Yibin Huang

Assistant Researcher

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Google Scholar | Research Gate | Person Website

updated: April 2023

Education

Sep. 2014-Jun. 2020 **Ph.D. in Environmental Science (Marine environment)**
College of the Environment and Ecology, Xiamen, University, China

(Advisor*:* Dr. Bangqin Huang)

Aug. 2018-Jun. 2020 **Joint-training Ph.D. in Marine Science**
Department of Earth and Ocean Science, Duke University, USA

(Advisor*:* Dr. Nicolas Cassar)

Sep. 2010-Jun. 2014 **B.S., in Marine Biology**
College of the Ocean and Earth Sciences, Xiamen University, China

Appointment

Feb. 2023-present **Assistant Researcher**
Joint appointment: University of Hawaii at Manoa & NOAA's Pacific Marine Environmental Laboratory, in Seattle, USA

Sep. 2020-Jan. 2023 **Postdoctoral Scholar**
Joint appointment: University of California, Santa Cruz in California & NOAA's Pacific Marine Environmental Laboratory, in Seattle, USA
(Advisor*:* Dr. Andrea Fassbender)

Research Interests

- Biogeochemical cycling of carbon and oxygen
- Biological pump, global climate change
- Autonomous platforms observations
- Physical and biochemical controls on planktonic and bacterial metabolism

Peer-reviewed Publications

Submitted/in revision

[1] Niebergall, A., Traylor, S. **Huang, Y.,** Feen, M., Meyer, M. G., McNair, H. M., Nicholson, D., Fassbender, A. J., Omand, M. M., Marchetti, A., Menden-Deuer, S., Tang, W., Gong, W., Tortell, P., Hamme, R., Cassar, N. Evaluation of new and net community production estimates by multiple ship-based and autonomous observations in the Northeast Pacific (Revision in *Elementa*).

Published

[1] **Huang, Y.,** Fassbender, F., Bushinsky**, S.,** Biological activity maintains the seasonal carbon sink in the Southern Ocean. *Proceedings of the National Academy of Sciences of the United States of America*. doi: 10.1073/pnas.2217909120.

[2] **Huang, Y.,** Eveleth, R., Nicholson, D., Cassar, N., 2022. Can we estimate air-sea flux of biological oxygen from total dissolved oxygen? *Global Biogeochemical Cycles*. doi: 10.1029/2021GB007145. Media: US Ocean Carbon & Biogeochemistry Research Highlight

[3] **Huang, Y.,** Tagliabue, A., Cassar, N., 2022. Data-driven modeling of dissolved iron in the global ocean. *Frontiers in Marine Science*. doi: 10.3389/fmars.2022.837183. Media: GEOTRACER Program Science Highlight

[4] Li, C., Chiang, K., Laws, E., Liu, X., Chen, J., **Huang, Y.,** Tai, A., Huang, B., 2022. Quasi-antiphase diel patterns of abundance and cell size/biomass of picophytoplankton in the oligotrophic ocean. *Geophysical Research Letters.* doi: 10.1029/2022GL097753.

[5] **Huang, Y.,** Fassbender, F., Long, J., Johannessen, S., Bif, M., 2022. Partitioning the export of distinct biogenic carbon pools in the Northeast Pacific Ocean using a biogeochemical profiling float. *Global Biogeochemical Cycles*. doi: 10.1029/2021GB007178. Media: NOAA PMEL Research Highlight

[6] **Huang, Y.,** Nicholson, D., Huang, B., Cassar, N., 2021. Global estimates of marine gross primary production based on machine-learning upscaling of field observations. *Global Biogeochemical Cycles*. doi: 10.1029/2020GB006718. Media: Duke University Science Highlight

[7] **Huang, Y.,** Chen, B., Huang, B., Zhou, H., Yuan, Y., 2019. Potential overestimation of community respiration in the western Pacific boundary ocean: What causes the putative net heterotrophy in oligotrophic systems? *Limnology and Oceanography*. doi:10.1002/lno.11179.

[8] **Huang, Y.,** Laws, E., Chen, B., Huang, B., 2019. Stimulation of heterotrophic and autotrophic metabolism in the mixing zone of the Kuroshio Current and northern South China Sea: implications for export production. *Journal of Geophysical Research: Biogeosciences*. doi:10.1029/2018jg004833.

[9] **Huang, Y.,** Yang, B., Chen, B., Qiu, G., Wang, H., Huang, B., 2018. Net community production in the South China Sea Basin estimated from *in situ* O_2 measurements on an Argo profiling float. *Deep Sea Research Part I: Oceanographic Research Papers*. doi:10.1016/j.dsr.2017.11.002.

[10] **Huang, Y.,** Liu, X., Laws, E., Chen, B., Li, Y., Xie, Y., Wu, Y., Gao, K., Huang, B., 2018. Effects of increasing atmospheric CO_2 on the marine phytoplankton and bacterial metabolism during a bloom: A coastal mesocosm study. *Science of the Total Environment.* doi: 10.1016/j.scitotenv.2018.03.222.

Toolbox and Data Products:

[1] Cornec, M., **Huang Y.,** Jutard, Q., Sauzede, R., Schmechtig, C., 2021. BGC-Argo-R: A R toolbox for accessing and visualizing Biogeochemical Argo data. *Zenodo*. doi: 10.5281/zenodo.5028139.

[2] **Huang, Y.,** Tagliabue, A., Cassar, N., 2022. Global dissolved iron concentration product (monthly climatology, 2°× 2°). *Zenodo*. doi: 10.5281/zenodo.6994318.

[3] **Huang, Y.,** Nicholson, D., Huang, B., Cassar, N., 2021. Global oceanic gross primary production product (monthly climatology, 31 depth intervals, 2°× 2°). *Zenodo*. doi: 10.5281/zenodo.5768050.

Awards, Fellowships and Honors

2019.09 Chinese National Scholarship for outstanding Ph.D. student ($4500)

2018.07 Best oral presentation, 4th graduate student academic form supported by the graduate school of Xiamen University

2018.05 China Scholarship Council Fellowship for studying abroad ($50000)

2017.01 Best student poster, Xiamen Symposium on Marine Environmental Sciences supported by National Natural Science Foundation of China.

2016.08 Croucher Foundation Funds: travel award for summer school in Hong Kong University of Science and Technology

Presentations and Posters

2023.03 **Huang, Y.,** Fassbender A., Q. Quantifying the biological carbon pump with tracer budget approaches., ExOIS forum, Woods Hole Oceanographic Institution, Woods Hole, USA (Invited talk).

2023.03 **Huang, Y.,** Fassbender A., Bushinsky, S., Biogeochemical profiling floats provide new insights into the biological pump in the Southern Ocean. Department of Oceanography at University of Washington, Seattle, USA (Invited talk).

2022.10 **Huang, Y.,** Fassbender A., Bushinsky, S., Biological activity maintaining the Southern Ocean seasonal carbon sink. Oral presentation at 7th Argo Workshop, Brussel, Belgium (virtually).

2022.06 **Huang, Y.,** Fassbender A., Quantifying the role of biology in sustaining the Southern Ocean carbon sink with biogeochemical Argo floats. Oral presentation at 2022 annual Southern Ocean Carbon and Climate Observations and Modeling project (SOCCOM) meeting, Princeton, USA.

2022.03 **Huang, Y.,** Fassbender A., Apples-to-apples: consistent methods for estimating carbon supply and demand from biogeochemical float observations. Poster presentation at Ocean Sciences Meeting, Hawaii, USA (virtually).

2022.02 **Huang, Y.,** Fassbender A., Remote assessment of export of distinct biogenic carbon pools in the Ocean. Oral presentation in the Joint Exploration of the Twilight Zone Ocean Network Seminar (JETZON), London, England (Invited talk, virtually).

2022.02 **Huang, Y.,** Fassbender, A., Long, J., Johannessen, S., Bif, M., Seasonal dynamics of export of distinct biogenic carbon pools in the Northeast Pacific Ocean: insight from biogeochemical profiling float observations. Oral presentation in the 15th Line P workshop, Canada (virtually).

2021.06 **Huang, Y.,** Cornec, M., Jutard, Q., Sauzede, R., Schmechtig, C., Tutorials for R toolbox for accessing and visualizing Biogeochemical Argo data. Oral presentation on new global ocean biogeochemistry (GO-BGC) array workshop: building a community of biogeochemistry float data users, USA (virtually).

2021.05 **Huang, Y.,** Fassbender, A., Long, J., Johannessen, S., Bif, M., Partitioning the export of distinct biogenic carbon pools in the Northeast Pacific Ocean using biogeochemical profiling floats. Oral presentation in 2021 annual Southern Ocean Carbon and Climate Observations and Modeling project (SOCCOM) meeting, USA (virtually).

2021.04 **Huang, Y.,** Fassbender, A., Long, J., Insights on the biological pump in the Northeast Pacific from the biogeochemical profiling floats observations. Oral presentation in Department of Oceanography at University of Washington, Seattle, USA (Invited talk, virtually).

2021.03 **Huang, Y.,** Fassbender, A., Long, J., Insights on the biological pump in the Northeast Pacific from the biogeochemical profiling floats observations. Oral presentation in the 14th Line P workshop, Canada (virtually).

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2021.02 **Huang, Y.,** Fassbender, A., Long, J., Insights on the biological pump in the Northeast Pacific from the biogeochemical profiling floats observations. Oral presentation in Ocean Science Seminar at University of California, Santa Cruz, USA (Invited talk, virtually).

2020.02 **Huang, Y.,** Nicholson, D., Huang, B., Cassar, N., Machine-learning estimates of global marine gross primary production. Poster presentation at Ocean Sciences Meeting, San Diego, USA.

2020.02 **Huang, Y.,** Tagliabue, A., Cassar, N., Data-driven modelling of dissolved iron in the global ocean. Oral presentation at SCOR Working Group, San Diego, USA.

2018.06 **Huang, Y.,** Liu, X., Laws, E., Wu, Y., Gao, K., Huang, B., Effects of CO_2 enrichment on the marine phytoplankton and bacterial metabolism during bloom: A coastal mesocosm study. Oral presentation at15th Asia Oceania Geosciences Society (AOGS) annual meeting, Hawaii, USA.

2018.07 **Huang, Y.,** Chen. B., Zhou, H., Yuan, Q., Huang, B., Potential overestimation of community respiration in the western Pacific boundary ocean: What causes the putative net heterotrophy in oligotrophic systems? Oral presentation in 4th graduate student academic form, Xiamen University, Xiamen, China.

2017.05 **Huang, Y.,** Laws, E., Chen, B., Huang, B., Impact of the lateral Kuroshio intrusion on the microbial metabolism in the boundary zone of the northern South China Sea, Oral presentation in Ocean Carbon Training Course and Workshop, Hangzhou, China.

2016.08 **Huang, Y.,** Yang, B., Chen, B., Qiu, G.,Wang, H., Huang, B., High-resolution of net community production in the South China estimated by the float Argo. Poster presentation in "Climate Change and Marine ecosystems" Summer school, in Hong Kong University of Science and Technology, Hong Kong, China.

2015.01 **Huang, Y.,** Chen, B., Huang, B., Planktonic metabolism in the northern South China Sea during the summer of 2014. Poster presentation in the 2nd Xiamen, Symposium on Marine Environmental Sciences (XMAS-II), Xiamen, China.

SERVICE ACTIVITIES

COMMUNITY EVENTS

2022-the present: Co-organizers of Global Ocean Biogeochemistry Array (GO-BGC) quarterly webinars series at OCB

REFEREE

2021 Associated Editor for NASA/IOCCG Aquatic Primary Productivity Protocol

Journal Reviews

Nature; Progress in Oceanography; Journal of Geophysical Research: Ocean; Biogeosciences; Marine Pollution Bulletin； Limnology and Oceanography: Methods; Limnology and Oceanography; Geophysical Research Letters; Frontier in Marine Science; Plants

Teaching Experience

2017-2018: Graduate teaching assistant for Marine Ecology (XMU, 2017-2018)

Mentorship

2021: Bruno Lopez (summer intern at University of California, Santa Cruz)

Research Experience

University of California, Santa Cruz & NOAA's Pacific Marine Environmental Laboratory 09/2020-present
1.Constraint the carbon export in the subarctic Pacific Ocean by the BGC-float (NASA EXPORTS project)
2.Participation and management in the new global BGC-Argo plan (Go-BGC project)

Duke University 08/2018-05/2020
1. Modeling the global gross primary production and dissolved iron using machine-learning approach
2. Reconstruction of net biological oxygen flux from total oxygen concentration
3. Decomposition of the oxygen signal in the ocean interior with the global ocean circulation model

Xiamen University 09/2014-08/2018
1. Quantification of net community production with Bio-Argo observations and oxygen mass balance model
2. Characterization of the microbial metabolic rates and carbon export in the South China Sea and the western Pacific Ocean with deck incubation
3. Examination of the effect of ocean acidification on phytoplankton and bacterial metabolism (through a coastal Mesocosm study)

Professional Skills

1. Advanced skills in oceanography, including chemical and biological sample collection;
2. Analysis of phytoplankton community structure: HPLC, flow cytometry.
3. *In vitro* incubation: oxygen-based microbial metabolism (light-dark bottle), bacterial production (^{3}H-leucine

incorporation), enzymes activity.
4. Molecular biology: DNA extraction and PCR.
5. Programming language and software: R (Most proficient in modeling, statistical analysis and graphics), Matlab, SigmaPlot, Ocean Data View, SPSS.

Scientific Cruises and Fieldwork

1. Measurements of primary production, net community production, and bacterial production/respiration

2018. 01 Northern South China Sea (21 days), R/V "Jia Geng"
2016. 09 Western Pacific Ocean (41 days), R/V "Ke Xue"
2016. 05 Northern South China Sea (27 days), R/V "Dong Fang Hong II"

2. Study of phytoplankton community structure, deployment of sediment trap and Bio-Argo

2015.08 Northern South China Sea (25 days), RV "Shi Yan I"

3. Phytoplankton community, primary production, and bacterial second production/respiration

2018.03 Mesocosm CO_2 enrichment experiment in Xiamen Bay (23 days)
2015.01 Mesocosm CO_2 enrichment experiment in Xiamen Bay (31 days)