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So, You Want to be a Marine Scientist?

The Beginner's Guide to Studying the Deep Blue

Marine science is a truly expansive field. By definition, marine science is the study of marine ecosystems, which can include a sea of specialties. Various disciplines can be studied within marine science, ranging from biological (e.g., fisheries) to physical (e.g., ocean currents), geological (e.g., seafloor mapping), or chemical (e.g., ocean acidification), and can be investigated at the local, state, regional, or national level. Additional career paths may include positions involving shoreline restoration, ecosystem resiliency, conservation, environmental consulting, and educational outreach. Being a marine scientist allows you to take “the world is your oyster” to a whole new level, and professions are as diverse as the people who hold them.

With so many different disciplines, it comes as no surprise that there are many different pathways to succeed in this field. Below is a compilation of educational guidance, advice from our staff, job and social media resources, and Gulf Coast

programs to guide those wanting to dip their toes into the field of marine science.



A collage of species frequently encountered as a marine scientist in Mississippi State University's Marine Fisheries Ecology Program: red snapper (top left), nurse shark (top right), Atlantic sharpnose shark (bottom left), spotted dolphins (bottom center), and gray triggerfish (bottom right).

The Age Old Question: “What Degree is Right for Me?”

High School Diploma/Certificate: While having a higher degree may be helpful, it is not required to be successful in this field. Jobs that do not require a higher education can involve work on or around the water to gain invaluable experience. For example, fisheries dockside surveyors interact directly with anglers and are crucial to obtaining accurate catch-per-trip information, which is used for fisheries management. Additionally, deckhands execute a variety of tasks relating to the sailing of ships, boats, and ferries, can work in a variety of fishing sectors, and often advance by learning from more seasoned crew members. While these jobs are not heavily focused on research, others may require technical training to avoid a scientific degree. Occupations like maintenance, captaining, vessel operations, SCUBA diving, and tech support jobs are incredibly important and are oftentimes in high demand. Other options, such as the United States Navy, often include great benefits and provide opportunities to gain free education and experience in aviation, maritime, STEM, and law enforcement operations that are applicable to marine sciences.

Bachelor's Degree: With earning a bachelor's degree, the focus of your degree can be almost anything science related. Jobs that require a bachelor's range from entry level (i.e., temporary positions/internships) to permanent positions. Temporary positions are typically field-focused and labor-intensive but provide valuable experience when first establishing a career. Securing temporary jobs that focus on different disciplines, taxa, and geographical locations not only provides insight to better suiting positions for individual interests and career goals, but also builds transferable skills necessary to increasing a candidate's marketability for long-term positions. Permanent positions have an incredibly wide variety of topics, hours, and opportunity for advancement. Here are just some of the positions you can hold with a bachelor's degree: state and federal manager, conservationist, biological lab/field assistant or technician, marine enforcement/park ranger, tourism guide, environmental educator, blue technology operator (e.g., drones, ROVs), aquaculturist, engineer, statistician, aquarist (aquatic husbandry), water quality monitor, and GIS specialist.

Master's Degree: Jobs that require a master's degree often are advanced positions that may focus on conducting research and publishing scientific literature. This degree level is sometimes called "the sweet spot" for research positions because you have a good mixture of field, lab, and administrative responsibilities. However, many other positions may be held that are not research-specific with this degree. Other options not involving research may include state and federal management, private consulting, and various

technician positions.

Doctoral Degree: Jobs that require a Ph.D. and/or post-doctoral research tend to be the highest salary option and include the oversight of scientific research, administration, management, and teaching at the collegiate level. Additionally, director and dean positions (in universities, non-profits, and private organizations) are available, as well as positions in veterinary science and medicine (DVM), policy, and law.



Mississippi State University's Marine Fisheries Ecology Program consists of interns, technicians, and associates with unique backgrounds and degrees.

"Dear Marine Scientist, ..."

Learning from others is an integral part of finding success as a marine scientist. As part of this newsletter, the Marine Fisheries Ecology Program staff offered their advice about working in this field. Here is what they had to say:

"Dear Marine Scientist, what are some general tips to get started in the world of marine science?"

“Be persistent, yet patient. Sometimes it takes awhile for the right opportunity to present itself. Also, very little separates great employees from good ones; if you’re consistently on time and have a good attitude, you’re 90% on your way towards being a great employee.”

Marcus Drymon, Ph.D., *Principal Investigator and Associate Extension Professor*

“Get any and all experience that you can! Even if it is not in the marine or fisheries field. You will find that skills from previous experiences still frequently come in handy.”

Abby Vaughn, *Extension Associate*

“You don’t need an undergraduate degree in marine science, marine biology, fisheries, etc. Undergraduate degrees in biology, ecology, zoology, etc. are sufficient and can certainly lead to graduate degrees and careers in marine science and related fields.”

Amanda Jargowsky, *Lab Manager, Extension Associate*

“Be open-minded and adaptable. The “perfect” internship, job, or graduate degree program is rare to find, and you may well discover the “ideal” experience wasn’t what you thought it was. On the other hand, you won’t know if you enjoy something until you try it. It’s crucial to learn from both experiences and to keep in mind that your interests might change, both as you grow older and as you gain more experience. Embrace it, even if it’s not what you originally expected. Also, be realistic and don’t give up. Your career path will rarely be linear and your plan may change 100 times. Trust your gut, take chances, and whatever you choose to do, give it your all. It’s what makes all the difference!”

Ana Wheeler, *Field Coordinator, Extension Associate*

“Keep learning! Always be open to trying new things, developing new skills, and taking advantage of any training opportunities you come across. Broadening your skillset makes you a competitive job applicant, allows for creative problem solving, and keeps your mind active. Any skill – from coding to carpentry, vessel operation, or graphic design – can have a place in this field.

You never know what tools might come in handy down the line!”

Danielle McAree, *Master’s student, Extension Program Associate*

“Dear Marine Scientist, what experience should I focus on when looking for jobs in this field?”

“Your experiences are just as important as your coursework and degree(s). Seek volunteer opportunities, internships, and entry-level positions that align with your interests. For example: if interested in research, seek lab/field positions associated with universities; if interested in education, seek educator positions at camps or schools; if interested in aquaria, seek positions at aquariums or museums. If you're uncertain, try out a variety of experiences.”

Amanda Jargowsky, *Lab Manager, Extension Associate*

“Take advantage of any work opportunities you can in the wildlife field or fisheries field when getting started. All lab and field experience is valuable, even if the focus isn't marine science related. Taking advantage of these opportunities will help you gain initial work experience, develop transferable skill sets, and make you a well-rounded and competitive candidate for a future job.”

Kirsten Bauer, *Extension Program Assistant*

“Start early and collect a broad range of skills! It's never too early to start volunteering or getting lab experience during an undergraduate degree, and those experiences can help you decide what you enjoy. I'd also recommend trying a variety of different projects that span a range of methodologies, environments and research questions. The more well-rounded you can be and the more skills you collect, the better applicant you'll be for future opportunities!”

Tim Smoot, *Intern*

“Dear Marine Scientist, what are some skills that would be beneficial for me to learn?”

“Get familiar with statistical software (R, Python, SAS). There are books ([R for Dummies](#)), YouTube videos, and free datasets that can be used to teach yourself. Also, if the opportunity ever arises, workshops are super valuable.”

Abby Vaughn, *Extension Associate*

“If you're interested in doing any data analysis, it's important to learn how to write and run code (R is used by many in the marine sciences). Additionally, solid Microsoft Excel skills are important, and good writing skills are invaluable!”

Amanda Jargowsky, *Lab Manager, Extension Associate*

“Statistical software (R, Python) and mapping software (ArcGIS, QGIS) are both equally important in job hunting and graduate school - just having a basic background will help you in the long run! There are many free resources and

college courses that target these, so I would definitely check out all of your options. Additionally, if applicable, having any kind of boating experience is incredibly helpful. Having working/volunteering hours on any sized vessel is usually preferred in this line of work, and vessel operation experience is even better.”

Morgan Pfeiffer, Intern

“Becoming familiar with blue technology (drones, unmanned underwater vehicles, water treatment technology, remotely operated vehicles, etc.) might be beneficial in the upcoming years. These technologies are very useful in growing fields such as offshore mariculture, aquaculture, and wind farms.”

Ana Wheeler, Field Coordinator, Extension Associate

“Dear Marine Scientist, what advice do you have about graduate school?”

“Make each email personalized and unique to the Principal Investigator (PI) of the lab. A PI receives many emails regarding the same topics, so it’s important that your email stands out. Therefore, try to include bits of their research that you are interested in or a note about one of their recent publications. Lastly, attach your resume or CV for their reference!”

Abby Vaughn, Extension Associate

“Take your time – there’s no need to jump at the first opportunity that presents itself if it’s not something that you’re interested in. This isn’t a race, and there’s no harm in holding out for a position that’s the right fit! It’s better to be patient, gain experience, and explore your options than to go down the long road of grad school doing something you don’t love.”

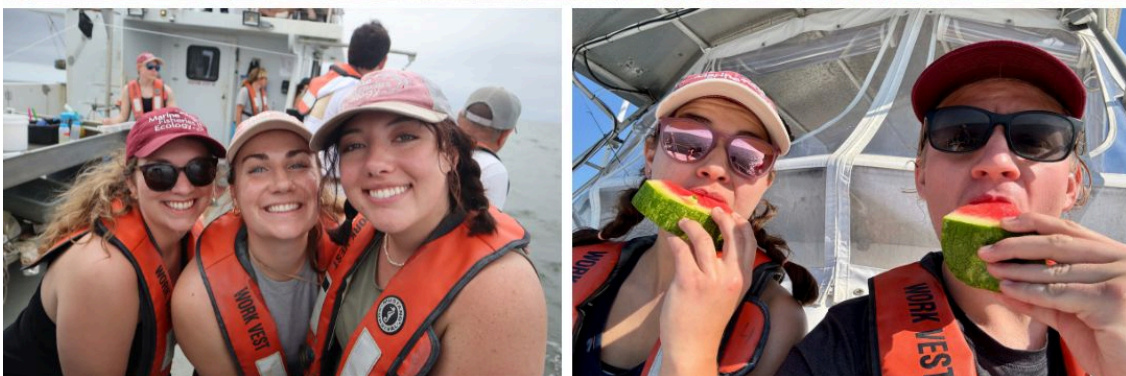
Danielle McAree, Master’s student, Extension Program Associate

“When applying for graduate positions, it’s important to find labs and advisors that are a good fit for your goals and expectations as a student. It’s a good idea to have a list of questions ready during interviews. Remember that while PIs are interviewing you to assess your qualifications, you should also take the opportunity to “interview” them to see if they would be a good mentor/advisor based on your needs as a student! Here are some questions you could ask: How many hours would I be expected to spend in the lab each week? How would you describe your lab culture? Do you have funding secured for this position, or would I be expected to seek external funding to support myself? Would I be expected to assist with other projects the lab has going on? How long does it take most of your students to graduate? Can you provide me with

contact information for some of your current and/or past students?"

Alena Anderson, *Master's student, Extension Program Associate*

Ultimately, as an aspiring marine scientist, a general rule of thumb is to cast a wide net while building a foundation in the field. Marine scientists can benefit from a plethora of skills obtained in many different fields, including wildlife, natural resources, seafloor mapping and exploration, engineering, heavy metal toxin research, plumbing, conservation, ecology, and more. Do not be limited to one specific discipline; be willing to try anything and everything at least once. Remember to cultivate other qualities, such as passion for the natural world, attention to detail, curiosity, flexibility, and teamwork skills.



A collage of Mississippi State University's Marine Fisheries Ecology Program at the Alabama Deep Sea Fishing Rodeo (top), on the R/V

Alabama Discovery (bottom left), and on the R/V E.O. Wilson (bottom right).

Job Boards and Social Media Resources



TEXAS A&M UNIVERSITY

Rangeland, Wildlife
& Fisheries Management

Texas A&M Natural Resources Job Board

Great for jobs, graduate school, internships, and volunteering!

Conservation JOB BOARD

Conservation Job Board

Great for jobs, internships, and volunteering!

**ASSOCIATION
OF ZOOS &
AQUARIUMS**

Association of Zoos & Aquariums Job Board

Great for jobs and internships working in **zoos** and **aquaria**!

USAJOBS[®]

USA Jobs

Great for **federal** jobs and internships!



sca[®]

student
conservation
association

Student Conservation Association

Great for **undergraduates** and **recent graduates** looking for short-term work!



American Fisheries Society

American Fisheries Society Job Board

Great for **fisheries** jobs and internships!



AmeriCorps

AmeriCorps

Great for **undergraduates** and **recent graduates** looking for short-term work!



U.S. Fish and Wildlife Service Pathways

Great for **undergraduates** and **recent graduates** looking for short-term work!



American Conservation Experience

Great for **undergraduates** and **recent graduates** looking for short-term work!



Scientists in Parks (National Parks Service)

Great for **undergraduates** and **recent graduates** looking for short-term work in National Parks!

Facebook:

[Marine Biology Career Network](#), [Marine Science Internships and Opportunities \(Women in Ocean Science\)](#), [Wildlife Science Career Network](#), [Divemaster Jobs & Internships Worldwide](#), [Minorities in Shark Sciences](#), [Marine Science and Conservation Careers Group](#), [Women of Fisheries](#)

Instagram:

[@ocean.scholar](#), [@curly_biologist](#), [@occupation_wild](#),
[@basecampoutdoorjobs](#), [@greenjobsboard](#)



Dr. Marcus Drymon, an Associate Extension Professor at Mississippi State University, holds an Atlantic stingray caught in a trawl during the 2022 Master Naturalist course.

Get Involved!

Any experience in the science field is beneficial to becoming a marine scientist. Look into your favorite nature centers, aquariums, universities, and labs – most of these have “Contact Us” or “Get Involved” pages online where you can find opportunities for volunteering, internships and employment.

Listed below are Gulf Coast organizations that offer a variety of programs to gain working experience in terrestrial and aquatic environments:

Florida:

- Florida Fish and Wildlife Conservation Commission [programs](#)
- Florida Sea Grant [student opportunities](#) and [careers](#)
- Mote Marine Laboratory ([volunteering](#) and [internships](#))

- National Park Service [volunteering](#) (Everglades, Biscayne, Dry Tortugas, Gulf Islands)
- NOAA National Marine Sanctuary [volunteering](#)

Alabama:

- Alabama Coastal Cleanup [volunteering and citizen science](#)
- Alabama Coastal Foundation ["Share the Beach" volunteering](#)
- Alabama Rivers Alliance [volunteering](#)
- Alabama State Parks [careers](#)
- Alabama State Personnel Department [careers and internships](#)
- Alabama Wildlife Federation [volunteering](#)
- Dauphin Island Sea Lab [internships](#) and [NSF REU opportunity](#)
- McWane Science Center [aquarist volunteer opportunity](#)
- South Alabama Land Trust [volunteering](#)

Mississippi:

- Grand Bay NERR [volunteering](#)
- Mississippi-Alabama Sea Grant Consortium (MASGC) [educational opportunities and fellowships](#)
- Mississippi Aquarium [volunteering](#)
- Mississippi State Personnel Department [careers](#)
- Mississippi Wildlife, Fisheries and Parks [volunteering](#)
- MSU Coastal Research and Extension Center programs ([Master Naturalist volunteering](#))
- MSU MFE [internship](#) and [FISHES](#) course
- Mississippi Museum of Natural Science [volunteering](#)
- National Park Service [volunteering](#) (Gulf Islands National Seashore)

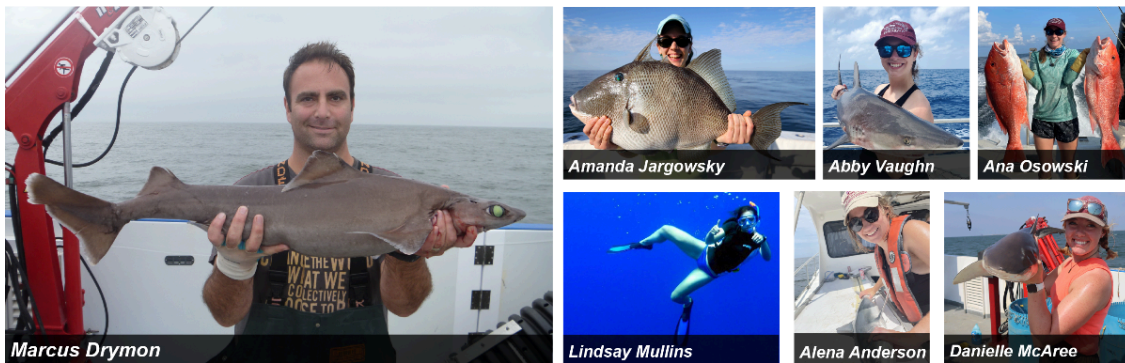
Louisiana:

- Audubon Nature Institute [volunteering and internships](#)
- Coalition to Restore Coastal Louisiana (CRCL) [volunteering](#)

- Louisiana Department of Wildlife and Fisheries [student/internship opportunities](#) and [Aquatic Volunteer Instructor Program](#)
- Louisiana Sea Grant [employment](#) and [volunteering](#)

Texas:

- Texas A&M Gulf Center for Sea Turtle Research [volunteering](#)
- Texas Marine Mammal Stranding Network [volunteering](#)
- Texas Parks and Wildlife [volunteering](#)
- Texas Sea Grant [careers](#)
- Texas State Aquarium [volunteering](#)



I'm Marcus Drymon, an Associate Extension Professor at Mississippi State University and a Marine Fisheries Specialist at Mississippi-Alabama Sea Grant. Amanda Jargowsky, Abby Vaughn, Ana Osowski, Lindsay Mullins, Alena Anderson, Danielle McAree, and I are the Marine Fisheries Ecology Lab. We'd love to hear from you! Please reach out to us at marinefisheriesecology@gmail.com



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