

Aquatic Biologist ◀

BRIEFLY: While most of us are familiar with animals that stalk the land, sea creatures are mysterious and, therefore, fascinate us. Aquatic biologists, like Janell, are so fascinated that they spend their lives studying what lives in water and their behaviors and habits and making sure their lines continue.

Janell Safeguards Marine Life

Swims With the Sharks

In 24 years, Janell has been a nanny, a retail store sales associate, and a florist. Now she has her dream job, marine-life biologist at The Florida Aquarium in Tampa, Fla.



► Janell makes sure her oxygen tank is full for the dive show.

At the aquarium, a nonprofit organization that teaches about and preserves aquatic life, Janell sets up and maintains aquatic systems and designs exhibits. Understanding each species, she determines the environment they need and what they should eat to remain healthy. She mingles with aquarium visitors and teaches them about the animals. When she cleans, collects samples, feeds fish, and participates in dive shows, she even gets to scuba dive.

“I’ve always loved animals and the ocean,” she says. “And childhood visits to aquariums sparked my interest in this field.”

Janell grew up in Cheyenne, Wyo. In high school there, biology was her favorite subject. She thought she’d be a veterinarian and earned a bachelor’s degree in animal science with an emphasis on exotic animals at Colorado State University in Fort Collins.

During her first year there, she volunteered at the university’s large animals surgery clinic, assisting technicians and veterinarians. When she decided to shift her focus to aquatics, she began working as a teacher’s assistant in the oceanography department, helping the department’s professor to grade essays and prepare lectures.

She also obtained two internships. First, she went to The Oceanic Institute in Waimanalo on the island of Oahu, Hawaii. There, for genetics research, she studied reproduction and growth of penaeid shrimp. Then, she worked with an aquarist at The Denver Zoo in Colorado, where she got hands-on experience in the abstract science theories she had learned. “Internships are essential, not only for experience but for networking,” she says.

In addition to her degree, she has earned certifications in scuba diving, CPR, and first aid. “You need these certifications to work as a marine biologist,” she explains. “And you have to be comfortable with all the gear—the fins, the heavy oxygen tank, everything. Otherwise, you would not be able to scuba dive to do the necessary collecting of animals, participating in dive shows, cleaning tanks, and observing animals.”

FOR THE RECORD



Janell
Biologist
The Florida Aquarium
Florida

EDUCATION

- ▶ Graduate of Cheyenne Central High School, Cheyenne, Wyo. Favorite subject—biology. Active in honors choir, student government, and vocal jazz group.
- ▶ Colorado State University, Fort Collins. Bachelor's degree in animal science with an emphasis in exotic animals.

WORK HISTORY

- ▶ During high school and college, worked as a nanny in Cheyenne, Wyo.; sales associate, Foley's Department Store, Fort Collins, Colo.; florist, King's Gardens Florist and Nursery, Chicago, Ill.
- ▶ Veterinary assistant, Dr. Gary Norwood and Dr. J.D. Fox, Cheyenne, four years.
- ▶ Research assistant and large animal surgery assistant, Colorado State University Veterinary Teaching Hospital, Fort Collins, one year.
- ▶ Intern, The Oceanic Institute, Waimanalo, Oahu, Hawaii.
- ▶ Intern, The Denver Zoo, Denver, Colo., one year.
- ▶ Oceanography Teaching Assistant, Colorado State University, Fort Collins.
- ▶ Relief keeper, Nashville Zoo, Nashville, Tenn.

JOB BENEFITS

- ▶ Favorite—paid vacations. *"Earning one vacation day for every two-week period really adds up. Traveling, which I do on my time off, adds greatly to the enjoyment of life."*
- ▶ Others—medical, life, accident, dental, and optical insurances; paid training/education; merit reviews/recognition; pension/retirement plan; leaves of absence; maternity leave; paid holidays; paid sick leave; flexible time; parking and locker-room facilities; uniforms.
- ▶ *"My work environment is very laid-back and flexible. I don't have to sit at a desk all day. I wear shorts and tennis shoes to work. I get paid to dive. All this creates a great positive work environment."*

Janell got her current job by submitting a resumé. She was called for an interview and began working here as a biologist.

To make sure the aquarium's aquatic systems are suited to its marine species, Janell draws on all she knows about marine biology. "You must have the knowledge to set up, maintain, and troubleshoot aquatic systems," she says.

"There are three types of aquatic systems—biological, chemical, and mechanical. The biological system is a natural form of filtration. In other words, metabolic waste from the fish starts out as an ammonia and then is broken down into a nitrate. In a chemical system, ozone is put into a water tank, through a set of filtration systems, and then the cleaned ozone goes into the water. The mechanical system pumps water out of an exhibit, but organics remain in the water."

Once a day, she scrubs the Plexiglas tanks with a brush. She also monitors the temperature, filtration, water quality, and environment for every type of fish in all tanks. And she watches for and treats diseases and parasites.

Food as well as water is important to the animals' health. Janell plans nutritionally balanced diets and prepares the food so it's appealing to the species for which it's intended. For example, she takes smelt from a large walk-in freezer, chops them with a knife in a nearby kitchen, and puts the minced fish into the lobsters' tank.

Lobsters Like Lobster

"Jellyfish can eat only brine shrimp, so I have to be careful to give them only that," she says. "Sharks eat mackerel. Lobsters eat smelt and also krill, which are smaller lobsters."

Using her knowledge of a species' natural habitat, she sets up and maintains exhibits. For the alligator exhibit, she designed a facsimile of a freshwater marsh with sawgrass and marshy plants. She finished it off with an old wooden boat full of holes. It's home for 50 baby alligators.

She keeps close watch on the animals' behaviors, which tell her what she needs to know about their health and reproductive patterns, and records her observations for future reference. Currently, she is taking care of two zebra sharks. "I keep a careful record of their past history. I get the reproduction history of zebra sharks in captivity from reference books in my office, the



► *Janell examines a baby alligator.*

library, the Internet, and scientists' published papers. Then, I try to create an atmosphere in which the sharks can reproduce. Paperwork is a big part of this work. I have to keep detailed records on everything."

Janell dons her scuba gear to get water samples from the bottom of a tank, examine fish or feed them, and take part in dive shows. Visitors enjoy the show. The aquarium also hosts educational sleepovers for children. They bring sleeping bags and sleep in front of the panoramic view in the aquatic gallery. Janell teaches the children about the coral reef and other aspects of marine life.

"Doing this work requires good public relations skills as well as a nurturing nature for animals and good observation skills. Animals tell you what is going on by their behavior if you're watching.

"For example, saltwater fish are more indicative of their environment than are freshwater or brackish water fish. So, if I notice they're not eating or are acting sluggish, I know I need to check the ammonia levels in their water."

Yesterday, Janell drove the 20 miles from her home and arrived at the aquarium at 7 a.m. She first checked the animals to see if any had escaped or been injured in fights during the night. All was well.

Next, she joined a team for a two-hour pressure wash of a tank that contains thousands of gallons of water. Then, she fed "Nutria," an aquatic rodent with webbed feet.

Afterward, she went into the vampire bat cage, part of the "Frights From the Forest" exhibit, which is devoted to animals "that go bump in the night." The bats hung peacefully upside down while she cleaned the cage with a scrub brush and nontoxic bleach followed by a hosing down with water. Then, to please the scorpions and tarantulas, she filled the water bowls underneath the geraniums in the exhibit.

Now it was time to feed fish. Janell defrosted foods, prepared them, and brought them to the fish in the five freshwater and saltwater exhibits. Afterward, she fed fish-flavored pellets to the alligators.

Backwash for the Fish

She next backwashed the 20,000-gallon freshwater exhibit, which contains bass, catfish, sunfish, bluegills, black crappies, and other species. "The water level is taken down to only 50 or 75 percent," she explains, "so the fish are in no danger of dying." She backwashes weekly by turning a series of valves. Each is metered to convey specific information, for example, how much saline and ammonia are in the water and what the water temperature is. She recorded all the chemical measurements on a form kept near the valves should her supervisors want to review it. The fish continued to swim while she changed the water.

Changing the water of a 600-gallon saltwater invertebrate tank, which contains jellyfish, urchins, and lobsters, came next. She also changed the filter for this tank.

At 11:30, Janell bought a soda, a sandwich, and chips from the aquarium's cafeteria and ate her lunch there. Then, she prepared her dive equipment for an afternoon show, checking oxygen pressure in her tank and making sure her wet suit had no holes. She changed into her wet suit and entered the Coral Reef Tank for a dive show.

For one-half hour under water, Janell pointed to and handled plants and animals in the tank to highlight them for watching visitors. Out of the water after the show, she talked to guests and answered their questions. Then, she put her dive equipment into a tank full of disinfectant.

Aquatic Biologist

“You have to think of all sorts of things as an aquatic biologist,” she says. “For example, when I go into the tanks, I cannot be wearing any skin cream, perfume, or even jewelry, as all of these affect the controlled water-chemistry environments we have for the fish.”

After the show, she backwashed the alligator exhibit and replaced filters. She next fed blood to the vampire bats. During the final 45 minutes of her workday, she observed each exhibit, looking for potential problems.

“I look for behavior concerns. Two species might have cohabitation problems, for instance. I

check tank levels and make sure all locks on animals’ cages are locked. I make sure exhibits’ filters are running at their normal levels and there are no abnormalities or fatalities among the animals.” Not finding any problems, she left for home at 4.

Janell, who is single, goes horseback riding, skis, plays tennis, and does volunteer work. Whenever possible, she drives to Cocoa Beach and surfs.

DATA FILE

Aquatic Biologist

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WORK DESCRIPTION

Cares for aquatic animals and their environments—plans nutritionally balanced diets; prepares foods; feeds fish, bats, alligators, and other aquarium inhabitants; sets up and maintains aquatic systems; changes water; records chemical components and temperature of water; sets up and maintains exhibits corresponding to natural environment; scuba dives to collect specimens, clean tanks, observe animals, and interpret during shows; talks with visitors; answers their questions; participates in children’s educational activities; does research; creates environment conducive to reproduction. May do presentations at professional conferences or submit papers for publication.

WORKING CONDITIONS

In simulated and natural water environments. In office for research and paperwork. Generally, casual dress and work environment, but work is physically demanding. Risk of injury or even death when working with potentially dangerous animals, such as alligators and snakes.

PLACES OF EMPLOYMENT

Aquariums; zoos; museums; nature preserves.

PERSONAL CHARACTERISTICS

Liking for animals; common sense; courage; physical strength; stamina; problem-solving ability; accuracy; ability to get along with all types of people; tolerance for stress; observant nature; verbal ability; responsibility; organization; detail-mindedness; dependability.

EDUCATION AND TRAINING

Bachelor’s degree in biology, zoology, or related field. Master’s degree recommended and may be required by some facilities and for some positions. Experience with animals helpful. CPR, first aid, and scuba diving certification may be required.

JOB OUTLOOK

Average growth (5% - 10%). Much competition for full-time work.

SALARY RANGE

U.S. median wage

\$31.90 per hour, \$66,350 per year, depending on location, position, and employer.

RELATED OCCUPATIONS

Fish and Wildlife Technician; Oceanographer; Animal Researcher

FOR MORE INFORMATION

The subject of this biography is not available to answer personal inquiries. For more information addresses are current as of publication date.

Association of Mid-Atlantic Aquatic Biologists

Web Site: <http://www.amaab.org/>

VA Institute of Marine Science

Web Site: <http://www.vims.edu/>

Marine Bio

Web Site: <http://marinebio.org/>

Scripps Institution of Oceanography

Web Site: <https://scripps.ucsd.edu/>

Association of Zoos and Aquariums

Web Site: <https://www.aza.org>

To find information about similar careers, see *Voc-Bio’s Pathways* or *Cluster* search, an encyclopedia, or books on careers found in your library, career center, or counseling or placement office. Look up the following words:

Animals, Aquaculture, Aquarium, Aquatic, Biologist, Environment, Fish, Marine Biologist, Science, Water. Also see the Agribusiness, Environment and Natural Resources, and Public Service Careers clusters.

WHAT YOU CAN DO NOW

Visit aquariums and zoos and talk to biologists about what they do. Ask for an internship or volunteer at such a facility. Get a part-time job in a pet shop, farm, or nature preserve. Have fish and pets of your own. Take training in first aid and cardiopulmonary resuscitation (CPR). Learn to swim and scuba dive. Read all you can about marine life, water systems, and related environmental issues. Take courses in agriculture, biology, zoology, ecology, mathematics, English, chemistry, computers, and speech.

LIFESTYLE IMPLICATIONS

Evening, weekend, and holiday work are often required and may affect personal and family time. Relocation may be necessary to obtain full-time work. There are opportunities to have an impact on aquatic animal life and environment.

Persons are portrayed herein without regard to race, sex, or religious background. Careers discussed are to be considered acceptable for either sex.

Aquatic Biologist. “Janell Safeguards Marine Life.” *VocBio* - Vocational Biographies. Web.