

**VARIATION AND ITS EFFECT ON FRESH WATER BODIES OF KHOZAK TOP
SPRING DISTRICT KILA ABDULLAH AT CHAMAN BALOCHISTAN,
PAKISTAN**

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ABSTRACT

The present Study focused on seasonal variations in the physico-chemical parameters of freshwater bodies of Khozak top spring. The study carried out from January 2018 -DEC 2019. Generally, 8 parameters were pointed out seasonal variation of one year is discussed on monthly basis variation in physical biological and chemical parameters. such as, Temperature, pH, dissolved oxygen, Total dissolved solids and Salinity also. All parameters are possible limits on monthly basis for biological life zooplankton and biomass which is variant from season to season in successive year. The data is represented as seasonal mean standard variation with coefficient. Water is the universal solvent which exists in lentic or lotic form. Water has been required for the proper growth and development of aquatic fauna. More than 75% percent diseases have been promoting in the world, are due to polluted water which is being proposed WHO standard report. During two year of study which has been determined the physico-chemical and biological parameters of Khozak top spring District Kila Abdullah at Chaman Balochistan. Pakistan statistically, Water plays main role in the activity of organism which determines the physico- chemical and biological parameters and the present study which depends upon on immunological study of fresh water, and its variation effects on Khozak top spring Chaman, Balochistan and the data which has been collected on the monthly basis 2018-2019 and were compared with the WHO standard report [WFCF, WHO, APHA STANDARD METHOD DC 2007].

KEYWORDS: Limnological, Fluctuation, Determined, Variations, Temperature

1. INTRODUCTION

Background of Study

Water is a basic component of all life forms, functioning primarily for the proper functioning of the body. Water is divided in two forms such as, lotic and lentic forms. The reservoir is



a place where you can store water and use it for different purposes. (Wetzel et al...1995). Ground water is used in agriculture and industrial sectors. Water contains important minerals that are beneficial for the growth and development of the body of organism (Vasari *et al.*, 2002). shallow water helps regulate floods (An *et al.*, 2002). According to the WHO (World Health Organization) report, there are 80 percent diseases associated with environmental pollution developed countries.(Aberaetal2011) Human activities have affected fresh water resources and caused many problems for ecological communities.(Woodand Gibson,)Limnology is the study of inland freshwaters both standing bodies such as lakes and running water like river (Wetzel,2001] Various limnological study pointed out water quality of Lake such as physico-chemical and biological parameters of water (Sharma *et al.*,) physico-chemical and biological parameters plays main role in the quality of water and aquatic ecosystem (Venkatesharaju, 2010). Water quality parameters has determined the status and quality of water for different-purposes (Bajpaietal. 2001). .Most of research connected with physico-chemical parameters of lake (Kaul, 1977; Kaul *et al.*, 19]

Polluted water has been promoted and causes various diseases, such as gastroenteritis, diarrhea, kidney disorders and skin disease in Sindh (Memometal.2011) Physico-chemical parameters have been determined temperature, Electric Conductivity, pH, hardness, transparency, phosphate and nitrates of fresh water (Mahboob *et al.*, 1993).

Planktons are microscopic organisms which floats on the surface of water is the best supply of meals for aquatic fauna (Jafri 1999). Zooplanktons serve as secondary producers linked between phytoplankton and other feeding level (Baloch 2004). Transparency of water has been calculated by secchi disk, (Peckham *et al.*, 2006). Transparency of water has also been influenced by amount of oxygen dissolved in water, suspended particles, debris and sandy mud (Sifa and Senile, 1995).

Temperature affected the metabolic pathway of aquatic organism. (Singh *et al.*,1980). Heavy metals have been produced many problems in aquatic ecosystem in all over the world (Solak and Dogan, 1995). In the case of high temperature, the binding ability of oxygen with water decreases and it results in the decrease of Dissolved Oxygen (Ali, 1999; etal). Salinity and acidity of water is determined by hydrogen and hydroxyl ions (Boyd and Tucker, 1998).

Heavy metals make greater composition of water because they refuse to accept the changes of normal environment of water (Arnason and Fletcher, 2003). Except PH and Electric Conductivity, the water of Quetta is used for different purposes (Achakzai 2014).



Water of Quetta city showed area wise fluctuation in pH, EC and temperature, Calcium, Magnesium, ions and among metals Pb, MN and Cu were greater in concentration in surface water than ground water (Leghari *et al.*, 2011) The present research work determined the physico-chemical parameters of water of Khozak top spring that water is used for different purposes.

Fig. 1. Khozak Dam



Fig. 2. Khozak top spring



2. MATERIAL AND METHODS

Physico-chemical and biological parameters of Khozak Top spring have been determined by different parameters. Turbidity of water is being determined by sechi disc method, AND (JTU) Jackson turbidity unit and others parameters of water is being used to point out different instruments' tragedy and goal 1984, APHA 1995 has been used to determine the physico-chemical and biological parameters while heavy metals of water as well. Water of

Khozak top spring has been collected during morning time 10 -12 pm water was collected in clean bottle on the monthly basis January 2018 to 2019 as well.

3. STUDY AREA

Chaman is the new city which is recently claimed as a new District of Baluchistan named as Chaman District as it was early a part of Kila Abdullah District which is located in Afghanistan and Pakistan border. It is the fifth largest majority city in pashtoon belt decimal latitude and longitude coordinates for Chaman, Pakistan is 30.9236N, 66.45116e Khozak Top spring at Chaman is research area on which i conducted the research on its physico-chemical and biological parameters has been determined by different instrument. Water is the basic component of all living organism which is required for people, are using it for different purposes. Such as, agriculture and, industrial sector. Chaman is the Head Quarter of District Kila Abdullah it has four tehsils Deobandi, Gulistan, Kila Abdullah and Chaman.

4. RESULTS AND DISCUSSION

Water sample have been collected on monthly basis to determine the physico- chemical and biological parameters of Khozak Top spring which analyzed statistically.

PH Power of hydrogen concentration is called pH throughout the year and the pH of District Kila Abdullah at Chaman is alkaline is nature.

DO Dissolved oxygen is important for the daily life activity of organism due seasonal variation oxygen is changing it is maximum in summer while minimum in winter because they are inverse relationship with coldness.

TURBIDITY

Secchi disc has been used to determine the turbidity of water chemistry as well as its quality. Turbidity of water is maximum in monsoon while it is less in winter which is pointed out by sechi disc.

Total Dissolved Solids (TDS)

Total dissolved solids (TDS) have been described the quality of water, and every organism in water have specific range of dissolve salt if its concentration is more from its specific range has produced many issues. According to their growth and development of aquatic fauna



Electric Conductivity (EC)

Electrical Conductivity of water which has been effected by the addition of dissolved solid which changes the chemistry of water, and the water is the basic component of every organism which is required for the proper activity of organism, and the ability of water is conducting the current with the presence of ion which determines the fish growth and the conductivity of water depends upon temp and dissolved solid also.

Salinity

Salinity values slightly different throughout year which have been recorded in District Kila Abdullah at Chaman different station Baluchistan.

Biological Oxygen Demand (BOD)

Biological Oxygen Demand (BOD) is widely used to determine the amount of organic compound of water. which indicates the concentration of organic compound? Water is required for the of metabolism organism without oxygen the daily life activity is not going to be completed. Organic compound is decomposed by oxygen. Dead decaying organism are decomposed by the presence of oxygen the available food for organism

Table: 1. Limnological study variation and its effects on fresh water bodies of Khozak top spring District Kila Abdullah at Chaman, Baluchistan 2018- 2019.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp	9	10	18	24	31	35	37	35	31	24	17	11
pH	7.1	7.3	7.2	7.1	7.6	7.3	7.2	7.3	7.7	7.8	7.6	7.3
Do	9.1	7.8	7.5	6.7	5.7	5.1	5.9	5.5	6.1	7.5	9	7
Turbidity	11.4	16.2	19.1	11.2	3	65.5	65.7	33.4	27.5	27.1	22.4	20.2
TDS	10.3	16.1	19.1	22.4	2	65.5	64.6	27.6	26.3	21.2	22.4	19.4
Electrical Conductivity	97	187	250	266	276	249	198	283	279	80.1	56.2	62.3
Salinity	0.1	0.1	0.2	0	0.2	0.1	0.1	0.2	0.2	0.3	0.1	0.2
BOD	10.4	11.2	10.8	8.2	7.9	6.3	5.7	5.1	5.4	8.5	9.6	10.2

Fig. 1. Limnological study variation and its effects on fresh water bodies of Khozak Top spring District Kila Abdullah at Chaman, Baluchistan 2018- 2019

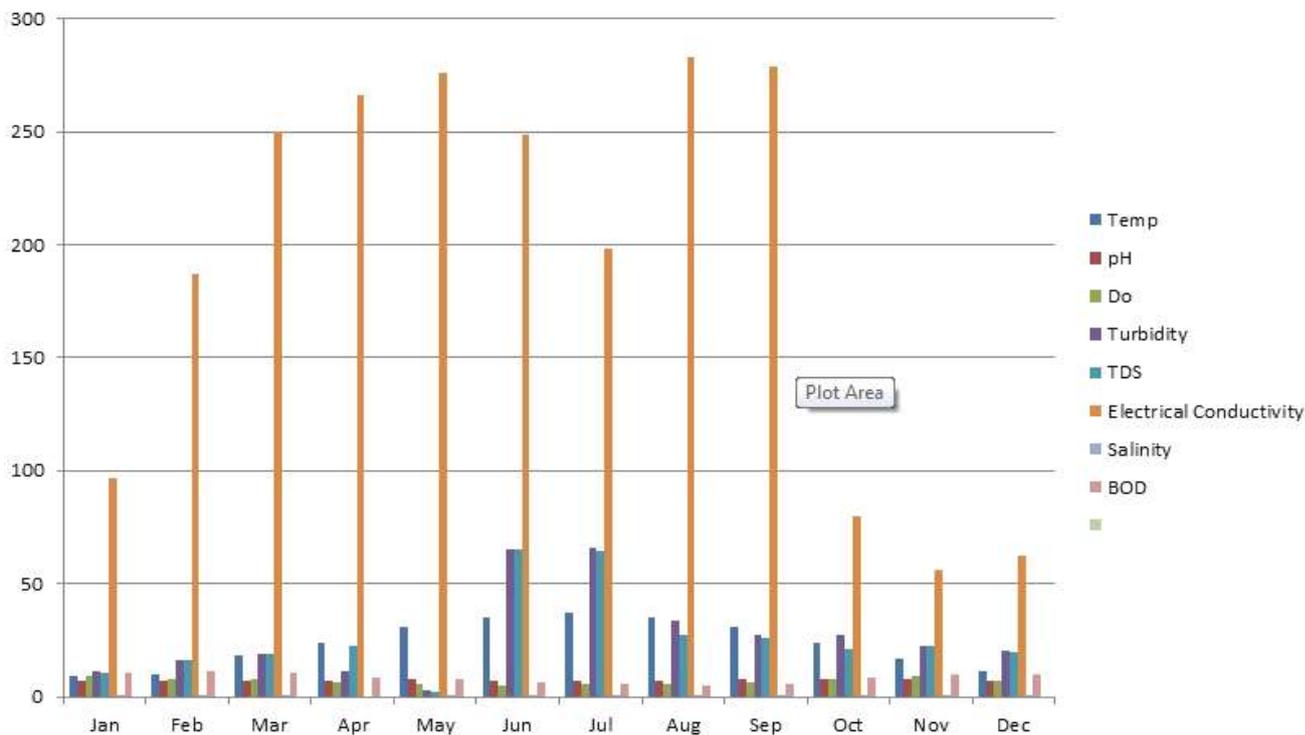


Table. 2. Water sample have been collected on monthly basis.

Parameters	Summer (June, July , August)	Winter (Dec , Jan, Feb)	Spring (March , April , May)	Autumn (Sep octo nov
pH	7.266 (± 0.0577)	7.233 (± 0.115470)	7.1 (±0.1838)	7.7 (± 0.0141421)
Temperature	35.66(± 1.5447)	10(± 1)	24.33(± 6.5064)	17.33 (± 10.7574)
DO	5.7(±60.5411)	7.966(± 1.0598)	6.633(± 1.15022)	7.533 (± 1,2051)
BOD	5.7(± 0.6788)	10.6(± 0.5291)	8.966(± 1.5947)	7.833(± 2.177)
TDS	52.56(± 12.987)	15.266(± 0.0000046)	14.5(± 10.950)	23.3(± 2.666)
conductivity	243.33(±35.88)	115.433(± 138.35)	264(± 13.1148)	138.43(± 122.31)
Salinity	0.133(± 0.05734)	0.133 (± 0.05734)	0.133 (± 0.06633)	0.2(± 0.100000039)
Turbidity	54.8666(± 18.590)	15.933(± 4.4051)	11.1(± 8.050)	25.66 (± 2.835)



5. CONCLUSION

As the result fresh bodies of Khozak Top spring has been indicated that water is the basic component of life which requires for the proper activity of organism without water daily life activity of organism is impossible. People who are living near to Khozak Top spring are utilized the fresh water for their daily life activity and maintenance. Such as agriculture sector, industrial sector and another milestone. Water quality provides information about the region that which region has been suitable for the fisheries development.

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