Jun 24th, 3:15 PM - 3:40 PM

Session E8: Efficiency Measurements as Tool in Evaluating Fishways

Jan H. Kemper
VisAdvies BV

Quincy A. de Bruijn
VisAdvies BV

Follow this and additional works at: https://scholarworks.umass.edu/fishpassage_conference
Part of the Aquaculture and Fisheries Commons, and the Hydraulic Engineering Commons
Efficiency measurements as a tool in evaluating fish ways.

By Jan H. Kemper

Author's: Jan H. Kemper & Quincy de Bruijn
Fish passages in the Netherlands

- Complicated water management
- Much land below sea level.
Does it work?

- How to evaluate?
- What to evaluate?

1. Species composition

2. Length composition

3. Numbers
What is our reference?
What is our reference?
Electronic Fish Counter

Features
- Detects fish
- Migration direction
- Length
Introduction

Dutch situation
How to evaluate

Case study

Methods
Fish way
Results
Conclusions

In general

Electronic Fish Counter

Features
- Detects fish
- Migration direction
- Length
- Species identification (camera)
Introduction

- Dutch situation
- How to evaluate

Case study

- Methods
- Fish way
- Results
- Conclusions

In general

Polder area

Canal
Introduction
- Dutch situation
- How to evaluate

Case study
- Methods
- Fish way
- Results
- Conclusions

In general

Results

<table>
<thead>
<tr>
<th>Number of fish / day</th>
</tr>
</thead>
<tbody>
<tr>
<td>mrt</td>
</tr>
<tr>
<td>apr</td>
</tr>
<tr>
<td>mei</td>
</tr>
<tr>
<td>jun</td>
</tr>
</tbody>
</table>

- Upstream side (n=438)

<table>
<thead>
<tr>
<th>Number of fish / day</th>
</tr>
</thead>
<tbody>
<tr>
<td>mrt</td>
</tr>
<tr>
<td>apr</td>
</tr>
<tr>
<td>mei</td>
</tr>
<tr>
<td>jun</td>
</tr>
</tbody>
</table>

- Downstream side (n=6402)
Introduction

- Dutch situation
- How to evaluate

Case study

- Methods
- Fish way
- Results
- Conclusions

In general

### Efficiency

#### Number of fish / day

- **Upstream side**
  - (n=438)

- **Downstream side**
  - (n=6,402)

- Mar
- Apr
- May
- Jun
Introduction
- Dutch situation
- How to evaluate

Case study
- Methods
- Fish way
- Results
- Conclusions

In general

Efficiency

![Bar chart showing efficiency values for different months (March to June). The chart highlights the efficiency trends in April and May.]
Introduction

- Dutch situation
- How to evaluate

Case study

- Methods
- Fish way
- Results
- Conclusions

In general
Introduction

- Dutch situation
- How to evaluate

Case study

- Methods
- Fish way
- Results
- Conclusions

In general

Efficiency

![Efficiency Chart]

- Efficiency / day (%)
- March to June
- May has the lowest efficiency
Fyke versus Counter

- Fyke monitoring showed no big fish (Ile in particular)
- Results confirm the idea that (big) fish is reluctant to enter the fish trap.
Conclusions of the study

- Fish ladder seems too long for certain species like bream.
- More resting areas are suggested.
Conclusion in general

- Efficiency measurements contribute to the understanding of migration
  
  - What fish wants to pass, but is physically unable? (Bream)
  - What fish is able to pass, but is not interested? (Ide)
  - How much/what fish do we want to pass (10-100%)?
Efficiency measurements as a tool in evaluating fish ways.

Thank you for the attention.

Questions?

Author's: Jan H. Kemper & Quincy de Bruijn