

## RECOVERY OF ORGANISMS FROM POLYAROMATIC HYDROCARBONS CONTAMINATION BY NAKHODKA OIL SPILL

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Polyaromatic hydrocarbons, persistent compounds of petroleum in environment, in the shells which were collected from the shoreline of Mikuni-cho attacked by the oil spilled from Nakhodka, were monitored from one month to 3 years after oil spill. Total PAHs concentrations of snail (*Turbo cornutus*) collected on 1 month and 2 month after oil spill were 44 and 11 ng/g wet weight and then immediately decreased and became constant around 2 ng/g w.w.. While total PAHs concentrations of bivalves ranged from 5 to 33 ng/g w.w., due to the lack of data at uncontaminated condition, further survey will be needed. The concentrations of phenanthrene, fluoranthene and chrysene in shells showed relatively higher values than those of fluorine, anthracene, pyrene and benzo(a)pyrene.

To study the characteristics of PAHs accumulation by flatfish (*Paralichthys olivaceus*) and snail (*T. cornutus*), these were fed foods containing Nakhodka heavy fuel oil and crude oil. Most of PAHs concentrations in flatfish liver were not different from these in control. Especially, PHAs having higher molecular weight than that of anthracene were not detected in them. However, pyrene type and benzo(a)pyrene type metabolites increased in gall bladder of the flatfish that was fed foods containing Nakhodka heavy fuel oil and crude oil. While the snail, fed food containing crude oil, did not accumulate PAHs, the other, fed food containing Nakhodka heavy fuel oil, accumulated many PAHs. Especially, the snail accumulated benzo(a)pyrene, a most carcinogenic PAH, from 7.3 to 23.3 ng/g w.w.. The excretion rates of PAHs by the snail were relatively high and their half-lives in the snail were less than 4.8 days. These results show that flatfish apparently does not accumulate PAHs because of the fast metabolizing of them. On the other hand, snail accumulates many PAHs because of the low ability or lack of metabolizing system of them. However, snail can excrete PAHs fast. Therefore, PAHs contamination causes the increasing of their concentrations in snail, while recovery from PAHs contamination causes fast decreasing of them. Thus snail seems to be suitable to monitor oil contamination. As mentioned above, PAHs concentrations in the snail that were collected

from Mikuni-cho, have decreased. From the result of the snail, recovery of organisms in coastal area seems to be progressing.