# Highlights of Departmental Activities (Zoology Dept.) during 2017

## * HoD leaves the College

Dr. Debashri Mondal, HoD, leaves Raiganj Surendranath Mahavidyalaya on 03 February 2017 to join Charuchandra College, Kolkata.
Dr. Prithwiraj Jha assumes the position of HoD on 04 February 2017.

Figure: Dr. D. Mondal

## * Study tour (first year students of the 2016-17 session)

Dr. Prithwiraj Jha, HoD accompanied the team to Duars area, West Bengal and Phuentsholing (Bhutan) for a 5- day study trip during 14 to 18 February'2017. Students of the first year (2016-17 session) participated in the trip.


Figure: The RSM team along with their teacher (Rajabhatkhawa, West Bengal).

Figure: Team members walking in the forest area for survey (near Jayanti, West Bengal).

## * Participation in conference by teaching staff

Dr. Prithwiraj Jha, HoD participated in an International Conference- "AGROTECH-2017" organized by Himalayan Scientific Society for Fundamental & Applied Research, Uttar Banga Krishi Viswavidyalaya & Kalimpong Science Centre, Kalimpong, India, during 11-12 May 2017.

Figure: Dr. P. Jha (right) with co-participant, Dr. Palash Mandal of the Botany Dept., North Bengal Univ.

Figure: Kalimpong Science Centre, the venue.

## * Participation in workshop by teaching staff

Dr. Prithwiraj Jha, HoD attended a short training programme on "Data Science Applications for Sustainability" organized by TERI University, New Delhi during July 10-12, 2017.

Figure: Dr. P. Jha receiving his certificate from Dr. Rajiv Seth, Pro-Vice Chancellor, TERI University.


Figure: Participants of the workshop.

## * Participation in conference by teaching staff

Dr. Prithwiraj Jha, HoD participated in an International Conference- 3rd Hungarian Student Conference on Conservation Science- SCCS-2017, organized by Centre for Ecological Research, Hungarian Academy of Sciences at Balaton Limnological Institute, Tihany, Hungary, during 29 August- 02 September 2017. This visit was partly supported by a bursary provided by the Hungarian Academy of Sciences.


Figure: Dr. P. Jha, during his lecture.

Figure: Balaton Limnological Institute, Tihany (Hungary), the venue.

## * Laboratory visits in Czech Republic by teaching staff

Dr. Prithwiraj Jha, HoD participated in a Laboratory visit Programme in the Department of Biology and Ecology, Faculty of Science, Ostrava University, Czech Republic during September 03-15, 2017. This visit was partly supported by Ostrava University.

Figure: Dr. P. Jha, with different faculty members in Ostrava University, Czech Republic.

## * Laboratory visit in Italy by teaching staff

Dr. Prithwiraj Jha, HoD participated in a Laboratory visit Programme in the Department of Agri-Food Production and Environmental Sciences- Section of Animal Sciences, School of Agriculture, Florence University, Italy during September 17-23, 2017.

Figures: Photos of the laboratory and the departmental buildings in Florence University, Italy.

## * Department organizes the first "Annual Students' Seminar"

To encourage the students of the Department to speak in front a wider audience, the Zoology Dept. organized the first "Annual Students' Seminar" during December 13-14'2017. This event was the first of its kind in the College and the Department plans to organize such annual events every year. The Chief Guest(s) and Judges for the event were: (1) Sri Amal Bhattacharya, Associate Professor of Zoology, Raiganj University, and (2) Dr. Amit Kumar Mandal, Assistant Professor of Sericulture, Raiganj University.

Figures: Glimpses of the seminar-activities.

## * Field visit to Raiganj Wildlife Sanctuary (Kulik)

Dr. Prithwiraj Jha, HoD accompanied the first year students (2017-18 session) to a half-day trip to the Raiganj Wildlife Sanctuary (Kulik Sanctuary) on 16 December 2017.

Figures: Glimpses of the field-trip.

## * Department achieves third position in inter-departmental exhibitions

The students of the Zoology Dept. achieved third position in the Annual College Exhibitions held during December 22-23'2017.



Figures: Glimpses of the exhibitions.

## * Department publications in 2017

**Jha, P.**: Growth, survival rate, and number of marketable fish produced of gold fish, *Carassius auratus* (L.) in outdoor earthen ponds with endogenous culture of *Daphnia* sp. or *Moina* sp. and exogenous supply of mixed plankton. ***Volumul de Lucrări ştiinţifice - Seria Zootehnie***, 67: 14 – 20 (2017).

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# GROWTH, SURVIVAL RATE, AND NUMBER OF MARKETABLE FISH PRODUCED OF GOLD FISH, *CARASSIUS AURATUS* (L.) IN OUTDOOR EARTHEN PONDS WITH ENDOGENOUS CULTURE OF *DAPHNIA* SP. OR *MOINA* SP. AND EXOGENOUS SUPPLY OF MIXED PLANKTON

**Prithwiraj Jha**[1*]

[1]*Department of Zoology, Raiganj Surendranath Mahavidyalaya, Raiganj 733 134, West Bengal, India*

**Abstract**

*The effect of different management systems on the growth and survival of gold fish in ponds was investigated. Fish larvae (0.11 ± 0.012 g) were cultured for three months. There were four treatments: fish were stocked in outdoor ponds under endogenous culture of Moina sp. (P1), Daphnia sp. (P2), exogenous supply of mixed plankton (P3) and a control treatment where a commercial pellet was applied as food (P4). Values of dissolved oxygen were highest in the P3 ($p<0.05$). The P4 treatment showed the highest concentrations of $NH_4$-N, $NO_2$-N, $NO_3$-N, $PO_4$-P, and bicarbonate alkalinity, which were significantly higher ($p<0.05$) than the other treatments. The final body weight of the gold fish ranged from 3.78 to 7.19 g in the different treatments. At harvest, maximum weight gain was achieved in the P3, followed by P2, P1 and P4 in descending order ($p<0.05$). There was a significant difference ($p<0.05$) in the survival of gold fish among the treatments, ranging from 75.77% (P4) to 97.54% (P3). The number of marketable fish was significantly higher in P3 ($p<0.05$) than other treatments. From the present investigation, exogenous supply of mixed plankton appeared to be a better alternative to culturing goldfish in ponds under endogenous culture of Moina sp. or Daphnia sp.*

**Key words:** gold fish, feed, plankton, growth, survival

## INTRODUCTION

The world export and import values of ornamental fish in the year 2010 were US $ 337082558 and US $ 155090001, respectively [4]. Overall it is a continuously growing industry [24]. The culture technology for exotic ornamental fish under tropical conditions in India needs to be standardized if India were to become a major player in the international ornamental fish market [7]. Carps like koi, *Cyprinus carpio* L. and goldfish, *Carassius auratus* (L.) can be easily reared in ponds and although there are some papers on koi culture techniques [10,11,13,16,17], barring a few papers [14,19,27], there is a paucity of documentation on goldfish growth under outdoor pond conditions in India.

Exogenous introduction of live plankton (mixed species) substantially enhanced weight gain and reduced mortality in ornamental carps cultured in outdoor tanks and ponds [12,15,16,17]. In an earlier experiment [14], the cladoceran *Moina* was found to be the most abundant plankton (21.86%) in the gut contents of goldfish under a 1:1 polyculture combination with koi carp, while *Daphnia* was the most abundant plankton under monoculture (35.10%). In the present study, the effect of feeding goldfish with *Moina* sp. was compared with feeding *Daphnia* sp. and a diet of mixed plankton.

## MATERIAL AND METHOD

Two- to three-week old larvae of goldfish, *Carassius auratus* (L.) (0.11 ± 0.012 g) were acclimatized in 24 outdoor concrete tanks (capacity: 2000 L) for 1 week prior to the experiment. Fish were cultured

*Corresponding author: jhakingshuk@rediffmail.com
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*** Honorable position held by teaching staff**

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| Dr. Prithwiraj Jha, HoD was Member of "Scientific Committee" in the "**4th International Conference on Sustainable Agriculture and Environment**". (10-12 August 2017) | *Jointly organized by Selcuk University (Turkey), Warsaw University of Life Sciences (Poland) and Sebelas Maret University (Indonesia) at Solo Paragon Hotel,* ***Solo City, Indonesia****.* |