Growth Parameters of Marine Fishes in Cuban Waters

Paramètres de croissance chez les poissons marins eaux cubaines

S.V. Valle, J.P. García-Arteaga and R. Claro

Abstract

A total of 73 sets of growth parameters for 34 species belonging to 12 families of marine fish caught in Cuban waters are presented. These parameters were compiled from existing studies (58 sets) or derived from data obtained in the original literature (15 sets).

Introduction

Determination of growth parameters is an important part of studying the biology of fishes. Incorporation of these parameters into analytic models for fish stock assessment gives valuable insight into levels of exploitation and directions for management. This contribution provides a compilation of growth parameters of fishes in Cuban waters derived from studies conducted in the last 35 years.

Materials

Estimates of the parameters of the von Bertalanffy growth equation ($l_\infty$, K and $t_0$) were compiled from both published and unpublished studies conducted in Cuban waters. In some cases, the parameters were estimated by Garcia-Arteaga (1992) using data obtained from the original literature. The parameter estimates are given together with the original source of the information and the region in Cuba covered by the assessment.

Results

A total of 73 sets of growth parameters covering 34 species belonging to 12 families of marine fish were compiled from the available studies already conducted in Cuban waters. These parameters are summarized in Table 1, together with the original source of the information and the

<table>
<thead>
<tr>
<th>Family/species</th>
<th>$l_\infty$ (cm)</th>
<th>$K$ (year$^{-1}$)</th>
<th>$t_0$ (year$^{-1}$)</th>
<th>Locality</th>
<th>Reference</th>
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<td><em>Harengula humeralis</em></td>
<td>18.5</td>
<td>0.41</td>
<td>-0.79</td>
<td>SW Cuba</td>
<td>Garcia-Arteaga (in press, c)</td>
</tr>
<tr>
<td><em>Harengula humeralis</em></td>
<td>16.0</td>
<td>1.03</td>
<td>-0.19</td>
<td>Cuba</td>
<td>Buesa (unpubl. data)</td>
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<td>-0.25</td>
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<td>Sotolongo and Valdés (1975)</td>
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<td><em>Opisthonema oglinum</em></td>
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<td>Sotolongo and Valdés (1990)</td>
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Table 1. Summary of growth parameters of Cuban marine fishes as compiled from extant literature. Species marked with an asterisk indicate that the parameters were estimated by Garcia-Arteaga (1992) based on data from the original reference. Values of $l_\infty$ marked with t indicate the parameter is in total length. See text.
<table>
<thead>
<tr>
<th>Family/species</th>
<th>$L_{50}$ (cm)</th>
<th>$K$ (year⁻¹)</th>
<th>$L_{∞}$ (year⁻¹)</th>
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<td>-1.79</td>
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continued
Table 1 (continued)

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<tr>
<th>Family/species</th>
<th>L∞ (cm)</th>
<th>K (year⁻¹)</th>
<th>l∞ (year⁻¹)</th>
<th>Locality</th>
<th>Reference</th>
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<td>Haemulon plumieri</td>
<td>36.0</td>
<td>0.19</td>
<td>-0.69</td>
<td>SW Cuba</td>
<td>García-Arteaga (in press, a)</td>
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<td>0.22</td>
<td>-0.14</td>
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<td>García-Arteaga (in press, b)</td>
</tr>
</tbody>
</table>

SCIAENIDAE

| Micropogonias furnieri | 31.0    | 0.40       | -0.44       | NW Cuba   | Perez and Rubio (1986)      |

LABRIDAE

| Lachnolaimus maximus | 87.0    | 0.09       | -1.51       | SW Cuba   | Clark et al. (1989)         |

MUGILIDAE

| Mugil curema        | 53.2    | 0.10       | -5.90       | NW Cuba   | Alvarez-Lajonchere (1976)   |
| Mugil curema        | 39.7    | 0.68       | -0.219      | SE Cuba   | Perez and Rubio (1986)      |
| Mugil hoseps*       | 30.3    | 0.28       | -0.37       | Cuba, lagoons | Alvarez-Lajonchere (1982)   |
| Mugil hospes        | 44.0    | 0.43       | -0.34       | SE Cuba   | Perez and Rubio (1986)      |
| Mugil liza          | 68.1    | 0.24       | -0.56       | SE Cuba   | Perez and Rubio (1986)      |
| Mugil line*         | 55.4    | 0.24       | -1.41       | Cuba, lagoons | Alvarez-Lajonchere (1982)   |
| Mugil liza*         | 88.8    | 0.11       | -3.23       | Cuba, lagoons | Alvarez-Lajonchere (1982)   |
| Mugil trichodon*    | 28.6    | 0.13       | -3.40       | Cuba, lagoons | Alvarez-Lajonchere (1982)   |

SCOMBRIDAE

| Katsuwonus pelamis*  | 139.0   | 0.11       | -1.97       | W Cuba    | Carles (1974)                |
| Scomberomorus cavalla | 100.9  | 0.19       | -2.43       | SE Cuba   | Leon and Guardiola (1986)    |
| Scomberomorus regalis| 66.46   | 0.22       | -2.42       | SE Cuba   | Leon and Guardiola (1986)    |
| Thunnus atlanticus*  | 78.0    | 0.53       | -1.57       | W Cuba    | Carles (1974)                |
| Thunnus atlanticus*  | 54.3    | 0.45       | -1.70       | SW Cuba   | García-Coll (1984)          |
| Thunnus atlanticus*  | 56.3    | 0.41       | -1.70       | SW Cuba   | García-Coll (1984)          |

general locality covered by the assessment or study. A total of 58 sets of growth parameters were obtained directly from the references cited; while a total of 15 sets were derived by García-Arteaga (1992) using data obtained from the original reference. All values of L∞ in Table 1 are in fork length, except for three cases which are indicated accordingly.

The parameters presented here are largely inaccessible for many fisheries researchers, and their incorporation into fisheries information databases (such as FishBase) would be a substantial step in advancing our knowledge about the species covered.

References


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