

# Technical versus naturelike fish ways -



REFLECTIONS FROM MY POINT OF VIEW  
(MIN SPANING)  
FISH MARKET 2016-08-23

# Fish way definition

- ▶ A passage around or through an obstacle designed to dissipate the energy in water in such a manner as to enable fish to ascend without undue stress (Clay 1995)
- ▶ *Construction for decreasing the kinetic energy in water, enable the fish to ascend (my definition)*

# Questions

## Aspects in fish ways concerning function as passage

- Strict limit between technical/naturlike fish ways?
- Evidence for less functionality in technical constructions compared to naturelike fish ways
- Occasions when a technical solution can be favourable



# Vertical slot – examples from Netherlands/Germany



Slot passes can cope with discharges from just over 100 l/s to several m<sup>3</sup>/s. In view of these advantages slot passes should be preferred to conventional pool passes. Present knowledge indicates that slot passes should be given preference over other technical fish passes. (DVWK) Rome, 2002



Larinier - Great Britain  
fishway/



Denil-Sweden Uppsala

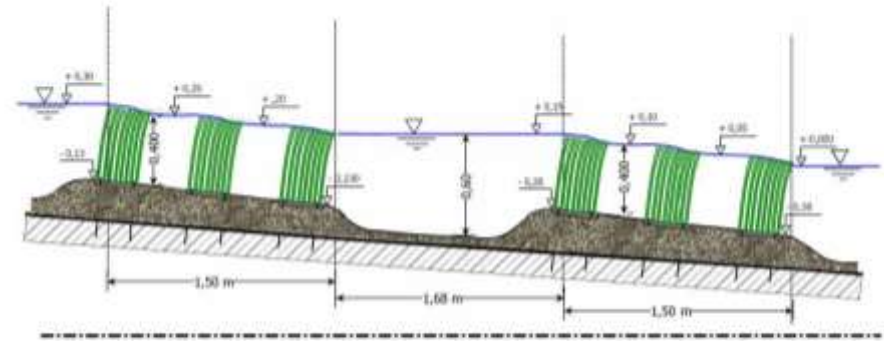






## Anordnung in 3er-Riegeln

Längsschnitt Borstengruppen M. 1 : 20



Mittleres Gefälle: 1 : 21,19 (4,72%)  
 Gefälle Borstenriegel: 1 : 15,0 (6,67%)  
 Höhendifferenz des WSP am 3-er-Riegel: 15 cm

AHT FÜRSTENBERG (HAVEL)  
 Fisch-Kanu-Pass am Havelwehr Bahnhofsbrücke  
 Längsschnitt H. ca. 1 : 20 (nicht exakt maßstäblich)

gez. R. Hassinger  
 19.11.2006

Versuchsanstalt und Prüfstelle für Umweltsysteme  
 Dr.-Ing. Reinhard Hassinger



Brush  
 fishway/Germany

# Naturlike fish ways ways

Bypass through dam Odenså å  
Danmark



Bypass through dam Odenså å  
Danmark





# Naturlike fishways

Örebro- Sweden  
bypass channel



Århus – Denmark rocky  
ramp



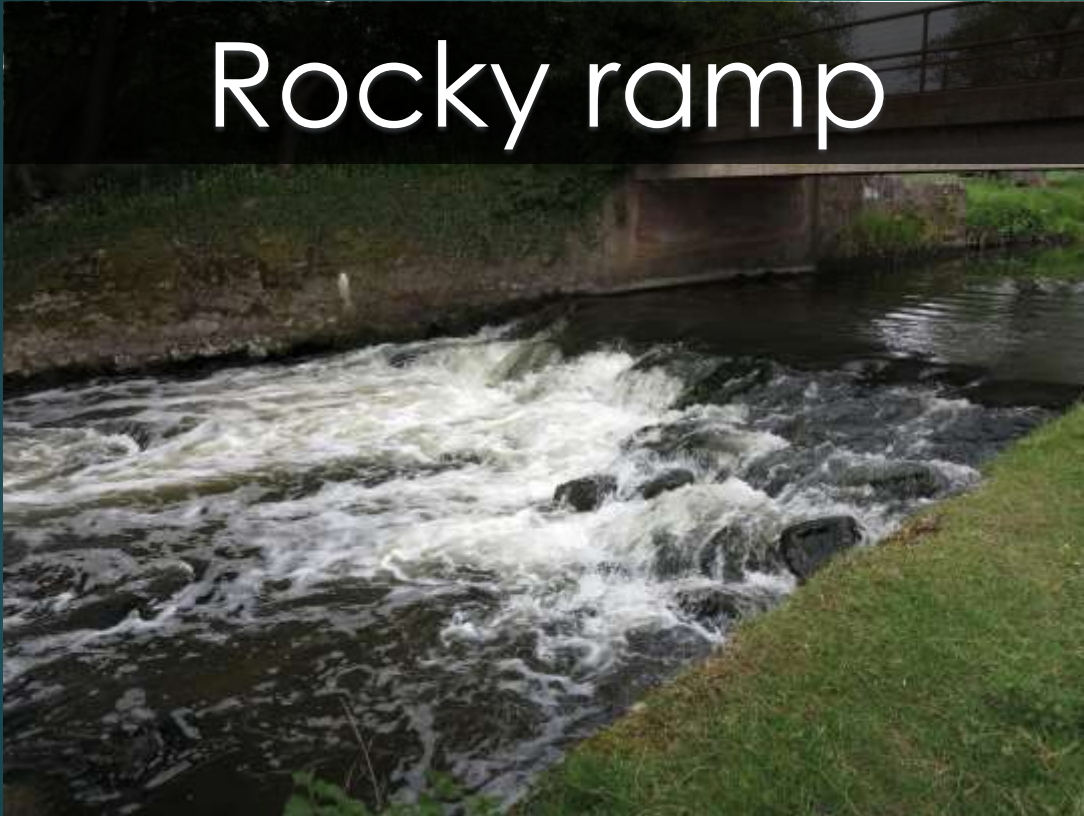
Silkeborg Denmark-  
Rocky ramp





# Naturlike fish ways? – Great Britain- Wales

Rocky ramp



Pool –and traverse



# Natural-like fish way? – Germany Sweden



Uhingen/Fils rough-channel pool  
pass View from tailwater end.

From Fish passes – Design, dimensions and monitoring Food  
and Agriculture Organization of the United Nations in  
arrangement with Deutscher Verband für Wasserwirtschaft und  
Kulturbau e.V. (DVWK) Rome, 2002

# Naturelike fish way?





# Criteria's determining choice of type

- Slope
- Depth
- Possibility to find the entrance
- Available discharghe
- Amplitude downstream/upstream
- Available area
- Yearly amplitude
- XXX

# Technical aspects- hidings/ground material

Hidings for crayfish



Överhängande strandbrink



Spawning substrate  
aspilus



# Technical aspects parallels to other species (artificial nests – spawning areas)



# Summary

## Aspects in fish ways concerning function as passage

- Strict limit between mellan technical/naturlike fish ways?
- **No**
- Evidence for less functionality in technical constructions compared to nature like fish ways
  - **No If certain criterias is fullfilled....**
- Occations when a technical solution can be favourable
  - **Yes - for instance when lack of water combined with demand for high water depth**

## Other criterias

- Function as spawning area
- Substrate för bentic organisms (mussels)
- Esthetic aspects
- Cultural environment



Thank you/Tack så mycket

