

## Alumnus Profile: Dr. Michael Stoskopf, B.S. '73; D.V.M., '75

by Claire Tucker  
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**Hometown:** Apex, N.C.

**Education:** B.S., Veterinary Science, D.V.M., Colorado State University; Ph.D., Environmental and Biochemical Toxicology, Johns Hopkins University

**Title:** Director of the Environmental Medicine Consortium; Professor of Wildlife and Aquatic Health, North Carolina State University

*Dr. Michael Stoskopf is as close to a father figure for zoological medicine as one can be. His storied career includes serving as the first Chief of Medicine for the National Aquarium in Baltimore, publishing over 200 peer-reviewed papers, helping to establish the first residency program for veterinarians working towards board certification in Zoological Medicine, and serving as a faculty member at academic institutions for almost forty years. His work is truly interdisciplinary, reaching into subjects as far-ranging as endangered species habitat health risk assessment to advanced metabolomic studies of environmental effects on physiology, even including dinosaur metabolism.*



Dr. Michael Stoskopf (B.S., '73; D.V.M., '75) is a pioneer in zoological medicine who encourages students to create their own paths while seeking solutions to wildlife and planetary health.

*I reached Dr. Stoskopf at his home in Apex, N.C., near Raleigh, as he was working on a paper on coral metabolism. Our conversation ranged widely, hitting on his nascent interests in veterinary medicine, his experience at CSU, his thoughts on the field of zoological medicine, and his advice for future veterinarians.*

### What inspired your interest in veterinary medicine?

The launch of Sputnik in 1957 stimulated a great push in the sciences in the United States, including an early focus on career choices and radical changes in elementary school education. My preferred occupation was jungle explorer, but it was not listed in the vast career counseling literature we were directed to study. Veterinary medicine seemed to have some very positive features, but to be totally honest it was just a handy answer to the question "What do you want to be?" I used it for many years as a boy, because at that time it avoided any follow-up questions. Later, in my high school years, I learned more about the profession and my interests solidified beyond a pat answer.

While still in high school, I had the opportunity to participate in a program at Marineland of the Pacific where I learned to capture, care for, and train marine mammals. I even presented the public shows with white-sided dolphins and pilot whales. We also learned to work with sea lions and help the senior trainers with the killer whales, as well as learning the basics of fish and invertebrate exhibit management. Unfortunately, this type of opportunity is no longer available to young people today, but conversations with an important mentor there let me see that there was a need for wildlife veterinarians. I began to focus on what was then a nearly non-existent aspect of veterinary medicine. My senior year of high school was spent as an exchange student in Denmark where I had the good fortune to live with the family of a very well-respected dairy and mixed animal practitioner who allowed me to shadow him whenever I could find the time away from my studies. That year helped me understand the value of veterinary medicine in a much broader sense and solidified my career decision. When I applied to veterinary school at CSU, I was probably the first person to put that I wanted to be a "whale veterinarian" on my application!

### What were your first impressions of Colorado State University?

Culture shock! I arrived at CSU directly from Denmark. I walked into Braiden Hall wearing wooden clogs, a beret similar to the one my "Danish Father" wore in practice, and the 1960s equivalent of a man-purse. I chose Braiden for its proximity to the library, unaware that it was then the "Cowboy Dorm." The woman behind the desk signing me into the dorm asked, "Do you have any guns to check?" I must have sounded confused and as soon as she looked up, she simply said, "Nevermind" and assigned me to my room.

When I entered my room for the first time, my roommate was already there and his first words were "Did they try to make you check your guns at the desk?"

"Yes," I said, but before I could comment on how odd that was, my roommate replied, "You didn't give them to them, did you?" Study abroad had given me a slight touch of wisdom in new settings and so I answered "No," whereupon my roommate exclaimed "Good! I didn't either." He then proceeded to show me his Colt 45 Fanner 50 complete with quick draw holster. Then he asked if I had any suits and my negative answer pleased him further because he wanted the suit closet to hang his horse saddle.

During my two years in Braiden Hall, my academic education was supplemented by learning a great deal about the storied cowboy culture of Colorado. I met many people and made many friends who came from rural backgrounds and these experiences had a major impact on my perception of the world.

### Who were your mentors at CSU?

One of my earliest mentors was George Lees, then a veterinary student who lived in my dorm. George gave me invaluable advice on how to get into veterinary school, encouraging me to take the most advanced courses to meet the admissions requirements. For example, instead of taking organic chemistry for veterinary students, I took organic chemistry for chemistry majors. That grounding in basic sciences was very helpful. Other mentors included the former dean of CVMB, Dr. William Tietz who had a Ph.D. in Zoology. He went on to become the President of Montana State University. As a first year student, I boldly scheduled a lunch meeting with Dean Tietz and explained my interest in being a wildlife veterinarian. I was a bit disappointed when he told me that, as laudable

as the goal was, I should focus during my four years of veterinary school on becoming the best veterinarian that I could possibly be and not waste time reading case reports on sick raccoons. As much as I didn't want to hear that, the kernel of the advice was excellent, and I did my best to follow it. I pass his advice of first striving to become an excellent, well-rounded veterinarian on to my students today. I had many other great faculty mentors, including the neuroanatomist Dr. Herman Meyer and Drs. Pat Chase and Bruce Heath in anesthesiology. They were particularly instrumental in my career development.

**Tell me about your experience in veterinary school. What were some memorable courses or rotations?**

I'm not sure I had a favorite class. I was always most excited about and engaged in the course directly in front of me. The most valuable thing I got at CSU was the solid practical underpinnings of clinical medicine. At the time, many vet schools boasted curricula rooted in book learning. CSU, by comparison, offered outstanding opportunities for "hands-on" experiential learning. I was lucky enough to land a recurring summer job in the anesthesiology department at the teaching hospital. This gave me an amazing amount of experience and confidence with anesthetic procedures. Many of my classmates enjoyed similar opportunities in other areas. During my fourth year at CSU, the value of our practical experiences became immediately obvious when the College started to accept interns from other schools for the first time. The new interns were at a significant disadvantage coming from schools where they had relatively little practical experience compared to my class. The faculty had to make some quick adjustments to their original plans to assign the more complex surgeries and cases to interns and the more routine ones to the seniors. By the end of the first semester some of the best of the interns were getting the experience they needed to hold their own, but straight out of school, their clinical grounding was much weaker than even the top juniors at CSU.

**Why did you decide to continue your education beyond your veterinary degree?**

If someone had told me when I graduated from veterinary school that I would go on to get a Ph.D. and become an academic, I would have laughed in their face. The years needed for my undergraduate and veterinary degree seemed more than sufficient at that time. I was the only student in my class without a job prior to graduation because of my interest in what was to become the discipline of zoological medicine. Job opportunities were sparse but I was fortunate and landed a job at a major zoo and aquarium shortly after graduation as a result of networking with the very few veterinarians who were practicing in zoos. No aquarium jobs existed then. Clinical medicine in zoos really required the ability to make decisions without information and to move forward in at least semi-ignorance to try and solve very challenging problems. In a way, it was then, and remains today, a melding of clinical practice and applied research. When I graduated from veterinary school, there were a total of 12 full-time veterinarians working in zoological institutions in the United States and Canada combined. In part because of the job market, I went on to earn a Ph.D. in Biochemical Toxicology from Johns Hopkins University, and served as a professor in their Department of Comparative Medicine for several years. Although this was a significant time investment, it allowed me to dive deeply into the physiology of many species.

**How did you land at North Carolina State University?**

Going to NCSU was my wife's idea and it was a good one. My wife and I are a mixed marriage. She is a Michigan State D.V.M. and I'm a Colorado State product. It is an excellent thing that we were not in the same D.V.M. program because we would have never come together. She is much smarter and very much a gunner where I often have difficult challenges even identifying the box much less staying inside it. She has a Ph.D. in Immunology and Infectious Diseases from Johns Hopkins, and during our years together at JHU we learned how vast the world of science is outside of veterinary medicine.

It was initially Suzanne's idea to seek appointments at a veterinary school, with the hope that we could take some of our cross-disciplinary knowledge and apply it to the field we loved. One of her former students introduced her to the newly formed college in North Carolina and when the opportunity arose, I applied for a position as the Department Head of Companion Animals and Special Species Medicine at NCSU. Amazingly, I was hired into the role. This shook up the veterinary world a bit, because I was basically an unknown coming from JHU. But I am grateful to the founding Dean of NCSU, Terry Curtin, for putting his faith in an unknown. It became rapidly clear that NCSU was a good place to try and develop a small army of environmentally aware veterinarians to make an impact on the challenges of conservation and zoological medicine, and now, of course, One Health.

Many students are unfortunately discouraged from seeking careers in zoological medicine on the mistaken idea that there are no job opportunities. In part, that is because many people don't understand the breadth of responsibilities and opportunities for the discipline. Zoological medicine is much broader than zoo medicine, and there are ways for veterinarians to have a positive impact on the health of our planet and wildlife that require many different skill sets and personalities. Not everyone is properly wired to become a zoo veterinarian or work as a wildlife field veterinarian, but the opportunities abound and there is need for people with many different skill sets and abilities if we are to achieve what is needed to secure the future of our biosphere. Even in classic clinical zoo medicine, there are jobs. Today, there are more than 1,200 full-time zoo veterinarians in the United States, compared to approximately 12 in 1975 when I graduated. The demand for clinicians boarded in zoological medicine significantly exceeds supply. Those positions are important, but they are only the tip of the iceberg of zoological medicine, which includes many great opportunities in research, policy development, wildlife management, and more.

**Your career has held so many different accomplishments across a myriad of disciplines. As you look (eventually) towards retirement, which are most important to you?**

Without a question, I hope that my legacy will be the young veterinarians whom I have prepared to take on really important roles in the future of zoological medicine and conservation medicine. I hope they will play a significant role in making the planet a better place to live. There is so much value in veterinarians not limiting their potential. I have had a series of opportunities in my life to become well-versed in complex techniques and complex concepts of medicine, applying them to solutions for wildlife health and planetary health. People are sometimes surprised that I, as a veterinarian, know a little something about nuclear magnetic resonance spectroscopy or the like. I want to ensure that veterinarians never limit their roles. They should instead seek opportunities to broaden their knowledge base, and then stand up to create momentous changes.

**What advice would you give to veterinary students today?**

You can, and you should, create your own path. Among my team of faculty in zoological medicine at NCSU, not a single one of us now holds a position which existed, even in concept, when we were in veterinary school. And it will be the same for new veterinarians. It's not how you go from point A to B to C. It is how you maximize the opportunities in front of you, while always keeping a bigger purpose in mind.

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