## V.V. Binoy PhD

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## **Scholarships and Fellowships**

- Fellow Intercontinental Academia (ICA): University-Based Institutes for Advanced Study (UBIAS), a global network of 46 institutes of advanced studies.
- Scientific Observer for the team India and Jury International Biology Olympiad-(IBO) 2023, Al Ain, UAE
- External Affiliate, Krasnow Institute of Advanced Study, George Mason University, USA
- Councilor, UNESCO UniTwin Complex Systems Digital Campus (CS-DC)
- Member, IUCN Freshwater Specialist Group South Asia
- Member, IUCN Fish Conservation Network South Asia
- Mentor, National Initiative on Undergraduate Science (NIUS) Students (Biology),
   Homi Bhabha Centre for Science Education, TIFR, Mumbai
- Mentor, Summer Research Fellowship Programme (SRFP), Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore
- Adjunct Faculty, Manipal Academy of Higher Education (MAHE), Manipal, India
- Member, NIAS Research Ethics Committee
- Secretary, Ethological Society of India; 2017-2020
- Research Affiliate, Centre for the Study of Neuro-Economics, George Mason University, USA, 2015-2019
- Jury Swiss Science Slam 2019, Organized by swissnexindia, Consulate General of Switzerland.
- Member, Board of Studies, Ramaiah University of Applied Sciences, Bangalore 2019-2020
- Lead, Biology Education Team, *Connected Learning Initiative (CLIx)* A joint venture of Massachusetts Institute of Technology, USA and Tata Institute of Social Science (TISS), Mumbai; 2016-2018
- Young Scientist (*Fast-Track*), Department of Science and Technology, Government of India; 2013-2016
- Cognitive Science Research Initiative Postdoctoral Fellow, Department of Science and Technology, Government of India; 2010-2012

## **Professional Positions**

- In-Charge, Science Communication Programme, National Institute of Advanced Studies, Bangalore; February 2022- ongoing
- Associate Professor, School of Natural Sciences and Engineering, National Institute of Advanced Studies, Bangalore; July 2021- ongoing
- Assistant Professor, School of Natural Sciences and Engineering, National Institute of Advanced Studies, Bangalore; June 2014- June 2021
- SERB Young Scientist, National Institute of Advanced Studies, Bangalore; 2013
   2014
- Cognitive Science Research Initiative Postdoctoral Fellow, National Institute of Advanced Studies, Bangalore; 2010-2012
- Lecturer, MES KVM College, Valanchery, Kerala; 2009-2010

# **Educational Qualifications**

Degree	Subject	Year	University
Doctorate	Zoology	2002-2009	University of Calicut Kozhikode
Master's degree	Zoology	1999-2001	University of Calicut Kozhikode
Bachelor's degree	Zoology	1996-1999	University of Calicut Kozhikode

## Research

Specialization: Cognitive Science and Science Communication

### Post-doctoral Research

National Institute of Advanced Studies, Bangalore

Conspecific recognition, numerical competence and capacity for transitive inference in a freshwater fish, the climbing perch (Anabas testudineus); Cognitive Science Research Initiative Postdoctoral Fellowship. August 2010 – August 2012

### **PhD**

University of Calicut, March 2003 – July 2009

Determinants of decision making in climbing perch (Anabas testudineus Bloch), a freshwater fish

## **Other Trainings**

- Laws: Rigidity and Dynamics. A transdisciplinary analysis of laws in science, humanities and social sciences. UBIAS Intercontinental Academia-3. Nanyang Technological University, Singapore (19th 27th March 2018) and University of Birmingham, United Kingdom (19th 27th March 2019)
- Designing and Developing Science Education Modules. Media Lab, Massachusetts Institute of Technology (MIT), Cambridge, USA (2<sup>nd</sup> 30<sup>th</sup> August 2015)

## **Research Grants**

## Principal Investigator

- Student-Scientist: A network of students for monitoring the impact of climate change and communicating the risk of natural disasters in the coastal regions of Kerala and Karnataka. National Council for Science and Technology Communication (NCSTC), Government of India, New Delhi. September 2023 September 2025.
- Kalarippayattu (a traditional Indian martial art) and wellbeing. In collaboration with UL Research Centre (ULRC), UL CyberPark, Kozhikode, Kerala, February 2024 – February 2025
- Coping with an Invader: Understanding the behavioral adaptations exhibited by the Juveniles of Deccan Mahseer in response to alien invasive fishes Science Engineering Research Board (SERB- CRG/2021/007778) Government of India, New Delhi. February 2022 – February 2025.
- Developing an ICT integrated module for making high school biology education stimulating. Funded by: The Connected Learning Initiative (CLIx). Tata Institute of Social Sciences (TISS), Mumbai, Massachusetts Institute of Technology (MIT), Cambridge, USA and the Tata Trusts. March 2016 – February 2018.
- Sahyadri's underground fishes: developing conservation action plans for the subterranean fishes of Western Ghats. Funded by: Rufford Small Grant, UK. November 2015- December 2017.
- "Understanding the role of 'student networks' in creating awareness about

- environment, water, sanitation and hygiene in rural and socio-economically marginalized areas". Funded by: Eco-Water and Sanitation Hygiene (Eco-WaSH) Programme. National Council for Science and Technology Communication (NCSTC), Government of India, New Delhi. July 2014 August 2016.
- "Intra-and inter-population variation in behavioural plasticity in a fish, the climbing perch (Anabas testudineus): Role of behavioural syndromes and brain organisation". Funded by: Department of Science and Technology, Government of India, New Delhi. Young Scientist (Fast Track) Project. July 2013 November 2016.
- "Conspecific recognition, numerical competence and capacity for transitive inference in a freshwater fish, the climbing perch (Anabas testudineus)" Funded by: Department of Science and Technology, Government of India, New Delhi. Cognitive Science Research Initiative Postdoctoral Fellowship. August 2010 August 2012.

## Co-Principal Investigator

- "Determinants of nuclear risk perception in India: an integrated analysis" Principal Investigator: Gopi Rethinaraj, National Institute of Advanced Studies, Bangalore; Funded by: Department of Atomic Energy (DAE) Board of Research in Nuclear Sciences (BRNS) Government of India. June 2017 May 2021.
- Interdisciplinary forays into human-environment interactions. Principal Investigator: Sindhu Radhakrishna, National Institute of Advanced Studies, Bangalore; Funded by: Science Engineering Research Board (SERB) Government of India, New Delhi. May 2017 May 2021.
- Managing public perceptions and public acceptances of public risks associated with new and emerging technologies through science and technology communications.
   Principal Investigator: Baldev Raj, National Institute of Advanced Studies, Bangalore; Funded by: National Council for Science and Technology Communication (NCSTC), Government of India, New Delhi. August 2017 – August 2018.

## Grant for Organising Workshops

• SERB Karyashala (High-end workshop) on *Science communication*. 25<sup>th</sup> - 30<sup>th</sup> July 2022

## **Projects worked/ collaborated**

#### **Ideator**

CovidScicomm- A study on the impact of COVID-19 on the science communication ecosystem in India, Switzerland and the USA. Conducted in collaboration with Swissnex in India and Boston, Science et Cité and the Swiss Academies. 2021.

#### **Collaborator**

- Mapping dengue mosquito population in Kerala. Principal Investigator: Ajit Babu,
  Center for Advancement of Global Health (CAGH), Kochi; Funded by: Natural
  Resource Data Management System, Department of Science and Technology,
  Government of India, New Delhi. May 2015 May 2017
- Technological and Social Solutions to Major Water Challenges Facing India.
   Principal Investigator: Shantha Mohan, National Institute of Advanced Studies,
   Bangalore; Funded by: Water Initiative, Department of Science and Technology,
   Government of India, New Delhi. July2012 December 2012.

### Research Fellow

- Environmental correlates of spatial and social learning in fish: The role the neural circuitry of hippocampal pallium and amygdalar pallium.
  - Department of Zoology, Christ College, Irinjalakuda, Kerala; *Funded by* University Grants Commission, Government of India, New Delhi; 2007-2009
- Studies on seed production and enhancement of larval survival of indigenous freshwater food fishes of Kerala.
  - Department of Zoology, Christ College, Irinjalakuda, Kerala; *Funded by* Department of Science and Technology, Government of India, New Delhi; 2004-2007
- Behavioural ecology of some selected freshwater food fishes of Kerala.
   Department of Zoology, Christ College, Irinjalakuda, Kerala; Funded by University
   Grants Commission, Government of India, New Delhi; 2002-2004

# **Teaching**

### Academic Courses Conducted

- Two-credit course of 'Analyzing science communication through the lens of behavior science' for doctoral degree students (National Institute of Advanced Studies, Bangalore; August 2023 December 2023
- Two credit course of 'Conservation psychology' for the MSc and PhD students of ecology and environmental studies. This course is jointly organized by the Academy for Conservation Science and Sustainability Studies, Ashoka Trust for Research in Ecology, and the Environment (ATREE) and University of Trans-Disciplinary Health Sciences and Technology (TDU), Bangalore, September 2023 December 2023
- Two-credit course of 'Animal Behaviour and Cognition' for doctoral degree students (with Anindya Sinha). National Institute of Advanced Studies, Bangalore; August 2023 – December 2023
- Introduction to research and publication ethics (4-hour module) for doctoral degree students; National Institute of Advanced Studies, Bangalore; August 2023
- Two-credit course of 'Analyzing science communication through the lens of behavior science' for doctoral degree students; National Institute of Advanced Studies, Bangalore; August 2022 – December 2022
- Two credit course of 'Conservation psychology' for the MSc and PhD students of ecology and environmental studies. This course is jointly organized by the Academy for Conservation Science and Sustainability Studies, Ashoka Trust for Research in Ecology, and the Environment (ATREE) and University of Trans-Disciplinary Health Sciences and Technology (TDU), Bangalore, September 2022 December 2022
- One credit course of *Connecting Cognition with Science Communication*; National Institute of Advanced Studies, Bangalore; August 2021 December 2021
- Two credit course of Animal Behavior and Cognition for doctoral degree students (with Sindhu Radhakrishna); National Institute of Advanced Studies, Bangalore; August 2021 – December 2021
- Two lecture module- on 'Conundrum of Consciousness' as part of a certificate course on Consciousness and Self-Awareness; Academy of Research for the Cultivation of Indian Sciences (ARCIS), Kolkata, Kaivalyadhama Lonavla, Pune; October 2021
- Two credit course of 'Research and Publication Ethics' (with Tarun Menon ) National

- Institute of Advanced Studies, Bangalore; August 2021 December 2021
- Two lecture modules on 'Evolution of Consciousness' as part of a certificate course on Consciousness and Self-Awareness; Academy of Research for the Cultivation of Indian Sciences (ARCIS), Kolkata, Kaivalyadhama Lonavla, Pune; January 2021 – March 2021
- Coordinator- 'Research and Publication Ethics' National Institute of Advanced Studies,
   Bangalore; December 2020 February 2021
- Four-lecture module on "Animal Cognition and Conservation" as part of a four credit course on Methods in Ethology for doctoral degree students; National Institute of Advanced Studies, Bangalore; December 2020 February 2021
- One credit course of Cognition and Collective Intelligence for doctoral degree and postgraduate students. National Institute of Advanced Studies, Bangalore; September – December 2020
- One credit course of *Human-Environment Interactions* for doctoral degree and postgraduate students (with Sindhu Radhakrishna). National Institute of Advanced Studies, Bangalore; September December 2020
- One credit course of Bridging Science with Society: Understanding the Role of Communication for doctoral degree and postgraduate students. National Institute of Advanced Studies, Bangalore; August – November 2019
- One credit course of Human-Environment Interactions for doctoral degree and postgraduate students (with Sindhu Radhakrishna). National Institute of Advanced Studies, Bangalore; August – October 2019
- One credit course of *Introduction to Animal Cognition* for doctoral degree and postgraduate students (with Vishwanath Varma). National Institute of Advanced Studies, Bangalore; August – October 2019
- Research Design and Logic. Part of the Research methodology course for PhD students.
   National Institute of Advanced Studies, Bangalore; August November 2018
- One credit course of Science Communication Principles, Practices and Future
   Challenges for doctoral degree and postgraduate students (with M Sai Baba). National
   Institute of Advanced Studies, Bangalore; August November 2018
- Three-credit course of An Introduction to Mind, its Functions and Purpose for doctoral degree and postgraduate students (with Sangeetha Menon, Anindya Sinha, LM Patnaik, Nithin Nagaraj and Sisir Roy). National Institute of Advanced Studies, Bangalore; August

   November 2017
- Three-credit course of *Introduction to Consciousness* for doctoral degree and postgraduate

- students (with Sangeetha Menon, Anindya Sinha, LM Patnaik and Sisir Roy). National Institute of Advanced Studies, Bangalore; August December 2015
- Three-credit course of *Behaviour*, *Cognition and Consciousness* for doctoral degree and postgraduate students (with Sangeetha Menon, Anindya Sinha and B V Sreekantan).
   National Institute of Advanced Studies, Bangalore; September December 2014
- Three-credit course of *Understanding the Biology of Behaviour* for doctoral degree and post-graduate students. Central University of Kerala, Kasargode. 1- 5 September 2014
- Three-credit course of "Essentials of Comparative Cognition" for doctoral degree students (with Anindya Sinha); National Institute of Advanced Studies, Bangalore; January April 2014
- Two-lecture module on "Laboratory and Field Methodologies" as part of a three-credit course on Research Methodologies for doctoral degree students; National Institute of Advanced Studies, Bangalore; January – April 2014
- A three-credit course of "Human-Environment Interactions", consisting of lectures, paper presentations and discussion sessions for doctoral degree students (with Sindhu Radhakrishna); National Institute of Advanced Studies, Bangalore; October – December 2013
- Two-lecture module on "Laboratory and Field Methodologies" as part of a three-credit course on Research Methodologies for doctoral degree students; National Institute of Advanced Studies, Bangalore; January – April 2013
- Theoretical and practical classes for undergraduate students of zoology; MES KVM
   College, Valanchery, Kerala; September 2009 October 2010
- Guidance of research projects and dissertations, theoretical and practical classes in animal behaviour, ecology, evolution and biostatistics for postgraduate students of the Departments of Zoology and Environmental Science; Christ College, Irinjalakuda, Kerala; May 2001 – March 2009

## Modules for school children

• Developed a module titled *Ecosystem* for the school children (8<sup>th</sup> and 9<sup>th</sup> standard) of four states (Chhattisgarh, Telangana, Rajasthan and Mizoram) of India in collaboration with Tata Institute of Social Sciences (TISS), Mumbai, and Massachusetts Institute of Technology (MIT), Cambridge, USA, 2018.

## **Publications**

## A. Refereed Journals

- Binoy VV, Krurp A, Radhakrishna S. (2021) The extinction of experience in a biodiversity hotspot: Rural school children's knowledge of animals in the Western Ghats. *Current* Science DOI: 10.18520/cs/v121/i2/313-316
- Varma V, Singh H, Vijayan J, and Binoy VV (2020). Social decision making is influenced by size of shoal but not boldness, sociability or familiarity in Deccan mahseer (*Tor khudree*). *Marine and Freshwater Behaviour and Physiology* DOI: 10.1080/10236244.2020.1838244
- Pebsworth P, Gawde R, Bardi M, Binoy VV, Radhakrishna S (2020) To kill or not to kill?
   : Factors influencing people's use of lethal mitigation strategies. *Human Dimensions of Wildlife*. DOI: https://doi.org/10.1080/10871209.2020.1856453
- Varma V, Vasoya H, Jain A, and Binoy VV (2020). 'The bold are the sociable':
   Personality, sociability and lateralized utilization of brain hemisphere in the juveniles of a
   megafish Deccan Mahseer (*Tor khudree*). *Icthyological Research* https://doi.org/10.1007/s10228-020-00744-8
- Sengupta A, Binoy VV, Radhakrishna S (2020) Human-elephant conflict in Kerala, India: a rapid appraisal using compensation records. *Human Ecology*, 1-9.
- Babu AN, Niehaus E, Shah S, Unnithan C, Ramkumar PS, Shah J, Binoy VV, Soman B, Arunan MC, Jose CP (2019) Smart Phone Geospatial Apps for Dengue control, prevention, prediction and education: MOSapp, DISapp and the Mosquito Perception Index (MPI). Journal of Environment Monitoring and Assessment, Special Issue: Geospatial Tech in Environment Health Applications, 191(2), 393
- Anand S, Binoy V V, and Radhakrishna S (2018) The monkey is not always a God: Attitudinal differences toward crop-raiding macaques and why it matters for conflict mitigation. *Ambio*, 1-10.
- Binoy V V (2015) Food patch choice in climbing perch (*Anabas testudineus*), a freshwater fish. *Indian Journal of Fisheries* 62: 149-151
- Binoy V V, Kasturirangan R and Sinha A (2015) Sensory cues employed for the acquisition of familiarity-dependent recognition of a shoal of conspecifics by climbing perch (*Anabas testudineus* Bloch). *Journal of Biosciences* 40: 225-232

- Binoy V V (2015) A comparative analysis of the boldness in four teleosts inhabiting an irrigation canal. *Indian Journal of Fisheries* 62: 128-130
- Kurup A, Chandra A and Binoy V V (2015). 'Little minds dreaming big science': are we really promoting 'children gifted in STEM' in India? *Current Science* 108: 779-781
- Radhakrishna S, Binoy V V and Kurup A (2014). The culture of environmental education: Insights from a citizen science experiment in India. *Current Science* 107: 176-178.
- Binoy V V and Radhakrishna S (2013). Environmental decision making: The role of culture-induced divergence in cognition. *Current Science* 105: 757-759
- Karmakar S and Binoy V V (2012). Tools as non-elaborated aesthetic form. *Science and Culture* 78: 347-350
- Binoy V V, Roshan K S and Rakesh V B (2012). Occurrence of *Kryptoglanis shajii*, an enigmatic subterranean-spring catfish (Siluriformes, *Incertae sedis*), in channels of paddy field. *Current Science* 102: 161
- Binoy V V (2010). Catfish Clarias is vanishing from the waters of Kerala. Current Science
   90: 714
- Binoy V V and Thomas K J (2008). Influence of hunger on the food stocking behavior of climbing perch. *Journal of Fish Biology* 73: 1053-1057
- Binoy V V and Thomas K J (2006). Climbing perch (*Anabas testudineus*) can recognize members of a familiar shoal. *Current Science* 90: 288-289
- Binoy V V and Thomas K J (2005). Comparative analysis of organochloride and organophosphate pesticides on the learning ability and sustained swimming capacity of climbing perch (*Anabas testudineus*), a freshwater fish. *Journal of the Indian Society of Toxicology* 2: 23
- Binoy V V, Menon S and Thomas K J (2005). The influence of methyl parathion on the behaviour of the climbing perch (*Anabas testudineus*). *Pollution Research* 24: 253-259
- Thomas K J, Binoy V V and Baby G (2005). Male Siamese fighting fish prefers larger females with distended belly. *Journal of Ecobiology* 17: 537-544
- Binoy V V and Thomas K J (2004). The climbing perch (*Anabas testudineus* Bloch), a freshwater fish, prefers larger unfamiliar shoals to smaller familiar shoals. *Current Science* 86: 207-211

• Binoy V V, Job N and Thomas K J (2004). The influence of dicofol on the behaviour of the climbing perch (*Anabas testudineus*). *Indian Journal of Fisheries* 51: 345-351

### **B.** Edited volumes

- Binoy V V and Menon J (in preparation) Beating the Pandemic: A Lookback
- Menon S, Nagaraj N and Binoy V V (2017) Self, Culture and Consciousness:
   Interdisciplinary Convergences on Knowing and Being. Springer Nature
- Bagla P and Binoy V V (2017) Bridging Communication Gap in Science and Technology: Lessons from India. Springer, Singapore

## C. Book Chapters

- Binoy V V, Vashishta I, Rathore A and Menon S (2017) Autobiographical memory where self, wellbeing and culture congregate. In: *Self, Culture and Consciousness: Interdisciplinary Convergences on Knowing and Being.* Menon S., Nagaraj N. and Binoy V. V. (eds.) Springer Nature
- Menon S., Nagaraj N. and Binoy V. V. (2017) Bridging self, culture and consciousness. In: Self, Culture and Consciousness: Interdisciplinary Convergences on Knowing and Being. Menon S., Nagaraj N. and Binoy V. V. (eds.) Springer – Nature
- Binoy VV (2017) When Science Meets the Public—Bridging the Gap. In: Bridging the
  Communication Gap in Science and Technology: Lessons from India. Bagla, P. and Binoy
  V. V. (eds.) Springer

## **D.** Preprints

- Das, P., & Binoy, V. V. Landing the Tiger of Rivers': Understanding Recreational Angling of Mahseers in India using YouTube Videos. bioRxiv, 2023-07. DOI: 10.1101/2023.07.22.550129
- Vasan T, Das P, Varma V, Tiwari A, Prakash A, Manilal D ... & Binoy VV Captivity-induced behaviour and spatial learning abilities in an enigmatic, aquifer-dwelling blind eel, *Rakthamichthys digressus* DOI: 10.1101/2021.06.12.448170

- Rao, RR, Das P, Ramachandran R, Hrishikesh LR, Jaleel UCA, Manuel A, Binoy VV
  Attitude towards COVID-19 vaccine in India: Understanding the role of health beliefs.
  DOI: 10.13140/RG.2.2.20744.96004
- Machiah A, Zeeshan M, Pillai S, and Binoy VV. 'The load of diversity': Cognitive load
  of lessons on biodiversity and classification in the biology textbooks of five different
  states of India. DOI: <a href="https://doi.org/10.31234/osf.io/k83cz">https://doi.org/10.31234/osf.io/k83cz</a>
- Varma, V, Raghavan R, Binoy VV. Big fish in small tanks: stunting in the Deccan Mahseer, *Tor khudree* (Sykes 1849). DOI: <a href="https://doi.org/10.1101/2020.04.04.025049">https://doi.org/10.1101/2020.04.04.025049</a>
- Das P, Binoy VV Is boldness in climbing perch (*Anabas testudineus*) sensitive to the apparatus used for the measurement?
   DOI <a href="https://doi.org/10.1101/2020.07.06.189092">https://doi.org/10.1101/2020.07.06.189092</a>
- Binoy VV, Ingle BJ, Bhattacharya A and Sinha A. Can living with an alien invasive
  fish, tilapia, influence the shoaling decision-making and exploratory behaviour of an
  air-breathing freshwater fish, the climbing perch? DOI: <a href="https://doi.org/10.1101/839563">https://doi.org/10.1101/839563</a>
- Binoy VV, Rakesh VB, and Sinha A. Inter-ecosystem variation in the food-collection behaviour in climbing perch *Anabas testudineus*, a freshwater fish. DOI: <a href="https://doi.org/10.1101/573600">https://doi.org/10.1101/573600</a>

## **Technical Reports**

- Sai Baba M, Binoy V V, Vasan T, Subhash H. J. (2019). Artificial Intelligence (AI) and India: Promise, Perception and Preparedness. National Institute of Advanced Studies, Bangalore (NIAS/NSE/U/RR/070/2019).
- Binoy VV, Iyer C, Patnaik LM, Raj B, (2016) Science, Technology and Indian Society: An Anthology of Perspectives.
- Binoy VV (2016) Understanding the role of 'student networks' in creating awareness about environment, water, sanitation and hygiene in rural and socio-economically marginalized areas. Final Technical Report, Eco-Water and Sanitation Hygiene (Eco WaSH)
   Programme. National Council for Science and Technology Communication (NCSTC), Government of India, New Delhi.
- Binoy V V (2016) Intra-and inter-population variation in behavioral plasticity in a fish, the climbing perch *Anabas testudineus*: Role of behavioral syndromes and brain organization.

Final Technical Report, Science Engineering Research Board, Department of Science and Technology, Government of India, New Delhi.

## E. Conference Posters

- Das P and Binoy VV (2023) Understanding social dimension in mahseer conservation: A study on perceptions of recreational anglers. 14<sup>th</sup> Student Conference on Conservation Science (SCCS), Bangalore, 9-12 October, 2023.
- Das P and Binoy VV (2023) Behaviour and practices of recreational anglers towards three Mahseer species and responses they received from public: a YouTube based study; First Indian Conservation Conference, ICCON- 2023, Mysuru, 9-11 April 2023,
- Gopinath A, Poojary S, Ajithkumar A, Binoy V V (2023) Propensity to take risky decisions and spatial learning ability in the hatchery reared juveniles of a megafish Deccan Mahseer (*Tor khudree*); International Wildlife Conference on "Wildlife Conservation: Emerging scenario and way forward" Kanha Tiger Reserve, Mandla (M.P.), 27-29 April 2023
- Varma V, Vijayan J, Singh A, and Binoy VV (2019) Can boldness of shoal mate affect behavioural flexibility in Deccan Mahseer. 3rd National Post-Doc Symposium, IISER Pune, 10-13 December 2019
- Varma V, Vasan T, Tiwari A, Prakash A, Manilal D, Raghavan R, Philip S and Binoy VV (2019) 'Correlates of subterranean personalities': Morphology, personality and learning ability in a subterranean fish, *Monopterus sp.* Student Conference on Conservation Sciences- 2019, Indian Institute of Science, Bangalore, 15-18 October 2019.
- Vijayan J, Varma V, Singh A, Binoy VV, (2019) Influence of the boldness of the shoal mate on the flexibility of personality traits in Deccan Mahseer. Student Conference on Conservation Sciences- 2019, Indian Institute of Science, Bangalore, 15-18 October 2019.
- Vijayan J, Singh A, Binoy VV, Varma V (2019) Can boldness of the shoal mate affect the behavioural flexibility in Deccan Mahseer. Association for the Study of the Animal Behaviour (ASAB) Summer Conference 2019, Konstanz, Germany, 26-28 August 2019.
- Nabanita Borah, Binoy V V (2018) Communicating climate change through traditional folk theatre. American Geophysical Union (AGU), Fall meeting Fall Meeting. Washington, D.C, USA 10-14 December 2018.

- Vasan T, Arjun CP, Raghavan R, Philips S, Thomas L, Dahanukar N, Rajani MB, Binoy
   VV (2017) Bridging the 'Wallacean shortfall' for subterranean fishes of Kerala, India.
   International Biogeography Society special meeting. Bengaluru, 26-28 September 2017
- Pankaj, Sandhya M, Binoy V V, Menon S, Hegde AS, Srinivasa R (2016) The autobiographical memory in the context of stroke and head injury. 23rd Congress of the European Sleep Research Society (ESRS). Bologna, Italy 13 - 16 September 2016.
- Pankaj, Sandhya M, Binoy V V, Menon S, Hegde AS, Srinivasa R (2016) The autobiographical memory in the context of stroke and head injury. 23rd Congress of the European Sleep Research Society (ESRS). Bologna, Italy, 13 - 16 September 2016.
- Pankaj, Sandhya M, Menon S, Hegde AS, Srinivasa R and Binoy V V (2015) How PCA and MCA stroke affects autobiographic memory. International Conference on 'Cognition Consciousness and Cultures Implications for the 21st centaury'. National Institute of Advanced Studies, Bangalore, 9-11 December 2015.
- Pankaj, Sandhya M, Menon S, Hegde AS, Srinivasa R and Binoy V V (2015) The
  autobiographical memory and self in the context of stroke and head injury. International
  Conference "neurodegenerative diseases: Pathogenesis to Therapy". Centre for
  Neuroscience, Indian Institute of Science, Bangalore, 16-18 November 2015.
- Kumaraswamy T R and Binoy V V (2015) 'Student network' An axiological future key for conservation. Student Conference on Conservation Sciences- 2015, Indian Institute of Science, Bangalore, 8-11 September 2015.
- Binoy V V and Sinha A (2013). The impact of an alien invasive fish, the tilapia, on the cognitive abilities and lateralized utilization of brain hemispheres in a freshwater fish, the climbing perch. Young Investigators' Meeting 2013, Jodhpur, India, February 2013
- Binoy V V, Kasturirangan R and Sinha A (2012). From sentience to consciousness: What
  can fish tell us? Looking Within: An International Conference on Multidisciplinary
  Approaches to Consciousness, National Institute of Advanced Studies, Bangalore, India,
  January 2012

### F. Conference Abstracts and Presentations

Gopinath A, Das P, Poojary S, Manaswini LR, Binoy V V (2023) Are fishes Intelligent?
 Conference on 'Intelligence in Animals Humans and Machines, Kristu Jayanti College,
 Bangalore, 18-19 April 2023

- Das P and Binoy V V (2023) Understanding behaviour of recreational anglers towards mahseers and public response towards it on YouTube. Animal Behaviour Twitter Conference, ASAB-UK and ASB-USA, 18-19 January 2023
- Mondal S and Binoy VV (2021) A Storm is coming! How does the Indian public and media attend to cyclones? American Geophysical Union (AGU) Fall Meeting, New Orleans LA, USA. 27 December 2021
- Varma V, Nayan A, Babulal A, Binoy VV (2020) Spatial learning in pairs of Deccan Mahseer (*Tor khudree*), a freshwater megafish. 43<sup>rd</sup> Annual Conference of the Ethological Society of India and National Symposium on Animal Behaviour- NASAB2020, Maharshi Dayanand Saraswati University, Ajmer. 5-6 February 2020.
- Devika S, Jayasree V, Mondal S, Borah N, Anusree NS, Binoy VV (2020) Student's
  Attitude Towards the Strategies for Mitigating Water Scarcity: Does it Change with the
  Age? National Conference on Science and Technology for Sustainable Development, 29th
  Swadeshi Science Congress. ICAR -Central Plantation Crop Research Institute (CPCRI)
  Kasargode, Kerala, 28-29 February 2020
- Mondal S, Devika S, Jayasree V, Borah N, Kumaraswamy T R, Binoy VV (2020) Girls Vs. Boys' Does Gender Influence the knowledge and attitude of school children from water scarce rural regions towards water management? National Conference on Science and Technology for Sustainable Development, 29th Swadeshi Science Congress. ICAR Central Plantation Crop Research Institute (CPCRI) Kasargode, Kerala, 28-29 February 2020
- Nabanita Borah, Binoy V V (2019) Folk-art meeting science! A better way to communicate climate change? Fall Meeting, American Geophysical Union (AGU), San Francisco, CA, USA, 9-13 December 2019.
- Nabanita Borah, Binoy V V (2019) Communicating climate change Bridging Experts to non-experts through Traditional Folk Theatre (TFT). European Geophysical Union (EGU), General Assembly -2019, Vienna, Austria, 7–12 April 2019.
- Vishwanath Varma, Harsh Vasoya, Anushka Jain, Binoy V V (2018) Exploring the link between personality traits and lateralised utilisation of brain hemispheres in deccan mahseer (*Tor khudree*). 42<sup>nd</sup> Annual Conference of the Ethological Society of India and

- the symposium on Animal Behaviour, Biodiversity and Human Future. University of Calicut, Kozhikode Kerala. 4-6 December 2018.
- Kumara Swamy TR and Binoy VV (2018) 'Student-Scientist' Connecting undergraduate students with research and society. National seminar on Rejuvenation of Undergraduate Education in India, Center for Educational and Social Studies (CESS) Bangalore, 10-11 August 2018.
- Binoy VV (2018) Learning interconnectedness and interdependence. Connected Learning at Scale: An International Symposium. Tata Institute of Social Sciences, Mumbai, 8-9 August 2018.
- Binoy VV (2017) Behaviour and cognition: Ignored but indispensable tool for fish conservation. Mahseer-2017, International Workshop on Mahseer Conservation.
   Bournmouth University UK, Mahseer Trust, UK and Kerala University of Fisheries and Ocean Sciences (KUFOS), Kochi 5-7 April 2017
- Binoy VV, Akhila CM and Radhakrishna S. (2016) ICT in biology education: the Indian scenario. 26th Biennial Conference of the Asian Association for Biology Education. Goa, India, September 20 – 24, 2016
- Babu A N, Unnithan C, Niehaus E, Shah S, Balwan S, Binoy VV, Ramkumar PS (2016)
   DisApp: A novel approach to model building and community engagement for epidemic prevention. FOSS4G, Bonn, Germany, August 2016.
- Binoy V V (2016). Fish Migration: Human Induced Rapid Environmental Changes (HIREC) and its impact on cognition and behaviour. Seminar on Linking Rivers, Barrages and Fish Migration". ATREE and Kerala University of Fisheries and Ocean Sciences (KUFOS), Kochi. 21st May 2016.
- Binoy V V (2015). Animal consciousness: Some fishy facts. International Conference on 'Cognition Consciousness and Cultures Implications for the 21<sup>st</sup> centaury'. National Institute of Advanced Studies, Bangalore 9-11 December 2015
- Radhakrishna S and Binoy V V (2015). Least concern cause for much concern? The impact of human-macaque conflict on bonnet macaque conservation status. Association of Tropical Biology Asia-Pacific chapter meeting on the theme of "The Future of Biodiversity in Tropical Asia: addressing local and global challenges", Phnom Penh, Cambodia. April 2015.

- Naresh Keerthi and Binoy V. V. (2015) "Angling in the Sanskrit sea' insights on ichthyology from the Sanskrit literary canon. Seminar on "Flora and Fauna in Ancient Indian Literature" Department of Zoology, Dr. A. V. Baliga College of Arts and Science, Kumta, Karnataka. 13-14 March 2015
- Watve M, Rao A, Binoy V V and Sinha A (2014). Inter-population variation in exploratory behaviour during metamorphosis in the Asian common toad. 51st Annual Conference of the Animal Behavior Society. Princeton, USA, August 2014
- Rao A, Watve M and Binoy V V (2014). Exploration of linkages between morphology and personality in the Common Asian Toad. 51st Annual Conference of the Animal Behavior Society. Princeton, USA, August 2014
- Watve M, Rao A, Binoy V V, Sinha A (2014). Population versus individual behavioral syndromes: How metamorphosis changes correlated behaviors in the common Indian toad.
   15th Conference of the International society for Behavioral Ecology (ISBE-2014), New York University, USA, July 31- August 5 2014
- Watve M, Rao A, Binoy V V and Sinha A (2014). Inter-population variation in exploratory behaviour during metamorphosis in the Asian common toad. 51st Annual Conference of the Animal Behavior Society. Princeton, USA, August 2014
- Rao A, Watve M and Binoy V V (2014). Exploration of linkages between morphology and personality in the Common Asian Toad. 51st Annual Conference of the Animal Behavior Society. Princeton, USA, August 2014
- Watve M, Rao A, Binoy V V, Sinha A (2014). Population versus individual behavioral syndromes: How metamorphosis changes correlated behaviors in the common Indian toad.
   15th Conference of the International society for Behavioral Ecology (ISBE-2014), New York University, USA, July 31- August 5, 2014
- Watve M, Rao A, Binoy V V and Sinha A (2014). Inter-population variation in exploratory behaviour during metamorphosis in the Asian common toad. 51st Annual Conference of the Animal Behavior Society. Princeton, USA, August 2014
- Rao A, Watve M and Binoy V V (2014). Exploration of linkages between morphology and personality in the Common Asian Toad. 51st Annual Conference of the Animal Behavior Society. Princeton, USA, August 2014

- Watve M, Rao A, Binoy V V, Sinha A (2014). Population versus individual behavioral syndromes: How metamorphosis changes correlated behaviors in the common Indian toad.
   15th Conference of the International society for Behavioral Ecology (ISBE-2014), New York University, USA, July 31- August 5 2014
- Binoy V V and Sinha A (2014). 'Left eye right brain': Exploring the impact of social
  isolation on personality traits and lateralized utilization of the brain in an air- breathing
  freshwater fish, the climbing perch. First Annual Conference on Cognitive Science, New
  Delhi, India, March 2014
- Binoy V V, Jayasree V and Shantha Mohan M (2014). What kind of water do 'they' prefer'? Drinking water choice in areas with multiple sources. International Symposium on Integrated Water Resources Management (IWRM 2014), Kozhikode, India, February 2014
- Nathan H S K, Jayashree V and Binoy V V (2014). Is roof water harvesting an answer to urban water crisis? A case study of Bangalore. International Symposium on Integrated Water Resources Management (IWRM - 2014), Kozhikode, India, February 2014
- Watve M and Binoy V V (2013). Can metamorphosis alter behavioral syndromes in the Indian common toad. Young Investigators Talk and Interact (YETI), Nagaland University, Lumami, India, December 2013
- Binoy V V (2012). Impact of an exotic invasive species tilapia (*Oreochromis mossambicus*) on the shoaling decisions of climbing perch (*Anabas testudineus*). Student Conference on Conservation Science, Bangalore, August 2012
- Shabeer K K, Binoy V V, Sreekumar S and Thomas K J (2008). Investigations on the influence of sediment and water quality on the plankton community of a wetland ecosystem. Lake-2008: Conservation and Management of River and Lake Ecosystems, Centre for Ecological Sciences, Indian Institute of Science, Bangalore, December 2008
- Binoy V V, Shahin A and Thomas K J (2007). Bio-film formation in Euglena gracilis: The
  influence of time of the day and wavelength of light. XIX National Symposium on
  Chronobiology, Madurai Kamaraj University, Madurai, December 2007. Best Paper
  Award

- Binoy V V and Thomas K J (2007). The influence of hunger on food stocking behaviour of climbing perch, a freshwater fish. Abstracts of the 31st Conference of the Ethological Society of India, Bangalore, April 2007, p. 110
- Avinash T A, Binoy V V and Thomas K J (2007). Analysis of the route learning ability of climbing perch. Abstracts of the 31st Conference of the Ethological Society of India, Bangalore, April 2007, p. 108
- Shiron J, Binoy V V and Thomas K J (2007). Predator avoidance behaviour of naïve juveniles of *Puntius sarana*, a freshwater fish. Abstracts of the 31st Conference of the Ethological Society of India, Bangalore, April 2007, p. 109
- Binoy V V and Thomas K J (2005). Comparative analysis of organochloride and organophosphate pesticides on the learning ability and sustained swimming capacity of climbing perch (*Anabas testudineus*), a freshwater fish. Abstracts of TOXOCON 1, Inaugural Conference of Indian Society of Toxicology, Cochin, November 2005, p. 38
- Binoy V V and Thomas, K.J. (2005). Individual recognition in a fish, the climbing perch (*Anabas testudineus*) and the cues involved in the formation of familiarity. Abstracts of the 29th Conference of the Ethological Society of India, Bangalore, February 2005, p. 51
- Binoy V V, Sandhya V V and Thomas K J (2005). Altered environment alters stimulus—response paradigm: Effect of pH and salinity on the ontogeny of behaviour in Heteropneustes fossilis, a freshwater fish. Abstracts of the 29th Conference of the Ethological Society of India, Bangalore, February 2005, p. 52
- Vincent M, Asha K, Binoy V V and Thomas K J (2005). Preference for higher wavelength color in the larvae of *Heteropneustes fossilis*, a freshwater fish. Abstracts of the 29<sup>th</sup> Conference of the Ethological Society of India, Bangalore, February 2005, p. 50
- Binoy V V and Thomas K J (2003). Avenues and opportunities in ethology and behavioral sciences. *Lectures on Recent Trends in Ethology and Behavioural Sciences* (Ed. Thomas K J), Department of Zoology, Christ College, Irinjalakuda, India, pp. 13-17
- Binoy V V and Thomas K J (2003). Factors reducing wandering behaviour in climbing perch (*Anabas testudineus*). *Proceedings of the Twenty-eighth Conference of the Ethological Society of India* (Eds. Annamalai R, Narayanan M and Vanitharani J), Department of Zoology, Sarah Tucker College and Tamil Nadu Forest Department, Kalakad-Mundanthurai Tiger Reserve, Tirunelveli, India, p. 48

## **G.** Online publication

• <a href="https://covidscicom.org/about/">https://covidscicom.org/about/</a> A platform to share the results of the studies exploring the impact of COVID-19 on the science communication ecosystem in India

## H. Popular Articles (in Malayalam)

- Naypunyam athijeevanathinum (Life skill for survival) in **Aaranyam**, a magazine published by the Kerala Forest Department. March, 2022
- Parinamam Marunna kazhchpaduakal. Sasthrakeralam, May, 2018
- Nadan Mushi Namavaseshamkunnu. Deshabimani Daily, March 21, 2011
- Namukku Guppy Venda Kothukum. **Deshabimani Daily**, June 30, 2011

# **Students Guiding/Guided**

## Post-Doctoral Fellows

## · Vishwanath Varma

Coping with the changing environment: exploring the role of behavioural plasticity and personality traits in determining behavioural adaptation strategies in fishes. DBT Post-Doctoral Associate. 2018- 2021

### PhD

### Sreshtha Mondal

Determinants of protective action decision making during floods and cyclones. Manipal Academy of Higher Education (MAHE), Manipal; 2019- ongoing

#### • Prnatik Das

A study on the public sentiment and attitude towards selected freshwater endemic, endangered and alien invasive fish species in India. The University of Trans-Disciplinary Health Sciences and Technology (TDU), Bangalore; 2020- ongoing

### **MPhil**

## Devika Manilal

Can morphological and personality traits predict learning ability in a subterranean fish Monopterous sp., MPhil Dissertation submitted Indian Institute of Information Technology and Management Kerala, Thiruvananthapuram, India; April 2018

## Master's Degree

- **Kruthi N Raj** Behavioral syndromes and the responses towards an alien invasive heterospecific tilapia in shy juvenile of a megafish Deccan Mahseer (*Tor khudree*). MSc Dissertation submitted to the Bengaluru City University, Bengaluru. September 2023
- Anima Angelina Lakra "Mahseer on the internet": A Conservation Culturomics Study of the Emotion and Attitude of the People towards Mahseer, a Flagship Megafish. MSc Dissertation submitted to Indian Institute of Science Education and Research (IISER), Mohali. March 2021
- Abhishek Singh Personality, familiarity, or size what determines social decision making in an endemic megafish, deccan mahseer (Tor khudree)? MSc Dissertation submitted to the Pondicherry University, Puducherry; May 2019
- **Jintu Vijayan** Does boldness of shoalmate matter? Influence of social context on the flexibility of boldness in juvenile Deccan Mahseer (Tor khudree), an endemic megafish. MSc Dissertation submitted to the Pondicherry University, Puducherry; May 2019
- Rohan Ravi Kunder "Exploration of the linkage between personality and cultural intelligence in urban adolescents" MSc Dissertation submitted to the JSS University Mysore, Karnataka; August 2017
- Sweta Swani Das "Behavioral syndrome and lateralized utilization of the brain hemispheres in climbing perch a freshwater fish". MSc Dissertation submitted to the Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha; July 2017
- Ishan Vishistha "Knowledge of 'my memories': Understanding the correlates of meta- autobiographical memory M Tech Dissertation submitted to the Centre for Converging Technologies, Rajasthan University, Jaipur; October 2016
- Ambika Rathore Does gender matter? Facets of psychological resilience and wellbeing M

- Tech Dissertation submitted to the Centre for Converging Technologies, Rajasthan University, Jaipur; October 2016
- Bhagyashree J Ingle Exploration of group dynamics, patterns of decision making and personality traits in a shoal of climbing perch (Anabas testudineus); July 2012 – July 2013.
   MFSc Dissertation submitted to the Karnataka Veterinary, Animal and Fisheries Sciences University, Bidar; July 2013

### NIAS-Mani-Bhaumik Research Fellows

- **Ishan Vishistha** Can personality traits influence the meta-autobiographical memory of the school children? January 2017
- Stephan Salazar Personality trait of a shoal; January 2016
- Roshan KS Development of meta-autobiographical memory in Indian school children.

  January 2016
- Pankaj Can mild stroke and head injury remold autobiographic memory and self? With Sangeetha Menon (National Institute of Advanced Studies) and Dr. Sandhya M. (Ramaiah Institute of Neuroscience, Bangalore), November 2015
- Mukta Watve Behavioral syndromes in the Asian common toad and their changes during metamorphosis; January 2015
- Abhinav Kadambi Lateralized mutilation of brain and one time exposure memory (OTM) of conspecific in an air breathing freshwater fish climbing perch; December 2014

#### Interns trained

52 - from various institutes located in India

# **Conferences and Workshops Organized**

- Students Scientist Interaction. National Institute of Advanced Studies (NIAS), Bangalore. 16<sup>th</sup> October 2023.
- Workshop on 'Bridging Animal Cognition with Conservation Biology'. Student Conference on Conservation Sciences - 2023, Indian Institute of Science, Bangalore. 12<sup>th</sup> October 2023.
- Recreational angling and the conservation of the megafish mahseer in India. An interaction with the recreational anglers of the Karnataka. 24th June 2023.

- Conducted a training programme on 'Ecology, Ethology and Evolution' for the students participated in the camp to select the Indian team for International Biology Olympiad (IoB) -2023, HBCSE, Tata Institute of Fundamental Research (TIFR), Mumbai, 6<sup>th</sup> June 2023,
- National Conference on *Intelligence in Animals, Humans and Machines* jointly organized by National Institute of Advanced Studies (NIAS) and Kristu Jayanti College (Autonomous), Bangalore 18<sup>th</sup> -19<sup>th</sup> April, 2023.
- $\bullet~$  SERB Karyashala (High-end workshop) on  $\it Science~communication.~25^{th}$   $\it 30^{th}$  July 2022
- *Students Scientist Interaction*. National Institute of Advanced Studies (NIAS), Bangalore; 9<sup>th</sup> May 2022.
- Workshop on 'Bridging Animal Cognition with Conservation Biology'. (online) Student Conference on Conservation Sciences- 2021, Indian Institute of Science, Bangalore, 29 September 2021.
- Indo-Swiss panel discussion (online) on *Communicating Science in a Crisis*. National Institute of Advanced Studies, Swissnex in India and Boston, Science et Cité and the Swiss Academies, 24 March 2021.
- *Students Scientist Interaction*. National Institute of Advanced Studies (NIAS), Bangalore; 14 January 2020.
- One day workshop on Designing and conduction experiments in animal behaviour and cognition. National Initiative on Undergraduate Science, (NIUS-Biology). Homibhabha Centre for Science Education (HBCSE), Tata Institute of Fundamental Research, Mumbai, 11 October 2019.
- Workshop on *Animal Cognition and Conservation*. Student Conference on Conservation Sciences- 2019, Indian Institute of Science, Bangalore, 15-18 October 2019.
- Three-day National Workshop on 'Science Film Making' in association with Vigyan Prasar, Dept. of Science and Technology Government of India. National Institute of Advanced Studies (NIAS), Bangalore; 15-17 July 2019.
- Workshop on Integrating Animal Cognition with Conservation Science. Student Conference on Conservation Sciences- 2018, Indian Institute of Science, Bangalore, 29 September 2018.
- One-day workshop *Dialogue with the Scientist-Communicators*. With Swissnex India National Institute of Advanced Studies (NIAS), Bangalore, 28th September 2018.

- Roundtable meeting and public interaction meeting on *Flood in Kerala and Kodagu*. National Institute of Advanced Studies (NIAS), Bangalore, 18th September 2018.
- One-day workshop on *Conservation Psychology*. University of Transdisciplinary Health Sciences and Technology, Bengaluru, 4 June 2018.
- Roundtable meeting on Artificial Intelligence and Society. National Institute of Advanced Studies (NIAS), Bangalore, 9 April 2018.
- Roundtable meeting on Exposure to Radiation, How Low it should be? Risk of Radiation and Communicating the Reality. National Institute of Advanced Studies (NIAS), Bangalore, 17 May 2018.
- Workshop on Freshwater Fish Conservation: Concepts, Techniques and Strategies. (With N. Dhanukar IISER Pune; R. Raghavan, KUFOS Kochi; U. Katwate, BNHS Mumbai; S. Philip, Nirmalagiri College, Kannur) Student Conference on Conservation Sciences-2016, Indian Institute of Science, Bangalore, 21 - 24 September 2017.
- 'ScienceComm-2017' With Swissnex India and Science et Cité as part of '70 Years of Swiss-Indian Friendship'. National Institute of Advanced Studies (NIAS), Bangalore; 30 June 2017
- Three-day National Workshop on 'Science Films' in association with Vigyan Prasar, Dept.
  of Science and Technology Government of India. National Institute of Advanced Studies
  (NIAS), Bangalore; 28-30 March 2017
- Public awareness programme on Conservation of the Subterranean Fishes. CEC
   Payyaparamba, Mattanur, Kannur district Kerala; 19 March 2017
- Student Scientist Interaction on *Interdisciplinary Research*. National Institute of Advanced Studies (NIAS), Bangalore; 10 March 2017
- One day workshop on Communicating Science Out of the Lab. EURAXESS Links India
  Tata Institute of Fundamental Research (TIFR) Outreach and National Institute of
  Advanced Studies (NIAS), Bangalore; 22nd October 2016
- Workshop on Understanding personality traits in animal species and its applications in wildlife conservation. (With Sindhu Radhakrishna) Student Conference on Conservation Science-2016, Indian Institute of Science, Bangalore; 21 - 24 September 2016
- Workshop on Freshwater Fish Conservation: Concepts, Techniques and Strategies. (With N. Dhanukar IISER Pune; R. Raghavan, KUFOS Kochi; U. Katwate, BNHS Mumbai; S.

- *Philip, Nirmalagiri College, Kannur*) Student Conference on Conservation Sciences-2016, Indian Institute of Science, Bangalore, 21 24 September 2016.
- Workshop on 'Student Network': A platform for Student-Scientist partnership. National Institute of Advanced Studies, Bangalore. 1 December 2015
- International conference on 'Cognition Consciousness and Cultures: Implications for the 21st centaury'. (With S. Menon, A. Sinha, N. Nagaraj, S. Roy and B V Sreekantan) National Institute of Advanced Studies, Bangalore. 9-11 December 2015
- Workshop on Freshwater Fish Conservation: Concepts, Techniques and Strategies. (With R. Raghavan, KUFOS Kochi; N. Dhanukar IISER Pune; Neeti, Coorg Wildlife Society Madikeri, U. Katwate, BNHS Mumbai; S. Philip, Nirmalagiri College, Kannur) Student Conference on Conservation Sciences- 2015, Indian Institute of Science, Bangalore, 9th September, 2015.
- Workshop on Martial Arts: Harmony of Body and Mind National Institute of Advanced Studies, Bangalore);13 March 2015
- Workshop on Conservation Psychology: Attitude and Environmental Decision- Making.
   (With Sindhu Radhakrishna) Student Conference on Conservation Science- 2014, Indian Institute of Science, Bangalore; 25 28 September 2014
- Seminar on *When Science Meets the Public: Bridging the Gap.* (With *Pallava Bagla*; NDTV New Delhi) National Institute of Advanced Studies, Bangalore; 20 21 June 2014.
- Workshop on Citizens Science Project and Science Communication. National Institute of Advanced Studies, Bangalore and MES KEVEEYAM College, Valanchery, Kerala; January 25, 2010
- National workshop on Recent Trends in Ethology and Behavioral Sciences. Animal Behaviour and Wetland Research Laboratory, Christ College, Irinjalakuda, Kerala; August 5-8, 2003
- Seminar on *Environmental Laws*. Interdisciplinary Scientific Research Development Organisation, Irinjalakuda, Kerala; February 14, 2004
- Workshop on Conservation of Medicinal Plant Diversity: and Revitalization of Basic Phytomedical Systems. Interdisciplinary Scientific Research Development Organisation, Irinjalakuda and Community Agro-Bodiversity Centre and M S Swaminathan Research Foundation, Kalpetta, Wynad, Kerala; June 10-11, 2006

## **NIAS Training Programmes for Scientists and Policy Makers**

- NIAS- DST Training Programme "Social Responsibility of Scientists: Pathways and Outcomes". With Prof. Narendra Pani and Dr. Harini Santhanam, National Institute of Advanced Studies (NIAS), Bangalore; 10-14 February, 2020.
- NIAS- DST Training Programme "Science Policy and General Management". With Dr. Gopi Rethinaraj, National Institute of Advanced Studies (NIAS), Bangalore; 6-17 February 2017

## **Student Scientist Workshops**

My team conducted student-scientist interactions in order to familiarize school and college students with the tools and techniques of science and social science - in various localities of Kerala, Mizoram and Karnataka States

- Bethlehem High School Aizawl, Mizoram, With Tata Institute of Social Sciences, Mumbai, 24<sup>th</sup> January 2017
- Government Model School, Aizawl, Mizoram, With Tata Institute of Social Sciences, Mumbai, 25<sup>th</sup> January 2017
- Govt. High School, Marasuru, Karnataka, 25 September 2016
- St. Mira's Inclusive Convent, Sujjlur, Mandya, Karnataka, 19 September 2016 St Judes School, Vellarikundu, Kasargode, Kerala, 30 August 2016 Nirmalagiri College Koothuparamba Kannur Kerala, 29 August 2016
- Government High School, Shivanahalli, Bannerghatta, Karnataka, 12 April 2016
- Members of the Walk with a Scholar Programme of Nirmalagiri College Kannur, Kerala, (at NIAS Bangalore), 18 March 2016
- Anekal Public School, Anekal, Karnataka, 17 March 2016
- Govt. High School, Irimbiliyam, Malappuram, Kerala, 2nd March 2016
- St. Thomas College, Thrissur, Kerala, 24 February 2016
- St. Joseph College, Devagiri, Kozhikode, Kerala, 17 February 2016

- Government College, Nellihudikeri, Karnataka, 6 February 2016
- Anglo Vernacular Composite High School, Madikeri, Karnataka, 5 February 2016
- Govt. Middle Primary School Nanjarayapatna, Karnataka, 5 February 2016
- MES KVM College, Valanchery, Kerala, 22 January 2016
- Government High School, Halagere, Koppal, Karnataka, 19 January 2016
- Government High School, Ginigera, Koppal, Karnataka, 20 January 2016
- Government High School, Hiresindogi, Koppal, Karnataka, 21 January 2016
- Govt. High School, Irimbiliyam, Malappuram, Kerala, 22 January 2016
- Anekal Public School, Anekal, Karnataka, 14 November 2015
- BVS School Pottur, Thrissur, Kerala, 12 November 2015
- Govt. High School, Irimbiliyam, Malappuram, Kerala, 24 July 2015
- MES KVM College, Valanchery, Kerala, 20 July 2015

## **Training Programmes for Biology Teachers**

- Jawahar Navodaya Vidhyalaya, Raipur, Chhattisgarh 16 November 2017
- Government Model School, Karimnagar, Telangana, 23-25 November 2017
- Government District Institute for Education and Training (DIET), Vikarabad, Renagareddy, Telangana, 20-22, November 2017
- Government District Institute for Education and Training (DIET), Vikarabad, Renagareddy, Telangana, 06-08, November 2017
- Government Model School, Karimnagar, Telangana 6-8 November 2017
- Telangana State Model School (TSMS), Thimmapur, Telangana. 30 October-01 November, 2017
- Government Model School, Karimnagar, Telangana 30<sup>th</sup> October to 1<sup>st</sup> November 2017
- District Institute of Education and Training (DIET), Rangareddy, Telangana 20-22 October 2017
- Government College of Education Hanamkonda, Warangal, Telangana 9-11 October 2017
- District Institute of Education and Training (DIET), Warangal, Telangana, 5-7 October 2017

- National Institute of Technology, Aizawl, Mizoram; 11 August 2017 SP Group of Institutions, Sirohi Rajasthan; 21 July 2017
- Global Institute of Technology, Jaipur Rajasthan; 20 July 2017
- District Institute of Education and Training (DIET), Raipur, Chhattisgarh, 16 July 2017

## **Talks**

- Building science communicators from the ground up: Why and how. Panel Discussion,
   Organized by DST-UoH Centre for Policy Research. University of Hyderabad. 6th
   December 2023
- Achieving Sustainability Development of Goals Harnessing the Power of Collectives for Innovation. Inaugural Lecture – International Conference on 'Back to Nature. Organized by Jugent Ein Welt Austria, SAVE Foundation Belgium and Skills for Progress (SKIP) India, Bangalore 25<sup>th</sup> November 2023.
- Science of Science Communication. NIAS-DST Programme on Science & Technology: Global Developments and Perspectives 30<sup>th</sup> November 2023
- Animal cognition and conservation. Students Scientist Interaction. National Institute of Advanced Studies (NIAS), Bangalore. 16 October 2023.
- Passion a catalysis in research. Interaction with research students in social sciences from various institutes located in Bangalore. Institute for Social and Economic Change (ISEC), Bangalore. 23 September 2023
- Understanding intelligence: why we need to follow a transdisciplinary approach.
   Conference on Intelligence in Animals Humans and Machines, Kristu Jayanti College,
   Bangalore.18 April 2023
- Connecting disaster risk communication with behavioral sciences. 3-day Online Training
  Programme on Mainstreaming Disaster Risk Reduction in Academia. Organised by the
  National Institute of Disaster Management (NIDM) and Department of Teacher Education,
  Nagaland university, Kohima, Nagaland. 14 March 2023
- Living with invaders: Impact of alien invasive species on the behavior and cognition in fishes. Homi Bhabha Centre for Science Education (HBCSE), Tata Institute of Fundamental Research (TIFR), Mumbai, 4 November, 2022
- Science communication under the lens of psychology. SERB Karyashala on Science communication. National Institute of Advanced Studies, Bangalore, 26 July 2022,

- Science of science communication. International Workshop on Science Communication and Film-making jointly organized by Vigyan Prasar and CSIR-Indian Institute of Toxicology Research (CSIR-IITR), Lucknow India. 22<sup>nd</sup> July, 2022
- Science communication: creating public trust in science (online) Indo-German Research Day, DWIH New Delhi, German Academic Exchange Service (DAAD), 24 February, 2022
- Social cognition and social decision making in fishes (online) Homi Bhabha Centre for Science Education (HBCSE), Tata Institute of Fundamental Research (TIFR), Mumbai, 30 November, 2021
- Early warning and communication' (online) National Institute of Disaster Management (NIDM) & Mahatma Gandhi State Institute of Public Administration (MGSIPA) Chandigarh, 17 November, 2021
- 'Communicating risk and ensuring protective action decision-making' (online) Virtual
  National Conference on 'Disaster Management with a focus on Geohazards. National
  Institute of Disaster Management (NIDM) and Geological Society of India (GSI). 23-24
  September, 2021
- Science education- Can cognitive science help improve quality? (online) Center for Educational Initiatives and Research, 9 June 2021
- Connecting Science with Society: Why is it important? (online) AGORA-2021 Sree Narayana College Kollam, 12 May 2021.
- Collective consciousness (online). Academy of Research for the Cultivation of Indian Sciences (ARCIS), Kolkata, 27 March 2021
- Science, Technology, Innovation Policy STIP-2020, (online). National Science Day-2021
   Bangalore, 8 March, 2021
- 'Connecting science with society how educational institutions can work as a catalyst',
   (online) Faculty Development Programme organised by MES KVM College Valanchery
   Kerala, 26 February 2021
- Did COVID-19 impacted science communication? 'Sciencecomm-2020' organised by Swiss Academies of Arts and Science and Science et Cite, Solothurn, Switzerland, 17 September, 2020
- Achieving Sustainability Development Goals (SDG), Can collective intelligence help? Christ University, Bangalore, 8 August 2020

- Converging behaviour, cognition and conservation. 43<sup>rd</sup> Annual Conference of the Ethological Society of India and National Symposium on Animal Behaviour- NASAB2020, Maharshi Dayanand Saraswati University, Ajmer, 5-6 February 2020
- Research resources for biology teachers in higher education. National Workshop on 'Research Methodology Resources for Teachers in Higher Education'. National Resource Centre for Education, National Institute of Education Planning and Administration NIEPA, New Delhi, 30-31 January 2020
- Climate change mitigation: the role of a science communicator. Christ University, Bangalore, 19 December 2019
- *'Connecting science communication with science education'*. Bharat Petroleum Corporation Limited (BPCL), Kochi, 10 December 2019
- *'Science of science communication'*. Pre-Congress Seminar on Whither Science Communication, 43<sup>rd</sup> Indian Social Science Congress. National College, Bangalore, 10 December 2019
- 'Integrating animal cognition and conservation science'. Student Conference on Conservation Sciences- 2019, Indian Institute of Science, Bangalore, 15-18 October 2019
- 'Let us study the behaviour of fishes'. Homi Bhabha Centre for Science Education (HBCSE), Tata Institute of Fundamental Research, Mumbai, 11 October 2019
- Social cognition and social inclusion. Inaugural lecture, Stimuli-2019, National level intercollegiate fest of psychology students. Kristu Jayanti College, Bangalore, 18 September 2019
- "Too many bacteria to remember!" Can we make ecology education exciting? NIAS
  Wednesday Discussion Meeting National Institute of Advanced Studies, Bangalore, 23 May
  2019
- 'Fishy Decisions'! Determinants of Social Decision Making in Climbing Perch, an Air-Breathing Freshwater Fish'. Plenary talk 42<sup>nd</sup> Annual Conference of the Ethological Society of India and the symposium on Animal Behaviour, Biodiversity and Human Future. University of Calicut, Kozhikode Kerala. 4-6 December 2018
- Social Behaviour and Cognition in Fishes. Science Academies' Lecture Workshop on 'Cognitive and Behavioral Sciences'. Indian Academy College, Bangalore; 4 October 2018
- Social Cognition, Science and Policies. NIAS-DST Training Programme on 'Policy for Science and Science for Policies' (For Directors/Divisional Heads/Chief Scientists/Senior Scientists). National Institute of Advanced Studies (NIAS), Bangalore; 3 October 2018

- Life Science Education- the Way Forward. Maharani's Science College for Women, Bangalore, 20 July 2018
- Adapting to Invasion: Understanding the Impact of Non-native Fishes on the Behaviour of Indigenous Species. NIAS Wednesday Discussion Meeting National Institute of Advanced Studies, Bangalore, 25 April 2018
- Kin vs. familiar: Can acquired familiarity influence social decision making in fish? International Seminar on Altruism, Wellbeing and Purpose Vantage Views on Planetary Life and Its Meaning from Biology, Indian Philosophy and Arts, METI International USA and NIAS, Bangalore, 1-2 February 2018
- From Mazes to Robofish: Some 'Fishy' Facts About the Intelligence and Experience.
   Workshop on Minds and Machines: Debates on the Nature of Intelligence and Experience,
   National Institute of Advanced Studies (NIAS), Bangalore; 27 December 2017
- Bridging communication gap in science and technology: lessons from India.

  ScienceCommunication Dialogue for New India". Observer Research Foundation and
  Centre for Policy Studies, Indian Institute of Technology (IIT) Bombay. 12 December 201
- Animal cognition and Human-Induced Environmental Changes. 41st Annual Conference
  of the Ethological Society of India and National Conference on Behavioural Ecology:
  Responses to Changing Climate. Gujarat Institute of Desert Ecology (GUIDE), Bhuj,
  Gujarat. 24-25 November 2017
- Behaviour and Cognition-Inevitability in Conservation. National Seminar on Riverine Fisheries Conservation, Karnataka Fisheries Department, Madikkeri, Kodagu. 7-8 November 2017
- Bridging communication gap in science and technology: lessons from India. Springer-Nature and Council for Scientific and Industrial Research (CSIR), New Delhi. 9 October 2017
- Fish behaviour and the conservation of endangered species. Workshop on Freshwater Fish Conservation: Concepts, Techniques and Strategies. Student Conference on Conservation Sciences- 2016, Indian Institute of Science, Bangalore, 21- 24 September 2017.
- Necessity of Science Communication. Siddhaganga College of Arts, Science and Commerce,
   Tumkur; 22 August 2017
- Joining Silk Threads to Catch the Lion-The pain and pleasures of doing science communication in India 'ScienceComm-2017' National Institute of Advanced Studies (NIAS), Bangalore; 30 June 2017

- Forbidden knowledge: Understanding martial arts. NIAS Wednesday Discussion Meeting,
   National Institute of Advanced Studies, Bangalore, 3 May 2017
- Behaviour and cognition: Ignored but indispensable tool for Mahseer conservation.

  Mahseer-2017, International Workshop on Mahseer Conservation. Kochi, 5-7 April 2017
- Why should we protect the Subterranean Fishes? Public awareness programme on Conservation of the Subterranean Fishes. CEC Payyaparamba, Mattanur, Kannur district Kerala; 19th March 2017
- Science Communication: Bridging the Gap Between Science and Society. NIAS-DST
  Training Programme on Policy for Science and Science for Policies, National Institute of
  Advanced Studies, Bengaluru 7-11 November 2016
- Student Scientists. One day workshop on Communicating Science Out of the Lab. EURAXESS Links, India Tata Institute of Fundamental Research (TIFR) Outreach and National Institute of Advanced Studies (NIAS), Bangalore; 22nd October 2016
- Utilisation of the behavioural flexibility and behavioural consistency in the conservation of the animal species in the wild. Workshop on Understanding Personality Traits in Animal Species and its Applications in Wildlife Conservation, Student Conference on Conservation Science-2016, Indian Institute of Science, Bangalore; 21 24 September 2016
- *Behaviour and cognition as windows to conservation*. Workshop on Freshwater Fish Conservation: Concepts, Techniques and Strategies. Student Conference on Conservation Sciences- 2016, Indian Institute of Science, Bangalore, 21 24 September 2016.
- Animal personalities: Insight from ichthyology. Wednesday discussion meeting. National Institute of Advanced Studies Bangalore, 30 March 2016.
- Interdisciplinary Research and Biology. For the Members of 'Walk with a Scholar Programme' of Nirmalagiri College Kannur. National Institute of Advanced Studies Bangalore, 18 March 2016
- Water Resource Conservation and Student Network. St. Thomas College, Thrissur 24
  February 2016
- Freshwater Resource Conservation: Role of Environmental Education. St. Joseph College,
   Devagiri, Kozhikode. 17 February 2016
- Freshwater Resource Management: A Social Cognition Approach. Government College, Nellihudikeri, Coorg, 6 February 2016
- Science Education: Role of the School-College-Research Institution Network. MES KVM College, Valanchery, 22 January 2016

- Fish Behaviour and Cognition. Kerala University of Fisheries and Ocean Studies (KUFOS,)
   21 January 2016
- Biology Education in India, Making it Fun. Tata Institute of Social Science (TISS), Mumbai,
   28 January 2016
- Yoga: Research and Education. International Conference on Yoga and Education Kaivalydhama Institute of Yoga, Lonavala, 29 December 2015
- Introduction to the Cognitive Science. ISHAN VIKAS UDHAN PROGRAMME, NIAS,
   18 December 2015
- Student Network- A platform for the Student-Scientist Partnership. Workshop on Student Network, National Institute of Advanced Studies Bangalore, 1 December 2015
- Conservation and Ethology: Can the Twain Meet? Workshop on Freshwater Fish
  Conservation: Concepts, Techniques and Strategies. Student Conference on Conservation
  Sciences- 2015, Indian Institute of Science, Bangalore, 9th September 2015.
- Student Networks', MES, KVM College Valanchery, Malappuram, Kerala, 12th June, 2015
- Free Choice Learning and Information Technology Based Biology Education. Connected Learning Initiative (CLIx), Tata Institute of Social Science (TISS), Mumbai, 25-28 April 2015
- Human-Wildlife Conflict: The Mitigation Strategies. Panchayath Secretaries Forum, Kasargode, Kerala, 23 February 2015
- Introduction to Cognitive Science; Course for ISHAN VIKAS-UDHAN Programme.

  National Institute of Advanced Studies, Bangalore; 25 December 2014
- Bringing Environmental Pro Behaviours Amongst School Children: How Knowledge from Conservation Psychology and Citizen Science Movements Can Help. Environmental Conference. Swasraya Bharat-2014, College of Agriculture, Padannakad, 16 October 2014
- Human Mind: The Source of Environmental Problems as well as the Hope for Solutions.
   National Symposium on "Human-wildlife Conflict or Coexistence-What We Want? Central University of Kerala, Padannakad, Nileshwar, 15 October 2014
- Behavioral Syndrome and Lateralized Utilization of Brain Hemisphere in an Air Breathing Fish, Climbing Perch. National Institute of Mental Health and Neuro Sciences (NIMHANS), 30 August 2014
- Our Natural Resources. Green Olympiad, The Energy and Resources Institute (TERI),
   Bangalore, 9 July 2014
- When Spider Webs Unite, They Can Tie Up a Lion Efficacy of Citizens science projects in data collection and science communication. African Delegation, visiting the Centre for

- International Cooperation in Science, Chennai. National Institute of Advanced Studies, Bangalore, India; April 15, 2014
- Big Science and Little Hands: Understanding the Knowledge and Attitude Towards Mammals in School Children Using Student Network. Homi Bhaba Centre for Science Education, Tata Institute of Fundamental Research, Mumbai, 18 October 2013
- Determinants of Shoaling Decision in Climbing Perch, a Freshwater Fish. Center for Ecological Science, Indian Institute of Science, Bangalore, 11th September 2013
- Can Behavioral Science Help Save Biodiversity? ATREE, Bangalore, 19th June 2013
- I Know All About the Tiger, but What is A Civet?: Understanding attitudes towards wildlife by school children in Malappuram, Kerala; NIAS Wednesday Discussion Meeting, 17 April 2013
- Can Humans Love Unconditionally: The Perspectives of an Abandoned Pet. People for Animal Welfare Services (PAWS), Thrissur, 2 March 2013
- Animal Rights. People for Animal Welfare Services (PAWS), Thrissur, 5 November 2012
- Fish Behaviour and Cognition: New Horizons. Department of Marine Biology, Microbiology & Biochemistry, School of Marine Sciences, Cochin University of Science & Technology, Kochi, 27 September 2012
- Familiarity-Bred Shoaling Decisions in Climbing perch, a Freshwater Fish. NIAS Wednesday Discussion Meeting, 12 September 2012
- *Is Homo sapiens Matchless*? Cognition Summer school. National Institute of Advanced Studies Bangalore, July 10 2012
- Not Like Us-Like Us-Not Like Us- Cognition in Non-Human Species. Cognition Summer school. National Institute of Advanced Studies Bangalore, July 9 2012
- Citizen Science and Student Network. Workshop on 'Citizens Science Project.' National Institute of Advanced Studies Bangalore and MES KEVEEYAM College, Valanchery, January 25, 2010
- Why Should I Learn Science? SIGN (An Educational Society for The Upliftment of Tribal Communities), Konnakadu, Wynad, Kerala, April 6, 2009
- Choosing and Using Statistics. Workshop on Research and Research Methodology, Sree Narayana College, Nattika, Kerala, March 12, 2008
- Pesticide and Cognition. Rachel Carlson Lecture. Kerala Shastra Sahithya Parishad,
   Thrissur, Kerala, October 13, 2008
- Quantifying Fish Behaviour in the Laboratory. Homibabha Center for Science Education, Mumbai. 2007

- Seeds and Society. Department of Social Work, St Joseph's College, Irinjalakuda, Kerala,
   March 14, 2007
- Why Conservation of Local Biodiversity is Important for Ecosystem Homeostasis.
   Workshop on Biodiversity: Conservation of Medicinal Plants and Revitalization of Basic Phytomedical Systems. ISRDO, Irinjalakuda and Community Agro-biodiversity Centre, M
   S Swaminathan Research Foundation, Kalpetta, Wynad, June 10-11, 2006
- Agriculture and Environment. Department of Social Work, St Joseph's College, Irinjalakuda, Kerala, February 28, 2006
- Quantifying Behaviour of Zooplanktons. International Training Course in Tropical Freshwater Zooplankton. Limnological Association of Kerala, Irinjalakuda, April 1- 15, 2004
- Studying Animal Behaviour in the Laboratory. Seminar on Animal Behaviour and Behaviour Control. Blue Cross Society of Thrissur (BCST) and College of Veterinary and Animal Science, Kerala Agriculture University, Mannuthy, Kerala. December 2, 2003
- Designing and Developing Low-cost Instruments to Study Animal Behaviour in the Laboratory. National Workshop on Recent Trends in Ethology and Behavioral Sciences. Animal Behaviour and Wetland Research Laboratory, Christ College, Irinjalakuda, Kerala, August 5-8, 2003
- Introduction to Model Systems Popular in Animal Behaviour Research in the Laboratory.
   National Workshop on Recent Trends in Ethology and Behavioral Sciences. Animal Behaviour and Wetland Research Laboratory, Christ College, Irinjalakuda, Kerala, August 5-8, 2003

### Talks for school children

- Why Learning Biology is Difficult. Bethlehem High School Aizawl, Mizoram, 24<sup>th</sup> January 2017
- Converting Classroom into a Biology Laboratory. Government Model School, Aizawl,
   Mizoram, 25<sup>th</sup> January 2017
- Introduction to the Tools and Techniques to Study Water Quality and Water Utilization Pattern. St Jude's School, Vellarikundu, Kasargode, Kerala, 30 August 2016
- Freshwater Conservation and Student Network. Anglo Vernacular Composite High School, Madikeri, 5 February 2016
- Yes! Science is fun. Govt. Middle Primary School Nanjarayapatna, 5 February 2016

- Bridging Colleges with School for Effective Science Education. Student Scientist
  Workshop for Malappuaram node of the Student-Network. Govt. High School,
  Irimbiliyam, Malappuram, 22 January 2016
- Student Scientists and Water, Sanitation, Hygiene (WaSH). Anekkal Public School, Anekkal, Karnataka. 14<sup>th</sup> November 2015.
- *Imagination, Creativity and Science*. BVM High School Thrissur, Kerala. 6<sup>th</sup> November 2015.
- Why We Need More Student Scientist? Govt. High School, Irimbiliyam, Malappuram, 24 July 2015.

#### In Television/Radio

- Sand Mining and River Health. Indiavision. April 25, 2010.
- Nilayude Kalasncharangaliloode. Indiavision. April 15, 2010.
- Solar Eclipse and Animal Behavior'. Asianet. January 15, 2010.
- River Nila. Indiavision. December 19, 2009.
- Science Notes. All India Radio (Akashvani). October 23, 2005

### **Other Interests**

Yoga and Martial arts (Practitioner and Trainer)