



## ECOLOGICAL STUDIES OF CESTODE PARASITES OF SOME MARINE FISHES ALONG THE RAIGAD COAST (M.S) INDIA

Vasant Dongare<sup>1\*</sup>, Hemlata Chaudhari<sup>2</sup>, Yogesh Reddy<sup>1</sup>, Sunil Patil<sup>2</sup>

<sup>1</sup>Department of Zoology, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad (M.S) India

<sup>2</sup>Pre IAS Training Center and Govt. Institute of Science, Aurangabad (MS) India

<sup>3</sup>M.G. Vidyamandir's, N.V.H. College, Panchavati Nasik-3 (MS) India

### Abstract

This communication deals with ecological studies of cestode parasites of some marine fishes along the Raigad coast (M.S) India, over a period of one year (June to December 2006 and January to May 2007). The study highlights at establishing the magnitude of parasitization in different fishes as well as quantifying the host specificity of the parasites and their fish hosts. Fish samples were collected from main landing beaches of Raigad coast: Alibag, Borli, Murud, Dighi and Shrivardhan. The fish sample (Host) examined for parasites included: *Rastrelliger kanagurata*, *Dasyatis bleekeri*, *Dasyatis walga*, *Aetomylaeus nichoffii*, *Chiloscyllium plagiosum*, *Mobula mobular*, *Carcharhinus dussumeri* and *Rhynchobatus djeddensis*. This study has revealed that out of 8 fishes examined only 5 species were infected with parasites. *Dasyatis bleekeri* infected with *Acanthobothrium* and *Rhinebothrium*; *Dasyatis walga* infected with *Tetragonacephalum* and *Nybelina*; *Aetomylaeus nichoffii* infected with *Hexacanal* and *Tylocephalum*; *Chiloscyllium plagiosum* infected with *Phyllobothrium*; *Rhynchobatus djeddensis* infected with *Tetragonacephalum*, out of the 5 species *Dasyatis bleekeri* was the most heavily infected increase with age (size) especially in *Aetomylaeus nichoffii* where very young fish were rarely infected where as adult were heavily infected.

**Key Words:** Marine Fish, Cestode, Raigad Coast.

### Introduction

In any aquatic ecosystem, parasites play an important role in the ecology in coastal and marine ecosystem parasites species found to cause none or limited pathological damage. Wild fishes under the condition of mariculture may become pathogenic (Damant and Paperna, 1986., Paperna, Damante and Overstreet, 1984). Therefore, studies of parasitic infection of economically important marine fish species have recently become an area of interest. However very little is known about the parasitic fauna of marine fishes of Raigad dist. West coast of Maharashtra in comparison with the information available from other coastal region of the continent. The Raigad coast regions of Maharashtra have diverse population of marine fish species.

### Materials and Methods

#### Study area

The Raigad dist. is situated west coast of the Maharashtra region. It covers a distance of about 240 km. The actual length of 720 km. of the west coast region. Raigad is bordered on the north Thane dist., on the south Ratnagiri dist., on the east Pune dist., and on west by Arabian Sea. It is a part of Konkan coastal region.

The district occupies an area of 7148 thousands hectare and has a population of 22.07 lack of which 5.34 lack were urban and 16.73 lakh were rural. The climate is generally moist and humid, the temperature variations during the and throughout seasons are not large. The average rainfall in district is 3884.3 mm. temperature vary between max. 40.4 C and min. 16.1 C the favourite food of the most people include Rice and fish. On land the coastal corridor is important for its agriculture crops such as rice mango and coconut .in the intertidal and subtidal areas, the coast is also the gateway for the greater part

\* Corresponding Author, Email: vasantphd@yahoo.com

of the konkan imports and exports, a magnet for tourists and potentially, the key to further prosperity. Undergoing these resources and use which are of direct human interest, are the inherent ecological values productive and valuable of natural ecosystem. the rich biological diversity reflects the varied habitats which startings from the oceanic side , include deep waters comparatively

For the study of ecological aspects of cestode parasite of marine fishes, 8 species i.e. *Rastrelliger kanagurata*, *Dasyatis bleekeri*, *Dasyatis walga*, *Aetomylaeus nichoffii*, *Chiloscyllium plagiosum*, *Mobula mobular*, *Carcharchinus dussumier* and *Rhynchobatus djeddensis* were selected because of their economic importance and availability throughout the year irrespective off season for this ecological study, fishes were collected from off shore fishing stations , fish market of Alibag, Borli, Murud, Dighi and Shrivardhan. All cestodes were collected and recorded for the annual cycle of June to December 2006 and January to May 2007. Adequate attention was payed for the collection of the host throught the year in all month and season with regular periodicity

**Result and Discussion**

Table 1a. Showing Temperature, Humidity and Rainfall in Raigad Coast (M.S) India during the Annual cycle June 2006 to May 2007.

Sl. No.	Month & Year	Mean Temp in 0°C	Humidity	Rainfall in mm
1	June 2006	32.3	83	598.4
2	July 2006	30.3	87	800.2
3	Aug 2006	30.0	87	526.2
4	Sept 2006	30.1	86	102.2
5	Oct 2006	32.2	85	155.8
6	Nov 2006	33.2	74	000.0
7	Dec 2007	30.6	75	000.0
8	Jan 2007	29.9	71	000.0
9	Feb 2007	31.6	74	000.0
10	Mar 2007	30.8	80	003.5
11	April 2007	31.1	85	000.0
12	May 2007	33.5	81	058.4

Table 1b. Seasonal Varition of *Nybelina* (Poche, 1926) and *Tetragonocephalum* (Shipley et Homell 1905) from *Dasyatis walga* (Muller and Henle 1841) during the year June 2006- May 2007in Raigad Coast (M.S) India.

Sl. No.	Month & year	No of dissected host	No of infected host	No of cestode parasite collected	Genera	Locality
1.	June 2006	10	02	09	<i>Nybelina</i>	Alibag
2.	July 2006	07	04	Nil	<i>Nybelina</i>	Borli
3.	Aug 2006	08	03	Nil	<i>Nybelina</i>	Dighi
4.	Sept 2006	12	03	06	<i>Nybelina</i>	Shrivardhan
5.	Oct 2006	12	03	12	<i>Nybelina</i>	Dighi
6.	Nov 2006	14	07	36	<i>Tetragonocephalum</i>	Murud
7.	Dec 2006	12	06	28	<i>Tetragonocephalum</i>	Shrivardhan
8.	Jan 2007	11	04	22	<i>Tetragonocephalum</i>	Dighi
9.	Feb 2007	10	03	14	<i>Nybelina</i>	Alibag
10.	Mar 2007	08	03	12	<i>Nybelina</i>	Borli
11.	April 2007	14	04	10	<i>Nybelina</i>	Murud
12.	May 2007	10	02	10	<i>Nybelina</i>	Shrivardhan
Total		126	37	159		

In this study, *Dasyatis bleekari* is the most heavily infected host (Table 1-6). In which two group species were found. Most of the cestode parasites were found on the anterior of the intestine. An increase in the infected with size of the host species especially in *Aetomylaeus nichoffii*. There are many reasons but one obvious reason is that as the fish grows, the amount of food consumed increase, which includes the larval stage of the parasites. The parasites did not seem to affect the health status of their host.

Table 2. Seasonal Varition of *Hexacanalisis* (Perrenoud, 1931) and *Tylocephalum* (Linton 1890) from *Aetomylaeus nichoffii* (Bloch and Schneider 1801) during the year June 2006- May 2007in Raigad Coast (M.S) India.

Sl. No.	Month & year	No of dissected host	No of infected host	No of cestode parasite collected	Genera	Locality
1.	June 2006	07	02	02	<i>Hexacanalisis</i>	Alibag
2.	July 2006	06	Nil	04	Nil	Borli
3.	Aug 2006	07	Nil	04	Nil	Murud
4.	Sept 2006	12	03	06	<i>Hexacanalisis</i>	Shrivardhan
5.	Oct 2006	10	03	08	<i>Tylocephalum</i>	Dighi
6.	Nov 2006	08	06	28	<i>Tylocephalum</i>	Murud
7.	Dec 2006	11	08	36	<i>Tylocephalum</i>	Shrivardhan
8.	Jan 2007	12	06	18	<i>Tylocephalum</i>	Dighi
9.	Feb 2007	09	04	12	<i>Tylocephalum</i>	Alibag
10.	Mar 2007	10	04	10	<i>Tylocephalum</i>	Borli
11.	April 2007	08	03	13	<i>Tylocephalum</i>	Murud
12.	May 2007	11	04	03	<i>Tylocephalum</i>	Shrivardhan
Total		111	43	144		

Table 3. Seasonal Varition of *Acanthobathrium* (Van bendal, 1849) *Rhinebothrium* (Linton, 1889 ) from *Dasyatis bleekari* (Blyth 1860) during the year June 2006- May 2007 in Raigad Coast (M.S) India.

Sr no	Month&year	No of dissected host	No of infected host	No of cestode parasite collected	Genera	Locality
1	June 2006	15	02	06	<i>Acanthobathrium</i>	Alibag
2	July 2006	12	Nil	Nil	Nil	Borli
3	Aug 2006	10	Nil	Nil	Nil	Murud
4	Sept 2006	12	02	22	<i>Acanthobathrium</i>	Shrivardhan
5.	Oct 2006	15	06	15	<i>Rhinebothrium</i>	Dighi
6.	Nov 2006	17	08	46	<i>Rhinebothrium</i>	Murud
7.	Dec 2006	09	06	58	<i>Rhinebothrium</i>	Shrivardhan
8.	Jan 2007	12	07	40	<i>Rhinebothrium</i>	Dighi
9.	Feb 2007	10	05	26	<i>Rhinebothrium</i>	Alibag
10.	Mar 2007	14	06	23	<i>Acanthobathrium</i>	Borli
11.	April 2007	12	03	18	<i>Acanthobathrium</i>	Murud
12.	May 2007	11	02	13	<i>Acanthobathrium</i>	Shrivardhan
Total		149	47	267		

Table 4. Seasonal Varition of *Phyllobothrium* (Venedan, 1849) from *Chiloscyllium plagiosum* (Anonymous Bennett 1830) during the year June 2006- May 2007 in Raigad Coast (M.S) India.

Sl. No.	Month & year	No of dissected host	No of infected host	No of cestode parasite collected	Genera	Locality
1	June 2006	10	02	02	<i>Phyllobothrium</i>	Alibag
2	July 2006	07	Nil	Nil	Nil	Borli
3.	Aug 2006	06	Nil	Nil	Nil	Murud
4.	Sept 2006	12	03	06	<i>Phyllobothrium</i>	Shrivardhan
5	Oct 2006	12	03	08	<i>Phyllobothrium</i>	Dighi
6.	Nov 2006	14	07	68	<i>Phyllobothrium</i>	Murud
7.	Dec 2006	12	06	46	<i>Phyllobothrium</i>	Shrivardhan
8.	Jan 2007	11	04	18	<i>Phyllobothrium</i>	Dighi
9.	Feb 2007	10	03	12	<i>Phyllobothrium</i>	Alibag
10.	Mar 2007	08	03	10	<i>Phyllobothrium</i>	Borli
11.	April 2007	14	04	13	<i>Phyllobothrium</i>	Murud
12.	May 2007	10	02	03	<i>Phyllobothrium</i>	Shrivardhan
Total		126	37	188		

Table 5. Seasonal variation of *Tetragonacephalum* (Shipley et Hornell 1905) from *Rhynchobatus djeddensis* during the year June 2006- May 2007 in Raigad Coast (M.S) India.

Sl. No.	Month & year	No of dissected host	No of infected host	No of cestode parasite collected	Genera	Locality
1.	June 2006	16	02	05	<i>Tetragonacephalum</i>	Alibag
2.	July 2006	12	Nil	Nil	Nil	Borli
3.	Aug 2006	14	Nil	Nil	Nil	Murud
4.	Sept 2006	18	05	06	<i>Tetragonacephalum</i>	Shrivardhan
5.	Oct 2006	16	05	30	<i>Tetragonacephalum</i>	Dighi
6.	Nov 2006	18	08	38	<i>Tetragonacephalum</i>	Murud
7.	Dec 2006	20	16	36	<i>Tetragonacephalum</i>	Shrivardhan
8.	Jan 2007	15	09	30	<i>Tetragonacephalum</i>	Dighi
9.	Feb 2007	16	10	20	<i>Tetragonacephalum</i>	Alibag
10.	Mar 2007	19	08	18	<i>Tetragonacephalum</i>	Borli
11.	April 2007	20	06	10	<i>Tetragonacephalum</i>	Murud
12.	May 2007	17	05	06	<i>Tetragonacephalum</i>	Shrivardhan
Total		201	74	198		

## Conclusion

By studying the influence of temperature, humidity and rainfall on different parasites, infecting different marine fishes during the annual cycle June to December 2006 and January to May 2007 at Raigad district Maharashtra India. It has been observed that there was direct relationship between the high temperature, low humidity and almost low rainfall and infection level of cestodes of different hosts (Marine fishes).

In the annual cycles, June to December 2006 and January to May 2007, the infection is maximum due to high temperature, low humidity and almost no rainfall. This is because of favorable condition for the parasites to survive in the host's body, while infection is lowest in the month of June July and August, just because of low temperature, humidity and high rainfall.

More or less this is applicable to all the parasite host relationship.

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