

<Estimation based on CMBK2>

The level of contribution from each pollution source was estimated by applying CMBK2 to the sediment samples from Muroran Port, with the 56 explanatory variables shown in Table 1. Figure 3 shows the contribution rate of each PCB source at each sampling spot. At every station, all the pollution sources that registered above a certain level of contribution (>2.8%) were not zero significantly. The contribution of unidentified pollution sources was <1% at every spot. However, it cannot be said that it was not zero significantly, i.e., the influence of unidentified pollution sources was insignificant. Therefore, the sources of PCBs in the sediment could be described satisfactorily by the assumed seven source types. Inside the port (St. A–Q), it was found that the contributions of KC500 and KC600 were significant and that these two accounted for over 76% (except St. P). In particular, at St. A, L, and O, KC600 accounted for over 94%. In addition, KC400 accounted for 0.3–16%; KC300, azo pigments, and combustion accounted for several percent, and the contribution rate of phthalocyanine pigments was nearly zero. At St. P and sites outside the port (St. R–U), it was found that the contributions of KC500 and KC600 were significant, as inside the port, although KC300 and the azo pigments accounted for several tens of percent (except St. U), whereas they hardly contributed to the pollution inside the port. KC500 and KC600 can be considered derived from ship-bottom paints, while a certain level of influence of azo pigments other than PCB products can be detected. This indicates that the PCB sources other than KC cannot be ignored.

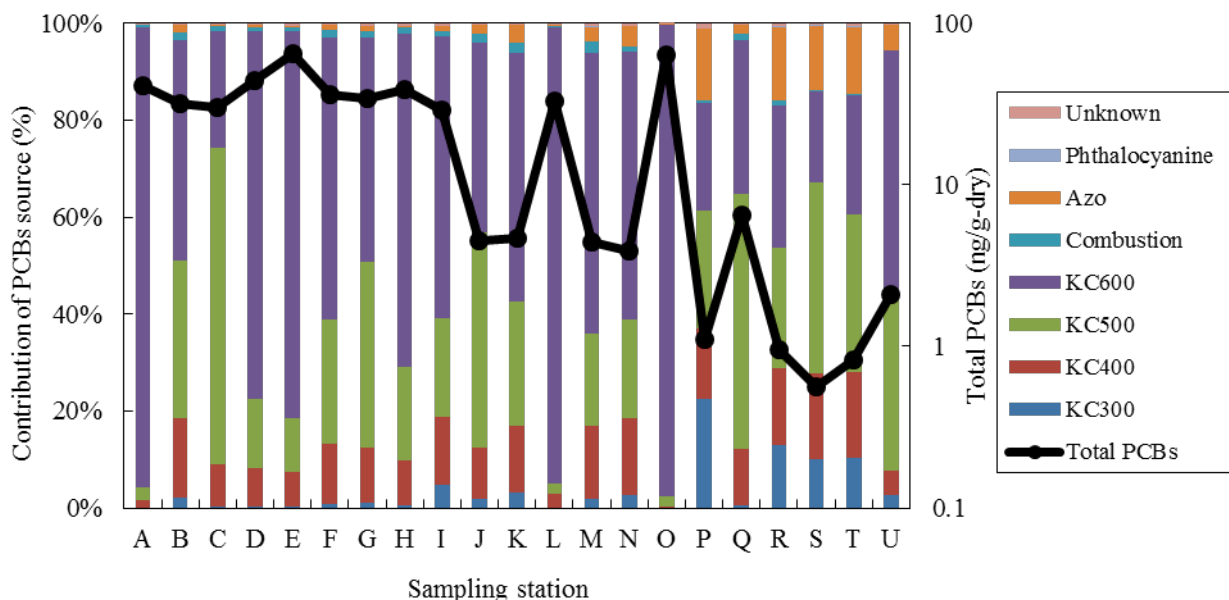


Fig. 3 Results for PCBs sources in the Muroran Port sediments determined by CMBK2 analysis.

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References:

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