GLOBAL CENTER FOR AQUATIC HEALTH AND FOOD SECURITY

ANNUAL REPORT · JANUARY – DECEMBER 2025

2025

MISSISSIPPI STATE UNIVERSITY™
GLOBAL CENTER FOR AQUATIC
HEALTH AND FOOD SECURITY

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The Global Center for Aquatic Health and Food Security (GCAHFS) works to reduce world hunger and improve aquatic animal health. As a university center with locations in Starkville and the Mississippi Gulf Coast, GCAHFS is affiliated with the Division of Agriculture, Forestry, and Veterinary Medicine and the Office of Research and Economic Development.

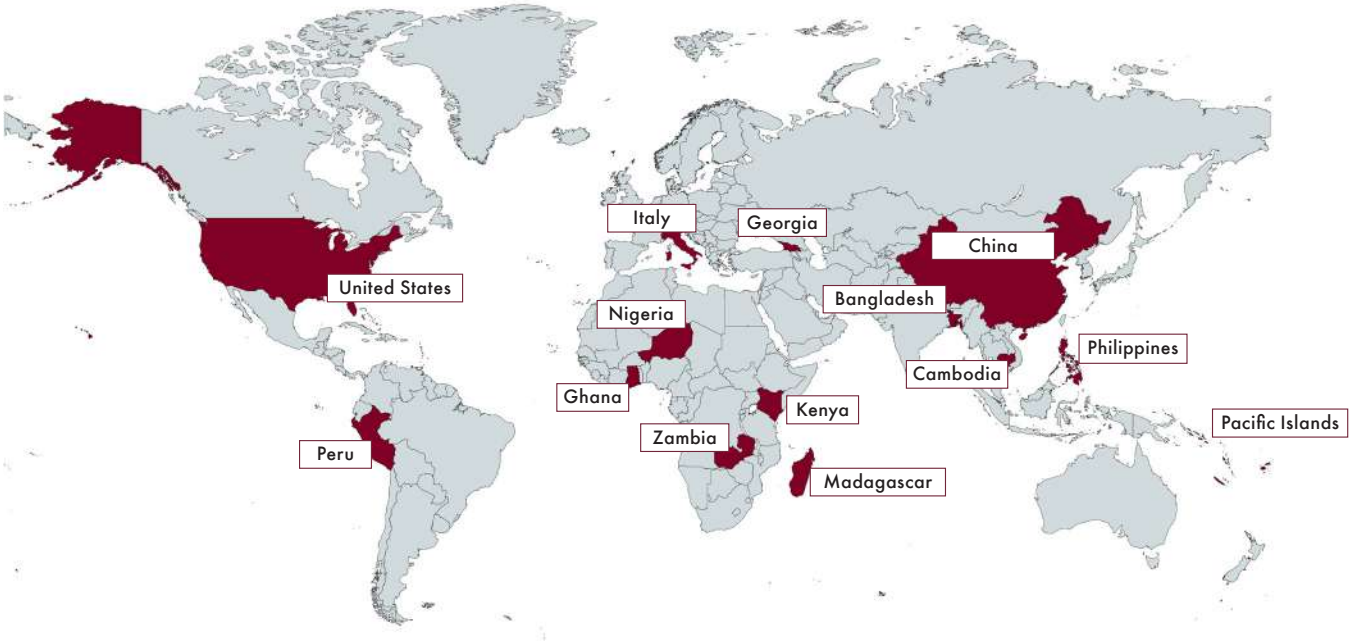
MISSION

GCAHFS furthers the mission of Mississippi State University in **SERVICE** by engaging MSU faculty in domestic and international development. Faculty service aims at improving aquatic health, reducing world hunger, and building capacity to support healthy aquatic ecosystems and sustainable aquaculture and fisheries. GCAHFS furthers the university's mission in **RESEARCH** by engaging MSU faculty in investigative research to address problems in aquatic health and food security. In addition, GCAHFS furthers the university's mission in **TEACHING** by promoting and supporting knowledge transfer and student exchange between the U.S. and other countries as well as increasing learning opportunities for students, staff, and faculty.

VISION

GCAHFS actively pursues development of aquatic health and food security in the U.S. and abroad. Because of the importance of aquaculture to the state of Mississippi, MSU has longstanding strength and expertise in aquatic health and food security. GCAHFS serves as a facilitator to engage MSU faculty, staff, and students in domestic and international development. Specifically, GCAHFS addresses the health of aquatic environments by improving the impact of these important ecosystems on the quality of life of humans, increasing food production and security, implementing aquatic animal disease mitigation strategies, supporting aquaculture technology development and adoption, and promoting sustainable aquatic resource management.

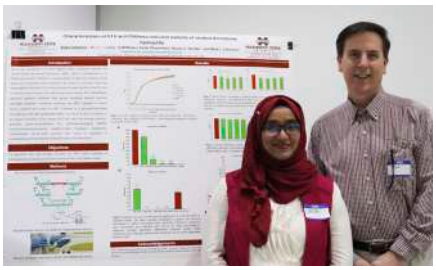
COUNTRIES WITH ACTIVITIES



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

REFERENCE CENTER ON ANTIMICROBIAL RESISTANCE AND AQUACULTURE BIOSECURITY

Mississippi State University is designated as a Food and Agriculture Organization of the United Nations (FAO) Reference Center on Antimicrobial Resistance and Aquaculture Biosecurity, which is managed by GCAHFS. The reference center provides independent technical and scientific advice and supports FAO's mandate for agricultural and aquaculture development and food security. MSU and GCAHFS are committed to supporting and serving the needs of the Mississippi aquaculture industry, and the university's recognition as an FAO reference center will enable its experts to address the global issues of antimicrobial resistance, reducing the burden of disease in aquaculture.



18
Scientific papers published

70
Presentations delivered

21
Active research projects

SUCCESSES AND IMPACT

In 2025, the FAO Reference Center achieved significant impact in advancing antimicrobial resistance (AMR) research and aquatic biosecurity. During the reporting period, 18 scientific papers were published, 70 presentations were delivered, and 21 research projects remained active. Dr. Larry Hanson secured USDA funding, with MSU College of Veterinary Medicine matching support, to strengthen fish research laboratories and expand team capacity. Dr. Stephen Reichley participated in two FAO workshops in China focused on creating the framework for an early warning system for aquatic diseases and aquaculture biosecurity. Drs. Stephen Reichley and Matt Griffin contributed expertise to the FAO Validation Workshop on the Technical Roadmap for an Early Warning System for Aquatic Diseases in Italy. The MSU FAO Reference Center and GCAHFS co-hosted a major Aquatic AMR Workshop and an international FAO webinar reaching 55 countries, strengthening global collaboration and AMR awareness. GCAHFS also represented MSU as one of 15 invited exhibitors for the North American regional pavilion during the first FAO Global Exhibition: From Seeds to Foods in Rome, Italy, which saw nearly 10,000 attendees over the course of the 4-day event. Learn more about the FAO Reference Center on AMR and Aquaculture Biosecurity at *gcahfs.msstate.edu/projects/fao-reference-center-antimicrobial-resistance-and-aquaculture-biosecurity.*

PERSONNEL

NAME AND MSU AFFILIATION	FAO REFERENCE CENTER ROLE
Dr. Stephen Reichley *Assistant Professor, Pathobiology and Population Medicine, College of Veterinary Medicine*	**Head**
Dr. Matt Griffin *Research Professor, Pathobiology and Population Medicine, College of Veterinary Medicine*	**Technical Working Group Member**
Dr. Larry Hanson *Professor, Comparative Biomedical Sciences, College of Veterinary Medicine*	**Technical Working Group Member**
Dr. Mark Lawrence *William L. Giles Distinguished Professor, Comparative Biomedical Sciences, College of Veterinary Medicine*	**Technical Working Group Member**
Dr. Michael Sandel *Assistant Professor, Wildlife, Fisheries and Aquaculture, College of Forest Resources*	**Technical Working Group Member**
Dr. Fernando Yamamoto *Assistant Research Professor, Wildlife, Fisheries and Aquaculture, College of Forest Resources*	**Technical Working Group Member**

FEED THE FUTURE INNOVATION LAB FOR FISH

Funded by the U.S. Agency for International Development (USAID), the Feed the Future Innovation Lab for Fish (Fish Innovation Lab) worked to reduce poverty and improve nutrition, food security, and livelihoods in partner countries by supporting research on sustainable aquatic food systems. The Fish Innovation Lab supported and linked research partners around the globe to identify, develop, and scale promising methodologies and technologies for local fish farming and to intensify and diversify major aquatic food production systems where the poor and undernourished are concentrated. Through competitive research subawards, the Fish Innovation Lab funded country-focused research and capacity-building activities. These subawards constituted an integrated, cooperative, multi-institutional research program that aimed to produce applicable research results, increase the capacity of local partners, and support the adoption of new innovations.

ACTIVE GRANT

1. M. L. Lawrence, S. R. Reichley, G. R. Mendez, P. Allen. 2018-2028. Feed the Future Innovation Lab for Fish.

PERSONNEL

NAME AND MSU AFFILIATION	FISH INNOVATION LAB ROLE
Dr. Mark Lawrence *William L. Giles Distinguished Professor, Comparative Biomedical Sciences, College of Veterinary Medicine*	**Director**
Dr. Stephen Reichley *Assistant Professor, Pathobiology and Population Medicine, College of Veterinary Medicine*	**Deputy Director**
Dr. Peter Allen *Professor, Wildlife, Fisheries and Aquaculture, College of Forest Resources*	**Aquaculture Advisor**
Alaina Dismukes *Communications Specialist, Pathobiology and Population Medicine, College of Veterinary Medicine*	**Communications Specialist**
Dr. Gina Rico Mendez *Assistant Research Professor, Social Science Research Center*	**Research and Learning Manager**
Misty Nabors *Data Management Coordinator, Pathobiology and Population Medicine, College of Veterinary Medicine*	**Data Management Coordinator**
Dr. Mary Read-Wahidi *Associate Research Professor, Social Science Research Center*	**Gender and Social Inclusion Specialist**
Masey Smith *Program Manager, Pathobiology and Population Medicine, College of Veterinary Medicine*	**Program Manager**
Kelly Stewart *Business Manager, Pathobiology and Population Medicine, College of Veterinary Medicine*	**Business Manager**
Laura Zseleczky *Marketing and Communications Manager, Pathobiology and Population Medicine, College of Veterinary Medicine*	**Marketing and Communications Manager**

A NOTE ON 2025 FUNDING

The Fish Innovation Lab's activities were affected by freezes imposed on funding associated with USAID in early 2025. The Management Entity prioritized responsible close-out and continued dissemination of completed research so that findings could still benefit partner communities.

SUCCESSES AND IMPACT

In January 2025, the Fish Innovation Lab Management Entity was focused on finalizing and onboarding 14 three-year research activities for the program's second phase. Additionally, an activity on integrated agri-aquaculture systems in Kenya conducted sensitization workshops and baseline data collection for 108 farmers, traders, and caregivers to increase production of fish, mushrooms, and indigenous vegetables in selected demonstration sites and raise awareness about the nutrition and health needs of children under 5 years. A team working on fish health in Kenya had recently completed surveillance and training activities on cage aquaculture production practices in Lake Victoria with 181 individuals and was in the process of analyzing data and maintaining surveillance efforts as well as stakeholder information-sharing networks. In Nigeria, researchers studying inland fisheries had collected and synthesized data to model fishery potential and climate impacts, and they were in the process of using that data to develop recommendations for sustainable fisheries management strategies. An activity on improving food safety in fish in Bangladesh was using data from surveys of 100 fish cut-up table workers and 100 consumers in combination with stakeholder input from a December 2024 meeting to develop interventions aimed at reducing microbiological contamination in raw fish sold at Dhaka's wet markets. Also in Bangladesh, a team working to develop a carp biosecurity management strategy was conducting surveys with key stakeholders throughout the carp value chain. In Zambia, a team working to scale up fish powder was analyzing results from sensory panels conducted with 53 mothers and children to inform policy recommendations and plans for scaling fish powder production.

PROGRAM LIFETIME • 2018 – 2025

$17M
Research funding managed

30
Projects in 10 countries

50+
Partners worldwide

14
MSU faculty from 7 departments

GULF COAST AQUATIC HEALTH LAB

The Gulf Coast Aquatic Health Lab (GCAHL), based in Gautier and Starkville, Mississippi, supports the mission of GCAHFS by protecting and maintaining the health of aquatic animals and their environment through cutting-edge veterinary care, innovative research, and sustainable solutions. Activities include marine animal cause-of-death investigations, conservation and recovery efforts, and research on environmental conditions and microorganisms to strengthen ocean health and food security.

ACTIVE GRANTS

1. Lawrence, M.L., S.R. Reichley, B. Peterman, D. Moore, K. McNulty, and A. Lee. 2023-2026. Enhance conservation of sea turtles in Mississippi state waters by strengthening capacity for science-based animal health and management. Mississippi Department of Environmental Quality (Natural Resource Damage Assessment), $2,175,000.

2. Lawrence, M.L., S.R. Reichley, B. Peterman, D. Moore, and K. McNulty. 2023-2026. Enhance conservation of bottlenose dolphins in Mississippi state waters by strengthening capacity for science-based marine mammal health and management. Mississippi Department of Environmental Quality (Natural Resource Damage Assessment), $2,044,500.

3. Reichley, S.R., B. Peterman, M.L. Lawrence, A. Venugopalan. 2023-2026. Establishing the Mississippi State University Gulf Coast Aquatic Health Laboratory. National Oceanographic and Atmospheric Administration, $1,800,000.

PERSONNEL

NAME	MSU AFFILIATION	GULF COAST AQUATIC HEALTH LAB ROLE
Dr. Mark L. Lawrence	*William L. Giles Distinguished Professor, Comparative Biomedical Sciences, College of Veterinary Medicine*	Leadership
Dr. Stephen Reichley	*Assistant Professor, Pathobiology and Population Medicine, College of Veterinary Medicine*	Leadership
Dr. Beth Peterman	*Assistant Clinical Professor, Pathobiology and Population Medicine, College of Veterinary Medicine*	Project Manager
Mark Arick II (Tony)	*Computer Specialist and Biocomputing Lead, Institute for Genomics, Biocomputing, and Biotechnology*	Genomics Specialist
Dr. Caroline Betbeze	*Associate Clinical Professor, Clinical Sciences, College of Veterinary Medicine*	Ophthalmologist
Dr. Alexandra Emelianchik	*Clinical Instructor I, Pathobiology and Population Medicine, College of Veterinary Medicine*	Clinical Veterinarian
Dr. William Epperson	*Professor and Head, Pathobiology and Population Medicine, College of Veterinary Medicine*	Epidemiologist
Dr. Basant Gomaa	*Postdoctoral Research Associate, Comparative Biomedical Sciences, College of Veterinary Medicine*	Postdoctoral Research Associate
Jill Hudnall	*Research Associate I, Pathobiology and Population Medicine, College of Veterinary Medicine*	Research Associate I
Dr. Isaac Jumper	*Assistant Professor, Pathobiology and Population Medicine, College of Veterinary Medicine*	Epidemiologist
Dr. Barbara Kaplan	*Associate Professor, Comparative Biomedical Sciences, College of Veterinary Medicine*	Toxicologist
Dr. Attila Karsi	*Professor, Comparative Biomedical Sciences, College of Veterinary Medicine*	Geneticist
Dr. Alison Lee	*Assistant Professor, Clinical Sciences, College of Veterinary Medicine*	Radiologist
Dr. Kaylin McNulty	*Assistant Clinical Professor, Pathobiology and Population Medicine, College of Veterinary Medicine*	Pathologist
Dr. Paul Mickle	*Co-Director, Associate Research Professor, Northern Gulf Institute*	Ecologist
Dr. Todd Mlsna	*Professor, Chemistry, College of Arts and Sciences*	Chemist
Dr. Debra Moore	*Assistant Clinical Professor, Pathobiology and Population Medicine, College of Veterinary Medicine*	Clinical Veterinarian
Ryanne Murray	*Research Associate I, Pathobiology and Population Medicine, College of Veterinary Medicine*	Research Associate I
Dr. Daniel Peterson	*Professor and Director, Institute for Genomics, Biocomputing, and Biotechnology*	Genomics Specialist
Dr. Michael Sandel	*Associate Professor, FWRC – Wildlife, Fisheries, and Aquaculture*	Genetics/Phylogeny Specialist
Dr. Natalie Stilwell	*Assistant Clinical Professor, Pathobiology and Population Medicine, College of Veterinary Medicine*	Microbiologist
Kelly Stewart	*Business Manager, Pathobiology and Population Medicine, College of Veterinary Medicine*	Business Manager
Adithya Bindhu Sreekumar	*Research Associate II, Pathobiology and Population Medicine, College of Veterinary Medicine*	Research Associate II
Dr. John Thomason	*Associate Professor, Clinical Sciences, College of Veterinary Medicine*	Internist
Dr. Arun Venugopalan	*Assistant Research Professor, Pathobiology and Population Medicine, College of Veterinary Medicine*	Researcher
Dr. Robert Wills	*Professor Emeritus, Comparative Biomedical Sciences, College of Veterinary Medicine*	Epidemiologist
Laura Zseleczky	*Marketing and Communications Manager, Pathobiology and Population Medicine, College of Veterinary Medicine*	Marketing and Communications Manager

SUCCESSES AND IMPACT

Mississippi State University continues to collaborate with the Institute for Marine Mammal Studies (IMMS) to enhance stranding response and diagnostic capabilities for stranded marine mammals and sea turtles. This collaboration, supported by the Natural Resource Damage Assessment (NRDA), ensures timely response along Mississippi's coastline and supports high-quality diagnostic evaluation of stranded animals.

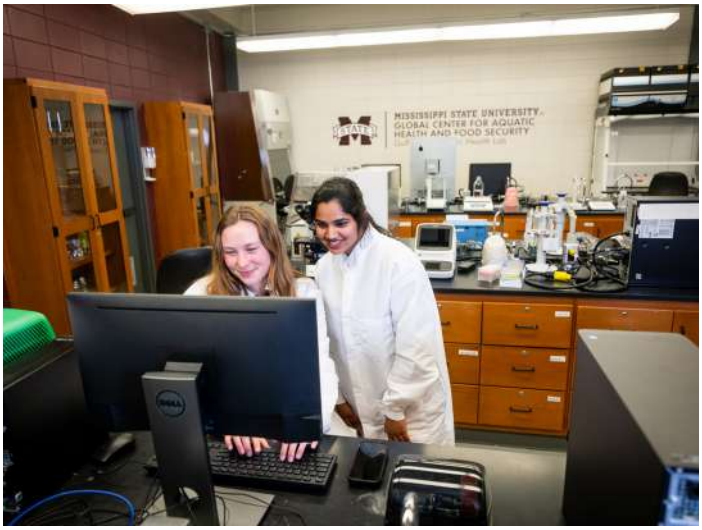
GCAHL also analyzes baseline mortality patterns and identifies common diseases affecting dolphins and sea turtles in the Mississippi Sound using NRDA support. These findings inform management and policy decisions related to changing environmental health conditions in the northern Gulf of Mexico.

Since its inception, GCAHL has worked to replenish and protect living coastal and marine resources with a focus on marine mammals and sea turtles by increasing survival through better understanding of causes of illness and death, including detection and intervention for anthropogenic and natural threats. This work addresses gaps and enhances capacity in Mississippi and the Northern Gulf of America to improve timeliness of response and diagnosing illness and cause of death for these important species.

In 2025, 53 necropsies were completed on marine mammals that stranded on the Mississippi Gulf Coast, 51 of which were bottlenose dolphins (*Tursiops truncatus*). A total of 3,918 biological samples were collected from these necropsies, including tissues for histopathology, testing for pathogens such as *Brucella* and Morbillivirus, parasitology analysis, and other diagnostic assays. Of these, 2,097 samples were analyzed, and remaining samples were frozen to allow for future retrospective and targeted analyses. GCAHL maintains a comprehensive database of necropsy and

pathology findings from all marine mammals that stranded on the Mississippi Gulf Coast from 2018–2025. As a result of these necropsies, GCAHL conducted research to support health of marine mammals and to understand the population in the Mississippi Sound, resulting in three peer-reviewed publications and 10 presentations on the pathology of marine mammals as well as their genetics and diseases caused by toxicological, microbiological, and parasitic agents.

In 2025, 38 sea turtle necropsies were performed with the cooperation of NOAA. A total of 188 biological samples were collected, of which 106 samples were analyzed, and the remainder were stored frozen for potential future analyses. Samples collected included tissues for histopathology, parasite identification,



fungal culture, and frozen tissue archiving for future analyses. GCAHL maintains a database of pathology findings for sea turtles necropsied from 2018–2025. These cause of death investigations resulted in three scientific presentations and a peer-reviewed publication that is under review.

GCAHL supported rehabilitation and release of 63 injured or sick sea turtles in 2025, 40 of which were successfully released back into the Mississippi Sound with other remaining under care at the end of 2025. Of the released sea turtles, 37 were Kemp's ridley sea turtles— the world's most endangered sea turtle species. Sea turtles under rehabilitation during the reporting period included animals admitted from Mississippi and Alabama, as well as cold-stunned sea turtles transferred from the New England Aquarium. All sea turtles in rehabilitation underwent monthly examinations, including bloodwork, radiographs, ultrasounds, and other veterinary procedures as needed. This work supports the survival of sea turtle populations in the Gulf of America, especially the endangered Kemp's ridley sea turtles.

Importantly, GCAHL is establishing a research laboratory and offices to support research and diagnostic activities that advance aquatic animal health in the Gulf of America. The facility is located on the campus of Mississippi Gulf Coast Community College in Gautier, Mississippi, highlighting MSU's ongoing collaborations with MGCCC. With funding from NOAA, this facility is designed to align with NOAA Fisheries' mission of responsible stewardship of ocean resources and habitats. Staff in the lab expanded in 2025 with the addition of a research associate to support laboratory operations and ongoing research activities. Installation of the facility was completed in 2025, with lab certifications and final pieces of equipment expected in early 2026.

Learn more about the Gulf Coast Aquatic Health Lab at *gcahfs.msstate.edu/projects/gulf-coast-aquatic-health-lab.*

53

Marine mammal necropsies (51 dolphins)

38

Sea turtle necropsies with NOAA

40

Sea turtles released (37 Kemp's ridleys)

OTHER ACTIVITIES

ACTIVE GRANT

1. S. Reichley. 2024-2026. Bolstering Fish Health in Republic of Georgia. United States Department of Agriculture Foreign Agricultural Service.

SUCCESSES AND IMPACT

The Bolstering Fish Health in the Republic of Georgia project between the University of Idaho, Mississippi State University, and the Caucasus Agricultural Development Initiative (CADI) aims to increase rural income by strengthening institutional support for aquaculture facilities. A central objective is to expand market opportunities for U.S.-based suppliers of fish eggs and other aquaculture inputs.

Since its inception in 2021, the project has undergone several strategic adjustments. Initial efforts focused on building capacity for a university-based aquaculture extension service and developing certificate-level training programs.

In January 2025, the United States Department of Agriculture issued a stop-work order for the project, which remained in effect until the end of June 2025. Project activities then resumed with an emphasis on programmatic realignment. Key efforts included planning for the establishment of an Industry Advisory Board and the development of a statewide survey of aquaculture producers in Georgia, building on baseline data collected in 2021. These activities were designed to ensure continued alignment with current federal priorities and stakeholder needs.

STUDENT, VETERINARY INTERN AND VETERINARY RESIDENT ENGAGEMENT

While not a degree-granting unit, GCAHFS strives to identify, provide, and promote opportunities for students across MSU as well as for veterinary interns and veterinary residents within the College of Veterinary Medicine.

Through funding obtained by GCAHFS, the College of Veterinary Medicine (CVM) remains one of the few veterinary programs nationwide providing all veterinary students with hands-on marine animal medicine training. Funds through the GCAHL support a monthly overnight trip for CVM veterinary students to Gulfport during the CVM Laboratory Services Rotation. This rotation is part of the core curriculum for CVM's Doctor of Veterinary Medicine degree program. In 2025, 125 students participated in the experience. Because of this trip, CVM can provide every veterinary student hands-on exposure to clinical and necropsy activities in marine animal medicine.

Veterinary residents training in other specialities are regularly engaged in the care of sea turtles. These opportunities expand their education and increase their professional marketability.

MARINE ANIMAL HEALTH CANVAS COURSE • MARINE MONDAY!

Marine Monday! is a seminar series that engages speakers from around the world to discuss contemporary topics relevant to marine health and is facilitated by Dr. Beth Peterman. Students, staff, and faculty across MSU participate in these discussions with world-renowned experts in many disciplines related to the marine environment.

- **May 2025**
  "Aquatic Veterinary Medicine" presented by Dr. Kathryn Tuxbury, New England Aquarium.
- **June 2025**
  "Mississippi Department of Marine Resources Overview" presented by Trevor Moncreif, Finfish Bureau Director, Mississippi Department of Marine Resources.
- **July 2025**
  "Sea Turtle Hematology" presented by Dr. Alexandra Emelianchik, Mississippi State University College of Veterinary Medicine.
- **August 2025**
  "Exploring the One in a Thousand" presented by Dr. Elizabeth Bevan, National Oceanographic and Atmospheric Administration.
- **September 2025**
  "A Look into Marine Conservation: Barotrauma, Research, and Return 'Em Right" presented by Charlie Robertson, Gulf States Marine Fisheries Commission.
- **October 2025**
  "Flotation Abnormalities in Sea Turtles" presented by Dr. Terry Norton, Director and Veterinarian, Jekyll Island Sea Turtle Center.
- **November 2025**
  "The Literature Revisited: Efforts to Redescribe Parasites of Bottlenose Dolphins and Sea Turtles in the Mississippi Sound" presented by Dr. Graham Rosser, Mississippi State University College of Veterinary Medicine.

125

Veterinary students gained hands-on marine health experience in 2025

2025 SEA TURTLE RELEASE EVENTS

Sea turtle release events, commonly attended by MSU students, staff, and faculty occur throughout the year. These events provide a wonderful opportunity to celebrate the work and care provided to the turtles, enabling their return to their habitat.

February 4, 2025 – 1 juvenile Kemp's ridley sea turtle
February 17, 2025 – 3 juvenile Kemp's ridley sea turtles
March 14, 2025 – 1 juvenile Kemp's ridley sea turtle
March 27, 2025 – 5 juvenile Kemp's ridley sea turtles
April 9, 2025 – 1 juvenile Kemp's ridley sea turtle
April 25, 2025 – 3 juvenile Kemp's ridley sea turtles
May 14, 2025 – 4 juvenile and 1 subadult Kemp's ridley sea turtles
May 27, 2025 – 1 subadult green sea turtle
June 6, 2025 – 3 juvenile Kemp's ridley sea turtles
June 13, 2025 – 2 juvenile Kemp's ridley and 1 subadult loggerhead sea turtles
June 20, 2025 – 2 juvenile Kemp's ridley sea turtles
June 27, 2025 – 2 juvenile Kemp's ridley sea turtles
July 31, 2025 – 1 juvenile Kemp's ridley sea turtle
September 9, 2025 – 1 subadult loggerhead and 2 juvenile Kemp's ridley sea turtles
September 26, 2025 – 1 Kemp's ridley sea turtle
October 6, 2025 – 1 juvenile Kemp's ridley sea turtle
October 22, 2025 – 3 juvenile Kemp's ridley sea turtles
December 7, 2025 – 5 juvenile Kemp's ridley sea turtles

BRIDGES UNDERGRADUATE RESEARCH PROGRAM

GCAHFS participates in the BRIDGES Undergraduate Research Program through the MSU Office of Research and Economic Development. The program was created to increase the number of undergraduate students involved in research activities, providing students the opportunity to engage in meaningful work experiences while learning more about careers in research. Undergraduate students participating in 2025 with GCAHFS include:

Techia Brown, Department of Marketing, Quantitative Analysis, and Supply Chain Logistics

VETERINARY MEDICAL RESEARCH SCHOLARS (VMRS) PROGRAM

The Veterinary Medical Research Scholars (VMRS) program at CVM provides veterinary students research opportunities to investigate morbidity and mortality of marine mammals and sea turtles. In 2025, the following students' participation was supported by GCAHFS:

Olivia Clapp, DVM Class of 2028
Kahylin Nesbitt, DVM Class of 2028

COLD-STUNNED SEA TURTLE CARE

Since 2022, GCAHFS has provided care for approximately 30 cold-stunned sea turtles for rehabilitation annually. These turtles are transported from New England to Mississippi for specialized care and recovery before being released back into the MS Sound. This is an opportunity for students to gain hands-on experience with sea turtle rehabilitation, and approximately 10 students have participated in the intake process each year.

2025 GRADUATE STUDENT SUPPORT

GCAHFS continued its support of CVM graduate students in 2025: **Jill Hudnall** (100% salary support; Department of Pathobiology and Population Medicine); **Rideeta Islam Aishy** (100% stipend support; Department of Comparative Biomedical Sciences); **Ryanne Murray** (100% salary support; Department of Comparative Biomedical Sciences); **Sydney O'Donald** (100% stipend support; Department of Comparative Biomedical Sciences); and **Fenny Patel** (support for research activities; Department of Comparative Biomedical Sciences).

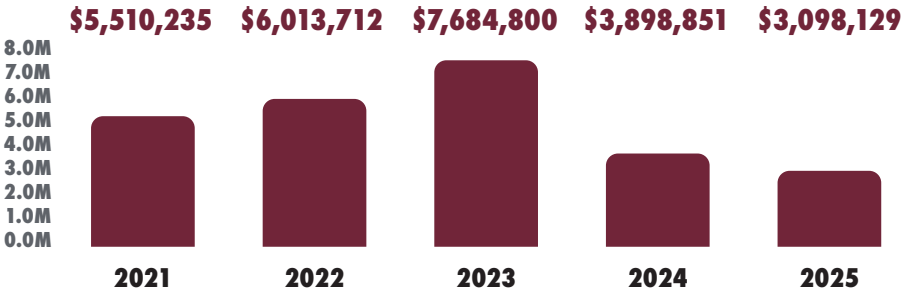
AQUATIC ANIMAL HEALTH CERTIFICATE

CVM has an Aquatic Animal Health Certificate program that provides introductory training to veterinary students and graduate veterinarians in diagnostic and clinical medicine of aquatic animal species. Many of the GCAHFS-affiliated faculty helped design the program and continue to support it through involvement in the steering committee, core and elective courses, and as mentors to the students. Additionally, several courses and certificate credit activities utilize GCAHFS programs.

FINANCIAL HIGHLIGHTS

GCAHFS RESEARCH EXPENDITURES 2021–2025

TOTAL GCAHFS EXPENDITURES • 2021-2024



YEAR	EXPENDITURES
2021	$5,510,235
2022	$6,013,712
2023	$7,684,800
2024	$3,898,851
2025	$3,098,129

LIST OF FACULTY, STAFF AND STUDENTS WITH SALARY OR STIPEND SUPPORT FROM GCAHFS IN 2025

NAME	CATEGORY	DEPARTMENT	NAME	CATEGORY	DEPARTMENT
Dr. Peter Allen	Faculty	Wildlife, Fisheries and Aquaculture	**Dr. Debra Moore**	Faculty	Pathobiology and Population Medicine
Dr. Caroline Betbeze	Faculty	Clinical Sciences	**Ryanne Murray**	Staff	Pathobiology and Population Medicine
Techia Brown	Student	Marketing, Quantitative Analysis, and Supply Chain Logistics	**Misty Nabors**	Staff	Pathobiology and Population Medicine
Olivia Clapp	Student	DVM Student	**Kahylin Nesbitt**	Student	DVM Student
Alaina Dismukes	Staff	Pathobiology and Population Medicine	**Sydney O'Donald**	Student	Comparative Biomedical Sciences
Dr. Alexandra Emelianchik	Faculty	Pathobiology and Population Medicine	**Dr. Beth Peterman**	Faculty	Pathobiology and Population Medicine
Dr. William Epperson	Faculty	Pathobiology and Population Medicine	**Dr. Mary Read-Wahidi**	Faculty	Social Science Research Center
Kayla Fast	Staff	FWRC – Wildlife, Fisheries, and Aquaculture	**Dr. Stephen Reichley**	Faculty	Pathobiology and Population Medicine
Dr. Basant Gomaa	Staff	Comparative Biomedical Sciences	**Dr. Gina Rico Mendez**	Faculty	Social Science Research Center
Grace Hodanich	Student	Communication, Media, and Theatre	**Dr. Michael Sandel**	Faculty	FWRC – Wildlife, Fisheries, and Aquaculture
Jill Hudnall	Staff	Pathobiology and Population Medicine	**Masey Smith**	Staff	Pathobiology and Population Medicine
Rideeta Islam Aishy	Student	Comparative Biomedical Sciences	**Kelly Stewart**	Staff	Pathobiology and Population Medicine
Dr. Isaac Jumper	Faculty	Pathobiology and Population Medicine	**Adithya Bindhu Sreekumar**	Staff	Pathobiology and Population Medicine
Dr. Barbara Kaplan	Faculty	Center for Environmental Health Sciences	**Dr. John Thomason**	Faculty	Clinical Sciences
Dr. Attila Karsi	Faculty	Comparative Biomedical Sciences	**Dr. Arun Venugopalan**	Faculty	Pathobiology and Population Medicine
Dr. Mark L. Lawrence	Faculty	Comparative Biomedical Sciences	**Saida Zinnurine**	Student	Comparative Biomedical Sciences
Dr. Alison Lee	Faculty	Clinical Sciences	**Laura Zseleczky**	Staff	Pathobiology and Population Medicine
Dr. Kaylin McNulty	Faculty	Pathobiology and Population Medicine			

APPENDIX 1

PUBLICATIONS, PRESENTATIONS AND OUTREACH ACTIVITIES

Organized in three parts by program — the FAO Reference Center on AMR and Aquaculture Biosecurity, the Feed the Future Innovation Lab for Fish, and the Gulf Coast Aquatic Health Lab.

FAO REFERENCE CENTER ON AMR AND AQUACULTURE BIOSECURITY

1. Abdelhamed H. (2025, July 23). *Transfer and persistence of multi-drug resistance plasmids in the intestinal microbiota of catfish* [Oral presentation, virtual]. Project Directors Meeting.
2. Abdelhamed, H. & Lawrence, M. L. (2025, October 9). *Antibiotic use and resistance mechanisms in aquaculture: Genetics and stewardship* [Oral presentation]. MSU Aquatic Antimicrobial Resistance Workshop.
3. Abdelhamed, H., Riman, M. M., Arick, M. A., Dawood, A. S., Gomaa, B., Chowdhury, M., Hanson, L. A., & Karsi, A. (2025). Investigation mechanisms of action and resistance of Edwardsiella ictaluri to trans-cinnamaldehyde. PLoS One 21 (1), e0340053
4. Asghar, M. U., Zhai, Y., Liu, T., Fan, P., Ain, N. U., Zaidi, A. H., Tariq, M., Mainar-Jaime, R. C., & Jeong, K. C. (2025, September 15). A metagenomics-based approach to understanding the transmission of healthcare-associated antimicrobial resistance in Pakistan. J Hazard Mater. 496: 139384. doi: 10.1016/j.jhazmat.2025.139384.
5. Attia Algharib, S. & Petrie-Hanson, L. (2025). *Epigenetic landscape of H3K27ac, H3K27me3, H3K4me1, and H3K4me3 marks in channel catfish following beta-glucan exposure* [Conference presentation]. Annual Meeting of the South-Central Branch of the American Society for Microbiology, Starkville, MS, United States.
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APPENDIX 1

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APPENDIX 1

FEED THE FUTURE INNOVATION LAB FOR FISH

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APPENDIX 1

GULF COAST AQUATIC HEALTH LAB

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