

THE PROSPECT AND INCIDENCE OF EUS : FISH FARMERS EXPERIENCE

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ABSTRACT

Uttar Pradesh, being largest state of India, has vast potential for freshwater in the form of pond, tanks and rivers. The paper describes the perception of farmers related to fish diseases specially Epizootic Ulcerative Syndrome (EUS), popularly known as EUS and widely considered as a disease of cancer by the fish farmers of Bareilly district of U.P. This disease was recorded in Uttar Pradesh in 1989-91 during the study conducted in Bareilly district of Uttar Pradesh. Out of total 15 development blocks of Bareilly district, two blocks were randomly selected. More than three-fourth of the fish ponds (82.36 %) were found cultured with wild fish and infested by EUS, more than a half of the fish farmers (53.92 %) had observed the disease during the month of November-December, similarly, majority of fish farmers could noticed of EUS in advanced stage or when haemorrhagic spot over the body of fish was seen. Most of the farmers (92.16 %) had applied lime for remedial measures to control EUS. The difficulty encountered in countering the disease outbreak at present is primarily due to lack of knowledge on the primary causative agents, occurrence of disease in large water bodies affecting wild population.

Key Words: EUS, Wild Fish

INTRODUCTION

Epizootic Ulcerative Syndrome, popularly known as EUS, has caused severe damage to India's aquaculture, especially at the moment when Indian fisheries industry is poised for a great leap forward with high input based hitech production systems. Widespread

outbreaks of the disease, occurring suddenly and often causing mass mortality in freshwater and wild fishes have caused enormous anxiety and tremendous concern among the general public, fishermen, fish farmers and entrepreneurs besides administrators and planners.

Table 1. Details of EUS outbreak in different State of India

Sl. No.	State	Period of outbreak	Duration	District affected	Water area
1.	Tripura	1988-1991	May-September	North, South & West Tripura	Rivers, Lakes, Reservoirs Paddy fields, Ponds
2.	Assam	1988-1991	May- December	All Districts	-Do-
3.	Meghalaya	1988-1990	May- December	East Khasi & Garo hills	Rivers, Streams, Paddy fields
4.	Mizoram	1988-1990	June- September		Large ponds
5.	Arunachal Pradesh	1989	September- December	Itanagar	Rivers, Ponds
6.	Manipur	1989	December	All Districts	Ponds
7.	West Bengal	1988-1991	September-December	All Districs	Beels, Reservoirs, Paddy fields, Ponds
8.	Orissa	1989-1992	October- January	Cuttack, Puri, Balasore, Bhadrak	Beels, Paddy fields, Ponds
9.	Bihar	1989-1992	April- October	29 Districts	Beels, Paddy fields, Ponds
10.	Uttar Pradesh	1989-1991	September- November	Gorakhpur, Lucknow, Allahabad, Faizabad	Beels, Paddy fields, Ponds
11.	Madhya Pradesh	1990, 1991	November- December	Raipur, Durg, Rajandgaon, Gwalior, Shivpuri, Jabalpur	Irrigation tank, Culture ponds
12.	Maharashtra	1990, 1991	September- October	Gondia, Bhandra	Culture ponds
13.	Andhra Pradesh	1990, 1991	November- January	Eluru	Lakes, Canals, Drains
14.	Tamil Nadu	1990, 1991	October-February	Kancheepuram, Trichy	Lakes, Reservoirs,
15.	Kerala	1991, 1992	July- February	10 Districts	Backwater, Lakes, Culture ponds
16.	Rajasthan	1991	November	Tonk	Reservoir
17.	Haryana	1991	October	Sonepat	Culture ponds
18.	Karnataka	1990, 1991	November	Bangalore	Rivers, Ponds, Lakes

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Although the disease has been known in the Asia-Pacific region since the seventies, it appeared for the first time in India Tripura in 1988 and has now covered almost the entire length and breath of the country.

The disease was first recorded in some of the North-eastern states like Table-1 Tripura, Assam, Meghalaya and Manipur during May-December 1988. Subsequently, it was recorded in West Bengal in the same year. During 1989-92 the disease had spread to Orissa, Bihar, Uttar Pradesh and Andhra Pradesh and in 1990-1991, it covered Madhya Pradesh, Maharashtra, Andhra Pradesh, Tamilnadu, Kerala, Rajesahthan, Haryana and Karnataka. In subsequent years, it was reported from Pondichery and Goa has registered its name as the latest victim in 1993. It was recorded in Bareilly District of Uttar Pradesh since 1995-1997. Common name of this disease is cancer disease (EUS), called by fish farmers of Bareilly region. The study was undertaken with the following two specific objectives,

- (1) To know the different types of culture and species being affected by EUS in farmers fish ponds.
- (2) To study the month-wise disease outbreaks, symptoms and remedial measures used to control EUS by the farmers.

METHODOLOGY

The study was conducted in Bareilly District of Uttar Pradesh. Out of 15 Development Blocks of Bareilly district, six blocks were randomly selected. These blocks have 175-gram panchayat leased fish pond of fish farmers and 175 fishermen's were personally interviewed with help of prestructured interview schedule. The collected data was analyzed into percentage and average.

RESULTS & DISCUSSION

(i) **Fish species affected**—A perusal of Table-2 fifteen species of freshwater and wild fishes have been recorded to be affected by EUS out of which two are exotic and the rest indigenous/ wild fishes. This syndrome has been disturbingly round to affect a variety of fish species both wild and culturable, resulting in large-scale mortalities. The most severely affected ones are *Puntius* spp., *Channa* spp., *Ambasis* spp., *Clarias* *batrachus*, *Heteropneustes* *fossilis*, *Wallago* *attu*, *Anabas* *testudineus* etc. Among the Indian Major Carp and Exotic, it has recorded in *Catla* *Rohu*, *Mrigala*, *Silver carp* and *Grass carp* are also affected.

Table 2. Distribution of fish Species Affected by EUS in Bareilly District.

Cultured fishes	Wild fishes
<i>Catla catla</i> , <i>Labeo rohita</i> , <i>Cirrhinus mrigala</i> , <i>Ctenopharyngodon idella</i> , <i>Hypophthalmichthys molitrix</i>	<i>Puntius</i> spp., <i>Channa</i> spp., <i>Ambasis</i> spp., <i>Clarias batrachus</i> , <i>Heteropneustes fossilis</i> , <i>Wallago attu</i> , <i>Anabas testudineus</i> , <i>Mystus</i> spp., <i>Mastocembelus</i> spp., <i>Glossogobius</i> spp. etc.

(ii) **Types of Culture**—The observations regarding- types of culture of fish farmers are given in Table-3, majority 82.36 % of the fish pond is cultured with wild fishes had infected by EUS, while 17.64 % of the composite fish culture ponds were infected by EUS. Out of 175 fish pond of different blocks of Bareilly district were infected 102 (58.28 %) by EUS. Although the extent of economic loss has not been properly quantified, loss incurred by the fisheries due to the disease is substantial.

Table 3. Distribution of EUS is According to Type of Culture in Bareilly District.

Sl. No.	Type of Culture	No. of pond	Infected pond by EUS	Percentage
1.	Monoculture	08	Nil	Nil
2.	Composite fish culture	40	18	17.64
3.	Cultured with wild fishes	127	84	82.36
TOTAL		175 (100 %)	102 (58.28 %)	100.00

(iii) **Month-wise outbreaks of EUS**—It is noticed from Table-4 that, the disease is mostly observed during the month of November to December (53.92%), while 38% (September-October) were prolonged 07.84 % (June-August) and 06.86% (January-February) were observed respectively. Investigation carried out at disease prone sites in Bareilly district showed that EUS outbreak occurs at the time of waning of rainfall and onset of gradual stagnation from September and fall in water temperature.

Table 4. Distribution of EUS According to their Month-wise Outbreak

Month-wise	June-Aug.	Sept.-Oct.	Nov.-Dec.	Jan.-Feb	TOTAL
No. of affected fish pond during 2003	08	32	55	07	102
	07.84 %	31.38 %	53.92 %	06.86 %	100.00 %

(iv) **Symptoms Observed by Farmers**—There observations regarding- symptoms of EUS are given in Table-5 that, the majority 60.78 % of fish farmers had observed of EUS at advanced stage (*Hemorrhagic spots over the body of fish*), while 21.58 % of farmers were observed of EUS at final stage (*Big ulcers of the size of a coin with grayish*). And 17.64 % of fish farmers were

observed at initial stage (Moderate to severe ulcerative skin lesion).

Table 5. Diagnosis of EUS According to Different Symptoms Observed by Farmers. (N-102)

Sl. No.	Different symptoms	No. of farmers observed	Percentage
1.	Moderate to severe ulcerative skin lesions (Initial stage)	18	17.64
2.	Hemorrhagic spots over the body (Advanced stage)	62	60.78
3.	Big ulcers of the size of a coin with grayish (Final stage)	22	21.58
TOTAL		102	100.00

within seven days. 17.64 % fish farmers were used Indigenous Technical Knowledge (ITK)/method were i.e. neem tree branches, neem oil cake etc. 04.90 % fish farmers were not applied any treatment or all fishes harvest when the occurs of this disease.

Table 6. Remedial Measure used to Control EUS by Farmers

Sl. No.	Remedial measure Used by farmers	No. of Farmers	Percentage
1.	Liming		
2.	Kmno 4	94	92.16
3.	Nacl (Salt)	32	31.38
4.	Bleaching powder	15	14.70
5.	Antibiotic	08	07.84
6.	CIFAX	Nil	Nil
7.	ITK	03	02.94
8.	No treatment/All fishes harvest	18	17.64
		05	04.90

(vi) Remedial Measure used to Control EUS by Farmers

The observations are given in Table-6 that, Maximum number of farmers (92.16 %) applied lime. About 68.00 % of the fish farmers obtained positive result from the lime treatment. While 31.39 % farmers were applied Kmno4 for healing up of initial stage of ulceration of fish. Only limited of farmers were applied bleaching powder (07.84 %) and salt (14.70 %) useful in healing up of initial lesion of EUS affected fishes, Antibiotics were not applied by farmers. 02.94 % farmers were applied CIFAX at helps on the healing process of the ulcerated lesion. A drug formulated by CIFA, Bhubaneswar (Orissa) for application on EUS affected captive water in controlling EUS to cure affected fishes

CONCLUSION

One of the major factors hindering inland fish production now a day is various types of fish disease. However, no other fish disease in India has been so menacing as EUS. EUS has plugged the natural fish productions of the open water resources. The difficulty encountered in countering the disease outbreaks at present is primarily lack of knowledge on the primary causative agent, occurrence of disease in large water bodies affecting wild population.

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