

## Impact of climate change effecting Decline on Migration Birds of Bhadalwadi Lake Indapur Taluka M.S India

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**Abstract:** - Environmental changes are now a day's happening regularly day to day increase in temperature ,Scarcity of rainfall ,Drying of lakes have strong implication on Biodiversity .) .Global warming has set in motion and is affecting the timing of migration of birds .Birds are reliable indicator of environment change for centuries and their arrival indicate start of winter and departure summer in study area .There are many example of the effect of climate change on birds from all around the world which taken together provide compelling evidence that climate change is already affecting birds in diverse ways.

The study was carried out for two years considering the changes occurring in climate parameters like Air Temperature, Rainfall were taken into facts .Keen observation with the help camera photography were taken to study. The effect on migrating Birds which measure international status on wet lands and lakes. Hence in the present study the data on biodiversity ,migratory birds have been collected to understand How climate change supported the dwelling of avian fauna in this area . This paper opens a review on migration of birds on the eve of 14th&15<sup>th</sup> May of world Bird migratory day.

**Keywords:** Air Temperature, Migratory Birds , , Rainfall, Summer Migratory, Winter Migratory

### I. INTRODUCTION

Migration is one of the fascinating aspects of Birds life in response to change in food availability habitat or wheather they travel thousands kilometers cross the boundaries of country .They don't have boundaries, many of them come from Siberia,Iraq,Iran,Afghanistan they migrate in in lakhs of groups. Near about 370 species of migratory birds have been reported in India of these 175 species undertake long distance Migration using central Asia fly way (Siberia-Mangolia-Iran-Afghanistan –Oman- India ) The mysterious process of migration faces many threats including storms bad wheather ,Natural obstacles and important threat like habitat destruction hunting etc. The purpose of migration in a specific period is definitely for feeding and reproduction .Some birds are migratory which are responsible for fluctuation in the population of birds that occur during different season of the year ,which may help to know wheather area is normal or scarcity of water or pollution as total absence of birds from any area may be considered as pollution indicators (Borale et al 1994). There are many example of the effect of climate change on birds from all around the world which taken together provide compelling evidence that climate change is already affecting birds in diverse ways. It is these proximate response that drive the ultimate impacts of climatic change on species .The significant change to range that will be catastrophic for many species (Birds life international 2004) .(Green 1979 )expressed that the number of species is realistic indicators of the status of aquatic ecosystem . MUMBAI: Researchers from UK-based Birdlife International (of which Bombay Natural History Society is the India Partner) and Durham University have come up with new findings about the impact of climate change on birds in Asia, including India. So the study was carried out on Bhadalwadi lake . It's a paradise for migratory birds ,but due climate change it effecting on the arrival and departure of migratory birds.

#### I.I Topography of area

Maharashtra has a wide variety of habitat it attracts a diverse group of migratory birds . Bhadalwadi Lake is Constructed during British period situated river Bhīma it is 64 miles east of pune .It was created 1876-77 as a

relief work during famine. It was designed to irrigate the lands of the nearby villages Dalej and Palasdev it is earthen 2, 2725 feet long. The Ujani dam is one of the largest wet lands in Asia. The reservoir backwater attract every year large number of migratory birds from Siberia,Iraq,Iran,Afghanistan. The reservoir is bird paradise. Mostly birds arrive for food and to raise their chick's offspring



figure 1 The biggest nesting colony behavior for painted strok has been found in Bhadalwadi lake painted strok nesting & breeding 2011 figure 2 Dried Lake No nesting recorded 2012

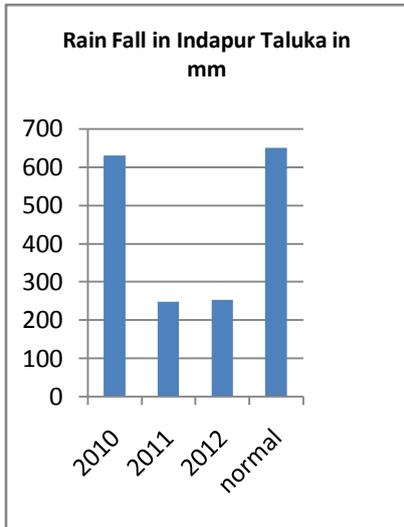
Sr n	Common Name	Scientific Name	Family	Wm	Sm
1	White wag tail	Motacila alba	Motacilidae	*	
2	Oriental white eye	ZosteropsParpetrosus	Zosteropidae		
3	River tern	Sterna Hirundo	Laridae	*	
4	Whiskered tern	Chlidionias Hybridus	Laridae	*	
5	Northern Shoveler	Anasclly Peatacinn	Anatidae	*	
6	Spot billed duck	Tadorna Ferruginea	Anatidae	*	
7	Eurasian Coot	Fulica Atea	Rallidae	*	
8	Jack Snipe	Hydophasinus Chirugus	Jacanidae	*	
9	Glossy Ibis	Plegadis Falcinellus	Thriskinomithidae	*	
10	Eurasian SpoonBill	Platalea Leuorodia	Thriskinomithidae	*	
11	Painted StroK	Mycteria Leucocephala	Ciconidae	*	
12	Open bill strok	Amass lormus Oscitans	Ciconidae	*	
13	Black winged Stilt	Himanptous H	Recurvi rostridae	*	
14	Bar headed Goose	Anser Indicus	Anatiadae	*	
15	West black tailed Godwit	Limosa Limosa	Scalopacidae	*	
16	Small Pranticole	Glareola Laceta	Glareolodae		*
17	Collared Pranticole	Glareola Prantincola	Glareolodae		*
18	White stork	Ciconia Ciconia	Ciconiidae	*	
19	Black Stork	Ciconia Nigra	Ciconiidae	*	
20	Hoopoe	Upupa Epop	Upupidae		*
21	Rosy Starling	Sturnus Vulgaris	Sturnidae	*	
22	Night Jar	Caprinilgusnha Crurus Horsfield	Caprimulgidae	*	
23	Lapwing	Vanellus Vanellus	Charadriidae	*	
24	Cuckoo	Cuculus Canorus	Cuculidae		*
25	Green Bee eater	Merops Orientalis	Meropidae		*
26	Grey Heron	Ardea Anerea	Ardeidae		*

**I.2 Material and Methods**

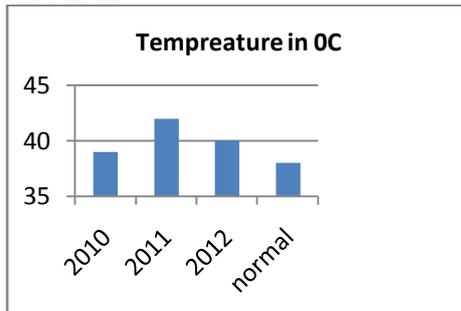
The field survey was carried out for two years during the year oct 2011 to oct 2012. Considering the facts of draught. The Rainfall data was collected from metrological department the atmospheric temperature was measured with the help of thermometer for a period of two years. On the spot migration were recorded from 2011-2012 related to particular species.

**Table no 1 list of Migratory Birds recorded from Bhadalwadi Lake**

Average rainfall in the district is 600 to 700 mm. This is usually during the monsoon months from July - October. Summers are dry and hot. The temperature ranges from 20°C to 38°C, though at the peak they may reach 40°C. From November to January, is the winter season. Temperatures at the peak drop to single digits but usually they hover around 9°C to 14°C



**Table no 2** data of rainfall and Temperature recorded during the year 2010-2012



Graph showing rainfall in mm during the year 2010, 2011, 2012 with normal rainfall record. In the year 2011-2012 due to rainfall stress wet land lakes agriculture etc came into danger due to draught condition

Sr no	Year	Rainfall	Year	Temp
1	2010	630mm	2010	39
2	2011	248mm	2011	42
3	2012	252mm	2012	40
	Normal	650mm	Normal	38



Painted Stork



Northern Showler



Grey Heron



Eurasian Spoon Bill



Bar headed Goose



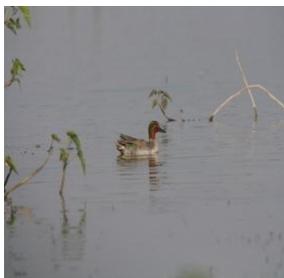
Swamp hen



Oriental White eye



River tern



Common coot



Common Teal  
Sand Piper



Brahminy Shield



White Wag tail



White Necked Stork



Spot Billed duck



Open Bill Stork

## II. RESULT AND DISCUSSION

Bhadalwadi lake Recorded 26 species of water Migratory Birds compared to other migratory birds according to their habitat Migration have been recorded from Siberia,Iraq,Iran,Afghanistan Arctic according to the species recorded .The Rainfall and Atmospheric temperature showed falling data during the year 2011-12 . The biggest nesting colony behavior for painted stork has been found in Bhadalwadi lake .But due scarcity of rainfall reservoir faced dried region and there was no nesting and breeding behavior during 2012 the increasing atmospheric temperature was might be reason .The Air temperature during the year 2011 was ----42-° C and the rainfall recorded was-2011- ---248mm----- While during the atmospheric temperature was ----40°C maximum and rainfall was recorded ---252mm-.It was found that 2012 recorded decline in the number of water migratory birds arrival and there was no nesting and breeding behavior altered . The graph shows that migration of water birds are more comparatively to other birds This strongly suggest water birds are strong migrants in search of food and growing their offspring But due to increase in temperature scarcity of water Drought .Seasonal water level fluctuation fall in water level was also observed at 8 locations ranging below 0.05 (Kalamb and Kolwan to 4.55m Bhadalwadi in longitudinal patch ( Minister of water resource pune district Maharashtra ).The birds in this reservoir are currently with a multitude of threats

including habitat loss .The cause of loss and damage of habitat are complex and controversial .The areas were earlier visited by flocks of painted stork and other birds in thousands .The lake is in very precarious condition and gradually losing its popularity due to continued reduction in the number of Water migratory birds .Bhadalwadi like other parts is becoming a victim of global warming . The climate of the area is gradually changing the arrival of winter is getting delayed the duration of cold season has reduced .

### III. SUGGESTION

An attention should be paid on the 1993 National lake conservation plan NLCP for wet land conservation programmed which focuses on lakes

Raise awareness about needs for the protection of migratory birds and their habitats

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Thanks