



Chicago Zoological Society

Inspiring Conservation Leadership

NICKS n NOTCHES

Annual Summary from the Chicago Zoological Society's
Sarasota Dolphin Research Program



January 2017

Education, Outreach, and Training

Graduate Student and Intern Updates: Where are they now?

From acoustics of Sarasota Bay adult male bottlenose dolphins to studies of the impacts of anthropogenic activities on marine species *Stephanie Watwood, NUWC Newport, Environmental Branch*

Starting in 1997, I spent six years with the SDRP as a doctoral student in the Massachusetts Institute of Technology / Woods Hole Oceanographic Institution joint program. I was fortunate to closely collaborate on my dissertation with another SDRP graduate student, Edward Owen. We both were interested in the social dynamics of pair-bonded adult male dolphins, and my dissertation focused on how males use whistles to communicate with one another and mediate the pair-bond. We spent 4 field seasons following just 12 adult males around Sarasota Bay. My time in Sarasota provided invaluable lessons on field biology, boat maintenance, electronics repair, and how to determine which types of clouds are preludes to lightning.

After a post-doc at Woods Hole Oceanographic Institution, I accepted a position with the US Navy in Newport, Rhode Island. In my current position, I conduct research on the impacts of anthropogenic activities on marine species, assist in the management of a portion of the Navy's Marine Species Monitoring Program, and work with a large team to develop models to estimate the impacts of sound exposure on marine species. In these efforts Sarasota has proven a useful training ground. Skills I developed towing a hydrophone array through Sarasota Bay are still in use as I listen for beaked whales on the Navy's much larger hydrophone ranges, while my time spent observing dolphins from a boat enabled me to become an effective marine species observer on Navy ships. Finally, learning to collaborate and work as part of a larger team serves me well in inter-government agency projects, such as a current one studying habitat use and migration of fish and sea turtles in Florida with the Bureau of Ocean Energy Management, NASA, and the Air Force.

Working for the Navy has been rewarding, as I am able to continue pursuing basic research, but also play a role in shaping policy. While this is a career path I never envisioned, keeping an open mind has led me in many directions and afforded many interesting opportunities.

Dolphins and fishermen, there and back *Mauricio Cantor, Universidade Federal de Santa Catarina, Brazil*

I joined the SDRP in 2008 as an intern for the research project led by Jessica Powell on the interactions between bottlenose dolphins and anglers. That period was a steep learning curve—for all of us, I guess. Dolphins were learning to relate anglers to a food source. Jess was learning its negative consequences for the Sarasota Bay dolphin community. I was learning the basics.

It was my last year as a Biology undergrad and my broken English and I were very keen to see the research on the famous Sarasota Bay dolphins in action. Three months in those inshore waters expanded my previous experiences among right and humpback whales in Brazil. Much more than the well-equipped



Stephanie Watwood scans for marine mammals from a Navy vessel.

facilities, what impressed me the most was the extreme care with the data being collected—and more importantly, the care with the dolphins' well-being. With daily surveys painstakingly collecting data followed by long hours at the lab entering and double-checking them all, the message was clear. The world-class research by the SDRP was founded on passion for the research and the animals.

Inspired by such high standards, I went on to get a M.Sc. degree in Ecology studying Guiana dolphins in the following year. The skills I honed at SDRP were crucial for me to collect the photo-identification data needed. With that box checked, I became increasingly interested in data analysis. My colleagues and I combined mark-recapture modelling with network thinking to unravel the population and social dynamics of Guiana dolphins. Our analyses revealed a population of residents and transients, in which demographic changes were shaping the structure of their society.

That increasing interest in translating cetaceans' social lives into numbers led me to earn a Ph.D. in Biology in Canada in 2016. My Ph.D. work involved understanding how societies and cultures evolve. To do that, I went on a somewhat unusual path: I confined myself in a small sailboat very far away from people and their diverse cultures. I joined a research group that carries out a long-term project on the sperm whales off the Galápagos Islands. There, whales from the same population form cultural clans that communicate with different patterns of clicks—whales with different dialects, if you will. My contribution was to develop a conceptual framework of how animal society and culture influence one another, using sperm whales as a model. We developed computer models that traced back the origin of sperm whale cultural clans, showing that biased cultural transmission of communication clicks are the main mechanism generating their different dialects. And with empirical data, we showed that once clans are formed, other behavioral variants (such as social norms) can emerge over time, differentiating sperm whales from different clans even more.

Education, Outreach, and Training

In my post-doctoral research, I will study another type of interaction between bottlenose dolphins and fishermen. In contrast to the harmful interactions between dolphins and anglers in Sarasota Bay, dolphins and artisanal fishermen from Laguna (Brazil) work together. Dolphins herd mullet schools towards fishermen who throw their cast nets once dolphins give the right behavioral cue. Both fishermen and dolphins catch more and larger fish when cooperating. But given the clear benefits of the interaction, it is still unknown why some dolphins do not partake in this cooperative foraging. Is it too hard or costly to learn? Is the competition for cooperative fishing sites too high? My goal is to shed light on the origin and evolution of interspecific cooperation, by confronting these empirical data with mathematical models inspired by game and network theories.

By heading back to Brazil to study dolphin-fisherman interactions, I am, in a sense, closing the cycle started with the SDRP. I bring in my baggage an important lesson learned at that time: work with passion and everything will follow.

2016 Intern Perspectives

Political scientists are welcome too

Rafaella Lobo, Duke University Marine Lab

Ever since I can remember, I was passionate about marine life. While other kids would draw pretty mountains, and “m-shaped” birds, I would draw a pretty ocean full of whales and dolphins. Growing up in the middle of Brazil though, 1,500 km away from the nearest coast, “being a whale researcher” soon became a childish dream. I ended up doing International Relations as an undergrad, and came to the US for my Masters in Environmental Politics. In my first year of graduate school, I took “Marine Conservation Biology” as an elective, and realized that nothing would make me happier than to work in marine conservation. Most importantly, I realized how challenging interdisciplinarity can be. I was faced with biologists who did not respect political science as a science, and political scientists who did not see the importance of biology to my work. I guess being somewhat of an academic-masochist, I decided that was my new battle in life.

I soon realized I needed some more hands-on experience on the research/practical side of things. I started volunteering at the Hubbs-SeaWorld Research Institute and, upon graduation, I was



Rafaella Lobo snaps a photo of MLVN off the bow of R/V Fregata during a Sarasota Bay population monitoring survey.



Mauricio Cantor investigating the social culture of sperm whales off the Galapagos Islands.

thrilled to learn I got accepted as a Sarasota Dolphin Research Program intern. Coming from the middle of Brazil, and being a political science student, I was both very eager and terrified. I did not know what to expect. All I can say is that not even in my wildest dreams did I think I would learn so much on an internship. Everyone at the SDRP is eager to share what they know with the interns, and they are very patient. Unlike most internships, I felt like I was benefiting much more from the position than they were from having an intern. In the program, I not only furthered my knowledge and experience on photo-ID techniques and data collection, I also learned to drive a boat, and take photos of the dolphins; I learned the techniques of purse seine fishing for dolphin prey studies; the collection (and importance) of red tide samples. I learned a lot about acoustics, and how cool GIS can be. I assisted staff members with database management, data entry, biopsy darting, and even got the chance to interact with other programs, such as assisting with dolphin necropsies. And this is just the very summarized version of everything I learned.

When the internship was over, I was not ready to leave. I was still trying to figure out what to do next, so I stayed for a couple more months, helping with an acoustics project. Later in the summer, SDRP staff members learned there was an open position at Duke Marine Lab, to do photo-ID. They recommended me, and it is with great excitement that I took on my dream job, at one of the best laboratories in the world. All those people I look up to so much are now my bosses/co-workers, and I would not be here if it was not for my time at the SDRP.

It all makes me think how life is funny sometimes. After the world spun around the sun a couple of times, here I am, back at watching whales and dolphins, and fulfilling my dreams. I would like to say 5-year-old me would be very proud.

THE SARASOTA DOLPHIN RESEARCH PROGRAM

Celebrating 46 years of dolphin research,
conservation, and education



Chicago Zoological Society

Inspiring Conservation Leadership