



## Fishfriendly Innovative Technologies for Hydropower



Funded by the Horizon 2020 Framework Programme of the European Union

### **D5.2 Stakeholder feedback on tools and products of FIThydro**

#### **Part 1: Summary report of the 3<sup>rd</sup> FIThydro regional stakeholder workshop for Scandinavia**

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Coordinator	TUM
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# 1. Introduction

## 1.1 FIThydro background

FIThydro (Fishfriendly Innovative Technologies for Hydropower: <http://www.fithydro.eu>) is a 4-year EU research and innovation action (funded under Horizon 2020; duration 2016-2020) which aims to support decisions on commissioning and operating hydropower plants (HPP) by use of existing and innovative technologies. It concentrates on mitigation measures to develop cost-effective environmental solutions and strategies to avoid individual fish damage and to support the development of self-sustainable fish populations, with main emphasis on run off river low-head HPP.

FIThydro brings together 26 partners (13 research, 13 industrial) from 10 countries, involving several of the leading companies in the renewable and hydropower energy sector in Europe. Methods, tools and devices are applied and evaluated at 17 test sites all over Europe, covering four regions: Alpine region, Scandinavia, north-west Europe and Scandinavia. Scenario modelling in the four different geographic, climatic and topographic regions will allow the quantification of effects, resulting costs and comparisons of the test case regions to draw conclusions about future hydropower production mitigation options in Europe.

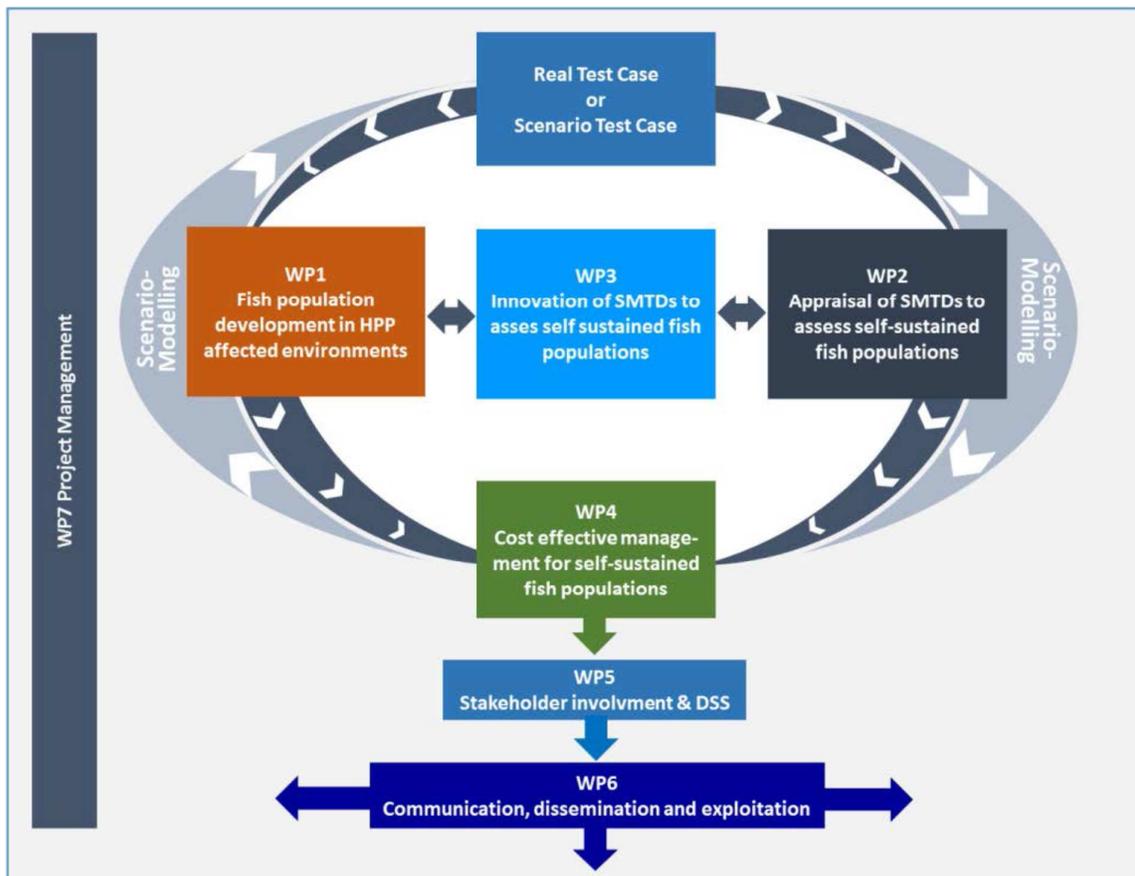


Figure 1 FIThydro approach and key work-packages

## 1.2 Aims of the stakeholder workshop

The 3<sup>rd</sup> FIThydro Regional Stakeholder Workshop on Fish-friendly Hydropower took place on 4-5 June 2018, at Energiforsk in Stockholm, Sweden.

The workshop was the third in a series of four regional workshops and served as a platform for consultation and exchange between FIThydro scientists, stakeholders and water users on key open issues and possible solutions relevant to the assessment and planning of ecologically compatible hydropower production in Scandinavia. The workshop mainly addressed authorities involved in HPP authorization processes, HPP operators, environmental NGOs, consultants, planners, fisheries associations and the research community.

The workshop and the FIThydro project as a whole are key to support the implementation of the Water Framework Directive (WFD) as well as meeting the objectives of energy policy.

Presentations were given by the FIThydro team as well as energy providers, legislators and scientists involved in the field of hydropower in Sweden and Norway.

At this workshop, key aspects of the FIThydro work-program were presented and participants were invited to give their feedback and highlight, from their perspective, the key open issues on the assessment and planning of ecologically compatible hydropower production.

Thirty-three (33) participants attended the workshop, including stakeholders from Sweden and Norway and scientific partners of the FIThydro consortium. Stakeholders present at the workshop included hydropower producers, research institutes, technical/engineering consultants and authorities.

The key sessions covered the following topics:

- Ecology of fish species.
- Flows and habitats.
- Downstream fish migration.
- Mitigation measures & challenges for decision-making.
- Social acceptance of hydropower and FIThydro activities in Anundsjö HPP.

The workshop sessions addressed the main pillars of FIThydro's outputs and plans for the next stages of the project and also reflected on relevant activities taking place in the hydropower sector in Norway and Sweden.

A cover note was prepared for the workshop participants. The purpose of the cover note was to stimulate dialogue by outlining the key topics and by proposing some key questions to guide the discussions in the main sessions.

**For each of the 5 specific topics** of the workshop, which are outlined further below, the following were proposed as **guiding questions** for interactive exchange with the participating stakeholders:

### Guiding questions for discussion with stakeholders

- a) What do you consider as the **major issues (key problems, open questions)** relevant to the assessment and planning of ecologically compatible hydropower production in Sweden/Norway (specifically on the 5 key topics below)?

- b) What **approaches and solutions** are applied to address the key problems and **open issues** in Sweden/Norway?
- c) What are your **recommendations or requests to the work-programme of FITHydro** (with specific relevance to the 5 key topics below)?

These questions were used to structure the interactive discussion after the presentations in each session of the workshop. Participants also received a paper hand-out to provide voluntary written feedback to these questions during and after the workshop, so that each participant had the opportunity to make a contribution to each topic.

### 1.3 About this summary report

Sections 2 to 7 of this report present a summary of the discussions and key conclusions of the workshop based on the presentations, ensuing discussions and feedback from the participants. Feedback from participants was mainly verbal during the discussions, with some additional feedback provided via the feedback forms mainly on sessions 1 and 2 and general feedback on the topics of the workshop.

**Please note that the FITHydro consortium plans to give written feedback to the recommendations made by stakeholders during this workshop in Stockholm.** This written feedback is expected to be provided in autumn 2018 in order to take into account stakeholder recommendations raised across all regional stakeholder events.

The Annexes to this report include the programme of the workshop and list of participants.

All presentations are available at:

<https://syncandshare.lrz.de/filestable/MjJoemFaNVIYZ2ROeU16Z3JMbm5Y>

## 2. Introductory session

To open the workshop, welcome and brief introductions were given by Peter Rutschmann - TUM (coordinator of FITHydro), Atle Harby – SINTEF (FITHydro regional case leader for Scandinavia), Angela Odelberg – Statkraft, and Sara Sandberg – Energiforsk.

The opening talks introduced the FITHydro project, including an overview of the project's test cases and the challenges at these testing sites. In addition, Statkraft (one of the hosts of the workshop) gave an overview of their activities related to hydropower, fish and mitigation measures.

## 3. Ecology of fish species (Session 1)

This session covered key issues regarding fish population ecology of species other than salmon and trout, the challenges fish populations are exposed to in regulated rivers as well as fish response and resilience to river fragmentation and hydropower. From the FITHydro work-programme, first steps towards a fish population hazard index for hydropower were also presented.

In session 1, the presentations covered the following:

- **Hydropower, fish and migration measures: Examples from Statkraft (Mikael Lindström and Angela Odelberg, Statkraft).**

- They gave an overview of selected studies of Statkraft on mitigation measures related to fish, explaining the context of the activities and success factors.
- **FIThydro activities related to non-salmonid species (Ruben van Treeck, IGB).**
  - He addressed among others, species hazard/biological sensitivity, type-specific and site-specific mortality as well as population effects.
- **Modelling the effects on grayling of environmental vs regulated flow and morphological measures (Åsa Widén, Umeå University)**
  - She introduced the Ume River project (a collaboration project including also HP companies). Specific aspects addressed were environmental flows modelling, minimum discharge scenarios and the combination of environmental flows with morphological measures.

### 3.1 Discussion and participant feedback

The key issues raised during discussions and feedback from the participants addressed the following:

#### Key problems, open questions

1. A common problem in Sweden relates to the fact that most rivers are completely regulated in cascades, so that very **few river reaches are free flowing**. This limits the possibilities for enhancing fish populations and restoring habitats without removing dams.
2. A key question from research in Sweden is whether **environmental flows** are needed or whether **morphological restoration** only is sufficient.
3. Another key question is that until now most fishways have been constructed for salmon, while they are not adapted to other fish species.
4. Further key question: Do all fish species migrate/need to migrate?
5. Further key question: How can site-specific solutions be found?

#### Approaches and solutions to handle key problems

1. In Norway, authorities do not prescribe in detail technical solutions at specific sites but focus on the ecological functions. The operators who are familiar with their installations are to find the best technical solutions.
2. The development of BAT ("Best applicable technique") in Sweden is focused on creating a work process for finding the best solution at each site (no common solutions).

#### Stakeholder recommendations

1. It might be useful to consider also the productivity of the system in the fish hazard index developed by FIThydro.
2. Fishways constructed for salmon could be retro-fitted to make them suitable for other species as well.

## 4. Flows & habitats (Session 2)

This session addressed the activities related to environmental and downstream flows within FIThydro, methods for defining ecological flows and effects of minimum flow conditions on fish. The session also included presentations and discussion on activities related to environmental flows and habitat mitigation in both Sweden and Norway.

In session 2, the presentations given covered the following:

- **Environmental and downstream flows in FIThydro (Antonio Pinheiro, IST)**
  - His presentation focused on environmental flows, specifically: their implementation in the context of the WFD (see Common Implementation Strategy Guidance no. 31), experiences in the countries of some FIThydro partners (Portugal, France, Norway), and within the context of the FIThydro test cases.
  - It was explained that FIThydro is not developing a new method for e-flows. The project addresses the existing e-flow regime effectiveness via the test cases; these will be done most probably on a scenario modelling basis included in the cost-effectiveness analysis.
- **Environmental flows, habitat mitigation measures and fish migration research in Vattenfall (David Aldvén, Vattenfall)**
  - He presented ongoing research on environmental flows, habitat mitigation, and fish migration in projects of Vattenfall.
- **Environmental flow and habitat mitigation in Mandal River, Norway (Svein Haugland, Agder Energi)**
  - His presentation covered experiences with weir removal and other mitigation measures in the Mandal River in Norway with the goal to reduce the loss of salmon production while sustaining or increasing power production.
- **Mitigating negative impacts on fish populations in regulated rivers. Experiences from river basin management and cross-border collaboration (Atle Rustadbakken, County Governor of Hedmark)**
  - His presentation covered a wide range of mitigation experiences in Norway. Further, the presentation outlined an INTERREG project, highlighting the collaboration between Norway and Sweden to improve migration and habitat in a cross-border river with 11 HPP.

### 4.1 Discussion and participant feedback

The key issues raised during discussions and feedback from the participants addressed the following:

#### Key problems, open questions

1. **Knowledge on habitats**, both on habitat area and quality, is essential. How can habitats be improved?
2. **Loss or change of habitat conditions** is linked to alterations of hydro-morphology and how much natural residual flow there is for high head power plants. For low head run-of-river plants, the key question is the damming up of free-flowing stretches.
3. **Lack of sediment cleaning processes** is a problem.
4. For some **older hydropower plants**, not much can be done because of unfavourable conditions for mitigation measures.

5. **Efficient measures** are needed – ecological improvements but minimized impact on hydropower production and regulation.
6. **Gas super saturation** is observed in about a third of monitored rivers in Norway.

### **Approaches and solutions to handle key problems**

1. In Norway, the Environment Agency produced a guideline for county governors, who have the delegated authority to run the process of negotiation of mitigation measures. The guideline aims to ensure that county governors deal with mitigation at hydropower plants in a similar way. This is a lengthy process due to regional differences and different traditions.
2. On the issue of gas super saturation, extended monitoring tests are carried out with de-gassing in a few sites.

### **Stakeholder recommendations**

1. Many good examples of cooperation between hydropower companies, researchers and local population were mentioned during the workshop. If there is cooperation, it is easier to understand the goals of different parties even if there is no agreement on all aspects. The FIThydro project could collect and show good examples of cooperation between different parties and stakeholders
2. There should not be general solutions but site-specific ones.

## **5. Downstream fish migration (Session 3)**

This session addressed downstream passage of fish and presented how this issue is being assessed in selected test cases of the FIThydro project. In particular, the attractiveness of fishway entrance and bypass facilities shall be assessed regarding their positioning, scale, design and operation as well as possible bypass systems and technical solutions, devices and operational management options to enhance downstream migration.

In addition, other presentations included an overview of the findings from the SafePass project and other findings from research on downstream fish migration past dams and barriers.

In session 3, the presentations given covered the following:

- **Downstream fish migration research in FIThydro (Laurent David, CNRS)**
  - His presentation introduced the issues associated with downstream fish migration, outlined the different types of solutions available, as well as the associated activities in FIThydro.
- **Results and findings from the SafePass project (Ana Silva, NINA)**
  - The SafePass project relates to safe and efficient two-way migration for salmonids and European eel past hydropower structures. The presentation gave an overview of the project's research, case studies, and results, particularly with regards to downstream migration.
- **Results, findings and examples from research on downstream fish migration past dams and barriers (Olle Calles, Karlstad University)**

- His presentation gave an overview of the status of Swedish rivers, the Swedish River Rehabilitation toolbox, as well as ongoing research at Karlstad University on downstream fish passage solutions and their effects.

## 5.1 Discussion and participant feedback

The key issues raised during discussions and feedback from the participants addressed the following:

### Key problems, open questions

1. **New licenses** in Sweden and Norway will require the establishment of **connectivity**.
2. **Safe fish passage** and avoiding **turbine mortality** at downstream migration are key issues.
3. In Norway, salmon ladders have been built for upstream migration but these are not suitable for other species. Therefore, there is work to be done to **rebuild and retro-fit fish ladders**.
4. From an engineering standpoint, it is very challenging to build connectivity measures for **large hydropower plants** (also related to high costs). How can more cost-effective solutions be developed?
5. How can successful solutions from small-scale hydropower plants be applied to large hydropower plants? (issue of **upscaling**)
6. The lack of detailed **knowledge on fish behavior** is a key issue.
7. **Ice and debris** in the trash racks are issues which should be taken into account.

### Approaches and solutions to handle key problems

1. Construction structures for downstream migration of fish can be costly, therefore, this is usually done on a voluntary basis. Especially for a downstream solution, the cost is high because large trash racks and concrete structures are needed. Upstream migration solutions are less costly.
2. Operational measures are used to guide fish, e.g. opening weirs or running turbines in different modes.
3. Inclined and angled racks with bypasses work well at small and medium-sized hydropower plants.
4. Downstream passage experiments are being carried out (behavioral vs. mechanical guidance; importance of gap width for salmon & eel).

### Stakeholder recommendations

1. It is important to link connectivity measures for large hydropower plants to the ecological function being targeted, and possibly a fish guidance structure.
2. Often, the efficiency of old turbines is so high that it does not pay off to replace existing turbines with new fish-friendly turbines. In such cases, one should investigate other solutions to protect fish.
3. For large hydropower plants, solutions including guidance structures are possibly needed for Scandinavia, e.g. looking at the experience gained in France and in the SafePass project.

4. Concerning the challenge of upscaling solutions implemented in smaller scale to large hydropower plants, it would be helpful to set up a joint pilot project at a large HPP. There are ideas on this already by hydropower operators in Sweden.
5. Future research should look further into ways of operating hydropower plants in a more flexible way (operational measures to guide fish) combined with research on what happens in the water (e.g. are there fish that want to migrate?).
6. It would be helpful if FITHydro could deliver experience and data on high-resolution multi-beam techniques.

## 6. Mitigation strategies & challenges for decision-making (Session 4)

This session covered issues concerning the cost-effectiveness assessment of mitigation measures for achieving self-sustained fish population in regulated rivers and ways to estimate their effectiveness and costs (costs of implementation and operation). This session also covered issues with regards to opportunities and challenges of the regulatory policy framework and support mechanisms for planning and operating hydropower plants.

In session 4, the presentations given covered the following:

- **Cost-effective mitigation measures in FITHydro (Atle Harby, SINTEF)**
  - His presentation described the aim of combining mitigation measures and providing a decision-support tool in the FITHydro project. The project will develop guidance on finding the main bottlenecks for fish and finding cost-effective mitigation solutions for HPP.
- **A Norwegian Handbook: Mitigation measures for improving the aquatic environment (Sebastian Stranzl, UNI Research)**
  - He presented a handbook of measures for improving the aquatic environment, which was designed for authorities in Norway. The handbook gives a summary of measures that are proven to work in Norway, with a large set of examples. It addresses also impacts beyond hydropower, e.g. from flood protection.
- **Swedish legislation and national plan for hydropower (Inger P. Björklund, SwAM)**
  - She gave a general overview of hydropower production in Sweden. She also presented a new Government Bill and an upcoming national plan on modern environmental standards to serve as guidelines for authorities and courts in the process of re-considering HPP licenses. The presentation also provided information about a new Industry Fund in Sweden which will cover a large part of the expenses of mitigation measures for HPP owners.

### 6.1 Discussion and participant feedback

The key issues raised during discussions and feedback from the participants addressed the following:

#### Key problems, open questions

1. Lack of **knowledge** on the actual status of rivers is a key issue, e.g. related to discussions on measures required under the WFD. The guidelines provided in Sweden are very general (of 2014-2015, now being revised) so there is still fine-tuning to be done.

2. Knowledge with respect to mitigation measures is also extremely important. Although it is not always knowledge that guides decisions, it should not be the lack of knowledge which is the basis for decisions.
3. Concerning the upcoming **national plan in Sweden**, it is important to invest time in describing measures (and benefits from measures), which have already been implemented.
4. **Financing** of mitigation measures remains a major open question. How can measures be financed which are of interest to several producers or for society? In Norway, there is no financing instrument for measures in place. There are some measures which are very expensive and difficult to finance by hydropower operators themselves. A high level discussion is needed on this issue.
5. It is a challenge to decide **what type of measures to implement in order to reach a certain goal**, e.g. maintain 95% of the fish population. How to evaluate this?

### **Approaches and solutions to handle key problems**

1. The new Industry Fund in Sweden will pay for a considerable part of costs for mitigation measures. Authorities in Norway follow closely the developments in Sweden concerning this Industry Fund.

### **Stakeholder recommendations**

1. FIThydro can gain more information on the cost of mitigation measures by using the results of a questionnaire filled in by many Swedish hydropower operators some years ago.
2. The FIThydro decision-support tool could address also bottlenecks not related to hydropower, e.g. in south Norway, the lack of fish is due to acidification.
3. If FIThydro provides a description of mitigation measures, most participants at this workshop favoured a web-based information platform compared to a handbook format. A web-based information platform helps spread the information to more people. However, the guidance needs to be citable, which is a weakness of a web-based system.

## **7. Social acceptance of hydropower and FIThydro activities in Anundsjö HPP (Session 5)**

This session addressed general societal benefits from hydropower and introduced a public acceptance survey being planned by the FIThydro project. The session also offered an in-depth look at the FIThydro activities at the Anundsjö hydropower plant in Sweden and the associated environmental and research challenges.

In session 5, the presentations given covered the following:

- **FIThydro Public Acceptance Survey (Eleftheria Kampa, Ecologic Institute)**
  - The FIThydro Public Acceptance Survey was briefly introduced and stakeholders were invited to assist in validating the public opinion statements collected, to be used in the surveys in the Scandinavian region.

- **Benefits from hydropower and reservoirs beyond power production and local environmental impacts (Tor H. Bakken, SINTEF)**
  - His presentation aimed to go beyond the general concepts of hydropower's impacts, encouraging consideration of hydropower's relationship with floods, land use, greenhouse gas emissions, and water use, amongst others.
- **Overview of Anundsjö hydropower plant, environmental challenges and stakeholder involvement (Angela Odelberg, Statkraft)**
  - She introduced the FIThydro test case at the Anundsjö HPP in Sweden and the recently constructed fishway. Furthermore, the current challenges at the HPP were outlined as well as Statkraft's plan to address these.
- **Overview of activities in FIThydro at Anundsjö. Examples from environmental design of Ljungan (Kordula Schwarzwälder, NTNU)**
  - She presented the Ljungan river case study in Sweden as an example of what we could achieve at Anundsjö. A similar methodology will be used in developing and assessing mitigation measures at Anundsjö. She also presented the tasks being carried out by FIThydro partners.

## 7.1 Discussion and participant feedback

The key issues raised during discussions and feedback from the participants addressed the following:

### Key problems, open questions

1. The relationship between **hydropower and floods** is particularly complicated, and care is needed when trying to claim flood protection benefits from hydropower plants. Capturing all the water coming from a catastrophic event would require a very large reservoir and strategic operation of it. There are different experiences in this respect; in most cases, reservoirs have helped flood protection, but in some other cases, they made the situation worse.

### Stakeholder recommendations

1. Concerning the issues related to the fishway at Anundsjö hydropower plant, it might be useful to radio tag fish at the river mouth, to investigate whether fish migrate to that specific river tributary. Other tributaries further downstream are used by salmon, so it is important to find out why they do not migrate there.
2. License requirements in Sweden should be more flexible, without very specific technical requirements on the mitigation solutions. Very specific technical requirements often make it difficult to design a measure that works in practice at a specific site.

## 8. Annex 1 – Workshop Programme

Monday, 4<sup>th</sup> of June

Time	Item	Presenter
11:00 – 11:30	Welcome Presentation of FIThydro Project and of Stakeholders	Peter Rutschmann (TUM), Atle Harby (SINTEF), Angela Odelberg (Statkraft), Sara Sandberg (Energiforsk)
11:30 - 12:00	Presentation on Statkraft activities related to hydropower, fish and mitigation measures	Mikael Lindström and Angela Odelberg (Statkraft)
12:00 – 13:00	<b>Lunch</b>	
<b>Session 1: Ecology of fish species</b>		
13:00 – 13:30	FIThydro activities related to non-salmonid species	Ruben van Treeck (IGB)
13:50 – 14:10	Modelling the effects on grayling of environmental vs regulated flow and morphological measures	Åsa Widén (Umeå University)
14:10 – 14:50	Discussion (ca. 40 min)	All
14:50 – 15:20	<b>Coffee break</b>	
<b>Session 2: Flows and habitats</b>		
15:20 – 15:50	Environmental and downstream flows in FIThydro	António Pinheiro (IST)
15:50 – 16:10	Environmental flows, habitat mitigation measures and fish migration research in Vattenfall	David Aldvén (Vattenfall)
16:10 – 16:30	Environmental flow and habitat mitigation in Mandal River, Norway	Svein Haugland (Agder Energi)

<b>Time</b>	<b>Item</b>	<b>Presenter</b>
16:30 – 16:50	Mitigating negative impacts on fish populations in regulated rivers. Experiences from river basin management and cross-border collaboration	Atle Rustadbakken (County Governor of Hedmark)
16:50 – 17:30	Discussion (ca. 40 min)	All

19.30 Joint dinner in Stockholm for all delegates

## **Tuesday, 5<sup>th</sup> of June**

<b>Session 3: Downstream fish migration</b>		
9:00 – 9:25	Downstream fish migration research in FIThydro	Laurent David (CNRS)
9:25 – 9:50	Results and findings from the SafePass project	Ana Silva (NINA)
9:50 – 10:15	Results, findings and examples from research on downstream fish migration past dams and barriers	Olle Calles (University of Karlstad)
10:15 – 10:55	Discussion (ca. 40 min)	All
10:55 – 11:20	<b><i>Coffee break</i></b>	
<b>Session 4: Mitigation measures &amp; challenges for decision-making</b>		
11:20 – 11:40	Cost-effective mitigation measures in FIThydro	Atle Harby (SINTEF)
11:40 – 12:00	A Norwegian Handbook: Mitigation measures for improving the aquatic environment	Sebastian Stranzl (UNI Research)
12:00 – 12:20	Swedish legislation and national plan for hydropower	Inger P. Björklund (SwAM)
12:20 – 13:00	Discussion (ca. 40 min)	All

13:00 – 14:00	<b>Lunch</b>	
<b>Session 5: Social acceptance of hydropower and FIThydro activities in Anundsjö HPP</b>		
14:00 – 14:15	FIThydro Public Acceptance Survey	Eleftheria Kampa (EI)
14:15 – 14:35	Benefits from hydropower and reservoirs beyond power production and local environmental impacts	Tor H. Bakken (SINTEF)
14:35 – 15:00	Overview of Anundsjö hydropower plant, environmental challenges and stakeholder involvement	Angela Odelberg (Statkraft)
15:00 – 15:25	Overview of activities in FIThydro at Anundsjö. Examples from environmental design of Ljungan.	Kordula Schwarzwälder (NTNU)
15:25 – 15:55	Discussion (ca. 30 min)	All
15:55 – 16:00	Final remarks - conclusions	

## 9. Annex 2 – List of workshop participants

### 3rd FIThydro regional stakeholder workshop for the Scandinavian region

Stockholm, Sweden, 4-5 June 2018

#### List of Participants

First Name	Last Name	Institution	Country
Birgitta	Adell	Fortum Sverige AB	Sweden
David	Aldvén	Vattenfall AB, Research & Development	Sweden
Patrik	Andreasson	Vattenfall AB, Research & Development	Sweden
Tor Haakon	Bakken	SINTEF	Norway
Jakob	Bergengren	Tekniska verken i Linköping AB	Sverige
Marco	Blixt	Fortum Sverige AB	Sweden
Olle	Calles	Karlstad University	Sweden
Laurent	David	CNRS-Pprime	France
Arne	Fjälling	SLU	Sweden
Anders	Forsberg	Örnsköldsvik municipality	Sweden
Halvor Kr.	Halvorsen	E-CO Energi AS	Norway
Atle	Harby	SINTEF	Norway
Svein	Haugland	Agder Energi Vannkraft	Norway
Elin	Hellmér	Energiforsk	Sweden
Eleftheria	Kampa	Ecologic Institute	Germany
Mikael	Krane	Skellefteå Kraft AB	Sweden
Mikael	Lindström	Statkraft Sverige AB	Sweden
Fredrik	Martinsson	Energiforsk	Sweden
Rikard	Nilsson	Holmen Energi AB	Sweden
Ola	Nordblom	DHI Sverige	Sweden
Johanna	Normark	Skellefteå Kraft AB	Sweden

<b>First Name</b>	<b>Last Name</b>	<b>Institution</b>	<b>Country</b>
Angela	Odelberg	Statkraft Sverige AB	Sverige
António	Pinheiro	IST	Portugal
Inger	Poveda Björklund	Swedish Agency for Marine and Water Management	Sweden
Atle	Rustadbakken	Fylkesmannen i Hedmark	Norway
Peter	Rutschmann	Technical University of Munich	Germany
Sara	Sandberg	Energiforsk	Sweden
Kordula	Schwarzwälder	Norwegian University of Science and Technology	Norway
Sebastian	Stranzl	Uni Research LFI	Norway
Ana	T. Silva	Norwegian Institute for Nature Research	Norway
Johan	Tielman	Sydkraft Hydropower AB	Sweden
Ruben	van Treeck	Leibniz-Institute of Freshwater Ecology and Inland Fisheries	Germany
Åsa	Widén	Umeå University	Sweden