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Session C2: The Swiss Way to Re-Establish Free Fish Migration

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The Swiss way to re-establish free fish migration

Fish Passage 2015, Groningen (NL)

Dr. Martin Huber Gysi & Lukas Bammatter

Federal office for the environment (FOEN)

Section of water habitats



Overview modifications (2011) of the water protection legislation in Switzerland

Space provided for waters

Determination / extensification

20 Mio. CHF/yr
(increase
agricultural
budget)

Revitalisation

(structural restoration)

strategic planning & implementation

40 Mio. CHF/yr

Refurbishment of hydropower

strategic planning & implementation

- hydropeaking
- bed load transportation
- fish migration

50 Mio. CHF/yr
(full compensation
of the operators,
financed by
0.1Rp./KWh
consumers payed
fund)



Time schedule

delay	hydro-peaking	bed load	fish migration	revitalisation	space for waters
31.12.2014	planning	planning	planning	planning running waters	
31.12.2018				planning standing waters	implemented
				continuous update	
31.12.2030	implemented	implemented	implemented		
Ca. 2090				implemented	



Revitalisation (structural restoration)



- 15'000 km river reaches in bad condition
 - approx. 100'000 obstacles > 50 cm
 - 4'000 km restored in the next 80 years
 - Elimination of priority obstacles for fish migration
- ⇒ **Integrated planning with refurbishment of hydropower to ensure free fish migration**



Refurbishment of hydropower: aims

Hydropeaking:

- Prevention of substantial derogation by constructive measures (e.g. compensation reservoir)
- Operational measures only by application of operators

Bed load transport:

- Prevention of substantial derogation (by installations and river regulations)

Fish migration:

- Re-establishment of free up- and downstream fish migration
- Prevent that fish and crayfish are injured or killed by technical installations
- According to the existing law (1993) but so far partially implemented due to financial reasons

→ **Planning until 31.12.2014, implementation until 31.12.2030**

→ **Integrated planning and coordinated measures**



Refurbishment of hydropower: planning and implementation

	Federal admin.	Cantonal admin.	Operators
Strategic planning until 2014	<ul style="list-style-type: none">• Requirements• Guidance• Surveillance	Elaboration of the planning reports	Hearing
Operators plan & implement measures from 2015	Official hearing (FOEN)	<ul style="list-style-type: none">• Ordinance• Building licence• EIA	Elaboration Construction project
to 2030	Evaluation Compensation request proposal for swissgrid	Evaluation Compensation request	Compensation request Implementation
	Data management Public information	Ordinance monitoring	Implementation monitoring



Guidance for planning & implementation

Publication: manual & excel-tool

- Technical and ecological parameters
- Assessment for the need to refurbish

Best-practice

- Technical and ecological guidelines
- References (examples)

Training courses

- Planning tools for Cantons and engineering companies

Workshops (exchange of experience)

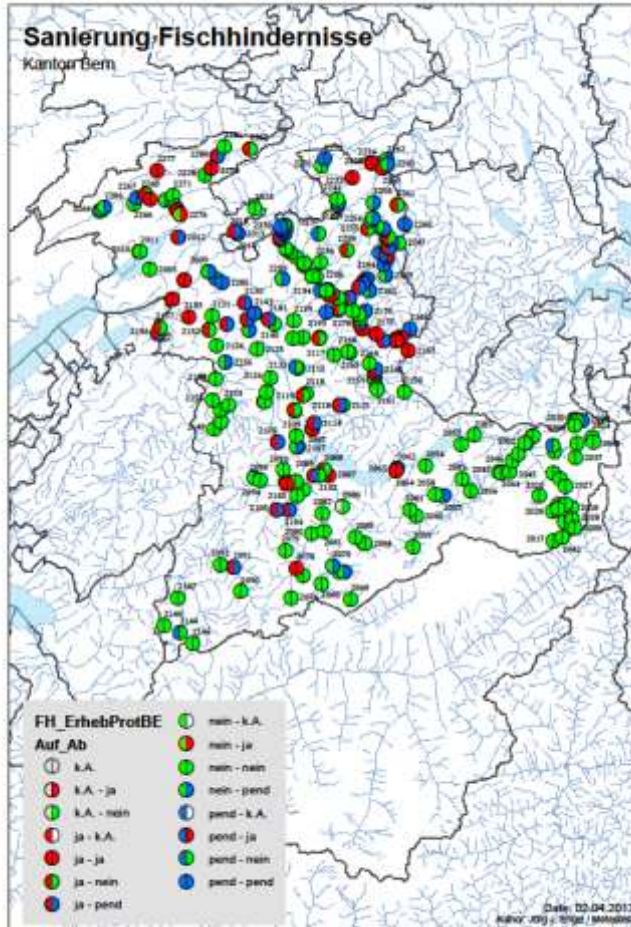
- detailed discussion of methods and planning procedures
- Good examples
- excursions







rough-and-ready results of the planification (fish migration only)



- **>1800** obstacles assessed (hydropower only)
- Fish migration needs to be rehabilitated for approx. **600** obstacles for upstream migration and downstream migration each
- obstacles that will not to be remediated are predominately in rivers which are naturally not passable



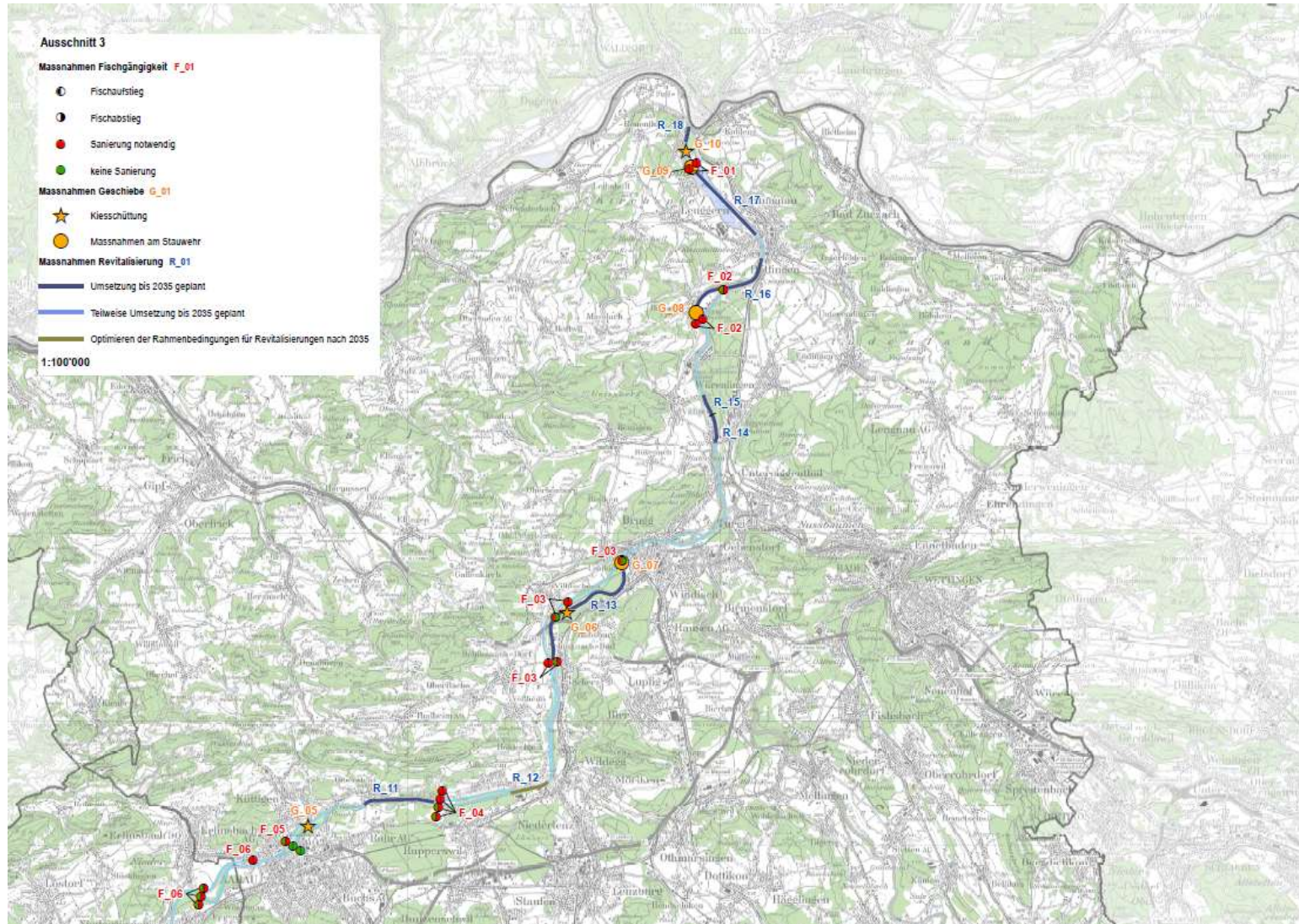
rough-and-ready results of the planification (fish migration only)

- Only **36 %** of the existing fish migration devices are satisfactory functional
- Downstream-devices and fish protection measures are very scarce
- the maintenance of existing installations is often insufficient





integrated planning River Aare



The swiss way to re-establish free fish migration

M. Huber Gysi & L. Bammatter; FOEN



Open questions, proceedings

- Development of effective measures for downstream migration and fish protection for large rivers
- Lack of species-specific knowledge about migration behaviour patterns for many species
- Monitoring is mandatory
- Requirements (for monitoring) to be defined (tutorial)
- Knowledge sharing



Summary

- The existing legislation is supplemented with an obligation to plan (end 2014), a deadline for implementation (2030) and all measures on existing installations are completely financed by public funding (paid by consumers).
- The most valuable habitats will be restored and connected according to a strategic planning