

SILVERING OF FEMALE EELS (ANGUILLA ANGUILLA) IN TWO SUB-POPULATIONS OF THE RHÔNE DELTA.



The eel population of the Camargue lagoon system can be divided into two subunits living in two distinct biotopes (freshwater and brackish water) and characterised by different population structures and especially growth patterns. The sub-population living in the Fumemorte canal (average salinity: 0.9 g/l) is a freshwater population type (81.6% females, maximum ages observed = 9 - 11 years, slow growth (annual gain 46 mm)) whereas that of the Vaccarès lagoon (average salinity: 9.7 g/l over the same period) is typical of a lagoon (45.6% females, maximum ages 5 – 6 years, fast growth (annual gain 90 mm)). In each sub-population, Gonadosomatic Index (GSI) and OI (Ocular Index) were measured on female eels over a sampling period that started in January 1997 and ended in December 2000. In both types of habitat, and in agreement with previous studies, we observed a threshold value of $GSI \geq 1.4$ % characterising the silver stage (MARCHELIDON et al., 1999). The increase in eye area was a progressive phenomenon, initiated in the yellow stage and was significantly correlated ($p < 0.001$) with the GSI. As with the GSI, OI increased in silver eels, the threshold value of ≥ 8.0 discriminating silver eels. We will show that silvering follows

different patterns between the two habitats. Age at metamorphosis in female eels take place very early in the Vaccarès lagoon (83.3% of females metamorphose between 4 and 5 years) compared to those in the Fumemorte drainage canal (94% of females metamorphose between 7 and 9 years). We suggest that the growth potential provided by Vaccarès lagoon accounts for this difference in age at metamorphosis. Although, such a turnover cannot explain alone the different proportions of female silver eels observed in the Fumemorte drainage canal (23%) and Vaccarès lagoon (2.4%). Influence of population's parameters like sex-ratio, population structure and abundance on silvering process, is discussed.

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Obtenir le document : EDP Sciences

Mots clés : European eel, *Anguilla anguilla*, silvering, ocular index, gonadosomatic index, growth pattern, age at metamorphosis, freshwater, brackish water, Anguille européenne, *Anguilla anguilla*, argenture, index oculaire, rapport gonadosomatique, croissance, age à l'argenture, eau douce, lagune

Thème (issu du Text Mining) : FAUNE

Date : 2008-04-01

Format : text/xml

Source : <https://doi.org/10.1051/kmae:2003036>

Langue : Anglais

Télécharger les documents : <https://www.kmae-journal.org/10.1051/kmae:2003036/pdf>

Permalien : <https://www.documentation.eauetbiodiversite.fr/notice/silvering-of-female-eels-anguilla-anguilla-in-two-sub-populations-of-the-rhone-delta0>

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