How to Improve Fish Protection and Downstream Migration in Rivers?

Insights from the German Forum on Fish Protection and Downstream Fish Migration

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Motivation

- High implementation pressure for the measures (WFD etc.)
- Economic concerns
- Knowledge gaps
- Conflict of interests; tense relationship between key stakeholder groups

No clear distinction between technical, political, or other interests, motivations, or arguments in the discussion
Purpose & objectives

- Cross-cutting exchange of information and experiences throughout Germany

- Taking stock of following questions:
  - Are there different views of the topic?
  - What are the research needs?
  - What is the need for action?
  - What methods/technologies can be considered as valid and established?
Forum structure

Kick-off conference

Expert study: Guideline for site specific evaluation of fish protection and downstream fish migration“

Results papers

Workshop I
12./13.11. 2012

Workshop II
23./24.1. 2013

Workshop III
25./26.4. 2013

Workshop IV
21./22.1. 2014

Workshop V
23./24.9. 2014

Discussion papers

Final conference
27.11. 2014

Advisory board (BAW, BEW, BfG, BfN, DWA, LAWA, LfU BY, RP Karlsruhe, SV Wasserbau, UBA)

Synthesis
Who is the forum?

- High interest in the events of the forum
- Around 200 active participants, and in total around 500 followers across sectors

- River basin and fishery authorities of the federal states
- National river basin, nature conservation and waterway administration
- Energy sector
- Civil engineering consultancies
- Environmental consultancies
- Nature and angler NGOs
- Research institutes/ universities
Results*

I. Environmental policy & legal background

II. Goals for fish protection and downstream migration

III. Behavioral & population biology fundamentals

IV. Strategic planning instruments for river basins and the usage of hydropower

V. Potential fish harm

VI. Technical measures for fish protection and downstream fish migration

VII. Functional evaluation of measures for fish protection & downstream migration

*The presented results are a subjective selection of the results from the forum events and are based on the statements of participants, that are layed down in the results papers available on: http://www.forum-fischschutz.de/*
Results – technical measures for fish protection

Which technology provides adequate fish protection?

- Site-specific fish protection: complete protection (100%, all age classes and life stages) is currently non-achievable
- High protection rates can be achieved only with impermeable bar racks with fine bar spacing
Which technology provides adequate fish protection?

- Consensus: State-of-the-art knowledge and technology exist for vertical bar racks up to ca. 30 m³/s and for horizontal bar racks up to ca. 50 m³/s per unit incl. cleaning/maintenance
- Technical feasibility of bar rack arrays at higher discharges controversial
Results – technical measures for fish protection

Which technology provides adequate fish protection?

- Possibilities for installations where mechanical fish protection cannot currently be installed
  - Fish-friendly turbine management with early warning systems (sufficient evidence of this measure’s efficacy is still needed)
  - Fish friendly turbines (technically possible-the demand and investment readiness are missing)
  - By passes
  - Catch and carry measures as intermediate solution and in some cases as complimentary measures
Summary

- The knowledge and the technology for the assessment of upstream fish migration facilities are considerably better than for fish protection measures and downstream fish migration facilities.

- Knowledge gaps and research needs regarding:
  - Effective implementation of fish protection and downstream fish migration in large rivers for all still existing target species.
  - Behavioural and population biology especially for potadromous species.
Summary

- How to deal with knowledge gaps?

  Moratorium

  For the construction of new plants and barriers  For environmental regulations
Summary

- Implementation of measures: action is recommended!
  - Use existing knowledge and available technologies, even if no final certainties of their sufficient performance exist!
  - Realise clear contractual rules and procedures for administration and measure contractors
  - Adhere to the proportinality principle for measure contractors
- Parallel to measure implementation, improve & collect knowledge
  - Performance evaluations – evaluate existing plants (Methods? Expert study from this forum!)
  - Research needs! Monitoring, pilot facilities, laboratory experiments, models
Outlook

- Final conference at the Federal Ministry for the Environment (BMUB) in Bonn (DE) on 27.11.2014

- Website: www.forum-fischschutz.de
Thank you for listening.

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