

Meng GAO

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Education

Graduate School of Oceanography, University of Rhode Island

Narragansett, RI, USA

➤ *Ph.D. Candidate in Oceanography; Overall GPA: 3.93*

Official Graduation Time: May 2026

Advisor: Keisuke Inomura

School of Resources and Environmental Science, Nanjing Agricultural University

Nanjing, China

➤ *B.S. in Ecology; Overall GPA: 92; Ranking: 1/30*

Sept 2018 – Jul 2021

Department of Biology and Environment, University of Gothenburg

Gothenburg, Sweden

➤ *Exchange student*

Jan 2020 – Jun 2020

Publication

1. **Gao M**, Milligan AJ, Deutsch C, Inomura K (2026) Anchoring permits kelp to acquire an ecological niche in coastal oceans: A model analysis. *Heliyon*, e44523, 12(2).
2. **Gao M**, Berberich ME, Brown R, Costello DM, Cotner JB, Damashek J, Kittu LR, Pastor A, Fulweiler RW, Scott JT, Marcarelli AM, Inomura K (2025) Metabolic biochemical models of N₂ fixation for sulfide oxidizers, methanogens, and methanotrophs. *mSystems*, 10(10): e00748-25.
3. **Gao M**, Andrews J, Armin G, Chakraborty S, Zehr J P, Inomura K (2024) Rapid mode switching facilitates the growth of *Trichodesmium*: A model analysis. *iScience*, 109906, 27(6)
4. Wang T, **Gao M**, Song H, Wang C, He M (2024) Low temperature modulates the carbon allocation in different metabolic pathways to improve the tolerance of Arctic *Chlorella* to high light stress. *Algal Research* 80:103562.
5. Masuda T, Inomura K, **Gao M**, Armin G, Kotabová E, Bernát G, Lawrenz E, Lukeš M, Bečková M, Steinbach G, Komenda J, Prášil O (2023) The balance between photosynthesis and respiration explains the niche differentiation between *Crocospaera* and *Cyanothece*. *Computational and Structural Biotechnology Journal* 21:58–65.
6. **Gao M**, Armin G, Inomura K (2022) Low-ammonium environment increases the nutrient exchange between diatom-diazotroph association cells and facilitates photosynthesis and N₂ fixation—A mechanistic modeling analysis. *Cells* 11:2911.
7. Ren S, **Gao M**, Wang X, Yu Y, Chen J, Chen N (2022) Algal bloom prediction in the Jiulong River reservoir based on three types of time series models. *Acta Scientiae Circumstantiae* 42(11): 172-183.
8. Li D, Liu R, Cui X, He M, Zheng S, Du W, **Gao M**, Wang C (2021) Co-culture of bacteria and microalgae for treatment of high concentration biogas slurry. *Journal of Water Process Engineering*, 41, 102014.

Workshops and Presentation

- *Metabolic biochemical models of N₂ fixation for sulfur oxidizers, methanogens, and methanotrophs* (Oral), ASLO Meeting, Madison, WI, Jun 2024
- *Modeling different types of Trichodesmium – How could they adapt to different nutrients environments?* (Poster), Ocean Sciences Meeting 2024, New Orleans, LA, Feb 2024
- Aquatic N₂ Fixation workshop, Great Lake Research Center, Houghton, MI, Oct 2023
- *Environmental Ammonium Effect on DDA: A Cell Flux Model Analysis* (Seminar), University of California, Irvine, CA, Oct 2023
- *A Modeling Analysis: Low-NH₄⁺ Environment Increases the Nutrient Exchange and Metabolism in DDA* (Guest lecture), University of Rhode Island, Narragansett, RI, Apr 2023
- *Writing Workshops Series*, University of Rhode Island, Graduate Writing and Presenting Lab, Kingston, RI, Aug 2025-Present
- *The publication process* (Guest lecture), University of Rhode Island, Narragansett, RI, Oct 2024

Research Experience

Graduate Researcher

Quantitative Model development

Sept 2021 – Present

University of Rhode Island | *Research Assistant*

Advisor: Keisuke Inomura, Assistant Professor, University of Rhode Island

- Develop the coarse-grained models for different marine primary producers including *Trichodesmium*, Diatom-Diazotroph Associations, and kelp forests.
- Model different microorganisms: sulfide oxidizers, methanogens, methanotrophs, anabaena, and gut microbiomes. Use novel biochemical models for chemotrophic N₂ fixation.
- Use coding methods (python, MATLAB, etc.) to calculate and validate the model.

Undergraduate Researcher

Response of Arctic *Chlorella* sp. to extreme Temperature and Light conditions

Jan 2021 – June 2021

Nanjing Agricultural University | *Undergraduate thesis*

Advisor: Meilin He, Associate Professor at the Jiangsu Key Laboratory of Marine Biology

A study of algae bloom forecast models in Jiulong River

Jul 2020 – Jul 2021

Xiamen University | *Research Assistant*

Advisor: Nengwang Chen, Professor at the State Key Laboratory of Marine Environmental Science

Physiological responses of *Scenedesmus obliquus* under ultraviolet irradiation

Sept 2019 – Jan 2020

Nanjing Agricultural University | *Research Assistant*

Advisor: Meilin He, Associate Professor at the Jiangsu Key Laboratory of Marine Biology

Teaching, Mentoring and Community Outreach Experience

- Graduate Coordinator and Tutor, Graduate Writing and Presenting Lab, University of Rhode Island, Aug 2025 – Present
- Teaching Assistant in Chemistry lab, University of Rhode Island, Sept 2024 – May 2025
- Science Saturday Volunteer (twice), Graduate School of Oceanography, University of Rhode Island, Sept 2024 and Sept 2022
- Mentor of Met high school student internship, University of Rhode Island, Apr 2024 – Jun 2024
- Mentor of new student in Quantitative Microbiology group, Jun 2023 – Present
- Diversity and Inclusion Badge Program, University of Rhode Island, Feb 2023 – present
- Volunteered in the New Year Event in Graduate School of Oceanography, University of Rhode Island, Feb 2023.
- Mentor-Mentee program in Graduate School of Oceanography, University of Rhode Island, Aug 2022
- Volunteered for the pollution investigation of Qinhuai River, Nanjing, China, Jul 2019

Skills

- Analytical chemistry and environmental analysis experiment skills.
- Field investigation.
- Computer software: Python, R (Ecological data analysis), MATLAB, JMP, Visual Basic, Microsoft Office.
- Computer Level III license in China.
- Research Cruise.

Awards and Honors

- Thomas and Kathy J. McNiff Graduate Studies Endowment Award.
- GSO Alumni Fund Student Awards.
- National scholarship (top 6%).
- Professor Huang Ruicai Scholarship (1/30).
- Third Prize at the National English Competition for College Students (top 5.1%).