

ORGANOCHLORINE CONTAMINANTS IN EGGS OF THE YELLOW-LEGGED GULL (*LARUS CACHINNANS MICHAHELLIS*) IN THE NORTHEASTERN MEDITERRANEAN: IS THIS GULL A SUITABLE BIOMONITOR FOR THE REGION?

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EXTENDED ABSTRACT

Levels of eight polychlorinated biphenyl congeners (in terms of the PCB IUPAC numbers 8, 20, 28, 52, 101, 118, 138, 180) and thirteen organochlorine pesticides (OCs) were measured in eggs sampled at four yellow-legged gull colonies from the Aegean Sea (NorthEastern Mediterranean) in 1997. Although the yellow-legged gull is a very common and widespread breeding species in the eastern Mediterranean and in the Aegean Sea in particular, its use as an organochlorine biomonitor has never been attempted so far. For this purpose an extended monitoring of organochlorine contaminants was conducted in colonies of the Dodecanese area (Kinaros, Lipsos, Arki) and of Evros Delta.

There were no significant differences among colony areas in the median concentrations in any of the pollutants whereas cluster analyses did not generally reveal reasonable pollution patterns. The maximum concentrations of four out of the eight congeners were found at Kinaros (PCB 28, 52, 138, 180), of two at Lipsos (PCB 20, 101) and of one at both Arki (PCB 8) and Evros Delta (PCB 118). The proportions of the eight individual congeners were similar among the areas studied resulting in a similarity in the fingerprints with the sequence PCB 138 > 118 > 180. The cluster analysis separated Kinaros from the other areas and joined Arki and Lipsos separately from the Evros Delta. For the organochlorine pesticides the maximum concentrations of eight compounds were found at Lipsos (β -BHC, lindane, endrin, heptachlor, heptachlor hepoxide, 4,4'-DDE, 2,4'-DDD, 2,4'-DDT), of only three at Kinaros (aldrin, 4,4'-DDD, 4,4'-DDT) and of one at Arki (Dieldrin) and Evros (α -BHC), respectively. The cluster analysis separated two groups, one including Evros and Arki (but with a low linkage distance) and another with Kinaros and Lipsos.

Of PCBs, congener 28, 118, 138, 180 and of pesticides β -BHC and 2,4'-DDD were prominently dominant suggesting a particular pollution pattern in this region. Statistically significant correlations were found between most of the higher PCBs in all areas studied. The DDT metabolites correlated mostly with other OCs. The concentrations of these organochlorine contaminants are probably of the lowest detected in the world and it seems improbable to have any adverse effect in the biology of the yellow-legged gull and associated biota. We suggest that regional pollution by both groups is not adequately reflected in the eggs of this gull probably due to its extensive scavenging habits and, though information is needed from more colonies, it seems to be a poor biomonitor for organochlorines in this region.

Key words: PCBs, Organochlorine pesticides, eggs, Yellow-legged gull, *Larus Cachinnans*; Aegean Sea.