Studies on Hydrobiology and *Zooplanktons* fauna in Raorukula cheruvu Siddipet district Telangana, India

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Absract:
Zooplanktons were collected monthly basis from four different sites of Raorukula cheruvu from June 2015-May 2018.The plankton samples were collected during morning hours in between 8.00 am to 10.00 a.m. Each sample was collected by filtering 20 lit of water through plankton net made up of nylon blotting silk plankton net (No.25 mesh size 50µ) filtrate was stored in 20ml plastic bottles and 5% formalin was added and brought to laboratory. Zooplankton samples were identified and counted under microscopic using by Sedgwick Rafter cell method. Zooplanktons were identified with the help of standard keys.
Key words: Zooplanktons, reservoirs, domestic, civilization

1.Introduction:

One of the major developmental activities in our country since independence has-been the taming of the rivers to harness the water resources for power generation, flood control, irrigation etc. In the process, a large number of reservoirs have come into existence. These water bodies form an important inland fishery resource by virtue of their sheer magnitude. Water is a basic ingredient of life. Prosperity of civilization about 80% of the earth's surface is covered by water, yet the inland fresh water availability is account for less than one percent. The fresh water bodies such as reservoirs, tanks, ponds, rivers are major resources of water for consumption by human beings and livestock, mainly for drinking, domestic purposes, and agriculture and aquaculture practices. Hippocratus (460 to 354 BC) the father of medicine stated that "Water contributes much to health" and asserted that the rain developmental planning and sustainable use of water resources. Water should be boiled and filtered before use, otherwise it would have a bad smell and cause harshness (Borchart and Watton, 1971). The fresh water aquaculture in India occupies around 80% of carp fishes. Carp culture is practiced by 80 to 85% cent small fish farmers in the country. Under practicing integration of carp aquaculture, the compound feed in pellet form for livestock and poultry can also be used for increase in fresh water carp fish production. In aquaculture, the current freshwater fish feed consumption is estimated at 0.7 million tones and expected that the demand for freshwater fish feed

would also grow at 5-6 percent in near future FASAR (2015). The productivity of small carp fish farmers can be enhanced with floatable and water stable aqua pellet feed in small quantities. Fish production through aquaculture is realized in a wide variety of culture systems, depending on farm location, the nature of the water and culture intensity. Aquaculture systems may be land-based or water-based. Land-based systems are built on dry land and include mainly ponds, and rice fields. Water-based systems are usually situated inland or in sheltered coastal waters, and include enclosures, cages, pens and rafts. The majority of aquaculture production comes from land based freshwater culture systems.

Tank irrigation is one of the oldest and significant sources of irrigation in India and is particularly in south India. The tanks occupy vital role in the irrigation as well as local ecosystem in the semi-arid and regions of South India. This perennial tank provides multiple uses like source of drinking water for uncountable rural and urban communities and livestock, fish culture, recharge of ground water, control of floods etc. As water is one of the most important compounds of the ecosystem, due to increased human population,industrialization, use of fertilizers in the agriculture and man-made activity. The natural aquatic resources are causing heavy and sever pollution in aquatic environment leading to pollute water quality and depletion of aquatic biota. It is therefore necessary that the quality of drinking water should be checked at regular time of interval, because due to use of contaminated drinking water, human population and aquatic organisms suffers from various water borne diseases. It is difficult to understand the biological phenomena fully until and unless know the chemistry of water, metabolism of the ecosystem and explain the general hydro – biological relationship. The production of fish in traditional culture system is solely based on the inherent natural productivity of ponds. There is no effort of removing fish enemies from the ponds or monitoring the fertility status of soil and water for enhancing the carrying capacity. Their effort is generally limited to stocking assorted carp seed of any size with no post-stocking management, ultimately resulting in miserably poor fish yields. Modern carp culture technology in India which has come to be known as composite fish culture aims at fuller utilization of pond productivity at different ecological niches by culturing together fast growing six compatible species of complementary feeding habits. The ratio and number of different species is suitably regulated in an environment free of weeds and harmful fishes under hygienic condition with health monitoring, as an when required. It is well established fact that the productivity of a water body depends on its ecological conditions. Productivity can be increased for obtaining maximum sustainable yield of fish and maintenance of environmental and social stability through constant monitoring of water quality. The water quality parameters like temperature, hardness, pH, dissolved gases, salinity etc. must be watched regularly, individually or synergistically to keep the aquatic habitat favorable for existence of fish. We know about the value of the

fish in human life the present study carried out on Erracheruvu Irrigation tank located in Siddipet, Telangana state. The research has been carried out on ecological parameters on Major carp fish species. These findings may helpful in better management of fish culture in Irrigational tanks in the rural areas in order to achieve the relevant and cost-effective solutions to all the complex problems of the fishers of capture and culture sector, a multidisciplinary approach is highly needed which would

2.Materials and Methods

Collection of Samples:

Water tests were gathered from Erracheruvu at month-to-month interims for a time of three years June-2015 to May-2018 at four distinctive inspecting stations in Erracheruvu. Water tests were gathered from chosen stations as required for the investigation of compound parameters. Physical information of the Erracheruvu was recorded on the spot. Tests for zooplankton investigation were gathered by plankton net and preserved with suitable preservations.

Zooplankton:

Zooplanktons were collected monthly basis from four different sites of Raichur cheruvufrom June 2015-May 2018.The plankton samples were collected during morning hours in between 8.00 am to 10.00 a.m. Each sample was collected by filtering 20 lit of water through plankton net made up of nylon blotting silk plankton net (No.25 mesh size 50µ) filtrate was stored in 20ml plastic bottles and 5% formalin was added and brought to laboratory. Zooplankton samples were identified and counted under microscopic using by Sedgwick Rafter cell method. Zooplanktons were identified with the help of standard keys.

Collection of fish fauna:

A study on the fish fauna of Erracheruvu, Siddipet District area was made at various intervals during the period of June 2015 to May 2018. Fish fauna was gathered from the different parts of Erracheruvu by utilizing cast net, gill net, circular net and furthermore from the local fisher man collections at different landing sites. Samples were protected in 10% formalin and conveyed to the lab for their distinguishing proof. The fish fauna of Erracheruvu consists of 29 species belonging to 19 genera of 6 Orders 12 families. Among the collections 13 species of Cypriniformes. Order Siluriform consists of 7 species belonging to 4 families, Mystus bleeker, Mystus cavasius, Mystus vittatus three species belongs to family Bagridae, Wallago attu, Ompok bimaculatus two species belongs to Siluridae, Clarias batracus belongs to family Claridae and Enteropneusta's fossils belongs to family Heteropneustidae. Order Osteoglossifomes consists of one species Notopterus Notopterus belongs to family Notopteride. Order Channiformes consists of three species Channa punctatus, Channa striatus, Channa orientalis belongs to family

Channidae. Order Perciformes consists of four species Glosobius giuris giuris belongs to family Gobidae, Anabas testudineus belongs to family Anabantidae, Mastacembelus armatus, Mastacembelus panclus belongs to family Mastacembelidae. Order Antherniformes consists of one species Xenentodon cancilla belongs to family Belonidae.

Zooplankton Observations:

The monthly and yearly fluctuation and composition of rotifer in Erracheruvu were exhibited in tables. The composition of Rotifera population demonstrated different peaks in the post-monsoon season and Pre-Monsoon season during the present investigations. Total 12 species were found among the Rotifera group.

Brachionus caudatus, Keratella tropica, Brachionus angularis Brachionus falcatuss, Brachionus calciflouras, and Keratella colchlearias were more dominant than the other individuals. The lowest population among rotiferans represented by Testudinella patina.

Cladocera:

The monthly and yearly fluctuation and composition of Cladocera in Erracheruvu were exhibited in table above. The composition of Cladocera population demonstrated different peaks in the post-monsoon season and Pre-Monsoon season during the present investigations. Total 6 species were found among the Cladocera group. Moina macropa, Daphnia carinata, M.brachiata, Alonlla sps were more dominant than the other individuals. The lowest population among Cladocerans represented by Bosmina longirostris.

Copepoda:

The monthly and yearly fluctuation and composition of Copepoda in Erracheruvu were exhibited in tables. The composition of Copepoda population demonstrated different peaks in the post-monsoon season and Pre-Monsoon season during the present investigations. Total 4 species were found among the Copepoda group. Nauphlius larva, Diaptomus sp were more dominant than the other individuals. The lowest population among Cladocerans represented by Mesocyclops hyalimus.

Ostracoda:

The monthly and yearly fluctuation and composition of Ostracoda in Erracheruvu were exhibited in tables. The composition of Ostracoda population demonstrated different peaks in the post-monsoon season and Pre-Monsoon season during the present investigations. Total 2 species were found among the Ostracoda group. Cypris sps were more dominant than the other individuals. The lowest population among Cladocerans represented by Steno cypris sps.

3.Results and Discussion

Fig.1 show monthly variations of chlorides of Raorukula cheruvu in siddipet distric

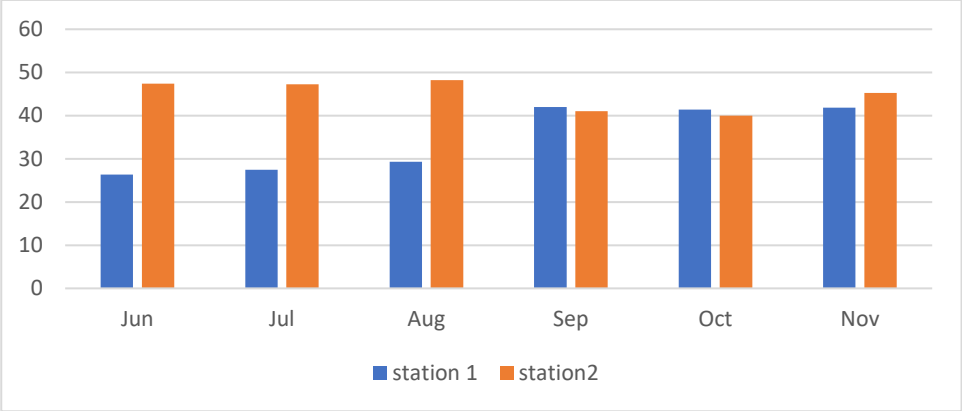

Table 1. Show monthly variation of chlorides of Raorukula cheruvu in siddipet distric Telangana state.

S.NO	Seasons	months	Station1	Station 2
I	Mon-soon	Jun	26.34	47.42
		Jul	27.43.	47.28
II	Pre-monsoon	Aug	29.34	48.20
		Sep	42.01	41.06
III	Post-monsoon	Oct	41.39	40.02
		Nov	41.85	45.23

The information relating to Chloride (mg/lit) of Raorukula cheruvu throughout the year 2015 to 2016 was a lowest 22.66 to a highest of 79.00 mg/lit. The mean Chloride (mg/lit) content recorded throughout Monsoon season at a four distinctive chose stations of Raorukula cheruvu was 26.34, 27.27, 27.43 and 29.34 at St-I, St-II, St-III and St-IV Chloride (mg/lit) respectively. The lowest Chloride (mg/lit) value was 21.78 recorded at St-III during August and the highest was 32.55 at St-IV during September. The mean

Chloride (mg/lit) content recorded throughout the post-monsoon season at four distinctive chose stations of Erracheruvu was 42.01, 41.39, 41.06 and 41.85 at St-I, St-II, St-III and St-IV Chloride (mg/lit) respectively. The lowest Chloride (mg/lit) value was 31.36 recorded at St-III during October and highest was 52.62 recorded at St-I during January. The mean Chloride (mg/lit) content recorded throughout Pre-Monsoon season at a four distinctive chose stations of Raorukula cheruvu was 73.93, 74.52, 73.36 and 73.43 at St-I, St-II, St-III and St-IV Chloride (mg/lit) respectively. The lowest Chloride (mg/lit) value was 66.29 recorded at St-III during March and the highest was 79.55 at St-I during May. The mean estimation of the Chloride (mg/lit) content recorded throughout the three seasons at a four distinctive chose stations of Erracheruvu was 47.42, 47.72, 47.28 and 48.20 at St-I, St-II, St-III and St-IV Chloride (mg/lit) respectively. The mean estimation of the Chloride (mg/lit) content recorded throughout the three seasons was a lowest Chloride (mg/lit) value was 47.28 recorded at St-III and the highest was 48.20 recorded at St-IV. The information relating to Chloride (mg/lit) of Erracheruvu throughout the year 2016 to 2017 was a lowest 21.92 to a highest of 62.40 mg/lit. The mean Chloride (mg/lit) content recorded throughout

Monsoon season at a four distinctive chose stations of Erracheruvu was 24.34, 24.49, 24.64 and 24.57 at St-I, St-II, St-III and St-IV Chloride (mg/lit) respectively. The lowest Chloride (mg/lit) value was 21.59 recorded at St-II during August and the highest was 27.62 at St-III during June. The mean Chloride (mg/lit) content recorded throughout the post-monsoon season at four distinctive chose stations of Erracheruvu was 28.31, 28.40, 28.12 and 28.48 at St-I, St-II, St-III and St-IV Chloride (mg/lit) respectively. The lowest Chloride (mg/lit) value was 24.66 recorded at St-III during October and highest was 32.66 recorded at St-IV during January. The mean Chloride (mg/lit) content recorded throughout Pre-Monsoon season at a four distinctive chose stations of Erracheruvu was 51.04, 50.38, 52.57 and 49.78 at St-I, St-II, St-III and St-IV Chloride (mg/lit) respectively. The lowest Chloride (mg/lit) value was 41.29 recorded at St-II during February and the highest was 62.54 at St-III during May. The mean estimation of the Chloride (mg/lit) content recorded throughout the three seasons at a four distinctive chose stations of Erracheruvu was 34.56, 34.42, 35.11 and 34.27 at St-I, St-II, St-III and St-IV Chloride (mg/lit) respectively. The mean estimation of the Chloride (mg/lit) content recorded throughout the three seasons was a lowest Chloride (mg/lit) value was 34.27 recorded at St-IV and the highest was 35.11 recorded at St-III. The information relating to Chloride (mg/lit) of Erracheruvu throughout the year 2017 to 2018 was a lowest 24.78 to a highest of 80.43 mg/lit. The mean Chloride (mg/lit) content recorded throughout Monsoon season at a four distinctive chose stations of Erracheruvu was 31.19, 31.65, 31.30 and 31.24 at St-I, St-II, St-III and St-IV Chloride (mg/lit) respectively. The lowest Chloride (mg/lit) value was 24.69 recorded at St-I during

August and the highest was 34.65 at St-II during June. The mean Chloride (mg/lit) content recorded throughout the post-monsoon season at four distinctive chose stations of Erracheruvu was 43.64,43.79,43.79 and 43.68 at St-I, St-II, St-III and St-IV Chloride (mg/lit) respectively. The lowest Chloride (mg/lit) value was 35.44 recorded at St-IV during October and highest was 53.20 recorded at St-II during January. The mean Chloride (mg/lit) content recorded throughout Pre-Monsoon season at a four distinctive chose stations of Erracheruvu was 76.45, 75.59, 75.79 and 75.78 at St-I, St-II, St-III and St-IV Chloride (mg/lit) respectively. The lowest Chloride (mg/lit) value was 68.29 recorded at St-II during March and the highest was 80.54 at St-I during May. The mean estimation of the Chloride (mg/lit) content recorded throughout the three seasons at a four distinctive chose stations of Erracheruvu was 50.42, 50.34, 50.29 and 50.23 at St-I, St-II, St-III and St-IV Chloride (mg/lit) respectively. The mean estimation of the Chloride(mg/lit) content recorded throughout the three seasons was a lowest Chloride (mg/lit) value was 50.23 recorded at St-IV and the highest was 50.42 recorded at St-I.

4.References

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