



Ecologic Institute

Berlin
Brussels
Vienna

Washington DC



How to Improve Fish Protection and Downstream Migration in Rivers?

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

Ulf Stein, Eleftheria Kampa, Brandon Goeller - Ecologic Institut, Berlin
Stephan Naumann – German Federal Environmental Agency



Table of content

- ▶ Motivation, purpose & objectives
- ▶ Forum structure
- ▶ Technical measures for fish protection
- ▶ Summary
- ▶ Outlook



Motivation

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



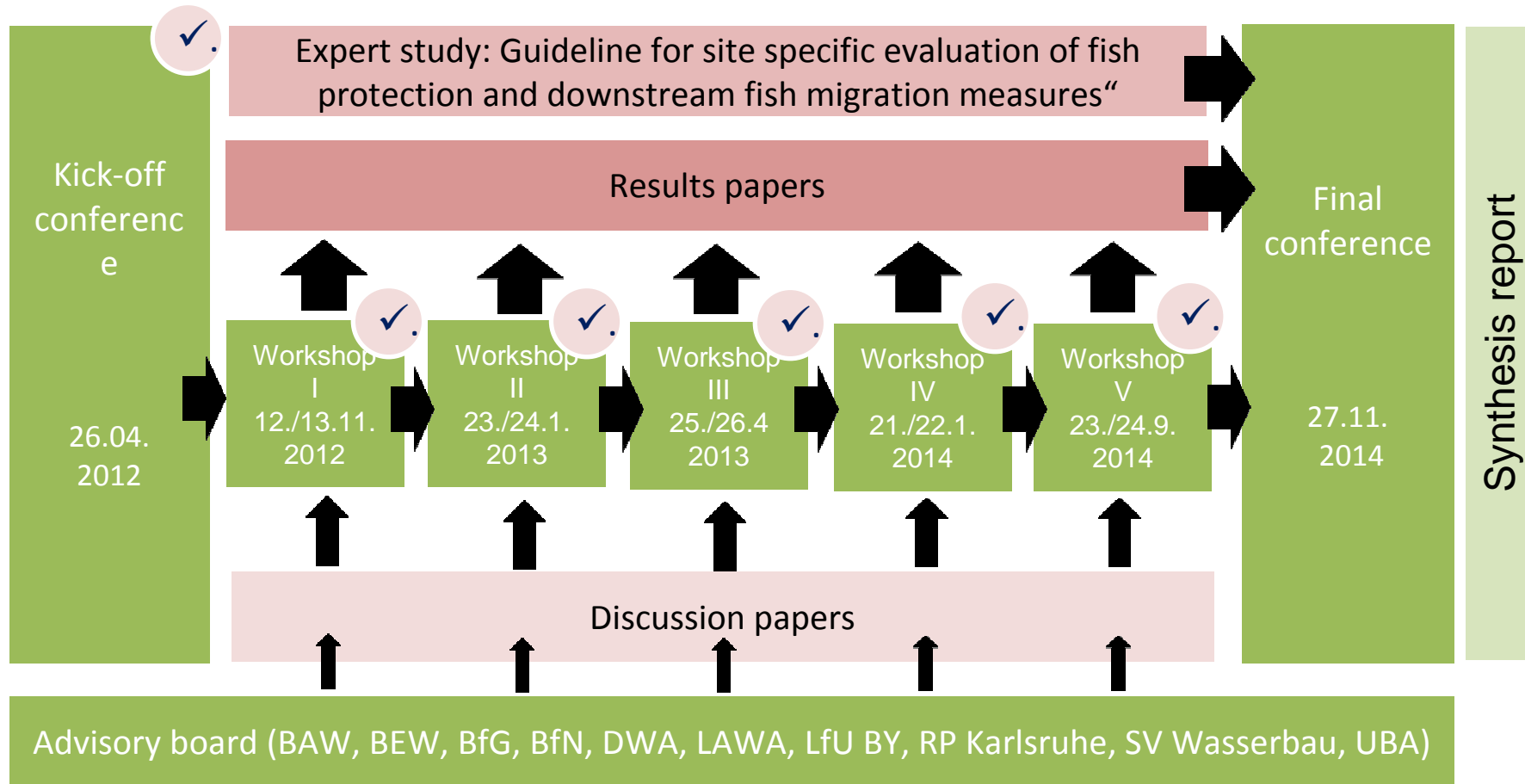
No clear distinction between technical, political, or other interests, motivations, or arguments in the discussion



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 ?

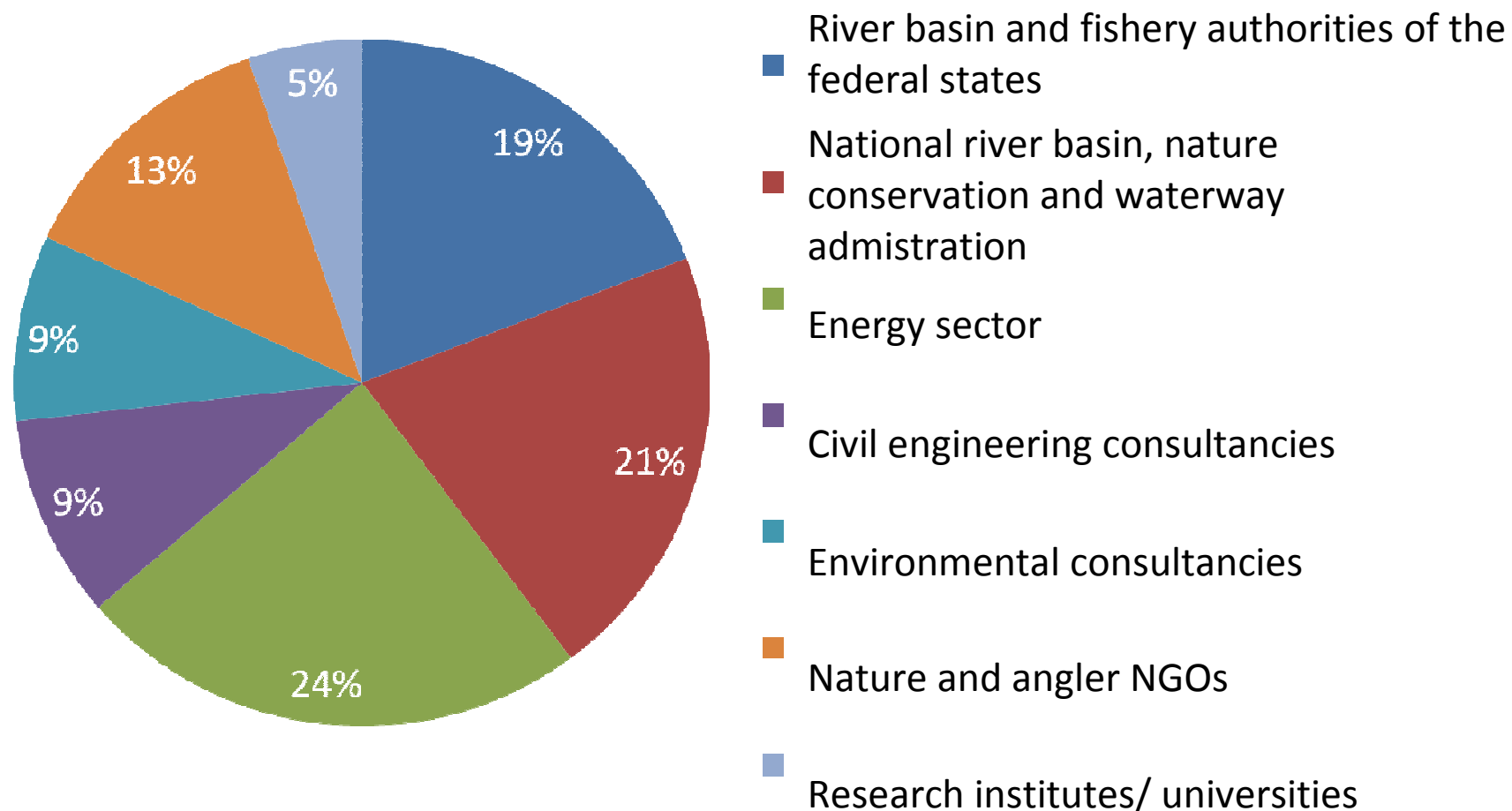
Forum structure





Who is the forum?

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





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 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

Results – technical measures for fish protection



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

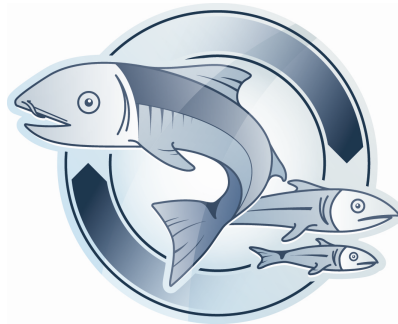


- ▶ Implementation of measures: action is recommended!
 - Use existing knowledge and available technologies, even if no final certainties of their sufficient performance exist!
 - Realise clear contractual rules and procedures for administration and measure contractors
 - Adhere to the proportionality 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.



Ulf Stein

Ecologic Institute, Pfalzburger Str. 43-44, D-10717 Berlin
Tel. +49 (30) 86880-0, Fax +49 (30) 86880-100

[ulf.stein{at}ecologic{dot}eu](mailto:ulf.stein@ecologic.eu)

www.ecologic.eu