

## Personal Particulars

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- Email: [wengseng@connect.hku.hk](mailto:wengseng@connect.hku.hk)
- Languages: Cantonese (native), Mandarin (native) and English (fluent)
- Research keywords: marine pollution and toxicology, ecological risk assessment, sophisticated pollutant mixture

## Current Position

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- **Research Assistant Professor (Macau Fellow Talent Programme), Centre for Regional Oceans and Department of Ocean Science and Technology, Faculty of Science and Technology, The University of Macau, Macau SAR, China**
- 09/2022 – present

## Education

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- **Doctor of Philosophy, The Swire Institute of Marine Science and the School of Biological Sciences, The University of Hong Kong (HKU), Hong Kong SAR, China**
- Expertise in marine nanotoxicology, impacts of multiple environmental stressors
- 01/2016 – 05/2020
- **Bachelor of Science with First Class Honors, School of Life Sciences, The Chinese University of Hong Kong (CUHK), Hong Kong SAR, China**
- Major in Environmental Sciences and Minor in Geography and Resource Management
- 09/2011 – 08/2015

## Academic Experience

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- **Guest investigator, Department of Biology, Woods Hole Oceanographic Institution, Massachusetts, the United States**
- 08/2024 – present
- **Postdoc, State Key Laboratory of Marine Pollution, City University of Hong Kong, Hong Kong SAR, China**
- 08/2020 – 08/2022
- **Visiting PhD student, Department of Biological Sciences, Sungkyunkwan University, Korea**
- 09/2018 – 01/2019

## Awards

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- Best Poster Award, Faculty of Science and Technology (FST) Symposium on Science and Technology and Graduation Ceremony, The University of Macau – 2023
- Awardee of “Technology Talent Scheme”, Innovation and Technology Fund, Hong Kong SAR– 2021
- Professor Brian Morton Postgraduate Prize in Marine Biology, School of Biological Sciences, The University of Hong Kong (HKU) – 2021
- Oral presentation award (2<sup>nd</sup> runner up), the 6<sup>th</sup> Symposium of Hai Chuan Qing Nian (海川青年), The Ocean University of China – 2019

- The Professor Rudolf Wu Award for the Best Oral Presentation Award, the 9<sup>th</sup> International Conferences on Marine Pollution and Ecotoxicology, HKU – 2019
- Dean's honours list, Faculty of Science, the Chinese University of Hong Kong (CUHK) – 2014/2015
- Government scholarship for undergraduate study, Macao SAR – 2013/2014, 2014/2015
- Chung Chi College Department Prize, CUHK – 2013/2014
- Dr. Ho Tim Memorial Scholarship (Chung Chi College Class Scholarship), CUHK – 2013/2014

### Publications (Chronological order)

1. **Lai RWS**, Zhou GJ, Yung MMN, Djurišić AB, Leung KMY\* (2023). Interactive effects of temperature and salinity on toxicity of zinc oxide nanoparticles towards the marine mussel *Xenostrobus securis*. *Sci. Total Environ.*, 889, 164254. [Impact Factor: 8.2, Q1 in Environmental Chemistry; Citations: 5; updated on 23 July 2024]
2. Li AJ, **Lai RWS\***, Zhou GJ, Leung PTY, Zeng EY, Leung, KMY\* (2023). Joint effects of temperature and copper exposure on developmental and gene-expression responses of the marine copepod *Tigriopus japonicus*. *Ecotoxicology*, 32, 1-8. [Impact Factor: 2.4, Q2 in Toxicology; Citations: 2; updated on 23 July 2024]
3. **Lai RWS**, Zhou GJ, Kang HM, Jeong CB, Djurišić AB, Lee JS, Leung KMY\* (2022). Contrasting toxicity of polystyrene nanoplastics to the rotifer *Brachionus koreanus* in the presence of zinc oxide nanoparticles and zinc ions. *Aquat Toxicol.*, 253, 106332. [Impact Factor: 4.1, Q1 in Aquatic Science; Citations: 4; updated on 23 July 2024]
4. Ho PWL\*, Chang EES, Leung CT, Liu H, Malki Y, Pang SY, Choi ZYK, Liang Y, **Lai WS**, Ruan Y, Leung KMY, Yung S, Mak JCW, Kung MHW, Ramsden DB, Ho SL (2022). Long-term inhibition of mutant LRRK2 hyper-kinase activity reduced mouse brain  $\alpha$ -synuclein oligomers without adverse effects. *npj Parkinson's Disease*, 8, 1-22. [Impact Factor: 6.7, Q1 in Cellular and Molecular Neuroscience; Citations: 6; updated on 23 July 2024]
5. Li AJ, Zhou GJ\*, **Lai RWS**, Leung PTY, Wu CC, Zeng EY, Lui GCS, Leung KMY\* (2022). Extreme cold or warm events can potentially exacerbate chemical toxicity to the marine medaka fish *Oryzias melastigma*. *Aquat. Toxicol.*, 249, 106226. [Impact Factor: 4.1, Q1 in Aquatic Science; Citations: 9; updated on 23 July 2024]
6. Strain EMA, **Lai RWS**, White CA, Piarulli S, Leung KMY, Airoidi L, O'Brien A (2022). Editorial: Marine Pollution - Emerging Issues and Challenges. *Front. Mar. Sci.*, 9, 918984. [Impact Factor: 2.8, Q1 in Aquatic Science; Citations: 1; updated on 23 July 2024]
7. Yeung KWY, **Lai RWS**, Zhou GJ\*, Leung KMY\*. Concentration-response of six marine species to all-trans retinoic acids and its ecological risk to the marine environment (2022). *Ecotoxicol. Environ. Saf.*, 235, 113455. [Impact Factor: 6.2, Q1 in Pollution; Citations: 5; updated on 23 July 2024]
8. Wilkinson JL\*, Boxall ABA, Kolpin D, Leung KMY, **Lai RWS** et al. (125 authors in total) (2022). Pharmaceutical pollution of the world's rivers. *Proc. Natl. Acad. Sci. U.S.A.*, 119, e2113947119. [Impact Factor: 9.4, Q1 in Multidisciplinary; Citations: 785; received Cozzarelli Prize of the Year from PNAS to recognize recently published papers of outstanding scientific quality and originality; updated on 23 July 2024]
9. **Lai RWS**, Kang HM, Zhou GJ\*, Yung MMN, He YL, Ng AMC, Li XY, Djurišić AB, Lee JS & Leung KMY\* (2021). Hydrophobic surface coating can reduce toxicity of zinc oxide nanoparticles to the marine copepod *Tigriopus japonicus*. *Environ. Sci. Technol.*, 55, 6917-6925. [Impact Factor: 10.8, Q1 in Environmental Chemistry; Citations: 18; updated on 23 July 2024]
10. **Lai RWS**, Yung MMN, Zhou GJ, He YL, Ng AMC, Djurišić AB, Shih KM & Leung KMY (2020). Temperature and salinity jointly drive the toxicity of zinc oxide nanoparticles: A challenge to environmental risk assessment under global climate change. *Environ. Sci. Nano*, 7, 2995-3006. [Impact Factor: 5.8, Q1 in Environmental Science (miscellaneous); Citations: 26; selected Hot article; updated on 23 July 2024]

11. Zhou GJ, **Lai RWS**, Sham RCT, Lam CS, Yeung KWY, Astudillo JC, Ho KKY, Yung MMN, Yau JKC & Leung KMY (2019). Accidental spill of palm stearin poses relatively short-term ecological risks to a tropical coastal marine ecosystem. *Environ. Sci. Technol.*, 53, 12269-12277. [Impact Factor: 10.8, Q1 in Environmental Chemistry; Citations: 16; updated on 23 July 2024]
12. Xia D, Liu H, Jiang Z, Ng TW, **Lai WS**, An T, Wang W & Wong PK (2018). Visible-light-driven photocatalytic inactivation of *Escherichia coli* K-12 over thermal treated natural magnetic sphalerite: Band structure analysis and toxicity evaluation. *Appl. Catal. B: Environ.*, 224, 541-552. [Impact Factor: 20.2, Q1 in Environmental Science (miscellaneous); Citations: 56; updated on 23 July 2024]
13. **Lai RWS**, Yeung KWY, Yung MMN, Djurišić AB, Giesy JP & Leung KMY (2018). Regulation of engineered nanomaterials: Current challenges, insights and future directions. *Environ. Sci. Pollut. Res.*, 25, 3060-3077. [Impact Factor: 4.2, Q1 in Pollution; Citations: 82; updated on 23 July 2024]
14. **Lai RWS**, Perkins MJ, Ho KKY, Astudillo JC, Yung MMN, Russel BD, Williams GA & Leung KMY (2016). Hong Kong's marine environments: History, challenges and opportunities. *Reg. Stud. Mar. Sci.*, 8, 259-273. [Impact Factor: 2.1, Q2 in Aquatic Science; Citations: 53; updated on 23 July 2024]

### Fundings (Chronological order)

1. Impacts of different commercial silane coatings to algal toxicity of metal nanoparticle mixtures. Science and Technology Development Fund. 2023-2026. **As PI. MOP 670,000**. Co-Is: Prof. Yongjie LI.
2. Development of Technical Standards for Ecotechnologies in Ecoshoreline Construction in the Greater Bay Area (Translated from the Chinese project name 粵港澳大灣區生態海堤建設的生態化技術標準 (制定)). Key Laboratory of Water Security Guarantee in Guangdong-Hong Kong-Macao Greater Bay Area of Ministry of Water Resources. 2023-2025. **As PI. RMB 50,000**. Co-Is: Prof. Simon Ming Yuen LEE, Prof. Angus Chi Chiu LAM, Prof. Yongjie LI, Prof. Kenneth Mei Yee LEUNG, Prof. Juan Carlos ASTUDILLO PLACENCIA, Dr. Meng YAN, Dr. Peng HOU, Dr. Xiaowei ZHU. [Part of a Key Supervised Programme in the Institution]
3. Linking Environmental DNA and RNA for Evaluating the Health of Aquaculture Systems (Translated from the Chinese project name 結合環境 DNA 及 RNA 數據評價養殖水體健康程度的探討). The Science and Technology Innovation Committee of Shenzhen. 2022-2025. **As Co-I. RMB 300,000**. PI: Dr. Meng Yan. Other Co-Is: Prof. Yishan LU, Prof. Kenneth M.Y. LEUNG, Dr. Mengyang LIU.

### Major Work and Research Experiences

<b>Position</b>	Postdoc
<b>Institution</b>	State Key Laboratory of Marine Pollution, City University of Hong Kong
<b>Supervisor</b>	Prof. Kenneth MY LEUNG and Prof. Paul KS LAM
<b>Involved Projects</b>	(1) The Global Estuaries Monitoring Programme of emerging chemicals of concerns (United Nations Ocean Decade Programme, on-going, project manager); (2) Risk assessment of common antibiotics (research study, finished); (3) Development of a platform for rapid identification of microalgae and microplastics in seawater (research project, on-going, core member); (4) Ecological effects of recycled water in Hong Kong (government consultancy service, finished, core member).
<b>Period</b>	08/2020 – 08/2022
<b>Position</b>	Visiting PhD Student
<b>Institution</b>	Sungkyunkwan University
<b>Supervisor</b>	Prof. Jae-Seong LEE
<b>Involved Projects</b>	(1) The impacts of surface coatings on the toxicity of zinc oxide nanoparticles;

	(2) The interaction between nanoplastics and zinc oxide nanoparticles and their toxicity.
<b>Period</b>	09/2018 – 01/2019
<b>Position</b>	Research Assistant
<b>Institution</b>	The University of Hong Kong
<b>Supervisor</b>	Prof. Kenneth MY LEUNG
<b>Involved Projects</b>	Influence of trawl ban on mollusks community in Hong Kong
<b>Period</b>	06 – 12/2015
<b>Position</b>	Final Year Project during Bachelor of Science (BSc)
<b>Institution</b>	The Chinese University of Hong Kong
<b>Supervisor</b>	Prof. PK WONG
<b>Involved Project</b>	Effect of thermal treatment on the photocatalytic bacterial disinfection efficiency of natural magnetic sphalerite
<b>Period</b>	07/2014 – 04/2015
<b>Position</b>	Intern (sponsored by DREAM Program Internship, The Chinese University of Hong Kong)
<b>Institution</b>	The Biodiversity Research Centre, Academia Sinica
<b>Supervisor</b>	Dr. Benny KK CHAN
<b>Involved Projects</b>	(1) Phylogenetic analysis of barnacles in Taiwan; (2) Environmental monitoring with robo-barnacles; (3) Heat tolerance of barnacle, <i>Tetraclita japonica</i> .
<b>Period</b>	07 – 08/2013

### Teaching Experiences

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<b>Position</b>	Guest Speaker
<b>Institution</b>	The University of Hong Kong
<b>Lecturer in charge</b>	Dr. Janet KY CHAN
<b>Lecture</b>	ENVM8012 Environmental health and risk assessment, Master of Science (MSc) course
<b>Period</b>	2020/2021 – present
<b>Position</b>	Tutor
<b>Institution</b>	The University of Hong Kong
<b>Lecturer in charge</b>	Prof. Kenneth MY LEUNG
<b>Lecture</b>	BIOL2102/6007 Biostatistics, BSc course
<b>Period</b>	2016/2017 – 2019/2020
<b>Position</b>	Tutor
<b>Institution</b>	The University of Hong Kong
<b>Lecturer in charge</b>	Prof. Kenneth MY LEUNG
<b>Lecture</b>	Lab session of ENVM8012 Environmental health and risk assessment, MSc course

<b>Period</b>	2016/2017 – 2019/2020
<b>Position</b>	Tutor
<b>Institution</b>	The University of Hong Kong
<b>Lecturer in charge</b>	Dr. Janet KY CHAN
<b>Lecture</b>	Computer Lab session of ENVM7015 Research methods and report writing in environmental management, MSc course
<b>Period</b>	2016/2017 – 2017/2018

### Attended Conferences

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1. Oral, Symposium on Recent Advances in Marine Environmental Research, East Asian Sea Congress, Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), 2021
2. Oral, The 6<sup>th</sup> Symposium of Hai Chuan Qing Nian (海川青年), The Ocean University of China, China, 2019
3. Oral, The 9<sup>th</sup> International Conferences on Marine Pollution and Ecotoxicology (ICMPE), The University of Hong Kong, China, 2019
4. Poster, Society of Environmental Toxicity and Chemistry (SETAC) Europe 2018 Conference, 2018
5. Oral, The 9<sup>th</sup> University Consortium on Aquatic Sciences (UCAS), 2017
6. Oral, Society of Environmental Toxicity and Chemistry (SETAC) Asia-Pacific 2016 Conference, 2016
7. Oral, The 8<sup>th</sup> International Conference on Marine Pollution and Ecotoxicology (ICMPE), 2016
8. Poster, The 2<sup>nd</sup> International Conference on Deriving Environmental Quality Standards for the Protection of Aquatic Ecosystems (EQSPA), 2016
9. Oral, The 8<sup>th</sup> University Consortium on Aquatic Sciences (UCAS), 2016
10. Oral, The 2<sup>nd</sup> Sino-Finnish Summer School in Environmental Science (SFISSES), 2015

### Other Experiences

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1. Oysters Saves Our Seas, Hong Kong Marine Ecological Association
  - Volunteer, 2021 onwards
2. Qingdao – Hong Kong Marine Environment and Biodiversity Joint Research Center, Young Scientist Working Group (青島-香港海洋環境與生態聯合研究中心青年工作組)
  - Member, 2021
3. The 1st International Symposium on Marine Science and Engineering for Young Scientists and Postgraduates, Hong Kong Branch of the Southern Marine Science and Engineering Guangdong Laboratory (Guangzhou), The Hong Kong University of Science and Technology (HKUST)
  - Organizing committee, 2021
4. The 1st Graduate Symposium on Marine Environmental Research (GRAMMER), the State Key Laboratory of Marine Pollution (SKLMP), The City University of Hong Kong
  - Organizing committee, 2019
5. Asia-Pacific Student Advisory Council (APSAC), Society of Toxicology and Chemistry Asia-Pacific
  - Chair, 2019; Vice Chair, 2018; Student representative of Hong Kong, 2017
6. Marine Park Ambassador Scheme, Agriculture Fisheries and Conservation Department, The Government of Hong Kong Special Administrative Region
  - Marine Park Ambassador, 2017 onwards
7. The 9<sup>th</sup> University Consortium on Aquatic Sciences (UCAS 2017), The University of Hong Kong
  - Organizing committee, 2017

## RESUME

Racliffe Weng Seng LAI

8. Climate Youth Network – Climate Youth Leadership Programme, Green Power Hong Kong and the United Nations Environment Programme (UNEP)
  - Climate Youth Leader of secondary school students, 2014
9. Student Association of Campus YMCA, The Chinese University of Hong Kong
  - Marketing and project manager, 2012
10. Orientation Camp for Undergraduate Freshmen of Department of Environmental Sciences, The Chinese University of Hong Kong
  - Organizing committee, 2012