



Ecology on-exhibit: careers in zoos and aquariums



Randi D Rotjan

Department of Biology, Boston University,
Boston, MA
(rrotjan@bu.edu)



Katherine A Leighty

Disney's Animal Kingdom®, Lake Buena Vista,
FL

Have you ever thought seriously about sharing an office with a penguin? As a coral biologist, I never believed I'd get the opportunity to share space with such an incredibly charismatic (and highly endangered) species. But, to avoid spread of disease among the resident penguins at the New England Aquarium, sick penguins are isolated and put all over the institution – anywhere there is room, really – until they recover. I was a new hire and hadn't set up the lab yet, and my space had a water hose and a floor drain so...instant penguin habitat. We put some tape down on the floor to denote where the penguin poop could not reach (after all, poop-free space is important in any workplace), and continued on with our science. Despite the pungent experience, looking back, I'm pleased to note that I still have a soft spot for African penguins. – RR

Knock knock knock! Ever wondered what it's like to work in a fishbowl? Well, I can tell you, it takes a high level of tolerance to a lot of knocking on the glass! My first workspace in the zoo environment was in an “on-show” lab at Disney's Animal Kingdom®. I would spend hours each day viewing and scoring videos of elephant behavior at my desk right up against the visitor viewing glass. *Knock knock knock:* turn, smile, wave, return to work, and repeat this procedure hundreds of times per day. While it may not have always been the most productive work environment, it was an amazing opportunity to highlight all of the great scientific work that takes place in a zoological setting. From behavioral observation, to hormone monitoring, to population genetics – all were front and center in the Science Center “fishbowl”, and it was there that I really learned how to share stories of scientific endeavors with the general public. – KL

If you are interested in pursuing a research-related job or project at a zoo or aquarium, this can be done in several ways: directly as a staff scientist or collaborating scientist, or indirectly via an animal care, husbandry, veterinary, or aquarist position. Zoos and aquariums are managed-care facilities for animals, and on-site veterinary access is a major asset to these types of institutions, as it enables resources, facilities, oversight, and access to animal care that is *par excellence*. Animal care staff often publish clinical findings that have ecological relevance, and they frequently have long-term records on individual animals, often including breeding or lineage details, diet and nutritional information, and lifetime health records. An ecological background will be useful for assessing and interpreting these types of data. Zoos and aquariums can also be

excellent locations for smaller, short-term studies, and can offer a great training ground for students to participate in research design and approach new challenges as part of their thesis work in terrestrial or aquatic systems (Figure 1). Many zoos and aquariums have relationships with local universities or research institutes, and so can offer opportunities for engagement and interaction between students, faculty, and staff. Zoos and aquariums often list research as one of their missions (Loh *et al.* 2018), so collaborations can offer beneficial opportunities for all involved. Ecological familiarity can help to facilitate those collaborations, and fulfill the institutional missions.

For ecologists interested in pursuing a career as a scientist at a zoo or aquarium, our advice is to understand the workplace culture, as it is very different from traditional academia. In particular, the jobs at these institutions are highly diverse. Although a large number of zoos and aquariums do not have on-staff scientists (although we hope that changes!), there are many ecology-related jobs in education, outreach, husbandry, exhibit design, and even in marketing and development. Understanding something about the animals and their habitats is very useful across all these types of positions in zoos and aquariums. To that end, experience with animal care and zoo/aquarium culture really helps. We definitely recommend that you volunteer, intern, or work part-time at a zoo or aquarium to get some hands-on experience. Staff positions at zoos and aquariums are posted on the Association of Zoos and Aquariums (AZA) website (www.aza.org/jobs), and range from biologists to managers to visitor services. In addition to paid opportunities, many zoos and aquariums need volunteer assistance on a part-time basis, particularly during their busy times on weekends or during holidays. This can be a win-win situation if you are currently employed elsewhere or are still in school. Seasonal opportunities are also common and are a great way to get a foot in the door and allow people to see that you are dependable and hard-working, while adding valuable experience and contacts to your resume.

One perk of working in zoos and aquariums is the built-in access to education and outreach. Regardless of your role in the institution, you will likely have the opportunity for public speaking or visitor outreach, so it's really helpful to get comfortable with translating science for the public. Science and research at zoos and aquariums sometimes occur within the exhibits (as above, *knock knock knock!*), and visitors typically engage with exhibits, experiments, and animals via signage,

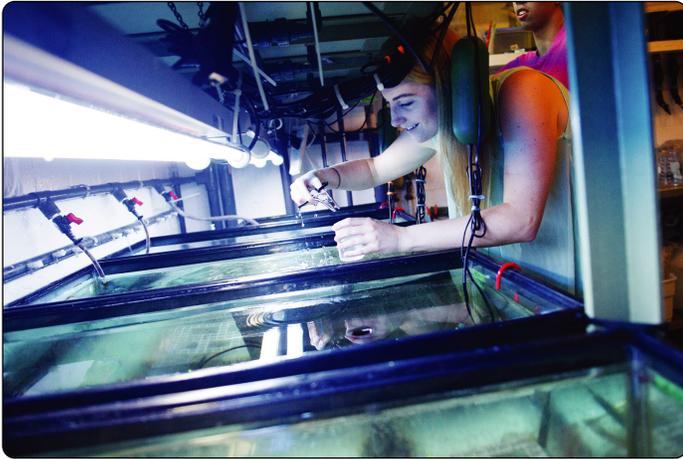


Figure 1. A graduate student researches a resilient species of coral at the New England Aquarium.

on-floor educators and docents, direct interaction with the researcher, or through institutional publications such as member magazines or blogs. If you are specifically looking for an education or outreach type of job, it is helpful to build a portfolio of outreach and education efforts.

Most staff have funded, hard-money positions, though many staff scientist jobs are extramurally funded through grants and contracts, including salary and project funds. Regardless of which department you work for, you will likely have to balance budgets and resources, which can be limited in animal and conservation fields. Experience with grant-writing and with managing budgets can be a very useful attribute. If you are interested in management jobs, then management experience is useful. We recommend that you gain experience working on and leading a team to demonstrate that you can foster collegiality and a collaborative environment under your leadership. You can start to do this while in graduate school by leading your undergraduate lab mates. This is a nice example of leadership experience that you can draw on during professional interviews. Being able to foster strong partnerships is also a major asset in these types of institutions, as zoos and aquariums often liaise and network with a variety of other institutions, companies, government agencies, and non-governmental organizations to achieve their mission and priorities. We suggest always looking for people and organizations doing work similar to your own and reaching out to them to open lines of communication. This is a great first step in developing collaborative relationships. Further, if you have any of the following skill-sets – grant-writing, budgeting, project

or personnel management, or partnership experience – we definitely suggest highlighting these.

One benefit of the variety of departments it takes to operate a zoo or aquarium is the opportunity to involve the whole institution in your project, from the educators to the marketing and design team to the docents and engagement staff – it is very exciting when the entire institution is aligned to showcase the important science taking place. To that end, if you are still in school, we recommend taking a wide variety of courses across disciplines (eg science, communications, business) to help you get a broader understanding of the roles of different departments, but coursework is secondary to experience. There is really no substitute for hands-on experience.

In the end, our best advice is to gain familiarity with zoo and aquarium culture, become familiar with their operations, and bring a lot of creativity and flexibility to the table. The AZA website hosts information on related conferences and career development opportunities such as AZA courses, certificate programs, and executive leadership development programs.

■ Reference

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The findings and conclusions in this article are those of the authors and do not necessarily represent the views of their institutions.

■ Author biographies

Randi Rotjan is a Research Assistant Professor of Biology at Boston University. She has a PhD from Tufts University, and spent 8 years at the New England Aquarium as an Associate Research Scientist before re-joining academia. Dr Rotjan focuses on marine ecology, conservation biology, and ocean global change, and mainly works on tropical coral reef, temperate urban, and deep-sea marine ecosystems.

Katherine Leighty is the Animal Care Director for Disney's Animal Kingdom®. She has a PhD in behavioral neuroscience from the University of Georgia. Dr Leighty has published a number of papers and presented at scientific meetings on primate cognition, behavior and welfare, in addition to related work on other animals including elephants, tigers, and turtles.