Indicang – Interreg III

The Adour basin (France)

Nantes, June 19-20, 2007
Data: Adera-Cereca, Ifremer, Institution Adour, Migradour

Presentation: Institution Adour, Migradour

Cartography: Agence de l’Eau Adour Garonne, Cereca, Ifremer, Observatoire de l’Eau des Pays de l’Adour, Migradour
What we will talk about

- The Adour basin
  - physical and environmental traits
  - pressures on eel and its habitats

- The eel in the basin
  - status of the species
  - repartition in the basin

- Studies on eel
  - within Indicang
  - outside of Indicang

- Perspectives
A basin in South-Western France

- oceanic climate
- 16,000 km²
- 960,000 habitants
- 57 hab./km²
  (France: ~114 hab./km²)
Natural environment: wealth and diversity
Rivers with priority on migratory fish preservation
Pressure by human activities
Environment: risks upon functionality and quality
Worries in accessibility

Poissons migrateurs
Franchissement des obstacles en cours d’eau classés

Situation décembre 2002

Franchissement des obstacles
- non identifié
- détruit (franchissable)
- franchissable
- infranchissable
- partiellement ou périodiquement franchissable

Classement des cours d’eau
- Liste 1
- Liste 2

Observatoire de l’Eau des Pays de l’Adour - 2004
Exploitation by fishing: probably moderate where known

- **glass eel**
  - probably moderate, according to first estimates
  - economic stakes

- **yellow eel**
  - commercial fishery: clear decrease, very low level
  - non-commercial fishery: not well known yet

- **sliver eel**
  - fishery forbidden in the basin
Pressures on the continental life stages

- heavy impact of human activities on the living environment of eel
  - availability (ex: reduction of wetlands)
  - accessibility (ex: obstacles to migration)
  - functionality (ex: degradation of quality)

- probably moderate impact of the fisheries
Eel distribution in the basin
Species status in the basin: the red light is on!

<table>
<thead>
<tr>
<th>Essential habitats</th>
<th>Non-commercial fisheries</th>
<th>?</th>
<th>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution in the basin</td>
<td>Commercial fisheries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Levels of abundance</td>
<td>Illegal fisheries</td>
<td>Green</td>
<td></td>
</tr>
<tr>
<td>Potentialities of spawning stock</td>
<td>Obstacles to migration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Levels of recruitment</td>
<td>Mortalities in downstream migration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanitary traits</td>
<td>Quality (water, environment)</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>Balance on species</td>
<td>Physical alterations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Changes in river regime</td>
<td>Yellow</td>
<td></td>
</tr>
</tbody>
</table>

Balance on pressures

Global balance

Current status

Recent evolution
Main actions within Indicang

- **glass eel**: biomass estimations (*Cereca, Ifremer, Université de Pau et des Pays de l’Adour*)

- **yellow eel** and **silver eel**: distribution and characteristics survey (*Migradour*)

- **environment**: animation in the basin (*Institution Adour, Migradour*), in collaboration with other structures

- **animation**: both with INDICANG partners and « outsiders » (*Institution Adour, Migradour*)
Indicang – Glass eel

- daily and seasonal estimates of glass eel abundance
  - density estimation by scientific sampling survey
  - estimation of the daily biomass
  - combination with
    - data on commercial fisheries
    - data on estuarine hydrodynamics
  - estimation of the seasonal total biomass

- experiments of “Adour method” in other INDICANG basins
Indicang - Yellow eel

- annual survey through the specific « Eel network »
- survey of interannual variations of density
- distribution analysis
  - eels with length < 300mm
  - using data from all available electric fishing surveys
- complementary studies
  - age/length
  - parasitology
  - eel silvering
Indicang - Silver eel

- contribution to the estimation of silver eel production

  ✓ using the Adour « Eel network » data

  ✓ in collaboration with the « Silver eel » thematic group in INDICANG
in application of the workshops of INDICANG’s « Environment » thematic group

contribution to the revision of the legal classification of rivers concerning river migration of migratory fish

contribution to the improvement of knowledge and information management about obstacles on the « blue axes » ( = rivers where migratory fish restoration is a priority)
Indicang - Animation

- inside INDICANG
  - steering committee
  - scientific committee
  - publication committee
  - workshops of thematic groups

- with « outsiders »
  - information, collaboration with partners concerned with eel management (political partners, financial partners, commercial and sports fishermen, hydroelectric plant operators, etc.)
Main actions on eel outside of Indicang

- migration

- estuarine migration behaviour of glass eel (*Cereca, Ifremer, Université de Grenoble, Université de Pau*)

- mechanism of estuarine and upstream migration: activity rhythm, energy of recruits and behaviour, temperature/ontogeny/feeding and inter-individual behaviour (*INRA, Université de Pau, Cemagref*)

- downstream migration of silver eels / reduction of mortalities in hydroelectric plants (*Cemagref, EDF, INRA, Migradour*)
Main actions on eel outside of Indicang

- migration
- biology and physiology

- glass eel characterization, for example by otolithometry (Cereca, Université de Perpignan)

- contamination of eels by heavy metals: studies through chemical, behavioural and genetic approaches (Université de Pau, INRA)
Main actions on eel outside of Indicang

- migration
- biology and physiology
- fisheries surveys

✓ commercial fisheries, non-commercial fisheries, eel angling
✓ in the estuary and in freshwaters (Cereca, Ifremer, Migradour)
Main actions on eel outside of Indicang

- migration
- biology and physiology
- fisheries surveys
- sociology and economics

✓ types of uses of wetlands, users’ organization (Ifremer, Université de Pau)
Perspectives

- glass eel
  - method designed in the Adour basin
  - using it on a yearly-routine basis: unlikely
Perspectives

- glass eel

- yellow eel

✓ recommendations from INDICANG methodological guide on yellow eel could lead to changes in the survey
  • in its geography (towards downstream areas, wetlands, etc.)
  • in its methodology (other fishing methods, other sampling plans, etc.)
Perspectives

- glass eel
- yellow eel
- silver eel

✓ main question: do we need a specific survey, or may we use an analysis of data from the yellow eel survey?
Perspectives

- glass eel
- yellow eel
- silver eel
- environment
  - census and qualification of obstacles
  - improvement of the knowledge on downstream areas (estuary, wetlands, etc.)
Thank you for your attention