

Chapter 3. Summary of the Results of the Monitoring of Water and Bottom Sediments (Fiscal Year 1995)

1. Purpose of the survey

The purpose of this survey is to observe annually the pollution in the environment by chemical substances (especially Class 1 Specified Chemical Substances) which have been confirmed to persist in water and bottom sediments from results of environmental surveys etc., by way of grasping the long term environmental persistence of these substances, by using gas chromatography/ mass spectrometer (GC/MS) which has a characteristic of being able to analyze many different kinds of chemical substances simultaneously with high sensitivity.

2. Outline of the survey

(1) Surveyed substances

A total of 20 substances as shown in Table 3-1 and 3-2.

(2) Surveyed areas

A total of 18 areas (8 rivers, 7 seas, 3 lakes and marshes) as shown in Figure 3-1.

(3) Sampling method

In principle, one sample each of water and bottom sediments are collected in each surveyed area. To establish the ability to generate acceptable precision and accuracy, the analysis shall be performed the following operations. The sample with uniformly homogenized is divided into 2 parts, analytical samples A and B.

When the difference between two analytical values of A and B exceed the allowable limits, the analysis shall be repeated. The analytical sample shall, on an ongoing basis, be included the operation blank and the reagent blank.

(4) Analytical method

Each laboratory is requested to operate a formal quality assurance program. GC/MS performance test with DFTPP (Decafluorotriphenylphosphine) and method performance test with precision and recovery standards.

The calibration curve for analysis shall be prepared using over the 5 point range. The relative response factor is obtained from the ratio of the equipment responses between analyte and internal standard or surrogate compound. The daily variation of the relative response factor shall not exceed -20%, and the drift shall be within -15%. Unknown sample for round robin test shall be analyzed to check the precision and accuracy.

3. Survey Results

The survey results up to fiscal year 1995 have been indicated in Table 3-1.

In water, a total of 5 substances out of 20 substances, namely o-dichlorobenzene, m-dichlorobenzene, p-dichlorobenzene, BHT and tributyl phosphate were detected. All 20 substances were detected in bottom sediments.

The results of each surveyed area in the fiscal year 1995 survey are as follows.

In water, none of the substances subject to the survey were detected in the 8 areas of Lake Jusan, Sendai Port, the river in Kofu City, Lake Biwa, offshore of Himeji (Harimanada), the mouth of Shimanto River, Dokai Bay and Gotanda Bridge of Gotanda River. In the other 10 areas, only 1 ~ 5 substances were detected, so the detected situation has been low in general.

The detected situation in bottom sediments was generally higher compared to water, and in 16 areas excluding the river in Kofu City (1 substance) and Gotanda Bridge of Gotanda River (1 substance), 5 ~ 19 substances were detected in each area. In a total of 7 areas, more than half of the substances (more than 11 substances) surveyed were detected : Lake Suwa (12 substances), Osaka Port (17 substances), Kobe Port (11 substances), the mouth of Yamato River (19 substances), offshore of Tamashima Port (17 substances), the mouth of Shimanto River (13 substances) and Dokai Bay (12 substances). The areas in which the highest detected value for each surveyed substance was detected were Dokai Bay (7 substances), the mouth of Yamato River (6 substances), Osaka Port (3 substances), the mouth of Sumida River (2 substances) and Kobe Port (1 substance), indicating the high pollution level in inner bays with a closed nature.

Table 3-1 入る（別データあり）

Table 3-2 入る（別データあり）

Fig. 3-1 Locations for Monitoring of Water and Bottom Sediments (Fiscal Year 1995)

