Standardized CPUE of bluefin tuna (Thunnus thynnus) caught by Moroccan and Spanish traps for the period 1981-2009

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Data used & model specifications

- Data were obtained from the Moroccan and Spanish trap fishery for bluefin tuna in areas close to the Strait of Gibraltar for the period from 1981 to 2009;

- A Generalized Linear Modeling (GLM) approach (McCullagh and Nelder, 1989) with number of fish for the whole trap season as the response variable was applied;

- Explanatory factors: year and trap;

- Negative binomial error distribution assumed.
RESULTS
The model explains 29.4% of the total variability of the response variable.

Table 1. Deviance analysis results. BFT catch in number. Moroccan and Spanish Traps. 1981-2009. ∆ deviance refers to change in deviance; % deviance: percent of deviance explained with respect to the null model; p-value: χ² probability between consecutive models.

<table>
<thead>
<tr>
<th>Model factors</th>
<th>df</th>
<th>residual deviance</th>
<th>∆ deviance</th>
<th>% deviance</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>null</td>
<td>233</td>
<td>560.92</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>205</td>
<td>413.73</td>
<td>147.19</td>
<td>26.24</td>
<td>2.20E-16</td>
</tr>
<tr>
<td>Year + Trap</td>
<td>191</td>
<td>249.69</td>
<td>164.05</td>
<td>29.24</td>
<td>2.36E-16</td>
</tr>
</tbody>
</table>
The model fits well the observed data.
Decreasing trend of CPUEs since 2002
Thanks for your attention