



(RESEARCH ARTICLE)



## Study on aquatic biodiversity and its conservation from Banshelki Dam, Udgir Dist. Latur (M.S.)

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### Abstract

Banshelki Dam is the fresh water Dam of village Banshelki, near Udgir. It is the good source of biodiversity of aquatic animals in Udgir taluka. About 50 species of plankton, 36 species of crustaceans, are found in the Dam. A total of 100 species of fishes, 20 species of prawns/shrimps and 15 species of crabs are recorded from Dam. The Dam serves many species of aquatic birds during winter season. There are 05 species of amphibians and 15 species of reptiles and 6 species of mammals are found in the Dam.

The fish production is fluctuating from year to year. The fish production was higher during 2018-19 and lowest was observed during 2019-2020. The highest crabs were observed to be 1 mt. during 2019-20. The minimum growth rate was observed in the year 2018-19.

**Keywords:** Aquatic biodiversity; Conservation; Banshelki Dam; Udgir

### 1. Introduction

Aquatic biodiversity can be defined as the variety of life and the ecosystem that make up the fresh water and marine water of the world, and their interactions. It is the varied and differences among living organisms of terrestrial, marine and other aquatic ecosystems and the ecological complexes associated with them. It includes genetic diversity within and between species of ecosystems (Jena and Gopalkrishnan, 2012). Biodiversity is not only the richness of species it is also their genetic variety and the multiple habitats and ecosystems in which the plants and animals lives.

Aquatic biodiversity is the rich and wonderful variety of plant and animals. It consists of phytoplankton, zooplankton, aquatic plants, insects, fishes, bird's mammals and many more. Many species of animals and plants live in water fishes spend all their live under water, where as others, like toads and salamanders may use surface waters only during the breeding season. Aquatic biodiversity is greatest in tropical latitudes. About 22000 species of fishes have been recorded in the world, of which about 11% are found in Indian waters. Out of the 22000 species; 73 (3.32%) belong to the cold fresh water regime, 544 (24.73%) to the warm fresh waters domain, 143 (6.50%) to the brackish waters and 1440 (65.45%) to the marine ecosystem (Venkatraman and Raghunatha, 2015). Adequate protection of ecosystem is necessary for survival of all species and proper care is needed to overcome anthropogenic stresses.

Banshelki dam is one of the major sources of aquatic biodiversity in Taluka Udgir. The water depth varies during different seasons of the year. The physical parameters like temperature varied from 15.5 to 30<sup>0</sup> C. The salinity varied from 30.0 put during 2018-19. Similarly and reduced to 0.30 ± 0.25 ppt during 2019-20 the transparency has varied from 0.2 to 1.2 m during 2018-19 and reduced to 50 ± 20 cm to 60.5 ± 10 cm during 2019-20

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Due to anthropogenic pollution, human activities, reduction salinity and excessive growth of fresh water weeds, some fish species and crustaceans are disappearing from the Dam.

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## **2. Material and methods**

For study aquatic biodiversity, dam is divided in to four sectors depending on the survey and estimation of fish production and water characteristics. Namely site A, B, C and D. the secondary data of plankton, fishes, amphibians, reptiles, birds and mammals were collected from Dam Development Authority and fishermen. In the present paper a comparative analysis of aquatic biodiversity from 2018-2019 to 2019-2020 has been discussed.

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## **3. Results and discussion**

### **3.1. Plankton**

The occurrence of plankton community of Banshelki Dam is considerably rich. Here found 25 species of phytoplankton and 15 faunal groups consisting of 80 species have been encountered from the Dam. Diatoms constitute a dominant group of phytoplankton where as the copepods are the chief elements among the zooplankton. The highest occurrence of phytoplankton found during March-May and the lowest occurrence found during November. The reverse condition was observed on the occurrence of zooplankton. The highest density of zooplankton abundance were observed during November and the lowest was found during April-May.

### **3.2. Zooplankton**

The highest density of zooplankton abundance were observed during November and the lowest was found during April-May.

### **3.3. Benthos**

The micro benthos are the animals which measures below 0.5 mm in size. Macro benthos are the organism which measures more than 0.5 mm in size. There are several micro and macro benthos found in Balshelki Dam such as sponges, polychactes, mollusca and echinodermata etc.

### **3.4. Fishes**

The most important group of fishes found in Dam is shown in Table-2. The higher diversity and abundance of fish fauna supported by the Dam is evidence by a total of 25 species of fish recorded from it. Beside 02 species of prawns and 02 species of crabs.

The fish production was fluctuating from year to year due to several factors like salinity, pollution, overexploitation etc. The total fish, shrimp and crab landing was highest during 2019-2020 and the lowest during 2018-2019.

### **3.5. Amphibians and reptiles**

There are 03 species of amphibians and 04 species of reptiles found in Dam. Few species of turtle are observed during December to March.

### **3.6. Avian fauna**

The Dam serves as a beautiful aquatic birds home during winter season. Some migratory birds rest and breed in the Dam. Many birds visit the Dam for feeding and breeding during November to January in every year. The highest number of birds were found during 2018-2019 and the lowest no. of birds found during 2019-2020.

### **3.7. Mammals**

There were no species of mammals found in the Banshelki Dam.

### **3.8. Conservation and Measures**

To improve the present status of fisher resources of Banshelki Dam and to conserve the biodiversity the following measures should be taken.

- Collection of fish and shrimp seeds from the Dam should be stopped.

- Dredging operation shall be done continuously, to avoid the siltation and decrease in the depth of the dam.
- To avoid soil erosion plantation should be done.
- To avoid soil pollution, along the periphery of the Dam, the interference of population should be minimize.
- General awareness programme should be conducted among the local fisherman to avoid overfishing and over exploitation.
- The release of untreated sewage water into Dam should be avoided to stop pollution of Dam.
- Efforts should be made to create an awareness of the local people for the environment and the ecosystem.
- Awareness camps should be conducted at the village level for management of the Dam.

**Table 1** Occurrence of aquatic animals in Banshelki Dam

Major groups	Group forms	No. of species	Genera	Family
Phyto Plankton	Euglenophyceae	02	-	-
	Baeillariophycease	15	-	-
	Chlorophyceae	08		
Zooplankton	08 groups	40	-	-
Protozoa		08	05	03
Porofera	Demospongia	05	03	02
Coelenterata	Anthozoa	03	02	01
Platyhelminthes	Trematoda	04	02	02
Nematoda	-	08	04	03
Annelida	Polychacto	15	06	03
Arthropoda	-	-	-	-
Crustacea	Stomatopoda	02	01	01
	Decapoda	02	02	01
Mollusca	Gastropoda, Bivalvia	04	03	02
Echinodermata	-	01	01	01
Protochordata	-	01	01	01
Piscees	-	25	12	08
Amphibia	-	03	02	01
Reptilia	-	04	02	01
Aves	-	30	08	05
Mammualia	-	-	-	-

**Table 2** Species Richness of Selected Groups of Aquatic Organisms in Banshelki Dam

Name of the groups	Composition in %
Mullets	6.05
Prawn	4.19
Hilsa	1.20
Threadfins	3.75
Catfish	5.40
Siluriformes	2.50
Sciaenids	2.25
Misc	10.72

**Table 3** Common important Group of Fishes found in Banshelki Dam

Group	Order	Family	Genera	Species
Pises	Clupleoformes	Notopteridae	<i>Notopterus</i>	<i>Notoptenus</i>
	Cyprinidae	Cyprinidae	<i>Cyprinus</i>	<i>Carpio</i>
				<i>Catla</i>
			<i>Cirrhina</i>	<i>Mrigala</i>
			<i>Rasbera</i>	<i>Daniconus</i>
			<i>Chela</i>	<i>Phulo</i>
			<i>Labeo</i>	<i>Rohita Bata</i>
	Siluriformes	Siluridae	<i>Wallago</i>	<i>Attu</i> <i>Pabda</i> <i>Callichrous</i>
	Channiformes	Chaniidae	<i>Channa</i>	<i>Straitus marulius Orientalis</i>
	Perciformes	Bagridae	<i>Mystus</i>	<i>Seenghala cavassius</i>

### 3.9. A Check List of Fishes Classification

Phylum: Chordata  
 Sub phylum: Gnathostomata  
 Supper class: Pisces  
 Class: Teleostomii  
 Sub class: Clupleofrmes  
 Family: Notopteridae  
 Genus: *Notopterus*  
 Species: *notopterus chitala*  
 Order: Cypriniformes  
 Family: Cyprinidae  
 Genus: *Cyprinus*  
 Species: *carpio*  
 Genus: *Catla*  
 Species *catla*  
 Genus: *Cirrhina*

Species: *mrigala*  
Genus: *Rasbora*  
Species: *daniconius*  
Genus: *Chela*  
Species: *phula*  
Genus: *Labeo*  
Species: *rohita*  
*Bata*  
Genus: *Puntius*  
Species: *Sarana*  
*ticto*  
Genus: *Garra*  
Species: *mullya*  
Genus: Siluriformes  
Species: Siluridae  
Genus: *Wallago*  
Species: *attu*  
Genus: *Ompak*  
Species: *callichrous*  
*pabda*  
Genus: Channiformes  
Species: Chaniidae  
Genus: *Channa*  
Species: *straitus*  
*marulius*  
*Orientalis*  
Genus: *percifomes*  
Species: *Bagridae*  
Genus: *Mystus*  
Species: *seenghala*  
*cavassius*

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#### 4. Conclusion

Observation is the management of resources such as water so as to eliminate waste. A related and complementary concept is sustainability. Continuous loss of biodiversity affects the capacity and long term stability of ecosystems in performing its important functions. The species diversity has a major role to play in shaping the ecosystem in a changing environment. Natural resources are classified as either renewable or non-renewable. Living resources animals and plants can produce or renew themselves, minerals and fuels cannot. Although protecting uncultivated land from poachers and loggers can sometimes as difficult.

The preserves protect endangered species and offered natural laboratories for research. Fisheries as well as wild life parks help to increase and conserve the environment for the future. The root causes of the degradation of the Dam were due to siltation, reduction in salinity, decline in fish landing, poor discharge of flood water leading to water logging in the peripheral land areas, soil erosion etc. The ecosystem approach is strategy for the integrated resource that promotes conservation and sustainable use in the equitable way.

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#### Compliance with ethical standards

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##### *Statement of ethical approval*

Study of aquatic biodiversity is useful for researchers in future from the Dam.

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