

**Ishani Mukherjee, PhD**

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**Research interests:** Behavioural ecology, Social behaviour, Fish schooling, Energetics, Physiology and Adaptation to environmental changes

### Research Experience

Post-doctoral Associate	Energetics and Kinematics of wild mullet schools  Mentor: Dr. James Liao	2024-Present  Whitney Laboratory for Marine Bioscience, University of Florida
PhD Student	How environmental variables shape schooling properties of wild zebrafish  Mentor: Dr. Anuradha Bhat	2019-2024  Indian Institute of Science Education and Research Kolkata, (IISER K), India
Master's Dissertation	Information use during nest relocation in an Indian ant  Mentor: Dr. Sumana Annagiri	2018  Indian Institute of Science Education and Research Kolkata, (IISER K), India

### Education

Integrated Master's in Biotechnology SGPA: 7.31; First Division	St. Xavier's College, Kolkata 2013- 2018 Kolkata, India
ISC percentage: 88.0; ICSE percentage:90.4	Pratt Memorial School, Kolkata 1999-2013

## National-level Examinations Qualified

1. Joint CSIR UGC Test (LS),
2. GATE Ecology and Evolution (AIR 108)
3. JGEEBILS

## Publications

(N<sub>Total</sub>=9, N<sub>Published</sub>=6, N<sub>Under Review</sub>=1, N<sub>Under Preparation</sub>=2)

1. **Mukherjee, I., & Bhat, A.** (2024). The impact of predators and vegetation on shoaling in wild zebrafish. *Royal Society Open Science*, 11(9), 240760. <https://doi.org/10.1098/rsos.240760>
2. **Mukherjee, I., & Bhat, A.** (2024). Shoals in troubled waters? The impact of rising temperatures on metabolism, foraging, and shoaling behavior in mixed-species shoals. *Journal of Fish Biology*. <https://doi.org/10.1111/jfb.15707>
3. **Mukherjee, I., Malakar, A., Das, D., & Bhat, A.** (2024). Use of multimodal sensory cues in predator avoidance by wild-caught zebrafish shoals. *Biological Journal of the Linnean Society*, 141(3), 364-378. <https://doi.org/10.1093/biolinnean/blad103>
4. **Mukherjee, I. and Bhat, A.**, 2023. What drives mixed-species shoaling among wild zebrafish? The roles of predators, food access, abundance of conspecifics and familiarity. *Biology Open*. <https://doi.org/10.1242/bio.059529>
5. **Mukherjee, I, Das S, Paul B, Annagiri S**, 2023. The impact of prior and current information of a new nest on relocation dynamics in an Indian ant. *Ethology*. <https://doi.org/10.1111/eth.13357>
6. **Mukherjee, I. and Bhat, A.**, 2021. Temporal patterns in interactions across same-and mixed-sex wild zebrafish dyads. *Zebrafish*. <https://doi.org/10.1089/zeb.2021.0012>
7. **Mukherjee, I. and Bhat, A.** Intra- and Inter-Species Information Transfer Aids Tropical Fish Schools in Detecting Predators and Food Sources (Under Review)
8. **Mukherjee, I., Singh, B. P. and Bhat, A.** Effect of nutrient exposure in early life on behaviour in wild zebrafish (Under Preparation)
9. **Mukherjee I., Daniel D., and Bhat A.** Differences in wild zebrafish behaviour across natural, semi-natural and laboratory environments (Under Preparation)

## Grants

1. Bailey-Nibbett Travel Grant, 2025 (\$300)
2. International Travel Scheme by DST to attend Animal Behavior Society's Annual Conference 2023, USA (INR 1,01,067).

3. Developing Nations Student Research Grant from Animal Behavior Society, USA in 2022 (\$1500)
4. ABS Graduate Student Travel Award 2023 (\$500)

### **Teaching Experience**

Teaching assistant at Department of Biology, IISER Kolkata, India:

1. Evolutionary Biology Laboratory: Spring 2022
2. Evolutionary Biology Theory: Spring 2020
3. Evolutionary Biology Theory: Spring 2019

### **Conferences**

**(N<sub>Total</sub>=16, N<sub>Talks</sub>=6, N<sub>Poster</sub>=10)**

1. Society for Integrative and Comparative Biology (SICB) Annual Meeting 2025, Atlanta, United States  
Talk: The Impact of Predation on the Energetics of Wild Mullet Schools
2. Frontiers in Modern Biology 2023, Indian Institute of Science Education and Research Kolkata (IISERK), Kalyani, India  
Poster: Two is better than one? The response of wild zebrafish shoals to single and dual predator cues (**Best Poster**)
3. Annual Meeting of Animal Behavior Society 2023, Portland, Oregon, United States  
**Allee Talk:** Hiding under the bush, in fear of a predator! The response of wild zebrafish shoals to different kinds of predator cues and vegetation
4. Understanding Behaviour 2023, Indian Institute of Science Education and Research Kolkata (IISERK), Kalyani, India  
Speed Talk: Hiding in the bush, in fear of a predator! Vegetation and predators influence shoaling among wild zebrafish
5. Annual Meeting of Animal Behavior Society 2022, Hybrid Conference  
Virtual Poster Presentation: What drives wild zebrafish towards mixed-species shoaling?
6. Student Conference on Conservation Science (SCCS) 2022, Virtual Conference  
Poster: Shoals in troubled waters? The impact of rising water temperatures on foraging and shoaling in wild-caught mixed-species shoals

7. Animal Behavior Live 2022, Virtual Conference  
Talk: Shoals in troubled waters? Impact of rising temperatures on shoal properties, foraging behaviour, and metabolism in mixed-species fish shoals
8. Ecological and Evolutionary Ethology of Fishes (EEEEF) 2021, Virtual Conference  
Poster: Shoals under threat: Use of multimodal sensory cues in predator avoidance by wild zebrafish
9. Animal Behavior Live 2021, Virtual Conference  
Talk: Deciphering drivers of mixed-species shoals among wild zebrafish
10. Talks with Nature by Wilson College Nature Club 2021  
**Invited Talk:** Deciphering the drivers of mixed-species shoaling among wild zebrafish
11. Annual Meeting of Indian Society of Evolutionary Biologists (ISEB1) 2021, Bangalore, India  
Poster: Temporal patterns in interactions across same and mixed-sex zebrafish dyads
12. Association for the Study of Animal Behaviour (ASAB) Winter Meeting 2020, Virtual  
Poster: Shoals under threat: Immediate response of wild zebrafish shoals to predator cues
13. Animal Behavior Live 2020, Virtual Conference  
Poster: Shoals under threat: immediate response of wild zebrafish shoals to predator cues
14. National Symposium on Animal Behavior by Ethological Society of India 2020, Ajmer, India  
Poster: Use of Multimodal Sensory Cues in Predator Avoidance by Wild Zebrafish (**Consolation Prize**)
15. Understanding Behaviour 2019, Indian Institute of Science Education and Research Kolkata (IISERK), Kalyani, India  
Poster: Does information of a new nest impact relocation dynamics in an Indian Ant?
16. SERB School on Chemical Ecology 2019, National Center for Biological Science (NCBS), Bangalore, India  
Poster: Temporal patterns in interactions across same & mixed-sex zebrafish dyads (**Best Poster**)

### **Volunteering and Outreach**

1. Demonstrating fish behavioural experiments at Kalyani Book Fair 2022 and at Institute Open Day 2022 for IISERK, India.
2. Workshop on Bird Beak Adaptation at EvoBio 2023 Outreach Program for rural school

teachers

3. Nature walk to identify bird and butterfly species with 6-7<sup>th</sup> grade students of Garden High School at IISER Kolkata, Mohanpur (January 2023).
4. Teaching Maths and Science to children (2<sup>nd</sup>-5<sup>th</sup> grade) at Balarampur, a part of curriculum at St. Xavier's College, Kolkata (2014-2016)

#### **Extracurricular Activities**

1. Yoga (Virtual Student at Yogasrini Yoga School, 2022-Present)
2. Fine Arts (Fine Arts course at Birla Academy of Art and Culture, 2016-2018;  
<https://15hanimukherjee-art.my.canva.site/>)