Wenfan Wu, Ph.D.
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RESEARCH INTERESTS

- Modelling on coastal hydrodynamic and biogeochemical processes
- Application of ocean wave models in shelf regions
- Investigation of water quality and ecological conditions

WORK

Postdoctoral Research Associate — Virginia Institute of Marine Science
Aug. 2024 – ongoing — PI: Dr. Y Joseph Zhang

EDUCATION

Ph.D. in Physical Oceanography — Ocean Univ. of China
Sep. 2020 – Jun. 2024 — Advisor: Dr. Fangguo Zhai & Dr. Kejian Wu

M.S. in Applied Oceanography (bypassed to Ph.D. program) — Ocean Univ. of China
Sep. 2018 – Jun. 2020 — Advisor: Dr. Fangguo Zhai

B.S. in Marine Science — Ocean Univ. of China
Sep. 2014 – Jun. 2018

RESEARCH EXPERIENCE

Sep 2018 – Sep 2020

- Evaluation and calibration of the SWAN wave model in Chinese adjacent waters.

Sep 2020 – Jun 2022

- Three-dimensional structure and physical mechanism of summer circulation in the Bohai Sea with SCHISM ocean model.

Jun 2022 to Aug 2024

- Spatial and seasonal variability of nutrient status in the seaward rivers of China.
- Physical controls on the ecological disasters off the Qinhuangdao coast, China.
- High-frequency dynamics of bottom layer DO in temperate shelf seas.

PROFESSIONAL SKILLS

I have rich experiences in applying numerical ocean models (e.g. SCHISM, ROMS, FVCOM, and SWAN), and familiar with multiple programming languages (e.g. MATLAB, Python, Fortran).

Numerical Model	**Programming Language**
SCHISM 9/10	MATLAB 9/10
SWAN 8/10	Fortran 6/10
ROMS 6/10	Python 6/10
FVCOM 6/10	Perl 5/10

LANGUAGE SKILLS

English —— Limited Business Proficiency
Chinese —— Native Speaker

PUBLICATIONS

Published

[1] Wu, W., Zhai, F., Liu, Z., Liu, C., Gu, Y., and Li, P. (2023). The spatial and seasonal variability of nutrient status in the coastal rivers of China shaped by the human activities. *Ecol. Indic.*, 157: 111223. https://doi.org/10.1016/j.ecolind.2023.111223.

[2] Wu, W., Zhai, F., Liu, C., Gu, Y., and Li, P. (2023). Three-dimensional structure of summer circulation in the Bohai Sea and its intraseasonal variability. *Ocean Dynam.*, 1-20. https://doi.org/10.1007/s10236-023-01576-6.

[3] Wu, W., Zhai, F., Gu, Y., Liu, Z., and Li, P. (2023). Weak local upwelling elevates the risks of ecological disasters in shallow waters. *Environ. Re. Lett.,* 18: 114031.

[4] Wu, W., Liu, Z., Zhai, F., Li, P., Gu, Y., and Wu, K. (2021). A quantitative method to calibrate the SWAN wave model based on the whitecapping dissipation term. *Appl. Ocean Res.*, 114, 102785. https://doi.org/10.1088/1748-9326/ad0256.

[5] Wu, W., Li, P., Zhai, F., Gu, Y., and Liu, Z. (2020). Evaluation of different wind resources in simulating wave height for the Bohai, Yellow, and East China Seas

(BYES) with SWAN model. *Cont. Shelf Res.*, 207, 104217. https://doi.org/10.1016/j.csr.2020.104217.

[6] Lei, Z., Wu, W., Gu, Y., Zhai, F. and Li, P. (2023) A general method to determine the optimal whitecapping dissipation coefficient in the SWAN model. *Front. Mar. Sci.*, 10:1298727. https://doi.org/10.3389/fmars.2023.1298727.

[7] Zhai, F., Wu, W., Gu, Y., Li, P., & Liu, Z. (2021). Dynamics of the seasonal wave height variability in the South China Sea. *Int. J. Climatol.*, 41(2), 934-951. https://doi.org/10.1002/joc.6707.

[8] Zhai, F., Wu, W., Gu, Y., Li, P., Song, X., Liu, P., ... & He, J. (2021). Interannual-decadal variation in satellite-derived surface chlorophyll-a concentration in the Bohai Sea over the past 16 years. *J. Mar. Syst.*, 215, 103496. https://doi.org/10.1016/j.jmarsys.2020.103496.

[9] Li, J., Li, P., Bai, P., Zhai, F., Gu, Y., Liu, C., ... & Wu, W. (2022). Abrupt change of a thermal front in a high-biomass coastal zone during early spring. *Front. Mar. Sci.*, 9, 1092984. https://doi.org/10.3389/fmars.2022.1092984.

[10] Zhai, F., Liu, Z., Li, P., Gu, Y., Sun, L., Hu, L., ... & Wu, W. (2021). Physical controls of summer variations in bottom layer oxygen concentrations in the coastal hypoxic region off the northeastern Shandong Peninsula in the Yellow Sea. *J. Geophys. Res. Oceans*, 126(5), e2021JC017299. https://doi.org/10.1029/2021JC017299.

[11] Song, X., Gu, Y., Zhai, F., Li, P., Liu, P., Liu, Z., Wu, W., ... & He, J. (2021). Climatology and seasonal variability of satellite-derived chlorophyll-a around the Shandong Peninsula. *J. Oceanol. Limnol.*, 39(4), 1222-1244. https://doi.org/10.1007/s00343-020-0249-5.

Under Revision

[12] Wu, W., Song, C., Chen, Y., Zhai, F., Liu, Z., Liu, C., Gu, Y., and Li, P. (2024). High-frequency dynamics of bottom layer dissolved oxygen in temperate shelf seas: a case study in the Bohai Sea. *Limnol. Oceanogr.*, under review.

CONFERENCES

The Tenth National Marine Technology Conference (May 2021; Zhoushan, China)

Session Talk: Physical Controls of Summer Variations in Bottom Layer Oxygen Concentrations in the Coastal Hypoxic Region off the North-eastern Shandong Peninsula in the Yellow Sea (on behalf of Dr. Fangguo Zhai)

HONORS AND AWARDS

Graduate Study Scholarship (Ranked in the top 25%)
Graduate Academic Innovation Scholarship (2024)

SERVICES AND ACTIVIEIS

Teaching Experience

- Teaching assistant (2021–2022 Introduction to Oceanography, for undergraduates, COAS, Ocean Univ. of China, Prof. Fangguo Zhai)
- Teaching assistant (2023–2024 Marine data analysis and acquisition, for masters, COAS, Ocean Univ. of China, Prof. Fangguo Zhai & Prof. Kejian Wu)

Field Observation

- Annual survey of sea-level changes along the Qingdao coastal area (2018–2023)
- Cruise observations of hypoxia in northern Shandong Peninsula (2019–2021)

SOFTWARE DEVELOPMENT

- A MATLAB toolbox designed for the SCHISM model.
- A 1-D biogeochemical model established with MATLAB following the CoSiNE frame.

PERSONAL WEBSITES

ResearchGate https://www.researchgate.net/profile/Wenfan-Wu
GitHub https://github.com/wenfanwu
Personal Homepage https://wenfanwu.github.io/