

Bin Wang

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ACADEMIC WORK EXPERIENCE

- 2022 - Present **Postdoctoral Fellow**
Department of Oceanography, Dalhousie University, Canada
Advisor: Dr. Katja Fennel
- 2017 - 2017 **Research Assistant**
School of Environmental Science and Engineering, Sun Yat-Sen University, China

EDUCATION

- 2017 – 2022 **Ph.D.** in Biological Oceanography, Dalhousie University, Canada
Thesis: *Biogeochemical (BGC) Argo improves understanding and quantification of the ocean's biological carbon pump*
Advisor: Dr. Katja Fennel
- 2014 – 2016 **MSc.** in Environmental Science, Sun Yat-Sen University, China
Thesis: *A numerical study on hypoxia in the Pearl River Estuary linking water exchange and biochemical consumptions*
Advisor: Dr. Shiyu Li
- 2010 – 2014 **BSc.** in Environmental Science, Sun Yat-Sen University, China

PEER-REVIEWED PUBLICATIONS

Publication Metrics (based on [Google Scholar profile](#)): 95 citations in total; *h-index*: 6; *i10-index*: 5

- 2022** **Wang, B.** and Fennel, K.: Biogeochemical-Argo data suggest significant contributions of small particles to the vertical carbon flux in the subpolar North Atlantic. *Limnology and Oceanography*, <https://doi.org/10.1002/lno.12209>, 2022
- Fennel, K., Mattern, J. P., Doney, S. C., Bopp, L., Moore, A. M., **Wang, B.**, and Yu, L.: Ocean biogeochemical modelling, *Nature Review Methods Primers*, <https://doi.org/10.1038/s43586-022-00154-2>, 2022.
- Chen, Z., **Wang, B.**, Xu, C., Zhang, Z., Li, S., and Hu, J.: Interannual variabilities, long-term trends, and regulating factors of low-oxygen conditions in the coastal waters off Hong Kong, *Biogeosciences*, 19, 3469–3490, <https://doi.org/10.5194/bg-19-3469-2022>, 2022.
- 2021** Zhang, Z., **Wang, B.**, Li, S., Huang, J., and Hu, J.: On the Intra-annual Variation of Dissolved Oxygen Dynamics and Hypoxia Development in the Pearl River Estuary, *Estuaries and Coasts*, <https://doi.org/10.1007/s12237-021-01022-0>, 2021
- Hu, J., Zhang, Z., **Wang, B.**, and Huang, J.: Long-term spatiotemporal variations in and expansion of low-oxygen conditions in the Pearl River estuary: a study synthesizing observations during 1976–2017, *Biogeosciences*, 18, 5247–5264, <https://doi.org/10.5194/bg-18-5247-2021>, 2021.

- Wang, B.,** Fennel, K., and Yu, L.: Can assimilation of satellite observations improve subsurface biological properties in a numerical model? A case study for the Gulf of Mexico, *Ocean Science*, 17, 1141–1156, <https://doi.org/10.5194/os-17-1141-2021>, 2021.
- 2020** **Wang, B.,** Fennel, K., Yu, L., and Gordon, C.: Assessing the value of biogeochemical Argo profiles versus ocean color observations for biogeochemical model optimization in the Gulf of Mexico, *Biogeosciences*, 17, 4059–4074, <https://doi.org/10.5194/bg-17-4059-2020>, 2020.
- 2019** Yu, L., Fennel, K., **Wang, B.,** Laurent, A., Thompson, K. R., and Shay, L. K.: Evaluation of nonidentical versus identical twin approaches for observation impact assessments: an ensemble-Kalman-filter-based ocean assimilation application for the Gulf of Mexico, *Ocean Science*, 15, 1801–1814, <https://doi.org/10.5194/os-15-1801-2019>, 2019.
- 2018** **Wang, B.,** Hu, J., Li, S., Yu, L., and Huang, J.: Impacts of anthropogenic inputs on hypoxia and oxygen dynamics in the Pearl River estuary, *Biogeosciences*, 15, 6105-6125, <https://doi.org/10.5194/bg-15-6105-2018>, 2018
- Xu, C., Xu, Y., Hu, J., Li, S., **Wang, B.:** A numerical analysis of the summertime Pearl River plume from 1999 to 2010: Dispersal patterns and intraseasonal variability. *Journal of Marine Systems*, 192, 15-27, <https://doi.org/10.1016/j.jmarsys.2018.12.010>, 2018.
- Xu, Z., Li, S., Hu, J., Wang, S., **Wang, B.,** Guo, M., Geng, B.: Summer Phytoplankton responses to upwelling and river plume in Northern South China Sea. *Journal of Tropical Oceanography*, 37(6), 92-103, <http://doi:10.11978/2018001>, 2018 (*in Chinese with English abstract*)
- 2017** **Wang, B.,** Hu, J., Li, S., and Liu, D.: A numerical analysis of biogeochemical controls with physical modulation on hypoxia during summer in the Pearl River estuary, *Biogeosciences*, 14, 2979-2999, <https://doi.org/10.5194/bg-14-2979-2017>, 2017.

CONFERENCE PRESENTATION (1st AUTHOR ONLY)

- Wang, B.,** Fennel, K., *Evaluating roles of small and large particles in the vertical carbon flux in subpolar North Atlantic from BGC-Argo floats. **Oral presentation*** at Ocean Sciences Meeting 2022 (virtual), US, February 2022
- Wang, B.,** Fennel, K., Yu, L., *Can data assimilation of physical and biological satellite observations inform subsurface distributions in the Gulf of Mexico? **Oral presentation*** at Joint ECMWF/OceanPredict workshop on Advances in Ocean Data Assimilation (virtual), UK, May 2021
- Wang, B.,** Fennel, K., Yu, L., Gordon, C., *Assessing the Value of BGC Argo Profile Observations for Ocean Biogeochemical Data Assimilation in a Model of the Gulf of Mexico. **Poster presentation*** at Ocean Sciences Meeting 2020, San Diego, US, February 2020
- Wang, B.,** Fennel, K., Yu, L., Gordon, C., *Tradeoffs between satellite surface and Argo profile observations when optimizing a biogeochemical model for the Gulf of Mexico. **Oral presentation*** at OceanPredict'19, Halifax, Canada, May 2019
- Wang, B.,** Fennel, K., Yu, L., Gordon, C., Zong, H., He, R., *A data-assimilative physical-biogeochemical model for the Gulf of Mexico. **Poster presentation*** at 52nd Canadian Meteorological and Oceanographic Society Congress, Halifax, Canada, June 2018
- Wang, B.,** Hu, J., Li, S., and Liu, D., *A numerical analysis of biogeochemical controls with physical modulation on variations of hypoxia during summer in the Pearl River Estuary. **Oral presentation*** at 14th Estuarine and

INVITED PRESENTATIONS

Speaker (invited), Scientific Committee on Oceanic Research (SCOR) Working Group 161, Respiration in the Mesopelagic Ocean (ReMO): Reconciling ecological, biogeochemical and model estimates, August 2022 (virtual)

Speaker (invited), State Key Laboratory of Tropical Oceanography, South China Sea Institute of Oceanography, CAS, Guangzhou, China, January 2022 (virtual)

RESEARCH EXPERTISE

1. Experience with a range of ocean modelling systems including ECOMSED-RCA, ROMS, and GOTM
2. Experience with a range of observational data including satellite data, the ship-based in-situ data, and autonomous data (e.g. BGC-Argo float data)
3. Experience with the data assimilation techniques including the parameter optimization (e.g., evolutionary algorithm) and state estimation (e.g., Ensemble Kalman Filter)
4. Working experience on the coastal hypoxia and biological carbon pump

TEACHING EXPERIENCES

2022 **Teaching Assistant**, Dalhousie University, Halifax, Canada
Marine Modelling (OCEA 4380/5380)

AWARDS

2021 Chinese Government Award for Outstanding Self-financed Students Abroad

OTHER ACADEMIC ACTIVITIES

Manuscript Reviewer (9 reviews) :

Biogeosciences (3 reviews), Journal of Geophysical Research: Ocean (3 reviews), Journal of Geophysical Research: Biogeosciences (3 reviews)

Scientific Cruises

2019 Bermuda Atlantic Time-series Study (BATS) research cruise

2014-2016 Several cruises in China supported by the Ocean Public Welfare Scientific Research Project