

ABSTRACT

Age, asymmetry, growth & mortality of the Lane snapper, *Lutjanus synagris* (Linnaeus, 1758) (Lutjanidae) from Jamaican waters.

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Age, growth and mortality, and aspects of reproduction of the commercially important fish species, the lane snapper, *Lutjanus synagris* (Linnaeus, 1758), (Pisces; Lutjanidae), were investigated in southern Jamaican waters from 1995 to 2001. Dominant age and growth analyses were based on whole otoliths and otolith sections, but ELEFAN (Electronic Length Frequency Analysis) provided comparative results. Scanning Electron Microscopy (SEM) studies revealed daily growth increments in otoliths of this species for the first time. This study pioneered analyses of sectioned otoliths in Jamaica and whole and sectioned sagittal otoliths showed opaque and hyaline bands that were used for ageing. Sectioned otoliths indicated males and females lived to 7 and 9 years respectively. Otolith weight and age relationships suggested that the former can be used as an indicator of

age. Males grew slightly faster than females ($K = 0.157 \text{ yr}^{-1}$ and $K = 0.142 \text{ yr}^{-1}$ for males and females respectively). Von Bertalanffy growth formulae for males and females, were $L_t = 430 (1 - e^{-0.157(t-3.499)})$ and $L_t = 526 (1 - e^{-0.142(t-2.801)})$ respectively. Total annual mortality (Z) estimates from catch curve analyses produced relatively high values (males $Z = 0.93 \text{ yr}^{-1}$ and females $Z = 0.64 \text{ yr}^{-1}$) indicating relatively intensive fishing levels. Investigation of asymmetry of left and right otoliths and of paired fins, suggested that there was no statistically significant asymmetry in these structures in lane snapper except for the pectoral fins. Smaller fishes showed relatively more pectoral fin asymmetry (8.5% of fishes in the size category 51 - 100 mm FL) than did larger specimens (<1.0% in sizes 101 - 150, 151 - 200 and 201 - 250 mm FL, $N = 93$).

Keywords: Jamaica, *Lutjanus synagris*, otoliths, age, growth, mortality.