Flatfish fishery: impact & challenges

Maarten Soetaert, Hans Polet, Annemie Decostere, Marieke Desender, Koen Chiers

Department of Pathology, Bacteriology & Poultry Diseases, Faculty of Veterinary Medicine – Ghent University, Salisburylaan 133 Merelbeke

Institute for Agricultural and Fisheries Research (ILVO), Animal Sciences - Fisheries, Ankerstraat 1, 8400 Oostende, Belgium.

Introduction

Total turnover Belgian fishermen = € 76 million
- Sole (Solea solea)
- Plaice (Pleuronectes platessa)

<table>
<thead>
<tr>
<th>Fish</th>
<th>Price (€/kg)</th>
<th>Catch (10³ kg)</th>
<th>% of turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>sole</td>
<td>10.6</td>
<td>3.703</td>
<td>51.4</td>
</tr>
<tr>
<td>plaice</td>
<td>1.3</td>
<td>5.099</td>
<td>8.5</td>
</tr>
</tbody>
</table>

Mainly caught using beam trawls with heavy tickler chains because of their high efficiency for sole & plaice

Traditional bottom trawls:
- seabed disturbance
- discards
- fuel consumption

Alternative fishing methods

Set nets (sole) & flyshooting (plaice)
- more selective
- limited seabed contact
- >50% fuel consumption
- current fleet is not equipped for these techniques

Pulse fishery: mechanical stimulation (of tickler chains)

- seabed disturbance
- bycatch of undersized fish
- bycatch of benthos
- fuel consumption 50%

Pulse fishery: electrical stimulation (pulses)

- step forward but too much side effects?

Pulse fishery: 2 options

Cramp pulse: currently used for flatfish
- aims at immobilisation reaction
- high frequency pulse
- negative effects such as dislocated spinal cords, haemorrhages & mortality

⇒ Step forward but too much side effects?

Startle pulse: currently used for shrimps
- aims at fright reaction
- elicits an upward movement of flatfish
- low frequency pulse
- no negative effects observed till now

⇒ More acceptable method?

Research to be done

Goal: obtain a low impact startle pulse for flatfish

Step 1: determine range of ‘safe’ pulse parameters
- without injuries
- without mortality for sole, cod, brown shrimp & sandworm

Step 2: finding a ‘safe’ and good scare pulse that elicits a great upward movement of the sole

Step 3: investigate possible negative effects (stress & lesions) of this optimized pulse on sole, cod, brown shrimp & sandworm

Take Home Message:

✓ Beam trawling in its current form is on its return due to a high environmental impact & fuel costs
✓ Passive fishery techniques require a total turn-over of the trawl fleet which is unfeasible
✓ Pulse fishing can be a great step forward, but the adverse effects need to be tackled first

Pulse fishery is the most promising alternative meeting both the fisherman’s aspirations and the need for ecological progress