

Curriculum Vitae

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POSITIONS/ RESEARCH EXPERIENCES

K.C. College, West Bengal, India Assistant Professor, Coordinator of Department of Zoology	<i>06/2017- Till date</i>
Visva–Bharati University, Sanitinketan, India Post doctoral Research Fellow <i>Study of aquatic ecosystem health through food web model in Hooghly estuarine region, a mangrove system</i>	<i>08/2014- 06/2017</i>
Evolution and Biodiversity Laboratory, University Paul Sabatier Toulouse III, France Postdoctoral Fellow (Mobility Programme) <i>Towards a physiological response of fishes under variable environmental conditions: An approach through neural network</i>	<i>01/2016- 06/2016</i>
Indian Statistical Institute Visiting Scientist <i>Growth profile of <i>Chaetoceros</i> sp. and its steady state behavior with change in initial inoculum size: a modelling approach</i>	<i>02/ 2015</i>
Visva – Bharati University, Sanitinketan, India Ph.D. student <i>System dynamic modelling of carbon cycle from mangrove litter to the adjacent Hooghly estuary, India</i>	<i>03/2009-08/2014</i>

TEACHING EXPERIENCE:

UGC CBCS syllabus for B.Sc. three-year Honours and General degree courses in Zoology.

ADMINISTRATIVE/ ACADEMIC EXPERIENCES:

- Head of the Department of Zoology, Krishna Chandra College, Hetampur, Birbhum
19.06.2017 – 30.06.2022
- External and internal examiner of B.Sc. Three Year Degree Course Practical Examination under University of Burdwan Since 2017
- Examiner of answer scripts of B.Sc. Three Year Degree Course Examination (CBCS) under University of Burdwan since 2017
- Teacher escort and supervisor of excursion and field work since 2017
- Supervisor of M.Sc. Project work Environmental Science post graduate (2nd year) student of Ashutosh College, University of Calcutta (2020)
- Ecological modelling special paper of masters' students in the Department of Zoology, Visva-Bharati University (2015- 2017).
- Ecology syllabus for Distance Education Programme under Vidyasagar University (2017-18)
- Examiner of Visva-Bharati University
- Paper Setter for Kazi Nazrul University
- Paper setter for Sido-Kanho-Birsa University
- Organized academic programmes as convener of –

1. **Virtual Training Programme on ‘Application of Tools and Techniques in Biology’ (08-10 February, 2021)** organized by Department of Zoology, Krishna Chandra College, Hetampur, Birbhum, West Bengal under Strengthening Component of DBT Star College Scheme, by the Department of Biotechnology (DBT), Ministry of Science and Technology, Govt of India.

2. International Webinar on **“Modern Approaches and Techniques for Advancement of Molecular Biology” (12-14 February, 2021)**, organized by Department of Zoology, Krishna Chandra College, Hetampur, Birbhum, West Bengal under the Strengthening Component of DBT Star College Scheme, by the Department of Biotechnology (DBT), Ministry of Science and Technology, Govt of India.

3. Webinar on **“Gateway to Career Diversification and Prospects” (13th July, 2021)** organized by Department of Zoology, Krishna Chandra College, Hetampur, Birbhum, West Bengal, under the aegis of the Strengthening Component of DBT-Star College Scheme by the Department of Biotechnology (DBT), Ministry of Science and Technology, Govt of India.

4. State Level Quiz Competition (Online mode) on **“Wildlife of India” (5-6th September, 2020)** jointly Organized by Internal Quality Assessment Cell and Department of Zoology, Krishna Chandra College and Durgapur Wildlife Information & Nature Guide Society (WINGS).

OTHER SERVICES:

Reviewer of Reputed International Journals:

- 1) Ecological Modelling, *Elsevier*
- 2) Energy, Ecology and Environment, *Springer*;
- 3) Ecological Indicators, *Elsevier*;

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- 4) Bulletin of Environmental Contamination and Toxicology, *Springer*
- 5) Journal of Cleaner Production, *Elsevier*
- 6) Resources, Conservation & Recycling, *Elsevier*
- 7) PeerJ, an international open access journal,
- 8) Science of Total Environment, *Elsevier*
- 9) Chemistry and Ecology, *Taylor & Francis*.
- 10) Forests, MDPI
- 11) Frontiers in Ecology and Evolution
- 12) Scientific Reports
- 13) Aquatic Ecology, Springer

ACHIEVEMENTS/ AWARDS:

1) Postdoctoral fellowship for Woman (Rank 1) funded by UGC, India for five years from February, 2015- February, 2020. Award Letter No. F.151/201415/PDFWM201415GEWES25053(SAII) dated January 30, 2015

2) Post-Doc mobility Programme for duration of 6 months at University Paul Sabatier – Toulouse III, (France) within the framework of **Erasmus Mundus project TECHNO II – 3rd cohort**

3) Southern African Young Scientists Summer Programme (SA-YSSP) from Dec 2012-Feb 2013 to work on Robustness Measures of Aquatic Ecosystems Using Network Analysis, in collaboration with International Institute of Applied Systems Analysis (IIASA), Austria and University of Free State, South Africa

4) Best Poster Presentation award in International Conference on India Biodiversity Meet organized by Agricultural and Ecological Research Unit, ISI, Kolkata; 21-23 November, 2014

5) National Postdoctoral Fellow 2017 (*Not Availed due to DST funding policies*)

RESEARCH INTERESTS:

- Aquatic ecosystem functioning, Ecosystem health and management
- Nutrient cycle, trophic dynamics, ecosystem services
- Ability of an ecosystem to respond and withstand stress
- Ecophysiology and ecotoxicology of ichthyofauna
- Develop models on ecological systems emphasizing on climate issues and ecosystem health

RESEARCH GRANTS:

- Perspectives on the conservation of an economically important fish species, *Chitala chitala*: A modelling approach [Memo No: 212(Sanc.)ST/P/S&T/1G-38/2018; dt 19.02.19]
- Socio-economic upgradation of coastal wetlands of Namkhana block, Sundarban through awareness to establish optimum environmental condition for survival & growth of economically important species (*Macrobrachium rosenbergii*, *Scylla serrata*, *Penaeus monodon*). Biodiversity Board, WB. [Memo no. 1222/3K(Bio)-4/2019; dt 11/11/2019]

PUBLICATIONS:

○ **Journal Articles:**

1. Moniruzzaman, M., Datta, U., Saha, N.C., Bhowmick, A.R., & **Mukherjee, J.*** (2023). Abiotic factors and heavy metals defining eco-physiological niche in fish. *Science of The Total Environment*, 162328. ISSN: 0048-9697 **IF 10.754 (*corresponding author)**
2. Parab, V., Prajapati, J.J., Karan, S., Bhowmick, A.R., & **Mukherjee, J.*** (2022). Impact of abiotic factors and heavy metals in predicting the population decline of Near Threatened fish *Notopterus chitala* in natural habitat. *Aquatic Ecology*, 1-17. ISSN 1386-2588 **IF 2.218 (*corresponding author)**
3. **Mukherjee, J.***, Saha, N.C., & Karan, S. (2022). Bioaccumulation pattern of heavy metals in fish tissues and associated health hazards in human population. *Environmental Science and Pollution Research*, 29(15), 21365-21379. ISSN 1614-7499 **IF 5.190 (*corresponding author)**
4. Moniruzzaman, M., Bhowmick, A. R., Karan, S., & **Mukherjee, J.***. (2021). Spatial heterogeneity within habitat indicates the community assemblage pattern and life strategies. *Ecological Indicators*, 123, 107365. ISSN: 1470-160X **IF-6.263 (*corresponding author)**
5. Mukherjee, A., Bhowmick A.R., **Mukherjee, J.**, Moniruzzaman, M. (2019). Physiological response of fish under variable acidic conditions: A molecular approach through the assessment eco-physiological marker in the brain. *Environmental Science and Pollution Research*. 26(23), 23442-23452. **IF 5.190**
6. **Mukherjee, J.**, Bhowmick, A.R., Ghosh, P.B., & Ray, S. (2019). Impact of environmental factors on the dependency of litter biomass in carbon cycling of Hooghly estuary, India. *Ecological Informatics*, 51, 193-200. ISSN: 1574-9541. **IF 4.498**
7. **Mukherjee, J.***, Karan, S., Chakrabarty, M., Banerjee, A., Rakshit, N., & Ray, S.* (2019). An approach towards quantification of ecosystem trophic status and health through ecological network analysis applied in Hooghly-Matla estuarine system, India. *Ecological Indicators*, 100, 55-68. ISSN: 1470-160X. **IF 6.263 (*corresponding author)**
8. Kundu S., **Mukherjee J.**, Yeasmin F., Basu S., Chattopadhyay J., Ray S., Bhattacharya S. (2018). Growth profile of *Chaetoceros sp.* and its steady state behavior with change in initial inoculum size: a modeling approach. *Current Science*, 115. 2275-2286, ISSN 0011-3891 **IF 1.169**
9. Moniruzzaman, M*, **Mukherjee, J.***, Jacquin, L., Mukherjee, D., Mitra, P., Ray, S., & Chakraborty, S. B. (2018). Physiological and behavioural responses to acid and osmotic stress and effects of Mucuna extract in Guppies. *Ecotoxicology and Environmental Safety*, 163, 37-46. ISSN: 0147-6513. **IF 7.129 (* equal contribution)**
10. Das, D., Das, P., Moniruzzaman, M., Sarkar, M.P., **Mukherjee, J.**, & Chakraborty, S.B. (2018). Consequences of oxidative damage and mitochondrial dysfunction on the fatty acid profile of muscle of Indian Major Carps considering metal toxicity. *Chemosphere*, 207, 385-396. ISSN: 0045-6535. **IF 8.943**
11. Ganguly, A., Moniruzzaman, M., Chakraborty, S. K., Karan, S., & Mukherjee, J. (2019). Impact of metal accumulation pattern on the annual rhythmicity of antioxidants and their interrelationship to maintain the oxidative balance in mollusc. *Biological Rhythm Research*, 50(4), 603-615. ISSN 0929-1016, **IF 1.362 (* corresponding author)**

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12. **Mukherjee, J.***, Moniruzzaman, M.*, Chakraborty, SB., Lek, S. and Ray, S. (2017). Towards a physiological response of fishes under variable environmental conditions: an approach through neural network. *Ecological Indicators*.78, 381-394. ISSN: 1470-160X **IF 6.263 (* equal contribution)**
13. Moniruzzaman M., **Mukherjee J.***, Das D. and Chakraborty SB. (2017): Impact of physical aquatic parameters on the annual rhythmicity of sex steroid and cortisol and their interrelationship in two distantly related fish population. *Biological Rhythm Research*, 48(4), 519-530. ISSN: 0929-1016. **IF 1.362 (* equal contribution)**
14. Rakshit, N., Banerjee, A., **Mukherjee, J.**, Banerjee, M., Borett, S., and Ray, S. (2017). Comparative study of food webs from two different time periods of Hooghly Matla estuarine system, India through network analysis. *Ecological Modelling*. 356, 25-37. ISSN: 0304-3800. **IF 3.512**
15. Banerjee, A., Chakraborty, M., Rakshit, N., **Mukherjee, J.**, & Ray, S. (2017). Indicators and assessment of ecosystem health of Bakreswar reservoir, India: An approach through network analysis. *Ecological Indicators*, 80, 163-173. ISSN: 1470-160X. **IF 6.263**
16. Chakraborty, M., Banerjee, A., **Mukherjee, J.**, Rakshit, N., & Ray, S. (2017). Spatial pattern analysis of zooplankton community of Bakreswar reservoir, India. *Energy, Ecology and Environment*, 2(3), 198-206, ISSN: 2363-7692.
17. Banerjee, M., **Mukherjee, J.**, & Ray, S. (2017). A review on reservoir system and its ecology in Indian perspective. In *Proceedings of the Zoological Society* (Vol. 70, No. 1, pp. 5-20). Springer India., ISSN 0373-5893
18. Banerjee, A., Banerjee, M., **Mukherjee, J.**, Rakshit, N. and Ray, S. (2016). Trophic relationships and ecosystem functioning of Bakreswar Reservoir, India. *Ecological Informatics*, 36, 50-60. ISSN: 1574-9541. **IF 4.498**
19. **Mukherjee, J.***, Scharler U.M., Fath B.D., Ray, S. (2015). Measuring sensitivity of robustness and network indices for an estuarine food web model under perturbations. *Ecological Modelling*, 306, 160-173. ISSN: 0304-3800. **IF 3.512 (* corresponding author)**
20. **Mukherjee, J.**, Banerjee, M., Banerjee, A., Roy, M., Ghosh, P. B., & Ray, S. (2014). Impact of environmental factors on the carbon dynamics at Hooghly estuarine region. *Journal of Ecosystems*, 2014. Article ID 607528 | <https://doi.org/10.1155/2014/607528>
21. **Mukherjee J.**, Ray S., Ghosh, P.B. (2013). A system dynamic modeling of carbon cycle from mangrove litter to the adjacent Hooghly estuary, India. *Ecological Modelling*, 252, 185– 195. ISSN: 0304-3800. **IF 3.512**
22. **Mukherjee J.**, Ray S. (2013). Dynamics of carbon cycle in estuarine system with special emphasis on Hooghly estuary: a review. *The Ecoscan*, Special issue 3,167-178. ISSN: 0974-0376.
23. **Mukherjee, J.**, & Ray, S. (2012). Carbon cycling from mangrove litter to the adjacent Hooghly estuary, India–A modelling study. *Procedia Environmental Sciences*, 13, 391-413.

○ Book Chapters:

1. **Mukherjee J.** & Ray S. (2018). Biogeochemical Models. In *Encyclopedia of Ecology*, 2nd Edition <https://doi.org/10.1016/B978-0-12-409548-9.11180-7>, ISBN: 9780444637680

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2. Scharler, U. M., Fath, B. D., Banerjee, A., Fang, D., Feng, L., **Mukherjee, J.**, & Xia, L. (2018). Resilience measures in ecosystems and socioeconomic networks. In *Systems Analysis Approach for Complex Global Challenges* (pp. 183-208). Springer, Cham. ISBN 978-3-319-71485-1
3. Rivera-Monroy, V.H., Osland, M.J., Day, J.W., Ray, S., Rovai, A., Day, R.H., & **Mukherjee, J.** (2017). Advancing Mangrove Macroecology. In *Mangrove Ecosystems: A Global Biogeographic Perspective* (pp. 347-381). Springer, Cham. ISBN 978-3-319-62204-0
4. Ray S., **Mukherjee J.** and Mandal S. (2015). Modelling nitrogen and carbon cycles in Hooghly estuary along with adjacent mangrove ecosystem. In: *Advanced Modelling Techniques Studying Global Changes in Environmental Sciences*. Elsevier, 289-317. ISBN: 978-0-444-63536-5; ISSN: 0167-8892
5. **Mukherjee, J.**, Roy, M., Ray, S., Ghosh, P. B. and Sarkar, A. (2012). Mechanisms of transformation of various forms of carbon and cycling pathways in the Hooghly estuarine system. In: *Estuaries: Classification, Ecology and Human Impacts*. Editor: Steve Jordon, Nova Science publication, (ISBN: 978-1-61942-083-0) NY, USA.
6. Ray, S., Mandal, S., **Mukherjee, J.**, Roy, M., Mandal, S. and Saikia, S.K. (2012). Body Size Versus Rate Parameters of Zooplankton and phytoplankton – Effects on Aquatic Ecosystem. In: *Zooplankton and Phytoplankton: Types, Characteristics and Ecology*, Editor: Giri Kattel, Nova Science publication (ISBN: 978-1-61324-508-8), NY, USA.
7. Saikia, S.K., Ray, S., **Mukherjee, J.** and Roy, M. (2012). Aquatic Ecosystem health – a review. In: *Aquatic Ecosystems*, Editor: Sheila A. Brown, Nova Science publication (ISBN: 978-1-61324-399-2), NY, USA.

○ Seminars/Conferences Proceeding

8. **Mukherjee, J.**, & Ray, S. (2012). Carbon cycling from mangrove litter to the adjacent Hooghly estuary, India–A modelling study. *Procedia Environmental Sciences*, 13, 391-413. ISSN: 18780296.

INVITED TALKS/ SELECTED TALKS/ WORKSHOPS (NATIONAL AND INTERNATIONAL)

Invited Lecture in the Technical Session on Agriculture in the 27th West Bengal State Science & Technology Congress at Science City, Kolkata on 29th February, 2020.

Invited talk on Ecology as a tool for environmental modelling with perspectives of Sundarbans Biosphere Reserve at Department of Mathematics, ICT, Mumbai (4-9 December, 2017).

PAPERS PRESENTED IN NATIONAL/INTERNATIONAL SEMINARS/ CONFERENCES:

Oral Presentation in “The International Society for Ecological Modelling Global Conference 2019” held at Salzburg, Austria from 1st to 5th October, 2019.

Oral presentation in International Conference on India Biodiversity Meet. (2018) organized by Agricultural and Ecological Research Unit, ISI, Kolkata; 14-17 March, 2018.

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- Oral Presentation in International Society for Ecological Modelling (ISEM) 2017 Global Conference: (17-21 September, 2017) Jeju, South Korea; organized by International Society for Ecological modelling.
- Oral presentation in International workshop organized by Integrated Marine Biogeochemistry and Ecosystem Research (IMBER) on integrated modelling at the upcoming IMBER-IMBIZO-IV (Trieste, Italy, October 26-30, 2015) Istituto Nazionale di Oceanografia and Geofisica Sperimentale (OGS) in Trieste, Italy, from 26-30 October 2015. held at International Centre for Theoretical Physics, Trieste, Italy.
- Poster presentation in International Conference on India Biodiversity Meet. (2014) organized by Agricultural and Ecological Research Unit, ISI, Kolkata; 21-23 November, 2014.
- Poster presentation in International Conference on Environmental Impact on Biodiversity and Plant Development (19-20 February, 2015) organized by Department of Biological Sciences, Presidency University,
- Poster presentation in International Conference on Environmental Biology and Ecological Modelling (ICEBEM-2014) by Visva-Bharati, Santiniketan; 24-26 February, 2014.
- Oral Presentation in International Society for Ecological Modelling ISEM 2011 Conference: Ecological Modelling for Global Change and Coupled Human and Natural Systems (20-23 September, 2011) Beijing, China; organized by International Society for Ecological modelling.
- Poster presentation in Seminar on Sundarban Mangroves: Sundarbans Pavilion, (13-14 April, 2011) organized by Indian Institute of Science Education and Research, Kolkata and World Wildlife Organization (WWF).
- Oral presentation in Symposium on Mathematical Ecology (13-14 December, 2010), organized by Indian Institute of Science Education and Research (IISER- Kolkata).
- Oral presentation in Professor P.N. Ganapati Centennial Symposium on “Landmark Researches in Marine Biology: The Indian Context”, organized by Andhra University, Visakhapatnam. 9-10 October, 2010.

NATIONAL/INTERNATIONAL SEMINARS/CONFERENCES/WORKSHOPS ATTENDED:

- Workshop on Land Ocean Atmosphere Interactions, Greenhouse Gases and Coastal Processes (LOA 2018)” (July 24-August 05, 2018) Indian Institute of Science Education and Research, Kolkata.
- Workshop on Statistical Methods and R Programming for Biologists (March 07-13, 2018) organized by Indian Statistical Institute, Kolkata.
- School on Recent Advances in Analysis of Multivariate Ecological Data: Theory and Practice (October 24-28, 2016) held at International Centre for Theoretical Physics, Trieste, Italy.
- International Training Course on ‘Fishery Stock assessment and Ecosystem Modelling’ (September 16-22, 2015) organized by International Training Centre for Operational Oceanography, ESSO-INCOIS, Hyderabad.
- Workshop on Basic Statistical Methods and R Programming (25th – 29th May, 2015) organized by Indian Statistical Institute, Kolkata.
- One day Seminar on Ecological Modelling and Analyses (1st March, 2014) organized by Department of Zoology, University of Calcutta, Kolkata.
- Workshop on Application of Statistical Techniques in the Natural Sciences, (30-31 December, 2010)

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organized by University of Calcutta and Kolkata Resource Centre of Inter University Centre for Astronomy and Astrophysics, Pune.
Workshop on Mathematical Ecology (7-11 December, 2010) Kolkata, organized by Indian Institute of Science Education and Research (IISER-Kolkata).
National Symposium on Theoretical and Mathematical Biology organized by CCMB, Hyderabad; NCL, Pune and IISER, Pune. 10-11 October, 2009.

ORIENTATION PROGRAMME/ REFRESHERS COURSE:

1. Induction Training/Orientation Programme for Faculty in Universities/Colleges/Higher Educational Institutions held from 26th June 2020 to 24th July 2020, under the MHRD-sponsored Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT), organized by Teaching Learning Centre (TLC), Ramanujan College in association with Research Development and Services Cell, Ramanujan College, University of Delhi.
2. Refresher course on Research Methodology: Research Ethics, Methods, Skills, Writing and Communication between 19 August, 2020 to 01 September, 2020 organized by Mizoram University (A Central University), under UGC-STRIDE program, UGC, New Delhi.
3. Inter-Disciplinary Refresher Course/ Faculty Development Programme on Research Methodology and Data Analysis between 17th May – 31st May, 2021 organized by Teaching Learning Centre (TLC), Ramanujan College, University of Delhi under MHRD sponsored Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching

EDUCATION/TRAINING:

Ph.D, Systems Ecology and Ecological Modelling Laboratory	2009-2014
Department of Zoology, Visva-Bharati <i>Thesis Title: System dynamic modelling of carbon cycle from mangrove litter to the adjacent Hooghly estuary, India</i>	
M.Sc., Zoology [Special Paper: Ecology]	2006-2008
Department of Zoology, Presidency College, University of Calcutta <i>Marks: 78.5%</i>	
B.Sc., Zoology [Hons.], Botany, Chemistry	2003-2006
Department of Zoology, Bethune College, University of Calcutta <i>Marks: 66.5%</i>	
Higher Secondary	2001-2003
West Bengal Council of Higher Secondary Education <i>Marks: 75.6%</i>	
Secondary	1999-2001
West Bengal Board of Secondary Education <i>Marks: 83.86%</i>	