Metal content in sediments and benthic organisms from the National Marine Park of N Sporades, in the Aegean Sea

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The National Marine Park of Alonnisos is a designated area situated in North Sporades islands in the North Aegean Sea (Greece). It was founded by Presidential Decree (G.G. 519/92) on 28/5/1992 and is one of the largest in the Mediterranean Sea. The area is subjected to specific legislation, which aims at protecting and conserving rare habitats and threatened species (IUCN 2000). The creation of the National Marine Park of the North Sporades Islands has the following aims: i) the protection, conservation and management of the wildlife and landscape which constitute natural heritage and a valuable national natural resource, in extended terrestrial and sea areas of the North Sporades; ii) the protection of other rare and threatened plant and animal species, which find refuge in the islands; iii) the development of the region by the sustainable use of its natural resources; iv) the protection of one of the most important habitats of the Mediterranean monk seal *Monachus monachus*, a species threatened to extinction. The present study refers to the distribution of main heavy metals in sediment cores and surface sediments as well as in tissues of benthic organisms, collected during a cruise in early July 2001. Sampling sites are located close to the island of Alonnisos. The measured metals are Pb, Cd, Cr, Cu, Zn and Ni due to their environmental and biological importance, their possible anthropogenic origin or their possible incorporation in the aquatic food chain. Sediment samples were treated with a mixture of HNO_3, HF and $HClO_4$ in PTFE bakers at 220°C. Concentrated nitric acid was used for the treatment of benthic organisms. The metal concentrations were measured by flame or flameless Atomic Absorption Spectrometry. The results were compared with typical values of samples coming from non-protected and polluted areas of the Aegean Sea.

Effects of herbicides on the blue mussel DNA

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Effects of herbicides 2,4-dichlorophenoxy acetic acid (2,4-D) and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) on haemocytes DNA of *in vivo* treated mussel *Mytilus galloprovincialis* have been investigated. Cell cycle alterations were obtained even after 1.5 h by the flow cytometric analyses. A higher percentage of haemocytes in S phase was detected as well as reduced G_2/M phase in mussels treated with 200ng/g to 500µg/g of herbicides. Proliferate action of herbicides was confirmed by labelling DNA with BrdU followed by FITC conjugated anti-BrdU. MoAb visualised by epifluorescence microscopy. The presence of apoptotic cells was indicated in mussels treated with higher doses of herbicides (100 and 500µg/g) after 1.5 h by the reduced G_0/G_1 cell cycle region with the appearance of the sub-G1 region, selective loss of G2/M cells and decreased DNA content in S phase. The morphological changes in the nuclei of apoptotic cells were visualised by fluorescence microscopy stained with DAPI. The induction of sister-chromatid exchange was

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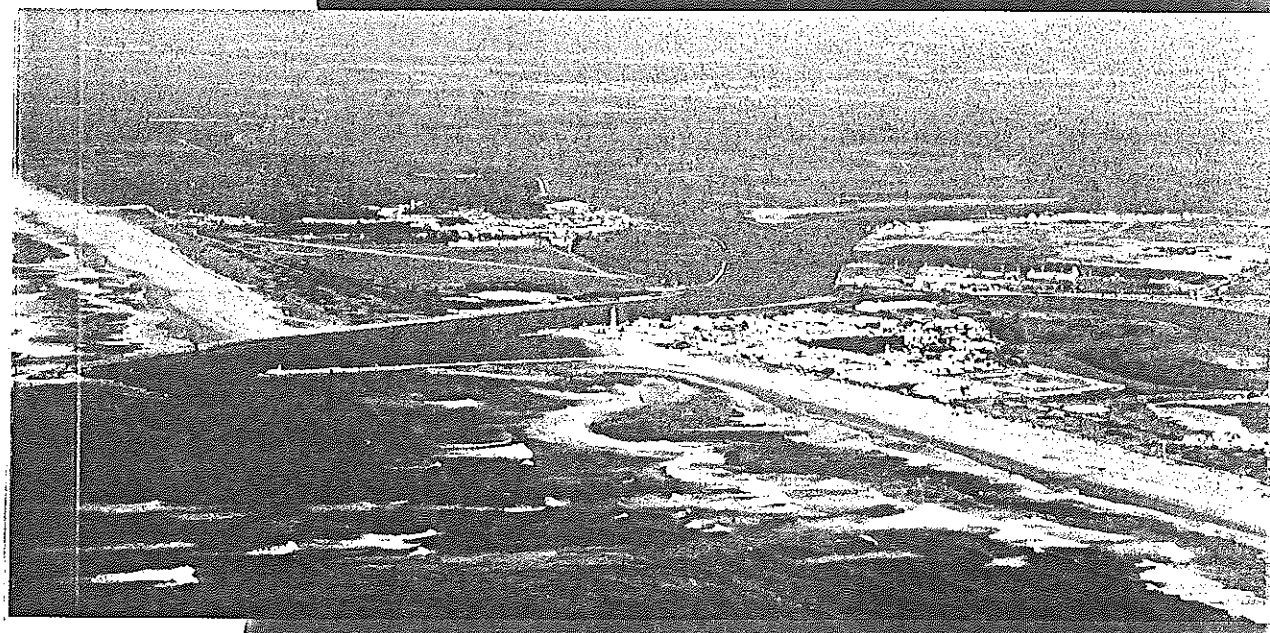

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