

Considering and Improving in water quality in biotopes, as closed environmental water areas

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EM-13-18

INTRODUCTION

Since the late 1960s in Japan, organic pollution in rivers has been improving, but the status of achievement of environmental standards for phosphorus and nitrogen in lakes and marshes remains **low at around 50%**, although there have been signs of improvement in recent years.

It is still low compared to rivers and seas. It is said that the achievement rate of closed environmental water bodies is lower than that of other water bodies due to the fact that closed environmental water bodies have a large pollution load that flows in and accumulates easily.

OBJECTIVE

Biotope“ was coined in Germany by combining the ancient Greek word ”Bios“, which refers to organisms and life, and ”Topos“, which refers to a place. Since the end of the 20th century, biotopes have been created in various parts of Japan, including tidal flats, wetlands, lakes, rivers, and other water bodies, as well as forests and grasslands. It is still offered as an educational opportunity in Japan. They are prone to water pollution and need to be improved because biotopes are closed environmental water bodies.

In this study, we conducted **water quality measurement and purification experiments** in the biotope of Tokyo University of Agriculture.

RESULTS AND DISCUSSION

For measuring water quality, we sampled the biotope at the agricultural university twice a week in one month.

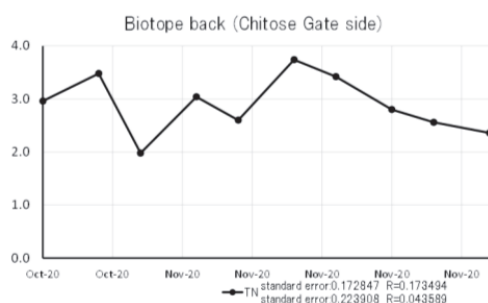


Fig. 1 Total nitrogen of Biotope back (Chitose Gate side)

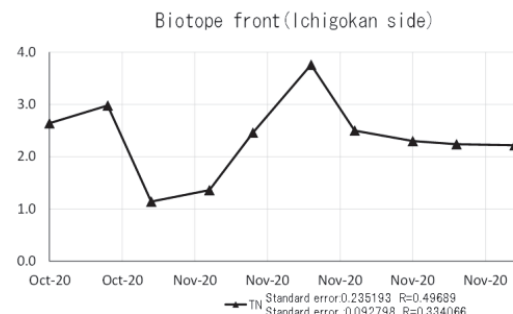


Fig. 2 Total nitrogen of Biotope front (Ichigokan side)

Total nitrogen showed a decreasing trend after the collection of fallen leaves on the 30th of October.

This is thought to be because the fallen leaves that were floating on the water surface were collected and did not accumulate on the bottom of the water without decomposing in the water. As was confirmed during the cleanup, the bottom of the biotope was filled with a sludge-like substance where fallen leaves had sunk and decomposed. We believe that these had a lot to do with the water quality of the biotope and also affected the total nitrogen value.

CONCLUSION

The total nitrogen obtained in this study was compared with the **"Environmental Standard for the Conservation of Living Environment (Lakes and Marshes)"** of the Ministry of the Environment. The total nitrogen was less than 1mg/L, which means that the item type is classified as V. In other words, it can be said **that the adaptability of the purpose of use lies in industrial and agricultural water use.**

However, the total nitrogen obtained in this study was very high, ranging **from 2 to 3 mg/L**, compared to the standard of 1 mg/L or less. We think that humus and decomposing matter are the possible causes of the high total nitrogen value in the biotope. The fact that the collection of fallen leaves on the surface of the water and the cutting down of trees had a great effect on the decrease of the total nitrogen value, and the fact that rotten fallen leaves were accumulated on the bottom of the biotope, led us to the above conclusion.