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New approaches for assessing the impacts of non-native freshwater fishes in the Mediterranean region

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Mugla University, Faculty of Fisheries, Mugla, TURKEY

International Workshop



Programme & Book of Abstracts

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Oral Presentation

(in alphabetic order)

Preliminary assessment of non-native fish impacts on native fishes in small artificial lakes

Hamdi Aydın[1], Özcan Gaygusuz[2], Çiğdem Gürsoy Gaygusuz[3], Ali Serhan Tarkan[4], Zeynep Dorak[2], Nildeniz Top [4] & Gülşah Saç[2, 5]

[1]Kocaeli University. Gazanfer Bilge Vocational School, 41500 Karamürsel, Kocaeli, Turkey;

[2]Istanbul University, Faculty of Fisheries, Ordu Cad. No. 200, 34470 Laleli, Istanbul, Turkey;

[3]Trakya University, Keşan Vocational High School, 22800 Keşan-Edirne, Turkey;

[4]Muğla University, Faculty of Fisheries, 48000, Kötekli, Muğla, Turkey;

[5]Istanbul University, Faculty of Science, Biology Department, 34134,Vezneciler/Istanbul

Non-native freshwater fish species may easily be introduced and become one of the important components of the ichthyofauna of newly created small reservoirs through stocking common carp, *Cyprinus carpio*. Although detrimental effects of non-native freshwater fish on native fish species is very well known world-wide, it is little studied in small artificial water bodies established for irrigation and drinking water purposes, and there are no known such studies in Turkey. The present study is the first such attempt, and compares life history traits (condition, reproduction) and food in six small reservoirs, two containing native fish species only (allopatry), two containing non-natives only (allopatry), and two with both natives and non-natives (sympatry). Body condition (*LK*) and relative fecundity (per unit of body weight) of native fish species was greater in allopatry living lonely while they were higher for non-native species in sympatry living together with natives. Plant and insects were the most common prey items for native, *Squalius cephalus* whereas detritus, *Gammarus* sp., zooplankton eggs and insects were preferred prey for non-native *Carassius gibelio* gibel carp, *Lepomis gibbosus* pumpkinseed and *Pseudorasbora parva*. Diet overlap with gibel carp was greatest for chub. Diet similarity based on taxonomy correlated strongly with diet similarity based on size. Differences in condition and fecundity between the native and non-native species does not appear to be due to differences in available food or ecological conditions, so elevated condition and reproductive output in non-native species in sympatry may be due to non-dietary competitive interactions. The present preliminary study highlights the needs for further study of effects of non native fishes on native species in small artificial lakes mostly established on natural stream ecosystems and the potential for negative consequences of non-native species should not be underestimated.