JZC they “didn't work on teams much,” or if they did, the perception was that “teambuilding activities weren't important to the Zoo and what they wanted us to learn.”

## Alumni's problem-solving skills

- When alumni were asked about the extent to which the JZC Program helped them develop their problem-solving skills, 42% said “very much,” 34% said “somewhat,” 16% said “a little” and 8% said “not at all.”

In fact, many alumni who were interviewed indicated that the Program taught them how to think, come up with a strategy, or make a decision about the best way to go about a given task. Following are quotes that provide examples of these sentiments:

“The Zoo encouraged me to think. You can’t run to the counselors each time you have a problem, you have to figure things out by yourself, and that helps me with the work I do with the Panamanian Golden Frogs now.” [Female, 20-25, college student majoring in Horticulture; part-time animal keeper at the MZB and at the National Aquarium]

“There were lots of different types of people there in the Program and sometimes it took some doing to get people to work together, but more than that, we had to develop strategies to get the tasks done, so that was the problem-solving aspect.” [Male, under 20, college student majoring in Biology]

“That’s more about the cart activities—they used to call them EdZOOcation stations—and having to see what happens when you try a certain approach and then assessing how that went and refining the approach and trying again.” [Female, 20-25, education specialist at the Maryland Science Center]

“When I encountered a sick animal or something like that, I got the opportunity to discuss the solution and make the decision with the keeper. Maybe I didn’t always make the decision and the outcome—whether I made the decision or not, and whether the outcome was good or bad—is something that I took away from my experience as a JK.” [Male, 36-40, animal keeper at the National Zoo]

However, some alumni indicated that problem-solving was not a focus of the Program or that they did not perceive any tasks they had as “problems to solve,” for example:

“We didn’t do too much of that. Our group activities were more about building confidence and teamwork skills.” [Female, 20-25, college student majoring in Zoology]

“There wasn’t much problem-solving I felt like, only if we had to figure out how to get through a fence to pull some weeds somewhere.” [Male, under 20, college student majoring in Kinesiology]

“We didn’t have a lot of difficult problems to figure out so I don’t think I was vexing myself with things I couldn’t do. I came home exhausted a lot but it wasn’t a problem or anything to overcome. I think of problem-solving as doing

something mathematical or complex. Mostly we got a task and we did it. In general, they told us what we needed to do and then we had to figure it out, you just had to take the initiative and do it and if I had a question I'd ask. But I didn't think of (what we had to do) as a problem-solving thing." [Female, under 20, high school student]

### Alumni's abilities to make and maintain friendships

- When alumni were asked about the extent to which the JZC Program helped them make and maintain new friendships, 47% said "very much," 27% said "somewhat," 21% said "a little" and 5% said "not at all."

Most of the alumni who were interviewed indicated that they made friends with people in the Program, with most of those adding that those friendships continued after the Program was over (see first quote below); only a few mentioned that they "didn't stay in touch with anyone afterwards" (see second quote below).

"The JKs were my friends and I couldn't wait to get there every day so we could laugh all day long. And we all kind of followed each other. Several of us went on to work as paid zookeepers at the MZB, then we left and went to Disney's Animal Kingdom, and now we're here, at the National Zoo." [Female, 36-40, animal keeper at the National Zoo]

"I definitely made friends with the kids and also the people in charge of the Program, but I didn't maintain those friendships." [Male, under 20, college student majoring in Kinesiology]

A few alumni indicated that they did not really make friends in the Program (e.g., "I felt like I was there to work with the animals more than to be social. Everyone there was friendly, but it's not like a summer camp where you go to meet new people").

### Usefulness of the Program overall

- The majority of alumni (97%) "highly agreed" that they would recommend the JZC Program as a way to gain useful life skills. Certainly, at the end of the interview, alumni reiterated that they came away from their experience with new or better teamwork, communication/public-speaking, problem-solving and leadership skills. In addition, alumni indicated these skills had been/would be useful in their future career, whether or not they chose to work in a zoo or with animals. Following are quotes that are representative of these sentiments:

"(The Program) helps a lot with confidence and learning how to speak in public."  
[Female, 20-25, college student majoring in Zoology]

“Being in a leadership position and being able to talk to visitors about the animals, that was a good experience....I learned responsibility. Also, there’s going to be hard work sometimes that I may not want to do, but it will pay off in the end. (For example) once we had to weed the area near the giraffes, but at the end of the day, we got to go and feed the giraffes, and they ate right out of our hands! It was really cool.” [Male, under 20, college student majoring in Kinesiology]

“(The Program is) good for meeting other people and getting public speaking and problem-solving skills if you’re not interested in a Zoo career. And if you are, then it gives you the opportunity to network and make connections with people who can help you.” [Female, 20-25, college student majoring in Biology/Psychology and part-time animal keeper at the MZB]

“The JZC experience helped me become more comfortable with people; the speaking skills and interaction skills are the most relevant to my every day life now.” [Female, 31-35, computer programmer]

A few alumni agreed to a slightly lesser extent that they would recommend the JZC Program as a way to gain useful life skills; for them, the Program was most useful for gaining knowledge about animals and animal care/management, while the development of life skills was secondary (e.g., “I’d recommend it as a way to further your interest in animal husbandry and working with the Zoo, but not as much for the life skills”)

- That the JZC Program provides alumni with both useful life skills and a better understanding of animal care/management is also supported by the finding in the web survey, in which virtually all alumni (98%) indicated that they continue to draw upon their summer experience to some extent. Indeed, as alumni who were interviewed reiterated:

“Doing presentations for the public—we did exhibit interpretation in front on an animal exhibit for the visitors—helps me now doing the ‘keeper chats.’ And being able to work near the keepers doing weeding and moving rocks, which are some of the things that keepers do, helped me prepare for doing that now.” [Female, 20-25, college student majoring in Biology/Psychology and part-time animal keeper at the MZB]

“At the Science Center, I spend a lot of time talking to people and at the Zoo I had the opportunity to (practice doing) that. I also do some animal care at the Science Center so the Zoo prepared me for that and I’m not as grossed out by the icky stuff.” [Female, 20-25, education specialist at the Maryland Science Center]

“The Program also helped me to expand my realm of knowledge, which was helpful when I took AP Environmental Science in the Fall.” [Female, under 20, college student with undeclared major]

## CONCLUSIONS

The evidence gathered in this summative evaluation strongly suggests that the Junior Zoo Crew Program at the Maryland Zoo in Baltimore is a highly successful summer service learning opportunity for its participants.<sup>14</sup> In the short term, alumni come away from their experience with an enhanced understanding of animal care and management, as well as a greater appreciation for the environment and wildlife conservation. In addition, alumni feel that by having to interact with the public, as well as JZC staff and fellow volunteers, they gain new communication and leadership skills, which in turn increase their feelings of self-confidence. Alumni also come away from the Program with very positive memories of a thoroughly enjoyable experience. In fact, their overall satisfaction with the Program is such that the majority of alumni return to the MZB to volunteer again. Over the long term, many alumni go on to major in a subject within the natural sciences and/or work with or around animals in some capacity. These alumni find that what they learned about animals that summer continues to be useful in their current academic and professional lives; almost all alumni agree that the life skills they gained continue to serve them, as well.

To be sure, the Program attracts participants with a strong love for animals. Furthermore, as the web survey indicated, some are so keen in their desire to work with or around animals that they proactively seek information from the MZB or elsewhere about opportunities to volunteer. Regardless of how they find out about the Program however, participants on the whole appear to be very motivated: the web survey indicated that a good number of alumni went into the Program expecting to get experience that would help them later in life and/or help them explore or confirm career choices. As it turns out, the Program effectively helps participants to do so, with alumni repeatedly confirming that their experience helped them define their personal and professional goals.

In terms of their expectations, it appears that the Program generally fulfills, if not exceeds, what participants hope to get out of their experience. For example, some alumni applied to JZC with the objective of fulfilling a community service. Most then indicated that they came away from their experience with a greater appreciation for the value of volunteering—in part because “it felt good to give back,” in part because they could see how their contributions advanced the mission of the MZB. The majority of alumni also indicated that they were, to varying extent, currently active in their own communities; alumni said they give their time in a variety of ways, including mainly working with or caring for animals. In another example, some alumni applied to JZC in the hopes of meeting new people. In fact, many met and made friends with a variety of people who, in many cases remained friends well after the Program was over. The findings of this evaluation also revealed that past participants not only made connections with their colleagues, but also with MZB staff. Moreover, alumni’s interactions with staff were quite valued by alumni, who added that those interactions contributed to their feelings of satisfaction with the Program. Specifically, alumni thought staff were friendly, welcoming and helpful. In addition,

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<sup>14</sup> It is important to keep in mind that the findings discussed in this report are based on the responses of a relatively small fraction of the JZC alumni population. Furthermore, there is a possible bias in the sample towards participants who responded to the web survey request out of positive feelings about their experience. Thus, as the NYHS Career Ladder Impact Evaluation Report also concluded, the findings of this evaluation should be interpreted as the “maximum impact” JZC has on its participants. [Storksdieck, M. et. al. (2002).]

alumni said staff were appreciative of their contributions, as well as supportive of their efforts and provided them with feedback and the opportunity to do things on their own. Several alumni also mentioned staff who mentored them and offered them guidance about career decisions.

In short, the following main outcomes are evident:

- *JZC provides participants with an enjoyable experience that encourages the majority of alumni to continue volunteering at the Zoo; a few also come back to work at the Zoo.*
- *JZC fosters positive interactions between participants and Zoo staff, which greatly contribute towards participants' feelings of satisfaction with the Program.*
- *JZC helps participants understand the value of community service.*
- *JZC provides participants with knowledge about animals and the work of zoos, which increases their appreciation for animal care/management and wildlife conservation.*
- *JZC helps participants gain an appreciation for the environment.*
- *JZC encourages participants to protect nature/wildlife.*
- *JZC helps participants to explore/confirm career choices.*
- *JZC provides participants with valuable work experience and "life" skills that they continue to draw on after the Program.*
- *JZC helps participants gain an appreciation for teachers/teaching.*
- *JZC builds participants' self-confidence and self-esteem.*

Thus, the JZC Program appears to meet, indeed surpass, its stated goals. As one past participant summarized:

“Not only did JZC help me figure out where I wanted to go in life, but it also exposed me to a lot of great careers within the animal care field. I was able to get valuable life and work experience here—much more than I've been exposed to at other volunteer positions.” [Female, 20-25, college student majoring in Zoology/Animal Behavior]

In terms of recommendations, there are not many. Over the short-term, alumni's suggestions discussed in this report may be useful. Over the long-term, the MZB is encouraged to find ways to attract a more diverse participant group. While the demographic profile of the alumni in this study indicated that JZC effectively attracts girls, the majority of participants are Caucasian. It may be that a study is needed to investigate the extent to which the Zoo is “on the radar” of target youth. In addition, the MZB could gather information (such as from other similar programs) regarding what factors might encourage greater participation of target youth in the JZC Program.

Finally, the MZB should continue to collect feedback from past participants after they leave the JZC Program. In this manner, the Zoo can add to its database of information about academic/career paths alumni take and the ways they continue to draw upon what they learned that summer—and so confirm the very positive outcomes identified in this evaluation.