Y-V9

Radioactive Contamination of the Turkish Eastern Black Sea Coast due to Chernobyl Accident

S. TUNCER and A. BAYSAL

Biology Department, Science Faculty, Karadeniz Technical University, Trabzon (Turkey)

The released massive quantities of radionuclides (Cs-134, Cs-137, Ce-141, Ce-144, Ru-103, Ru-106, No-95 etc.) to the lower atmosphere from the Chernobyl Nuclear Power Station on April 26, 1986, have environmental radioecological implications that extend to the future.

Some studies have been carried out to investigate radioactivity in sediment and some species of economic importance (Georgescu et al., 1988 a,b).

The behaviour of Chernobyl radionuclides in the Black Sea is given in Fig.1. As shown in Fig.1. some radionuclides detected in the surface waters were very rapidly removed to the sediment trap at 1071 meters within less than two months.

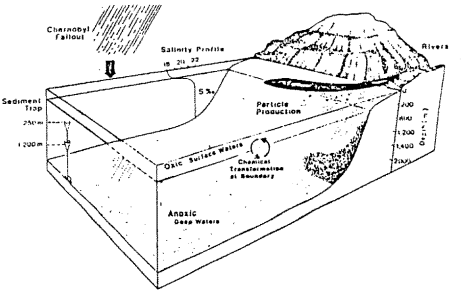

Fig.1. Behaviours of some Chernobyl radionuclides (Ken O. Buesseler, Woods Hole, USA)

Trachurus mediterraneus, Mugil saliens, Engraulis encrasicholus ponticus, Mytilus galloprovincialis, Enteromorpha linza and **Cystoceira barbata** were chosen to monitor Cs-134, Cs-137 in the Trabzon littoral region of Turkey. All samples were dried and powdered. Radioactivity counting was performed by gamma spectrometry (Tennelec) coupled to a Germanium detector.

According to the data presented in Table 1, radioactivity levels varied with species, location and trophic level. For example, Cs-134 and Cs-137 ranged between 3-20 and 5-130 Bq/kg dry weight, respectively.

TABLE 1. Concentrations of radionuclides in selected samples from the Trabzon littoral region. (Bq/kg in dried material)

Samples	Cs-134	Cs-137
M. saliens	20	107
T. mediterraneus	9	47
E.e. ponticus	3	5
M. galloprovincialis	12	130
E. linza	9	35
C. barbata	4	27

Mussels have a high capacity to accumulate heavy metals and radionuclides from ambient waters (Tunçer and Yaramaz, 1986) and gray mullets are omnivores. Both species tend to accumulate excessive amounts of radionuclides; thus, the highest levels of Cs-137 were found in **M.** saliens and **M.** galloprovincialis and the lowest activity was detected in E.e. ponticus.

REFERENCES

GEORGESCU, I., SALEGAN, M. et PANTELICA, A., 1988a. Sur la radioactivité de **Mytilus galloprovincialis** recoltée du nord au sud littoral Roumain et de quelques plantes de la flore spontanée d'août à octobre 1987. Rapp. Com. Int. Mer Médit., 31, 2, 308.

GEORGESCU, I., SALEGAN, M. & PANTELICA, A., 1988b. On the radioactivity of the Romanian littoral Zone after the Chernobyl accident during 1986. Rapp. Comm. Int. Mer Médit., 31, 2, 308.

TUNCER, S. & YARAMAZ, O., 1986. Etudes des métaux lourds (Zn, Cu, Pb, Hgt) chez certaines organismes autour de l'ile Karantina (Urla/Izmir-Turquie). Rapp. Comm. Int. Mer Médit., 30, 2, 42.

Y