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GENOTOXICITY AND CYTOTOXICITY RESPONSES IN FISH FROM DUMPED CHEMICAL
MUNITIONS ZONES OF THE SOUTHERN BALTIC SEA

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In this paper we present data on environmental genotoxicity and cytotoxicity levels as well as on genotoxicity risk in three native fish species – cod (*Gadus morhua*), flounder (*Platichthys flesus*) and herring (*Clupea harengus*) collected at 42 stations, located in dumped chemical munitions zones of the southern Baltic. The frequency of micronuclei, nuclear buds and bi-nucleated cells with nucleoplasmic bridges in erythrocytes were used as genotoxicity endpoints, induction of fragmented-apoptotic, bi-nucleated and 8-shaped nucleus erythrocytes were assessed as cytotoxicity endpoints. Genotoxicity risk in each of 42 studied stations was detected on a basis of the established background response of total genotoxicity in the fish species. The study data showed significantly increased genotoxicity and cytotoxicity levels in examined fish species, caught near the chemical munitions dumping sites. The background genotoxicity level was found only in the reference stations (the Bornholm Basin), also in herring caught at two from 31 studied sites, in cod at two from seven stations and in flounder at one from 24 stations. High genotoxicity risk level was determined only in flounder collected from two stations. All other responses in studied three fish species could be attributed to extremely high genotoxicity risk level. In any of studied station, there was no reference level of genotoxicity response. In general, genotoxicity in cod kidney erythrocytes was higher than in liver, and especially than in the blood erythrocytes.