

BIOMETRIC CHARACTERISTICS OF EUROPEAN GLASS EEL DURING THE MIGRATION SEASON ALONG THE WESTERN GREEK COAST

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Abstract

Biometric characteristics and developmental stages of glass eels (*Anguilla anguilla* L., 1758) collected from November 1999 to March 2000 were studied in two areas along the western part of Greece (Ionian Sea). Despite the fact that glass eel size from Greek coast was smaller compared to those reported for the Atlantic zone, similar temporal changes in the pigmentation stages of the glass eels were observed.

Keywords : *Biometrics, Ionian Sea, Migration, Pigments.*

Introduction

European eel is a species of great economical and ecological importance for the west coasts of Atlantic Ocean and the Mediterranean Sea. Glass eels are harvested during their mass migration into European rivers for either direct consumption or aquaculture purposes. Glass eel migration dynamics in the E. Mediterranean coast has scarcely been described [1].

Materials and Methods

Glass eels were collected from November 1999 to March 2000 at the marsh of Sagiada near the mouth of Kalamas river (39°37'500 N and 20°11'200 E) and at the mouth of Alfios river (37°36'500 N and 21°26'300 E) using fyke nets (total length 1.35 m, mouth 40 cm wide, mesh 1.5 mm). Fyke nets were installed at noon, mouth oriented downstream and withdrawn the following morning. Glass eels were daily collected, weighed and afterwards transported for rearing experiments. Total length and weight were measured on freshly caught individuals once per week. Pigmentation stages were identified as defined in [2, 3].

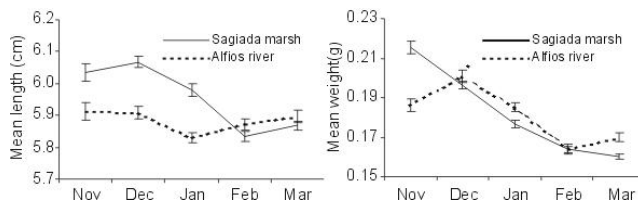


Fig. 1. Mean monthly total length and body weight of glass eels. Vertical bars indicate standard errors.

Results and Discussion

The seasonal changes in mean total length and weight of glass eels are presented in Fig. 1. Glass eels (mean length±sd: 5.92±0.29 cm; mean weight±sd: 0.177±0.036 g) seem to be smaller compared to those reported for the W. Mediterranean region [4] and for the Atlantic coast [5]. This smaller mean size of glass eels could be linked to the prevailing oligotrophic conditions in the Mediterranean Sea. The observed sizes of transparent glass eels VB stage (mean length±sd: 5.88±0.29 cm; mean weight±sd: 0.181±0.036 g) seem also to be smaller than those of the Atlantic coast [5, 6]. There were no marked differences in the mean weight of the glass eels from the two areas (Mann-Whitney test, U=671261, p>0.05) but differences were detected in mean glass eel length (t-test, t=4.59, p<0.05) with mean length of glass eels collected from the Sagiada marsh being slight greater than those in the Alfios river. A significant decreasing trend in mean weight of glass eels from Sagiada with season was observed (ANOVA, F=55.99, p<0.05, r²=0.95). The decreasing trend in mean weight with advancing season is consistent with previous studies in W. Mediterranean [4] and the Atlantic coast [6]. A progressive increase in the proportion of advanced stages through the season was also observed (Fig. 2). In the Sagiada marsh, the level of glass eels pigmentation changed significantly over the season (contingency table: X²=85.39, p<0.05). Similar results were observed for glass eels of the Alfios river (contingency table: X²=203.15, p<0.05). Such seasonal changes in the pigmentation have been also pointed out for the European Atlantic coast [6].

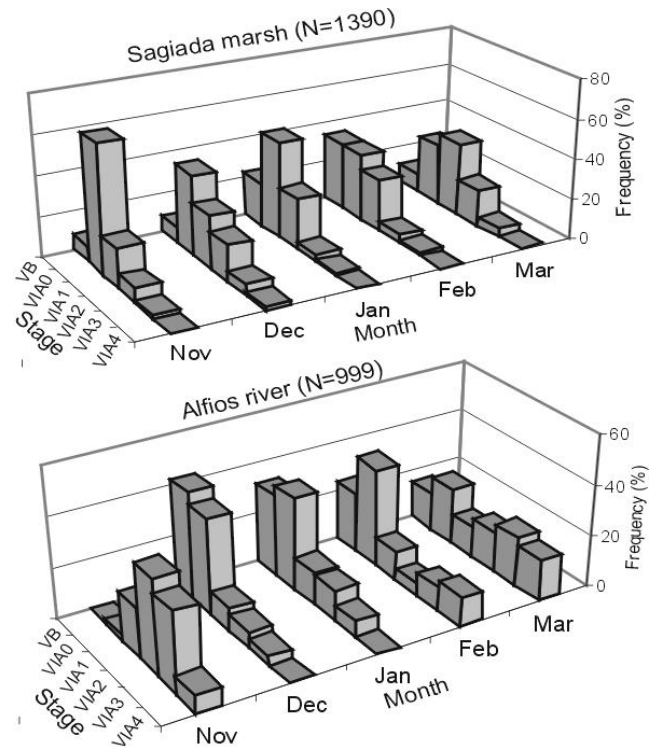


Fig. 2. Seasonal changes in the pigmentation stages of glass eels.

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