The river basin

River length - 343 km
River basin area – 17.080 km² (5% in Portugal)
Several tributaries
- River Sil
- River Tea
- River Mouro
- River Coura
- ...
Estuarine length
- 37 km
Obstacles to migration
Obstacles to migration

1. Frieira dam
2. Covas dam
3. Small obstacles / weirs

River Minho
Obstacles to migration

Accessible area for eel: 10.29 %

River Minho
The eel fishery

**FISHING GEARS**

<table>
<thead>
<tr>
<th></th>
<th>Estuary</th>
<th>River</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass eels</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Yellow eels</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Silver eels</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>

**Fishing period**

- Glass eels: 60 days (4 new moon)
- IFQ= 3 Kg /day/ fisherman

**Fishing gears**

- Floatline: 10+10 m
- Depth: 8 m
- Leadline: 15 m
- Mesh size: 1-2 mm

Yellow/silver eel not allowed by:
- Commercial fishing (since 2008/2009)
- Recreational fishing (since 2010)
Other pressures on the eel

### River Minho

#### Water Quality / Pollution

- **Water Treatment Plant**
- **Outbreaks of organic pollution**
- **Potential chemical pollution**

#### Anguillicolaides

<table>
<thead>
<tr>
<th>Local</th>
<th>Ano</th>
<th>Nº de Enguias</th>
<th>Prevalência</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tinto</td>
<td>2009</td>
<td>24</td>
<td>54%</td>
</tr>
<tr>
<td>Seixas</td>
<td>2011</td>
<td>17</td>
<td>100%</td>
</tr>
<tr>
<td>Lanholas</td>
<td>2010</td>
<td>9</td>
<td>67%</td>
</tr>
<tr>
<td>S. Gonçalo</td>
<td>2009</td>
<td>12</td>
<td>58%</td>
</tr>
<tr>
<td>Marina da Lenta</td>
<td>2008-2011</td>
<td>142</td>
<td>75%</td>
</tr>
<tr>
<td>Campos</td>
<td>2009</td>
<td>21</td>
<td>57%</td>
</tr>
<tr>
<td>Gondar</td>
<td>2009</td>
<td>19</td>
<td>58%</td>
</tr>
<tr>
<td>Évora</td>
<td>2009</td>
<td>36</td>
<td>47%</td>
</tr>
<tr>
<td>Veiga da Mira</td>
<td>2009</td>
<td>12</td>
<td>67%</td>
</tr>
<tr>
<td>Valença</td>
<td>2011</td>
<td>12</td>
<td>92%</td>
</tr>
<tr>
<td>Rashão</td>
<td>2010</td>
<td>42</td>
<td>60%</td>
</tr>
<tr>
<td>Manço</td>
<td>2010</td>
<td>7</td>
<td>72%</td>
</tr>
<tr>
<td>Várzea</td>
<td>2010</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td>Mouro</td>
<td>2011</td>
<td>23</td>
<td>78%</td>
</tr>
<tr>
<td>S. Gregório</td>
<td>2009</td>
<td>13</td>
<td>23%</td>
</tr>
<tr>
<td>Melgaço</td>
<td>2010</td>
<td>3</td>
<td>67%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>402</strong></td>
<td><strong>68%</strong></td>
</tr>
</tbody>
</table>

#### Cormorant

- *Natural food indicator: Great cormorant (Phalacrocorax carbo) was found in the diet of river eel.*

#### Consumption estimate

7% of the diet is eel

**Consumption estimate (2005-06):**

0.1 – 2.5 tons
## Eel Management Plan

<table>
<thead>
<tr>
<th>Com Fish</th>
<th>Eel stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prohibit the eel fishery</td>
<td>Y/S</td>
</tr>
<tr>
<td>Reduce fishing effort</td>
<td>G</td>
</tr>
<tr>
<td>Introduce obligation to fill in logbooks</td>
<td>G</td>
</tr>
</tbody>
</table>

**Rec Fish**

<table>
<thead>
<tr>
<th>Prohibit the eel fishery in marine jurisdiction</th>
<th>Y/S</th>
</tr>
</thead>
</table>

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**Frieira dam fish ladder**

- **2011 – 2016**
- **2,6 Tons**
- **12 cm eel translocation for Minho River tributaries**

Approved by EU - 2012
Monitoring

• Recruitment
  (Estuary / glass eels)
Experimental fishing started in 80’s
It was interrupted several times (financial dependence)

Glass eel
• 1 sample every month
• Biometric data
• Pigmentation stage analysis
Monitoring

- **Yellow / Silver eel**
  (Estuary / glass eels)

Experimental fishing started in 2007
Without direct financial support

- Biometric data
- Eel maturity (Durif et al, 2005)
- Tetracycline injection
- Mark-recapture growth rate (PIT-tag)
- Age (linear growth rate)
Project co-financed by the INTERREG SUDOE Programme through the European Regional Development Fund (ERDF)

www.sudoang.eu