

Marine pollution by Microplastics

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1, Research Background

Today, marine pollution by microplastics (hereinafter: MPs) is in progress. When marine organisms take MPs themselves and harmful substances attached to them, bioaccumulation affect seabirds and human health. To determine the degree of contamination, it is necessary to know the amount of MP, but there are few measured data in Shizuoka Prefecture. Therefore, we established a method for detecting MPs that even high school students can use, and examined how many MPs are in the sea and river around Izu Peninsula.

2. Our achievement to date

Since school equipment can not detect the substances which plankton net with too narrow mesh gather, the mesh of the plankton net was set to 315 μm , and MP was successfully collected. We removed organic matter from the collected river and sea water, and succeeded in making a sample that can easily detect MP. MP was successfully detected from the sample. When the sample was exposed to blue light, we found that some plastics emit light.

3. Discussion

It has been found that even high school students can detect MPs on the Izu Peninsula and Kano River with equipment in the high school. Judging from the research results, the number of MPs detected in rivers tends to be higher than in the oceans other than Numazu Port, so the cause of marine pollution in this area is likely to be MP outflow from rivers. Therefore, it is important not to dump waste into rivers in order to prevent marine pollution. Numazu Port, which is a fishing port, is likely to have a high number of detections due to the high frequency of plastic use. The amount of MP is thought to be deeply linked to human life.

4. Future prospective

Examine the type of plastic detected at each point. Since the mesh of the plankton net used is 315 μm , the target is spread to MPs with a size of 315 μm or less. In this measurement, since the values measured after Typhoon No. 19 are also included, the amount of MP and the location of outflow in the coastal area of the Izu Peninsula are estimated by performing sample collection over a wider area and performing fixed point observation. In addition to establishing a method for detecting MP using blue light, a method for detecting MP that does not react with blue light needs to be found.

5. References

Establishment of survey method for microplastics in coastal areas
<http://www.pref.shizuoka.jp/kousei/ko-510/documents/412slide.pdf>

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