RUI YING

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EDUCATION

Sun Yat-sen University (SYSU) Expected Graduation: June 2020
Master of Science in Hydrobiology *Guangzhou, China*

- Master's Thesis: Fishery Resource Status and Community Structure Analysis of Daya Bay, China
- Relevant coursework: Biodiversity, Ecological Methodology, Fish Physiology, Experiment Design and Statistical Analysis, Biology Instrument and Equipment Technology, Academic Norms and Paper Writing

Northwest A&F University June 2017
Bachelor of Science in Aquaculture *Yangling, China*

- Bachelor's Thesis: Effects of Cadmium on Apoptosis in Ovarian of Rare Minnow *Gobiocypris rarus*

PUBLICATIONS

Ying, R., Yin, F., Jiang, L., Li, Z., Huang, J., Wang, Y., Lu, J., & Feng, J. (2019). Fitting methods and seasonality effects on the assessment of pelagic fish communities in Daya Bay, China. *Ecological Indicators*, *103*, 346–354.

Jiang, L., Feng, J., **Ying, R.,** Yin, F., Pei, S., Lu, J., Cao, Y., Guo, J., & Li, Z. (2019). Individual and combined effects of ammonia-N and sulfide on the immune function and intestinal microbiota of Pacific white shrimp *Litopenaeus vannamei*. *Fish & Shellfish Immunology*, *92*, 230–240.

Ying, R., Jiang, L., Yin, F., Huang, J., Li, Z., Wang, Y., & Feng, J. (2019). Analysis of community structure and diversity of nekton in Kaozhouyang Bay using gill nets and cages. *South China Fisheries Science*, *15*, 1.

Feng, J., Wang, S., Wang, S., **Ying, R.,** Yin, F., Jiang, L., & Li, Z. (2019). Effects of Invasive *Spartina alterniflora Loisel.* and Subsequent Ecological Replacement by *Sonneratia apetala* Buch.-Ham. on Soil Organic Carbon Fractions and Stock. *Forests*, *10*(2), 171.

Ying, R., Chen, J., Gao, S., Li, Z., & Feng, J. (2018). Single and synergistic effects of *Ulva lactuca* and *Sesuvium portulacastrum* on the purification of mariculture wastewater. *Chinese Journal of Ecology*, *37*(9), 2745–2753.

RESEARCH INTERESTS

The effects of global changes on the marine/freshwater ecosystem and its function

- Specifically, how global warming, ocean acidification, and other environmental changes affect aquatic communities, such as individual body size, fish migration patterns, and biodiversity loss. I plan to research the most effective ways of quantifying these potentially negative influences, and develop preventative solutions.

The long-term dynamic of the biogeochemical cycle

- The exchanges of nutrient elements between the seabed and surface, ocean and terrene are a constant cycle. Through this process of circulation, the earth has experienced the Cambrian Explosion and several biological extinctions. A study of paleoecology can determine the impact of these rapid changes on past environments and provide important insights for the study of current patterns of change.

ACADEMIC EXPERIENCE

Laboratory for Improved Variety Reproduction of Aquatic Economic Animals Nov. 2017 – Present
Graduate Researcher, Advised by Prof. Feng Jianxiang and Prof. Li Zufu *Guangzhou, China*

- Investigate the community structure of Huizhou's Daya Bay and Kaozhouyang Bay using two

complementary gears (otter trawl and pair trawl for Daya Bay, gill net and cage for Kaozhouyang Bay) to identify the anthropogenic impacts on the regional marine ecology.
- Conduct four-season sampling to identify species present in Daya Bay and Kaozhouyang Bay. Analyze community structure using diversity indices and a cluster analysis of the nekton biomass, abundance, and other environment variables. Published analysis of Kaozhouyang Bay on *South China Fisheries Science*.
- Analyze the nonlinear biomass-size relationship of the Daya Bay community using size spectra. Compared the analyzed results of various size spectra methods and models, and suggested the use of the Maximum Likelihood Estimation method as most effective. Published the result of this analysis on *Ecological Indicators*.
- Conduct trait-based functional structure analysis and stable isotopic analysis of 33 different species of pelagic fish, demersal fish, and benthic crustacean, to analyze the pelagic-benthic coupling effects in Daya Bay. Found that most nekton organisms are largely fueled by pelagic production and exhibit highly trophic overlapping.

Laboratory for Improved Variety Reproduction of Aquatic Economic Animals Oct. 2017
Graduate Researcher, Advised by Prof. Feng Jianxiang *Guangzhou, China*

- Conducted an experiment in which two aquatic plants, *U. lactuca* and *S. portulacastrum*, were utilized to purify mariculture wastewater.
- As hypothesized, the experiment demonstrated that the COD, TN, Ammonia-N, and DIP concentrations in the wastewater decreased over time. The removal rate varied according to the plant density, with the most effective density being recorded at 2.0 g/L for *U. lactuca* and 4.8 g/L for *S. portulacastrum*.
- Reported that the synergistic removal effect was clearly demonstrated to be greater than both single removal effects in a paper that was published in *Chinese Journal of Ecology*.

Wang's Lab March 2017 – June 2017
Undergraduate Researcher/Intern, Advised by Prof. Wang Zaizhao and Dr. Zhang Guo *Yangling, China*

- Utilized AO-EB fluorescence staining to detect the apoptosis rate of the ovary cells from 180 rare minnows, *Gobiocypris rarus*, after exposing the cells to cadmium for 7 days.
- Performed qRT-PCR to detect apoptosis-related gene expression following the cadmium exposure.
- Created paraffin sections to observe histological changes among the cells, including cell vacuoles, nuclear retraction, and cytoplasmic retraction.

FELLOWSHIPS & AWARDS

- Academician Lin Hao-ran Scholarship, 2019
- National scholarship, 2019
- Outstanding Graduate Student of SYSU, 2019
- First-class Graduate Student Fellowship, SYSU, 2017 – 2020

SKILLS

- Programming: R, Python, C, Java, Shell
- Software: Emacs, LaTeX, SPSS, Primer, MS Office
- Language: Mandarin Chinese (native), English (proficient)
- Field and Lab Skills: qPCR, paraffin slice, fish identification, stable isotope analysis

应 锐

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教育经历

中山大学 2017 年 9 月至今
水生生物学 学术型硕士 广州，中国

- 毕业论文: 大亚湾游泳动物群落多样性与营养结构研究
- 相关课程: 生物多样性，生态学研究方法，鱼类生理学，试验设计与统计分析，生物仪器与技术，学术规范与写作

西北农林科技大学 2013 年 9 月至 2017 年 7 月
水产养殖学 学士 杨凌，中国

- 毕业论文：镉对稀有鮈鲫卵巢细胞凋亡的影响

发表论文

Ying, R., Yin, F., Jiang, L., Li, Z., Huang, J., Wang, Y., Lu, J., & Feng, J. (2019). Fitting methods and seasonality effects on the assessment of pelagic fish communities in Daya Bay, China. *Ecological Indicators*, *103*, 346–354.

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Feng, J., Wang, S., Wang, S., **Ying, R.,** Yin, F., Jiang, L., & Li, Z. (2019). Effects of Invasive *Spartina alterniflora Loisel.* and Subsequent Ecological Replacement by *Sonneratia apetala* Buch.-Ham. on Soil Organic Carbon Fractions and Stock. *Forests*, *10*(2), 171.

应锐,蒋力,尹芳敏, 等.基于刺网、地笼的考洲洋游泳动物群落结构和多样性分析[J].南方水产科学,2019,15(4):1-10

应锐,陈婧芳,高珊珊, 等.石莼和海马齿对海水养殖水体的单一及协同净化效果[J].生态学杂志,2018,37(9):2745-2753

研究兴趣

全球变化对海洋/淡水生态系统及其功能的影响

- 全球变暖、海洋酸化及其他环境变化如何影响水生生态系统，如个体大小、鱼类洄游方式和生物多样性。我十分希望研究如何量化这些潜在负面影响并据此制定有效的管理措施。

生物地球化学循环的长期动态

- 海洋表、底层及海、陆间的营养物质交换长期不断地进行循环。通过这种循环过程，地球经历了寒武纪爆炸和多次生物灭绝。我认为，对古生态学的研究可以使我们认识到环境急剧变化情况下生物地球化学循环及生物圈受到影响，并为研究当前变化模式提供重要的研究视角。

学术经历

广东省水生经济动物良种繁育重点实验室 2017年9月至今
硕士毕业论文部分，由冯建祥副教授、黎祖福教授共同指导

- 历经四个季节的采样与分类鉴定，使用互补多样的手段（大亚湾的双拖网和底拖网，考洲洋的刺网和地笼）对惠州海域的游泳动物多样性及群落结构进行调查，全面确定了大亚湾和考州洋湾中目前的渔业种类和资源现状及人类活动对区域海洋生态的影响。
- 采用多样性指数、聚类分析和NMDS分析，研究了考洲洋群落结构，发现考洲洋内不同站点间群落结构相似性高，无显著差异。
- 使用生物量粒径谱分析大亚湾群落的非线性生物量-个体尺寸关系。比较了各种粒径谱拟合方法和分布的分析结果，发现最大似然估计方法和指数分布拟合优度最高。季节性的环境变化及鱼类和洄游对大亚湾粒径结构变化有显著影响。
- 对33种不同的中上层鱼类，底层鱼类和底栖甲壳动物进行基于特征的功能结构分析和稳定同位素分析，以分析大亚湾的水层-底栖耦合效应。发现无论中上层和底层的游泳动物群落都受到中上层生产力影响较大，并因此表现出高度营养生态位重叠。

广东省水生经济动物良种繁育重点实验室 2017年9月至今

由陈婧芳师姐进行试验，本人分析数据、撰写论文

- 试验检测两种水生植物石莼*U. lactuca*和海马齿*S. portulacastrum*对海水养殖废水的净化效果。结果如假设，实验表明废水中的COD，TN，氨氮和DIP浓度随时间降低。
- 去除率随植物密度而变化，最有效的密度记录为：石莼2.0 g/L，海马齿4.8 g / L。
- 两者协同净化效果明显优于各自单独净化效果。（发表于《生态学杂志》）

西北农林科技大学动物科技学院 2017年3月至2017年6月

本科毕业论文, 由王在照教授及张国博士指导

- 使用AO-EB荧光染色，将细胞暴露于镉中7天后，检测来自180只稀有鮈鲫卵巢细胞的凋亡率。
- 进行qRT-PCR检测镉暴露后凋亡相关基因的表达。
- 石蜡切片观察细胞之间的组织学变化，包括细胞液泡，核回缩和细胞质回缩。

获得奖项

- 林浩然院士奖学金, 2019
- 国家奖学金, 2019
- 中山大学优秀研究生奖学金, 2019
- 中山大学研究生一等奖助金, 2017 – 2020

学术技能

- 编程语言: R, Python, C, Java, Shell
- 软件: Emacs, LaTeX, SPSS, GIS, Primer, MS Office
- 语言: 中文, 英语 (精通)
- 实验室技能: qPCR, 石蜡切片，鱼类鉴定，稳定同位素分析