

SKELETAL ANOMALIES IN WILD LARVAE AND JUVENILES OF SOME REARED MEDITERRANEAN SPECIES: WHAT THEY SHARE WITH REARED FISHES?

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Since the 90s, the presence of anatomical anomalies in wild fish populations has been considered as an indicator of contaminated waters (i.e., Carls and Rice, 1990; Williamson et al., 1991; Lindsej and Thulin, 1992; Sawaitova et al., 1995; Svanberg and Bengtsson, 1996; Von Westernhagen and Dethlefsen, 1997; Da Cunha and Antunes, 1998; Ewald, 1999; Clements, 2000; Karen et al., 2001; Klumpp et al., 2002; Lemly, 2002; Whitfield and Elliott, 2002; Dulčić, 2004; Boglione et al., 2005; Louiz et al., 2007; Uriarte and Borja, 2009; Al-Mamry et al., 2010). According to Karrs Index of Biotic Integrity (Karr et al., 1986), less than the 2% of wild deformed fish suggests that the environmental conditions are good. A range of 2 - 5% of deformed fish characterizes a somewhat degraded ecosystem, and a rate of more than 5% is indicative for a highly degraded ecosystem: in an unpolluted estuary, only 0.06% deformed fish were found (Dahlberg, 1970). In reared fish, we observe from 20 to 90% of severely deformed fishes, according to the considered species, life stage, rearing condition, monitoring level. The target of producing wild-like juveniles in hatchery condition has been proposed by Cataudella et al. (2002) as a necessary step for ameliorating the economical profitability of hatchery sector, but the wild fish morphological condition has been described very rarely in reared species, mostly as far as juveniles skeleton is concerned, rather than for shape and pigmentation. The comprehension of what and how happen during skeletogenesis in wild larvae and juveniles could be useful to understand what of the anomalies observed in rearing condition can be considered as background noise and what as an indication of severely altered rearing conditions, to establish a larval quality definition for a successful production of fish in aquaculture and for experimental work aimed at understanding processes that affect natural fish populations. In this presentation, skeletal anomalies inspected in 1,974 wild juveniles (SL range: 10-70 mm), belonging to some farmed species (*Sparus aurata*; *Dicentrarchus labrax*; *Chelon labrosus*; *Mugil cephalus*; *Diplodus puntazzo*) were analysed and compared to what observed in conspecific reared larvae and juveniles. The final goal is to survey if some species-specific trend can be envisaged in wild individuals, what are the rate and typologies of deformed fishes in wild and rearing conditions, and what are the main skeletogenic trajectories observed in wild and rearing conditions.

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