Fish survey in Angitola lake: in field non-invasive evaluation of weight.

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The *Angitola FISH$_2$O* project, granted by Calabria FEP 2007-13 (Code 02/BA/12), aim to survey biodiversity in aquatic ecosystems, in which fishes should represent the main trophic resource within the various food chains relative to the Angitola lake. The final objective is to obtain a monitoring of various species by means of non-invasive techniques. According to Water Framework Directive (2000/60/EC), capturing and manipulations of animals were minimized, and the subjects captured were promptly released. Two areas, unequivocally identified by GPS coordinate, were selected at 4 and 10 meters of depths, in which fishing nets[1] were positioned. Captured fishes were all manipulated as follows: 1) removed by nets by cutting wires and minimizing stress; 2) placed in basins filled with water; 3) weighted, with an electronic scale, and measured; 4) photographed; 5) clinically evaluated; 6) released as soon as possible. The dead subjects (n=28) were preserved in a portable fridge; they belonged to the following species: *Carassius carassius* (n=10), *Perca fluviatilis* (n=8), and *Squalius cephalus* (n=10).

Data collected allowed developing a linear relation between length and weight. The resulting prediction equations and the correlation coefficients (r^2) are summarized in table 1.

Species	Weight (g)	Length (cm)	r^2	P value	Prediction Equation
Carassius carassius	167.2±44.8	23.9±3.1	0.86	0.0001	Weight = -155.14 + 13.49 * lenght
Perca fluviatilis	249.3±46.9	28.0±2.0	0.84	0.0012	Weight = -354.27 + 21.56 * lenght
Squalius cephalus	334.7±42.2	31.9±1.85	0.91	<0.0001	Weight = -359.15 + 21.75 * lenght

Table 1: Mean±SD of weight (g) and length (cm) of the three species analyzed

Such equations are intended to have the precision reported only in the species and the sizes described. Even if a more accurate method, which might include all three dimensions of fishes, should be analyzed, accuracy of this method, proved by the high values of r^2 is fully acceptable not only in common species but even more in vulnerable and endangered species.

Keywords: Angitola lake, fish survey, non-invasive measurements

References: -[1]Gray CA 2002 Fisheries Research 56(2): 177–192.