

# DR. SACHINANDAN DUTTA

Assistant Professor

Department of Marine Science and Fisheries

College of Agricultural and Marine Sciences

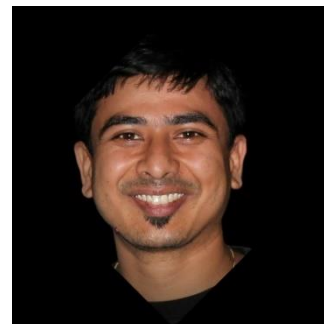
Sultan Qaboos University

P.O. Box 34, Al-Khod 123 Sultanate of Oman

[s.dutta@squ.edu.om](mailto:s.dutta@squ.edu.om), [duttasachi@gmail.com](mailto:duttasachi@gmail.com),

Phone No: +968-71796726, +91-9474562897

Website: <https://sites.google.com/view/duttasachi>



Permanent address:

Kangsabati Road, Post-Khatra,

Dist.- Bankura, Pin- 722140, West Bengal, India

Date of Birth: 12<sup>th</sup> April, 1987

Marital Status: Married

Nationality: Indian

Passport no: T7075824

## EDUCATION

- B.Sc in Zoology (2004-2007); Bankura Christian College, Burdwan University, India.
- M.Sc in Conservation Biology (2007-2009); Durgapur Government College, Burdwan University, India.
- M.Phil in Oceanography in Coastal Management (2009-2011); School of Oceanographic Studies, Jadavpur University, Kolkata- 700032, India.
- PhD in Ecosystem Modeling and Fisheries Management (2016): School of Oceanographic Studies, Jadavpur University, Kolkata- 700032, India.
- Post-Doctorate (SERB-N-PDF) at Department of Zoology, Calcutta University (2016-2018).

## PRESENT POSITION

Assistant Professor at Department of Marine Science and Fisheries of College of Agricultural and Marine Sciences, Sultan Qaboos University, Muscat, Oman from 30 December 2019.

## EXPERIENCE

1. Assistant professor at Department of Zoology, SRM University Sikkim from 17 July 2019 to 27 November 2019.
2. National Post-Doctoral Fellow of Science and Engineering Research Board (SERB) at Calcutta University, 35, Ballygunge Circular Road, Kolkata- 700019 from 1.9.16 to 31.08.18.
3. Guest Lecturer for M.Sc special paper “Bioresource and Biotechnology” at Department of Zoology, University of Calcutta in 2017-18 academic season.
4. Thematic Expert (Fisheries) at Reliance Foundation, Navi Mumbai, Maharashtra- 400701, India, from 7<sup>th</sup> November, 2013 to 10<sup>th</sup> November, 2014.
5. Junior Research Fellow at School of Oceanographic Studies, Jadavpur University, Kolkata- 700032, INDIA from 16<sup>th</sup> January, 2012 to 31<sup>st</sup> March, 2013 and 27<sup>th</sup> May, 2013 to 31<sup>st</sup> October, 2013.

**TEACHING**

DEPARTMENT OF ZOOLOGY, CALCUTTA UNIVERSITY  
Bio-resources

DEPARTMENT OF ZOOLOGY, SRM UNIVERSITY, SIKKIM  
ZOL1833 Fundamentals of Biochemistry  
ZOL1837 Fundamentals of Biochemistry Practical  
ZOLA1831 Animal Diversity  
ZOLA1832 Animal Diversity-Practical

DEPARTMENT OF MARINE SCIENCE AND FISHERIES, SULTAN QABOOS  
UNIVERSITY

MASF4043 Fisheries Management-I  
CAMS6001 Statistics and Experimental Design  
MASF4044 Fisheries Management-II  
MASF3060 Integrated Coastal Zone Management  
MASF3100 Marine Tourism (Sustainable Tourism)  
MASF4020 Marine Ecology (Population Ecology)  
MASF6010 Contemporary Issues in Marine Science  
MASF4046 Marine Pollution and Conservation

**PhD Student**

<i>Name</i>	<i>Degree</i>	<i>Title of Project</i>	<i>Role</i>	<i>Status</i>
Sabrina Al Ismaili	PhD	Assessing the impact of the artificial reef on fisheries of the Sea of Oman: a sustainable approach	Supervisor	In progress
Yasmin Hamed Ali AL-Alawi	PhD	Pre-harvest and post-harvest management of Gilt-head Sea Bream ( <i>Sparus aurata</i> ) in the Sultanate of Oman	Supervisor	In progress

**M.Sc Student**

<i>Name</i>	<i>Degree</i>	<i>Title of Project</i>	<i>Role</i>	<i>Status</i>
Abdullah Al-Kindi	M.Sc	Assessment of the Al-Batinah Ministry of Agriculture and Fisheries Wealth artificial reef projects their enhancement of local fisheries productivity	Supervisor	In progress
Ward-Al Muna	M.Sc	Evaluation of the traceability system in Seafood supply chain: the case of Oman	Co-Supervisor	In progress
Farid Al-Abdali	M.Sc	Coastal Currents Along Al-Batinah Coast: Observations from Acoustic Doppler Current Profilers	Co-Supervisor	In progress
Abrar Al Dawudi	M.Sc	Land Use Impacts on Groundwater Quality: A Statistical Approach	Co-Supervisor	In progress
Fatma Saif Al-Harbi	M.Sc	Population Dynamics of Javelin grunter ( <i>Pomadasys kaakan</i> ) in	Supervisor	In progress

		the Sea of Oman, Sultanate of Oman		
Maryam Mohammed Al Shidhani	M.Sc	Assessment of Social, Economic and Ecological Aspects of Recreational Fishery in Muscat Region, Sultanate of Oman	Co- Supervisor	In progress

## B.Sc Final Project

	<i><b>Name</b></i>	<i><b>Title of Project</b></i>	<i><b>Role</b></i>	<i><b>Status</b></i>
1.	Qusai Nabhan Sulaiman Al Yahmadi	Temporal variations of stock status of Longtail tuna ( <i>Thunnus tonggol</i> ) in the coast of Sultanate of Oman	Supervisor	Completed
2.	Majid Ali Said Al Harthi	Bio-economic assessment of Queenfish ( <i>Scomberoides commersonnianus</i> ) fishery of Sultanate of Oman	Supervisor	Completed
3.	Ahmed Alshehhi	Stock Assessment of the Kingfish ( <i>Scomberomorus commerson</i> ) in the Coast of Oman by using Surplus Production Models	Supervisor	Completed

## Thesis Committee Members

### PhD Thesis

PhD Thesis Examiner member of Ibrahim Al Qartubi “An Empirical Assessment of Enforcement and Compliance Program in the Artisanal Fishery of the Sultanate of Oman”.

### MSc Thesis

Master Thesis Examiner member of Haitham Al Furqani “Mapping human stressors and their potential impacts on marine ecosystems”.

**Chair the M.Sc thesis committee** of Sawan Basim Ali “Application of GIS and multi-criteria decision analysis for waste to energy plant site selection in Muscat, Oman”

## PROJECT

1. "Integrated Ecosystem Approach for Management of Fish Resources of Bay of Bengal Large Marine Ecosystem" Funded by Science and Engineering Research Board (SERB), Government of India. Amount 1820000 INR, 2016-2018.
2. "Investigation of the stock status of economically important marine fisheries of Sultanate of Oman" - Seed Fund by College of Agricultural and Marine Sciences, Sultan Qaboos University. Budget - 1000 OMR. 2020-2021.
3. "Trophic Structure and Food Web Model of the Sea of Oman, Sultanate of Oman" - SQU Research Code: RF/AGR/FISH/20/02, Budget - 2900 OMR. 2020-2021.
4. “Bio-economic analysis for the management of economically important marine fisheries of Sultanate of Oman” funded by SQU Internal Grant,

Budget - 5900 OMR. 2021-2022.

5. "Climate adaptive fisheries management plan of Oman" – Funded by UNESCO Man and Biosphere (MAB) Programme, Budget- 3174 USD.

## **PREVIOUS WORK**

- Multi species fisheries management of marine fisheries of Bay of Bengal
- Ecosystem Based Fishery Management by using ECOPATH with ECOSIM (EwE)
- Spatial food web model in different habitat using Ecospace of EwE
- Models economic and social flows as continuations of food web

## **RESEARCH INTEREST**

Fisheries Management, Ecosystem Modelling, Conservation Biology.

## **AWARDED**

- Received UNESCO MAB Young Scientists Awards (3,174 USD) for 2022 from Oman.
- Qualified UGC NET January 2017 for Assistant Professor in Environmental Sciences.
- Qualified UGC NET November 2017 for Assistant Professor in Environmental Sciences.
- Received Science and Engineering Research Board (SERB) National Post-Doctoral Fellowship on 6 July 2016.
- SERB International Travel Support (ITS/724/2017-18) to attend World Conference on Nature Resource Modelling, Barcelona, Spain from 6 to 9 June, 2017.
- Fellow of Fondation Sciences Mathématiques de Paris (FSMP) for FSMP-IHP Program "Mathematics of Bio-economics" from 7 January to 5 April 2013.

## **INVITATION**

- Invited BOBLME Ecopath-Ecosim ecosystem modeling workshop 08-12 September 2014, Phuket, Thailand.
- Invited Invitation to the Second BOBLME, FAO Ecosystem Characterization workshop on 3 - 5 November 2014 and the EBSA identification preparatory workshop on 6 November 2014 Bangkok, Thailand, 3 - 6 November 2014.
- Invited for the Workshop on Marine Ecosystem Characterization-India from 20-22 October 2014, Goa India. Hosted by National Institute of Oceanography, Goa sponsored by BOBLME.
- Junior Research Fellow of Indian National Center for Ocean Information Services (INCOIS), Ministry of Earth Sciences, Government of India.
- Invited as an Expert to develop the Ecopath models of Indian East coast organized by CMFRI and BOBLME 11 to 13 August 2015 at Visakhapatnam Regional Centre of CMFRI.
- Invited for an online talk in the Albertian Knowledge Summit (AKS-2023) on 16 January 2023 by St. Albert's College (Autonomous), Kochi, India.

## **MEMBER**

Life member of Zoological Society of Kolkata.  
Commission on Ecosystems Management (CEM)-IUCN

<b>REVIEWER</b>	Reviewed different International journals like Ecological Modelling, Fisheries Management and Ecology, Aquatic Ecology, Turkish Journal of Fisheries and Aquatic Sciences, International Journal of Biodiversity and Conservation, Environmental Earth Science, Comptes rendus Biologies, Aquatic Living Resources, Spatial Information Research, International Journal of Aquatic Science, Marine Biodiversity Records, Indian Journal of Fisheries, Sustainability etc.
<b>M. SC DISSERTATION</b>	Anuran Diversity of Durgapur with Special Reference to Reproduction, Nesting and Development of Common Indian Tree Frog ( <i>Polypedates maculatus</i> ).
<b>M. PHIL THESIS</b>	Investigation into the State of Bay of Bengal Large Marine Ecosystem from Comm Fishing with Special Emphasis on Hilsa Shad, <i>Tenualosa ilisha</i> .
<b>PHD THESIS</b>	Mathematical Modelling for the Ecosystem Based Fishery Management of Northern Bay of Bengal, West Bengal, India with Special Emphasis on Hilsa ( <i>Tenualosa Ilisha</i> ) Fishery.
<b>TOOLS AND TECHNIQUES</b>	<ul style="list-style-type: none"> <li>➤ <b>Remote Sensing and GIS Software:</b> - ERDAS 9.1, ARCVIEW 3.2. ARCGIS 9.2.</li> <li>➤ <b>Computer:</b> - Advance Microsoft Office (Excel, Word, Power Point), R, SPSS.</li> </ul>
<b>TRAINING</b>	<ol style="list-style-type: none"> <li>1. One Year Certificate course in Wildlife Census Techniques A UGC-Sponsored Career Oriented Programme from Durgapur Government College for the year 2009-2010.</li> <li>2. EDUSAT based certificate course on “Basic of Remote Sensing, GIS &amp; GPS” from School of Oceanographic Studies, Jadavpur University, conducted by Indian Space Research Organization (ISRO) with collaboration with Indian Institute of Remote Sensing.</li> <li>3. International Training on “Stock Assessment of Hilsa” sponsored by Bay of Bengal Large Marine Ecosystem (Food &amp; Agricultural Organization) held at Central Inland Fisheries Research Institute, Barrackpore during April 30-May 1, 2012.</li> <li>4. “Mathematics of Bio-Economics” 2013, January 7 - April 5, Institut Henri Poincaré. Paris, Organizer: Michel DE LARA, Luc DOYEN.</li> <li>5. CIRM School on “Stochastic Control for the Management of Renewable Energies (STOCORE)” is hosted by the Centre International de Rencontres Mathématiques (CIRM) at Marseille (South of France) from 8 to 12 April 2013.</li> <li>6. Training programme on "Coastal Ecosystem Modelling" at Integrated Coastal and Marine Area Management Project Directorate, Ministry of Earth Science, Government of India, Chennai from August 19<sup>th</sup> - 23<sup>rd</sup>, 2013.</li> <li>7. Ecopath with Ecosim (EwE) ecosystem modeling workshop 08-12 September 2014, Phuket, Thailand, organized by: Bay of Bengal Large Marine Ecosystem Programme (BOBLME), FAO.</li> <li>8. MOHID Water Modelling Course, Seoul, South Korea, 13-18<sup>th</sup> April, 2015, organized by Action Modular.</li> </ol>

9. Training course on Ecosystem-based Fisheries Management using Ecopath with Ecosim (EwE) from May 8-12, 2017 in Goa organized by The Indo-German Technical Cooperation Project “Conservation and Sustainable Management of Coastal and Marine Protected Areas (CMPA)”.
10. Three weeks online asynchronous course entitled “Integrated Course Design through Active Learning” January 30 to February 17, 2022 by Dr. Stewart Ross at Sultan Qaboos University.

## **SEMINAR AND WORKSHOP**

1. State level Seminar on Popularization of Science & Conservation Awareness Organized by Durgapur Government College, 24th & 25th March 2008, Durgapur-713214, Dist.-Burdwan, West Bengal, India.

2. National Seminar on Climate Change: Challenges and Mitigation in co-operation with Ministry of Earth Sciences and Ministry of Environment & Forests, Government of India and Department Sciences & Technology and Department of Environment, Government of West Bengal, organized by Central Calcutta Science & Culture Organization for Youth, 27<sup>th</sup> & 28<sup>th</sup> February 2009, Science City, Kolkata.

- Oral Presented “Effects on Global Climate Change on Amphibian Population”- Presented by Sachinandan Dutta, Sudin Pal, Shiboram Banerjee. Department of Conservation Biology, Durgapur Government College, Durgapur-713214, Dist.-Burdwan, West Bengal, India.

3. National Seminar on "Current Research in Herpetology" & "Workshop on Prioritization of Amphibian and Reptilian Species for Conservation Breeding" 29-31 March, 2009, P.G. Department of Zoology North Orissa University, Sriram Chandra Vihar, Takatpur, Baripada- 757003, Orissa, India.

- Oral Presentation “Nesting of the Common Indian Tree Frog *Polypedates maculatus* (Rhacophoridae)”- Presented by: Sachinandan Dutta, Department of Conservation Biology, Durgapur Government College, Durgapur-713214, Dist.-Burdwan, West Bengal, India.

4. Young Ecologists Talk and Interact, a conference for ecology students and researchers in India, 24-26 September 2009 at the Indian Institute of Science, Bangalore.

- Oral Presentation “Ecological Consequences of Road Mortality of Herpetofauna in Durgapur, West Bengal, India”. Presented by: Sachinandan Dutta, Himanish Prasad Jana, Department of Conservation Biology, Durgapur Government College, Durgapur-713214, Dist.-Burdwan, West Bengal, India.

5. 30th Annual Symposium on Sea Turtle Biology and Conservation 24th–30th April, 2010, Goa, India, International Sea Turtle Symposium, Proceedings of the Thirtieth Annual Symposium on Sea Turtle Biology and Conservation, NOAA Technical Memorandum NMFS-SEFSC-640, Page 80; 01/2013

- Oral Presentation “Anthropogenic impact assessment of Olive Ridley (*Lepidochelys olivacea*) and change detection analysis of their nesting beaches along the coast of West Bengal, India”. Presented by: Sourav Maity, Sachinadan Dutta & Kaberi Samanta, School of Oceanographic Studies, Jadavpur University, Kolkata-700032, West Bengal, India.

6. Golden Jubilee International Seminar, Researches in Zoology- Basic & Applied, March 17th - 19th, 2010, Organized by Department of Zoology, The University of Burdwan, Rajbati, Bardhaman - 713 104, West Bengal, India.

- “Avian Diversity in Tarai Region of East Himalaya”. Presented by: Sudin Pal, Sachinandan Dutta, Goutam Chandra. Department of Zoology, Burdwan University, Rajbati, Bardhaman - 713 104, West Bengal, School of Oceanographic Studies, Jadavpur University, Kolkata-700032, West Bengal, India.

7. A seminar attended on “Water and future of India” organized by Sea Explorers’ Institute with collaboration with School of Oceanographic Studies, Jadavpur University on 3rd March, 2011, at Jadavpur University.

8. Participated in the workshop on “Coastal Ocean Colour: A Perspective for Satellite Application in the Indian Context” held in Goa from 19th to 20th March 2012 Organised by INCOIS.

9. Participated in the workshop on “Mathematics of Ecological Economics” at Institut Henri Poincare, Paris from 11th to 13th February 2013 Organized by Luc Doyen & Michel DeLara.

10. Participated in the workshop on “Risk and Learning in Biodiversity Management” at Institut Henri Poincare, Paris from 4th to 6th March 2013 Organized by Luc Doyen & Michel DeLara.

11. A Workshop on “Ecosystem Characterization-Indian Coastal Waters: National Experts Workshop” organized by the CSIR-National Institute of Oceanography (CSIR-NIO) from 20th to 22nd October 2014 at Goa sponsored by FAO-BOBLME.

12. The Second BOBLME Ecosystem Characterisation workshop on 3 - 5 November 2014 and EBSA identification preparatory workshop on 6 November 2014 Bangkok, Thailand.

13. Oral Communication at the 2017 World Conference on Natural Resource Modeling that will take place in Barcelona (Spain), from Monday 5th through Friday 9th of June of 2017. The Title of Oral Communication is “Dynamic food web model and fisheries interactions of Bay of Bengal ecosystem”.

14. Oral presentation on “Trophic Structure and Food Web Model of the Oman Sea, Sultanate of Oman” at the Third GCC Marine Biotechnology Conference:

Emerging opportunities and future perspectives that was held from 8th to 9th of December 2021 at Sultan Qaboos University, Oman.

15. Attended Webinar on “LIFE BELOW WATER: PROGRESS TOWARD SDG 14 AND WAY FORWARD” on Jan 22, 2022, 10:00 AM Dubai, organized by Food and Agriculture Organization of the United Nations.

16. Attended online seminar entitled: “Quality of Instruction” Presented by Prof. Hans Fischer, University Duisburg-Essen, Professor of Physics Education, organized by the Research and Scientific Activities Committee of the Curricula and Teaching Department, SQU on 03/01/2022 at 11:30 AM.

17. Attended Webinar JIRCAS International Symposium 2022 "Artisanal Fisheries and Aquaculture in the Sustainable Food Systems" Tuesday, November 22, 2022, 13:00~16:15 (JST).

## PUBLICATIONS

### 2023

1. **Dutta, S.**, Homchaudhury, S. and Paul, S. 2023. Food web structure and trophic interactions of Northern Bay of Bengal ecosystem. Regional Studies in Marine Science. <https://doi.org/10.1016/j.rsma.2023.102861> (Q2).
2. **Dutta, S.**, Al-Jufaili, S., Al- Anbouri, I.S. and Paul, S. 2023. Population status of *Sardinella longiceps* of the Sultanate of Oman: perspectives of length-based approach. Revision 1 in Thalassas: An International Journal of Marine Sciences.

### 2021

3. **Dutta, S.**, Al Jufaili, S., Al-Anbouri, I.S. 2021. Length-weight relationship and condition factors of *Sardinella longiceps* from Sultanate of Oman. Accepted in Indian Journal of Geo-Marine Sciences, 50(12) 1052-1057. (Q4).
4. Al-Shehhi, A.M., **Dutta, S.** and Paul, S., 2021. Stock assessment of *Scomberomorus commerson* (Kingfish) fishery of Oman: Perspectives of sustainability. Regional Studies in Marine Science, 47, p.101970. (Q2).
5. **Dutta, S.**, Al-Abri, I. and Paul, S., 2021. Bio-economic trends of Hilsa (*Tenualosa ilisha*) fishery: Perspectives of transboundary management between India and Bangladesh. Marine Policy, 128, p.104483. (Q1).
6. **Dutta, S.** and Paul, S., 2021. Temporal variability of economic fish assemblage of the Northern Bay of Bengal in relation to its environment. Iranian Journal of Ichthyology, 8(2), pp.104-113. (Q3).
7. **Dutta, S.**, Orlov, A. and Hazra, S., 2021. Population biology and exploitation status of four commercially important marine fishes of the northern Bay of Bengal, India. Iranian Journal of Fisheries Sciences, 20(1), pp.62-83. (Q3).

### 2019

8. A. Roy, **S. Dutta**, A. Podder, S. Homechaudhuri. 2019. Variation in Population Characteristics and Harvesting Pressure Influencing Recruitment Pattern of an Economically Important Fish, *Osteomugil cunnesius* of Indian Sundarbans. Proceedings of the Zoological Society 73,



5–15 (2020). <https://doi.org/10.1007/s12595-019-00291-9>. (Q3).

9. D. Jana, **S. Dutta**, G.P. Samanta. 2019. Interplay between reproduction and age selective harvesting of Hilsa (*Tenualosa ilisha*) fish of Sundarban estuary of northern Bay of Bengal, India: A case study. *International Journal of Biomathematics* 12(02), p.1950023. (Q2).
10. **S. Dutta**, K. Chakraborty and S. Hazra. 2019. *Life History and Population Dynamics of Tenualosa ilisha of Sundarban Estuary in Bay of Bengal, India for Sustainable Fishery Management*. *Indian Journal of Geo-Marine Science* 48 (12): 1870-1880. (Q4).

## 2017

11. **S. Dutta** and S. Hazra. 2017. From Biology to Management: A critical review of Hilsa Shad (*Tenualosa ilisha*). *Indian Journal of Geo-Marine Sciences*. 46(8) 1503-1510. (Q4).
12. **S. Dutta**, K. Chakraborty and S. Hazra. Ecosystem structure and trophic dynamics of an exploited ecosystem of Bay of Bengal, Sundarban Estuary, India. *Fisheries Science*. 83(2) 145–159. [doi:10.1007/s12562-016-1060-2](https://doi.org/10.1007/s12562-016-1060-2). (Q3).
13. Akhand, A., Chanda, A., **Dutta, S.**, Manna, S., Giri, S., Das, S., Mukhopadhyay, A., Lotliker, A.A., Chakraborty, K., Sarkar, N.S. and Sanyal, P., 2017. Microphytoplankton species assemblages, species-specific carbon stock and nutrient stoichiometry in the shallow continental shelf of the northern Bay of Bengal during winter. *Indian Journal of Geo-Marine Sciences* 46(9) 1827-1835. (Q4).
14. Akhand, A., Manna, S., Mondal, P.P., Chanda, A., **Dutta, S.**, Das, S., Hazra, S., Mitra, D., Nagamani, P.V., Rao, K.H. and Choudhury, S.B., 2017. Estimation of Air-Sea CO<sub>2</sub> Exchange and Decadal Change of Surface Water fCO<sub>2</sub> in a Shallow Continental Shelf Using in Situ and Remote Sensing Data During Winter. In *Environment and Earth Observation* (pp. 123-135). Springer, Cham.

## 2016

15. **S. Dutta**, A., Akhand, A., Chanda, and S. Hazra. 2016. *Correlation of Phytoplankton Biomass (Chlorophyll-a) and Nutrients with the Catch Per Unit Effort in the PFZ Forecast Areas of Northern Bay of Bengal during Simultaneous Validation of Winter Fishing Season*. *Turkish Journal of Fisheries and Aquatic Sciences*, 16: 767-777. (Q3).
16. **S. Dutta**, S. Maity and S. Hazra. 2016. *Catch per Unit Effort Comparison between Potential Fishing Zone and non-Potential Fishing Zone from 2008 to 2011 of West Bengal coast, India*. *Indian Journal of Geo-Marine Sciences*, 45(6) 763-768. (Q4).
17. **S. Dutta**, H.P. Jana, S. Saha and S. K. Mukhopadhyay. 2016. *The Cause and Consequences of Road Mortality of Herpetofauna in Durgapur, West Bengal, India*. *Russian Journal of Ecology* 47: 88-95. (Q2).
18. **S. Dutta**, K. Chakraborty and S. Hazra. 2016. *The Status of Marine Fishery of West Bengal coast of northern Bay of Bengal and its Management Options: A Review*. *Proceedings of the Zoological Society*. 69:1-8. (Q3).

## 2014

19. **S. Dutta**, S. Giri, J. Duta and S. Hazra. 2014. *Blackspotted Croaker, Protonibea Diacanthus (Lacepède, 1802): A New Dimension to the Fishing Pattern in West Bengal, India*. Croatian Journal of Fisheries. 72: 41-44. (Q3).
20. **S. Dutta**, S. Maity, S.B. Bhattacharyya, J. K. Sundaray and S. Hazra. 2014. *Diet Composition and Intensity of Feeding of Tenulosa ilisha (Hamilton, 1822) occurring in the Northern Bay of Bengal, India*. Proceedings of the Zoological Society 67 (1) 33-37. DOI: 10.1007/s12595-013-0066-3. (Q3).
21. S. Maity., T. Srinivasa Kumar., **S. Dutta**., A. Akhand., S. Hazra. 2013. *Satellite Based Integrated Potential Fishing Zone Advisories: A Feasibility Analysis in the Coastal Water of West Bengal*. Proceedings of the Zoological Society. DOI 10.1007/s12595-013-0088-x. (Q3).
22. A., Chanda, A., Akhand, S., Manna, **S., Dutta**, I. Das., S., Hazra, D., Mitra, K.H. Rao and V. K. Dadhwal. 2014. *Measuring daytime CO<sub>2</sub> fluxes from the inter-tidal mangrove soils of Indian Sundarbans*. Environmental Earth Sciences. 72 (2): 417-427. DOI 10.1007/s12665-013-2962-2. (Q2).

## 2013

23. **S. Dutta** and S. Hazra. 2013. *A Report on Mega Landing of Blacktip Sea Catfish, Plicofollis dussumieri (Valenciennes, 1840) from Frasergunje Fishing Harbour, West Bengal, India*. Croatian Journal of Fisheries. 71: 74-76. (Q3).
24. **S. Dutta** and S. K. Mukhopadhyay. 2013. *Habitat Preference and Diversity of Anuran in Durgapur, an Industrial City of West Bengal, India*. Proc Zool Soc. 66(1): 36-40. DOI: 10.1007/s12595-012-0055-y. (Q3).
25. A., Akhand, A., Chanda, **S., Dutta**, S., Manna, S., Hazra, D., Mitra, K.H. Rao and V. K. Dadhwal. 2013. *Characterizing air-sea CO<sub>2</sub> exchange dynamics during winter in the coastal water off Hugli-Matla estuarine system in the northern Bay of Bengal, India*. Journal of Oceanography. 69 (6): 687-697. DOI.10.1007/s10872-013-0199-z. (Q2).
26. A. Akhand, A. Chanda, S. Manna, **S. Dutta**, P. Sanyal, H.K.Rao, V.K.Dadwal and S. Hazra. 2013. *Dual character of Sundarban estuary as a source and sink of CO<sub>2</sub> during summer: an investigation of spatial dynamics*. Environmental Monitoring and Assessment. 185(8), pp.6505-6515. (Q2).
27. A., Chanda, A., Akhand, S., Manna, **S., Dutta**, S., Hazra, I., Das, & V. K. Dadhwal. 2013. *Characterizing spatial and seasonal variability of carbon dioxide and water vapour fluxes above a tropical mixed mangrove forest canopy, India*. Journal of Earth System Science. 122 (2): 503– 513. (Q2).
28. A. Chanda, A. Akhand, S. Manna, **S. Dutta**, I. Das and S. Hazra. 2013. *Spatial variability of atmosphere-biosphere CO<sub>2</sub> and H<sub>2</sub>O exchange in selected sites of Indian Sundarbans during summer*, Tropical Ecology. 54(2): 167-178. (Q2).

## 2012

29. **S. Dutta**, S. Maity, A. Chanda, A. Akhand, and S. Hazra. 2012. *Length Weight Relationship of Four Commercially Important Marine Fishes of Northern Bay of Bengal, West Bengal, India*. J. Appl. Environ. Biol. Sci. 2(2): 52-58.
30. **S. Dutta**, S. Maity, A. Chanda and S. Hazra. 2012. *Population Structure*,

*Mortality Rate and Exploitation Rate of Hilsa Shad (Tenuialosa ilisha) in West Bengal Coast of Northern Bay of Bengal, India.* World Journal of Fish and Marine Science. 4(1): 54-59.

31. Akhand, A. Chanda, **S. Dutta** and S. Hazra. 2012. *Air – water carbon dioxide exchange dynamics along the estuarine transition zone of Sundarban, northern Bay of Bengal, India.* Indian Journal of Geo-Marine Sciences. 41 (2): 111 -116. (Q4).
32. Akhand, A. Chanda, **S. Dutta**, S. Hazra, P. Sanyal. 2012. *Comparative study of heavy metals in selected mangroves of Sundarban ecosystem, India.* Journal of Environmental Biology. 33: 1045-1049. (Q3).

## **2011**

33. A. Chanda, A. Akhand, **S. Dutta** and S. Hazra. 2011. *Summer Fluxes of CO<sub>2</sub> from Soil, in the Coastal Margin of World's Largest Mangrove Patch of Sundarbans – First Report.* J. Basic. Appl. Sci. Res., 1(11):2137-2141.