

Interview with a Marine Biologist

Dr. J. Wilson White, Assistant Professor--Marine Biology, UNC Wilmington

What kind of classes would you recommend that I start taking so I can know more about the marine life.

General biology courses are great in middle and high school, just to get the basics down (assuming your school does not have elective courses in marine science). In order to be a successful marine biologist, you need to be a good communicator, so improving your writing skills is a must. Also, all biology depends on a solid background in math, physics, and chemistry, so don't neglect those.

What kind of acceptance tests do you accept? That way I am able to prepare ahead of time.

We accept AP and IB. Here is a link to our Registrar's web site showing which exams and the score needed to receive credit: <http://www.uncw.edu/reg/transfercredit-creditByExam.htm>

What is a normal day like at work?

This varies a lot day-to-day. During the academic semester, I am in the classroom for 1.5 hours lecturing, and then most of the rest of my day is spent in my office, meeting with undergraduate and graduate students, doing administrative work for the university, and preparing course material. I also spend time reviewing articles sent to me by the editors of scientific journals, and responding to emails from students and collaborators. If I'm lucky I can set aside a few hours in a day to work on analyzing my own data, writing journal articles, or revising articles drafted by my students. When classes are not in session, I typically have larger chunks of time to devote to writing/revising manuscripts, analyzing data and writing computer code for my research. Sometimes during the summer I also travel to field sites for a few days or weeks at a time to collect data.

How many other people do you work with? (If any)

I lead a research lab that currently has 2 graduate and 5 undergraduate researchers in it (each student has their own independent research project that I supervise). I also have about a dozen colleagues at other universities around the US with whom I collaborate on various projects; we don't work together on a daily basis; we work independently and communicate via email and Skype.

Do you find your job fun or kind of boring?

I love my job because I do something different every day. Even when I have to complete a somewhat boring or difficult analysis, it is because I am trying to answer a scientific question to which we do not know the answer. There is a constant drive to solve hard problems (and be the first one to do so) which I find thrilling. Plus I get a lot of opportunities to travel to new places for conferences and meetings, and I do get to spend some time scuba diving in the field, which is a lot of fun.

How often are you working with animals?

My students work directly with animals more than I do. Several students have ongoing experiments with guppies, so they are caring for those animals on a daily basis. My fieldwork also involves counting and sometimes collecting fish from the field, but I have not had any projects that required fieldwork in a few years now.

How often are you in the lab?

I don't have much lab work at the moment (most of my analyses are based on computer simulations). Some of my graduate and undergraduate students work in the lab every day to dissect and analyze samples collected from the field.

Do you prefer to work with or without a partner while you are with animals?

If I am scuba diving, I always have a partner. Otherwise, just caring for and observing fish in the lab is usually a solo job.

What are the most historic marine animals?

I'm not sure how to answer this; do you mean the ones most relevant to human history? The Atlantic cod was responsible for much of the exploration and early economic success of the New England region (see Mark Kurlansky's excellent book *Cod*). Similarly, whaling in the 19th and early 20th century was economically important and probably drove a lot of technological innovations.

What percent of all fish live in the ocean?

A little less than 60% of fish species live in the ocean. In terms of numbers of individual fish or fish biomass, the percentage is probably a lot higher.

Are plankton, sea urchins, sea anemones considered animals?

Sea urchins are echinoderms (like sea stars) and sea anemones are cnidarians (like jellies), so yes they are certainly animals. "Plankton" is a broad term that can include bacteria, algae, single-celled algae, and protists, none of which are in the animal kingdom. However there are also many multi-cellular animals in the plankton, including fish larvae, crustaceans, and many groups of animals that are not found anywhere else.

How many years of college did it take to get your degree?

4 years for an undergraduate degree (B.S. biology) and then just under 6 years for my Ph.D.

What are some important things to know before becoming a marine biologist? What advice can you give to someone in this career field?

For most jobs in marine biology, you will spend a lot more time in front of a computer writing grants, analyzing data, and writing reports than you will spend in the field interacting with animals. There is a lot of work happening in the background that makes it possible to do the cool things we like to do.

What kind of jobs are there for marine biologists? I don't want to do just research.

There are positions in marine science education (e.g., at aquaria or conservation centers), conservation advocacy with nonprofit groups like The Nature Conservancy, scientific illustration, popular writing about science for online or print media.

I want to work with sharks/sea turtles/dolphins. How do I get that type of job when I graduate from college and what should my major be? Does it have to be in Marine Biology?

There is no magic path here. It is important to remember that 90% of students who come to college to study marine biology want to work with these species (we call them 'charismatic megafauna') but probably less than 10% of professional marine biologists work with one of these species – these species can be challenging to study, and there is only so much funding for those projects. So, most students discover different species or topics that they find interesting, and branch off in those directions. In order to work with one of those species, the most important thing is to get a position working as an intern or undergraduate assistant in a research lab that does that kind of work. That will get you the experience, recommendation letters, and networking you need to move up in the field. Just like any profession, success in marine biology is all about networking and who you know. So part of working in a lab is having a chance to meet the other professionals you will interact with.

Do you have any dolphins or any other marine mammals at UNCW?

No, we do not keep any live marine mammals at UNCW.

What does it take to be a marine biology professor?

All marine biology professors have a PhD in some aspect of biology or marine biology. Usually you are not competitive for faculty jobs when you first get your PhD, so you take a job as a postdoctoral researcher in a research lab supervised by a professor. This gives you time to broaden your research expertise and improve your CV (resume) so you can get hired. The main things that faculty hiring committees look for are publications and grants. Publications (peer-reviewed articles in scientific journals) are the main currency of the scientific world. A publication shows that you completed work, it was reviewed and approved by other experts in the field, and that a journal editor thought the topic was sufficiently interesting to merit publication. It is the main way we communicate results with each other. So, successful candidates for faculty jobs have to have multiple publications in high-quality journals. Hiring committees are also interested to see whether candidates have been successful in writing grants to fund their research. Both of these things (publications and grants) indicate whether the candidate will be able to run a successful research lab at the university. For faculty positions that also require a large amount of undergraduate teaching, hiring committees also look for past teaching experience, and usually ask candidates to explain their teaching philosophy.

How did you get into this career?

I liked biology in high school, so in college I began working as an undergraduate researcher in the lab of a professor who studied plant ecology. As a junior I traveled abroad to Australia, and realized that I liked diving on the Great Barrier Reef more than working with land plants, so I decided to switch to marine biology. I took some summer courses to fill in some gaps in my education, and then applied to marine biology graduate schools.

What do you find most rewarding?

It's fun to solve problems and make new discoveries. The big victories are having articles accepted at good journals and winning grants; because that means that other scientists evaluated your work and thought it was of very high quality.

What school did you attend?

I got my undergraduate degree from Davidson College in North Carolina, and my PhD from the University of California Santa Barbara. But of course there are many schools around the nation that give degrees in marine biology.



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