Erratom to: The Effect of Water Pollution on Potamonidae Species Populations, 11(2): 18-20, 2018

Bu düzeltme yazısı **"The Effect of Water Pollution on Potamonidae Species Populations, 11(2): 18-20, 2018"** başlıklı makalenin**,** editör ve hakem değerlendirmeleri sonucunda yazara önerilmiş olan düzeltmelerin yapılmış olduğu makale metni yerine sehven yazarın ilk gönderdiği makalenin basılmış olduğunun anlaşılması üzerine yayınlanmıştır. Makale içerisinde yapılan düzeltmeler aşağıda verilmiş olup, çalışmanın, bulgular, bilimsel içeriği ve sonucuna etki edecek herhangi bir durum söz konusu değildir.

Yapılan düzeltmeler;

1. Metin içinde ve "References" bölümünde yer alan kaynakça numaralandırılmaları düzeltilmiştir.

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The Effect of Water Pollution on Potamonidae Species Populations

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Abstract

This study was carried out between 2011-2017 in streams and stagnant waters in Eskişehir and its surroundings. Water parameters were measured at regular intervals during the study. In these measurements, water temperature, Biological Oxygen Demand (BOD), Dissolved Oxygen (DO) and pH values were recorded monthly.

Each year in the spring and summer, Potamonidae individuals were collected and counted and left to water again. In the collection of Potamonidae species nets and cages were used. Fresh fish pieces or raw chicken pieces were put into the cages. Waste inputs and other pollutant effects were investigated in the study areas. The findings were paired with water parameters and their effects on population density were observed.

As a result, our findings and observations showed that; Potamonidae individuals are rapidly affected by environmental changes and this affects population density.

Keywords: Potamonidae, Water pollution, Population

INTRODUCTION

When water pollution is mentioned, only the environmental wastes should not come into our minds. In addition to the visible wastes, chemical wastes that we cannot see or feel affect the water quality.

In addition, it causes water quality deterioration in non-seasonal rains. At times, acidic or muddy precipitates caused by water quality deterioration of chemicals. Suddenly, off-season precipitation causes changes in soil chemistry, affecting water quality deterioration.

For example, the calcified soil structure around a water ecosystem, due to the precipitation of water into the water, due to Ca ++ ions in the lime and connected to the OHaki ions in the water due to the pH balance of water causes an acidic environment to be disrupted [4, 5].

Or, by dragging organic soils rich in water systems, decreases in oxygen may occur due to rots that will occur in water due to increasing organic matter in water. Organic wastes cause water pollution due to high biochemical oxygen demand [2].

Apart from these, agricultural pollution, industrial pollution and domestic pollution are the leading causes [4, 5].

These examples can be reproduced.

These events are the events that take place through nature and the system will rebalance itself after a certain time unless there is an outside intervention. However, wastes, pollutants or other factors generated by humans can cause permanent damage to water systems [6].

These permanent deteriorations in water systems will adversely affect the biodiversity in the environment. And it can cause irreversible extinctions. Although we investigated the effect of water pollution on Potamonidae species populations in this study, water quality is important in terms of plant population [3].

MATERIAL AND METHODS

This study was conducted between 2011-2017 in Eskişehir and its environs. During the spring and summer months (April-September), Potamonidae individuals, who were caught by nets in certain regions, were counted and the data were recorded. In the collection of Potamonidae species nets and cages were used. Fresh fish pieces or raw chicken pieces were put into the cages. The counts were made directly in the field and the counted individuals were left to their natural environment again. Our study was conducted in 15 stations in Eskişehir and its vicinity.

Water parameters were measured at regular intervals during the study.

In these measurements; water temperature, Biological Oxygen Demand (BOD), Dissolved Oxygen (DO) and pH parameters were recorded which affect the living environment regularly every month (April-September). Temperature and pH measurements WTW Multi350i / SET, DO measurements WTW Oxi330i / SET and BOD measurements were made with WTW-TS 606/2-i / SET.

However, waste inputs and other pollutant effects were also taken into consideration during these measurements. The findings were paired with water parameters and their effects on population density were observed.

RESULTS

The six-year averages of the data obtained in the study are given in Table 1. There are also factors that affect the number of individuals together, as well as the factors affecting it alone.

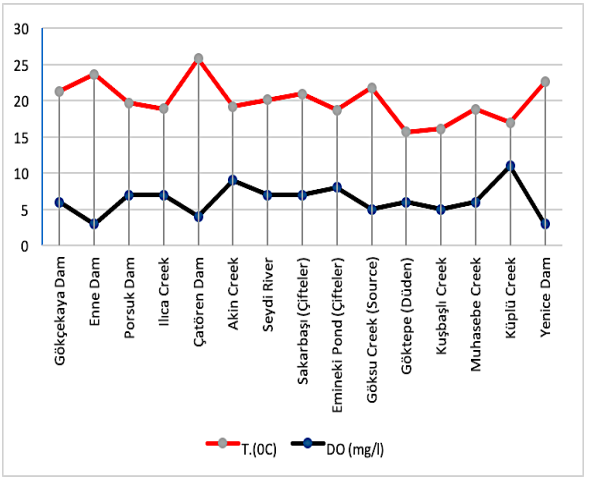
Table 1. The seven-year averages of data obtained by stations.

Note: While the number of individuals is rounded, 0,5 rules are applied.

Stations	Years	Number of Individuals	T.(°C)	pH	DO (mg/l)	BOİ (mg/l)
Gökçekaya Dam	2011-2017	17	21,3	7,1	6	7
Enne Dam	2011-2017	7	23,6	6,8	3	9
Porsuk Dam	2011-2017	19	19,7	6,7	7	5
Ilıca Creek	2011-2017	9	18,9	7,8	7	5
Çatören Dam	2011-2017	2	25,8	9,1	4	9
Akın Creek	2011-2017	11	19,2	7,8	9	4
Seydi River	2011-2017	7	20,1	5,1	7	5
Sakarbaşı (Çifteler)	2011-2017	19	20,9	7,1	7	5
Emineki Pond (Çifteler)	2011-2017	13	18,7	7,1	8	4
Göksu Creek (Source)	2011-2017	3	21,8	7,3	5	7
Göktepe (Düden)	2011-2017	3	15,7	7,5	6	10
Kuşbaşlı Creek	2011-2017	9	16,1	7,6	5	7
Muhasebe Creek	2011-2017	13	18,8	7,8	6	5
Küplü Creek	2011-2017	14	17	7,6	11	2
Yenice Dam	2011-2017	2	22,6	8,1	3	9

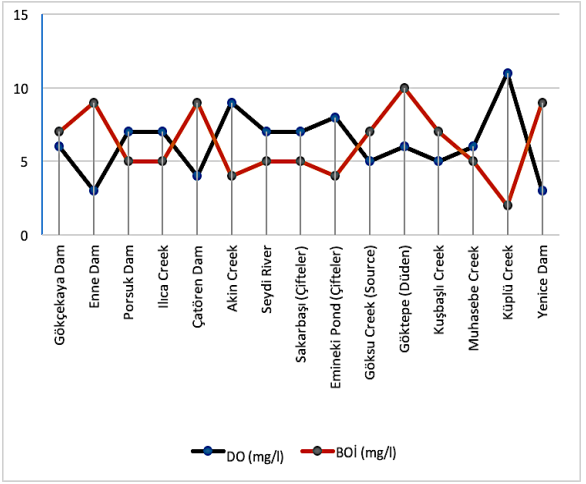
It has been observed that the water temperature is directly affected by dissolved oxygen (DO) in water (Graphic 1). In high temperature stations, low DO values and low DO values were measured. This shows us that there is an inverse ratio between temperature and DO.

However, in some cases this may not be proportional. Namely; When the water flow rate is high and the ground is covered with rock and no organic / chemical waste is mixed outside, the water temperature may be measured high due to sunlight. But because the water comes in contact with too much air, the DO value can be high.



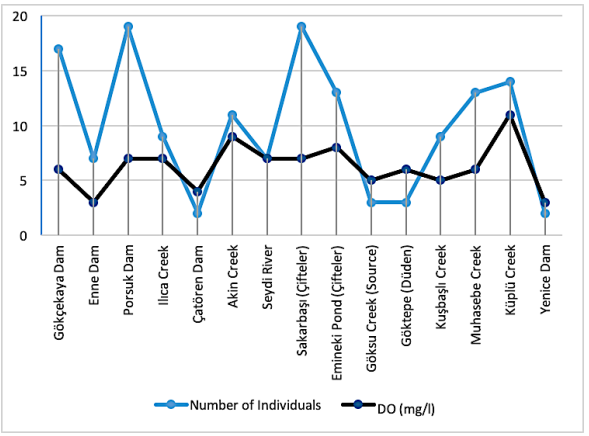
Graphic 1. Connection between temperature and dissolved oxygen.

It was observed that there was an inverse relationship between BOD and DO in the measurements we made at the stations (Graphic 2). DO is low when BOD is high, and BOD is low when DO is high.



Graphic 2. Connection between Biological Oxygen Demand and Dissolved Oxygen.

The high amount of dissolved oxygen in the water is important for the diversity of aquatic life [2]. In the observations made at the stations, an increase in the number of individuals was observed in the cases where the average annual DO value was high (Graphic 3).



Graphic 3. The connection between the number of individuals and Dissolved Oxygen.

However, in some stations, although the DO value was high at times, there was no increase in the number of individuals. The main reasons are the other reasons affecting the number of individuals.

However, in our observations, the increase in the number of Potamonidae individuals did not only depend on the water parameters but also the number of nutrients in the water.

Some of the stations are fishing. During the research, fishermen were caught in the fishing stations and sometimes the crabs attached to their nets were recorded. Potamonidae individuals also increased in the years when the increase in fish population was observed.

In the last few years, trout farming in the Gökçekaya Dam has caused occasional increases in the Potamonidae population.

However, severe declines in the number of populars have been observed, mostly due to pollution from aquaculture. Because organic feeds increase in water at certain times due to feeds used in fish farms. Due to the successive fish farms in Gökçe rock dam, there has been intense organic pollution in recent years.

In addition, changes in the balance of living population in water have been observed due to the fact that the fishes who flee from the nursing rooms search for new living areas. In a sense, the amount of organic waste is increasing day by day in the Yenice Dam which is the continuation of the Gökçekaya Dam.

In addition, there are changes in water parameters due to the effects of chemical wastes passing from soil to water in areas close to agricultural areas [1].

DISCUSSION

Changes in water systems, with the start of rainfall or the melting of snow in spring, provide the balance of the environment with the fresh water entering into the system, and the population comes back to equilibrium. Although the system tries to maintain the balance within itself, human intervention from outside interferes with the system.

Considering the findings obtained, changes in the environment affect the living life rapidly. As the temperature in the water increases, the dissolved oxygen value decreases rapidly and hence the degradation of organic pollutants in the water stops. Depending on the increase in organic pollutants, water system deteriorates.

In light of all this, our findings and observations have shown that; Potamonidae individuals are rapidly affected by environmental changes and this affects population density. Therefore, it is of great importance to protect and sustain water resources which are very important for us.

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