# Identifying the non-fish benefits of voluntary hatcheries in a sportfishing context

Presented by Hannah Harrison

February 12, 2018
Sportfish Conference
Norwegian University of Life Sciences

Supervisors:

**Øystein Aas** – Norwegian University of Life Sciences, Norway
**Robert Arlinghaus** - Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Germany
**Stine Rybråten** – Norwegian Institute for Nature Research, Norway

iMPRESS
improved production strategies for endangered freshwater species

Norges miljø- og biovitenskapelige universitet

**15** PhD candidates

**9** Beneficiaries

**5** Partner organizations

# iMPRESS

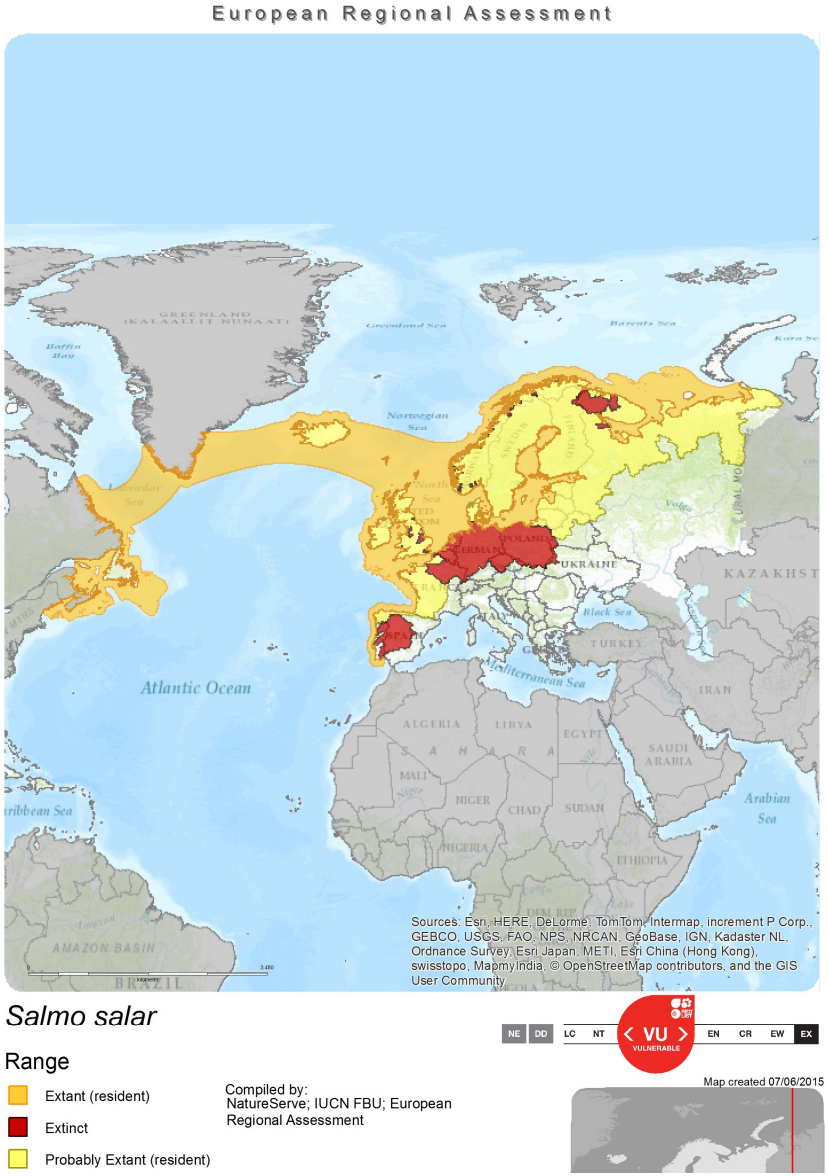
Improved production strategies
for endangered freshwater species

# Marie Curie Actions – PhD education in Europe

# Atlantic salmon (*Salmo salar*)

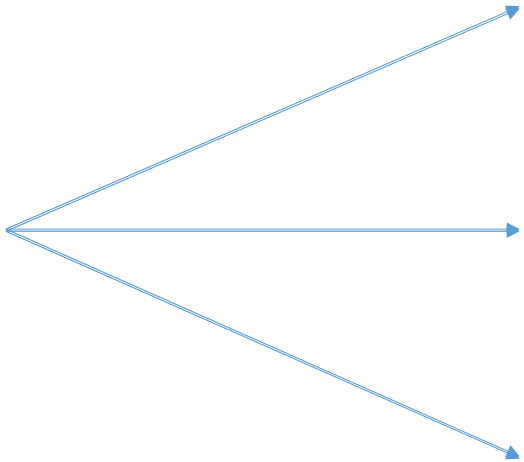
- Listed as “Vulnerable” by the IUCN Red List of Threatened Species


- Wild populations exist in some European countries (Norway, UK, Sweden, etc.), but have been driven to extinction in others (Spain, France, Germany, etc.)
- As an anadromous species, Atlantic salmon face many challenges to survival
  - Migration barriers
  - Poor water quality/ unsuitable temperatures
  - Competition with salmon from commercial aquaculture (+ lice)
  - Overharvest (marine and freshwater)
  - Disease (e.g. gyrodactylus)



# How can we conserve salmon?

- **Habitat improvement**
- **Reduce anthropogenic pressures**
- **Stocking**



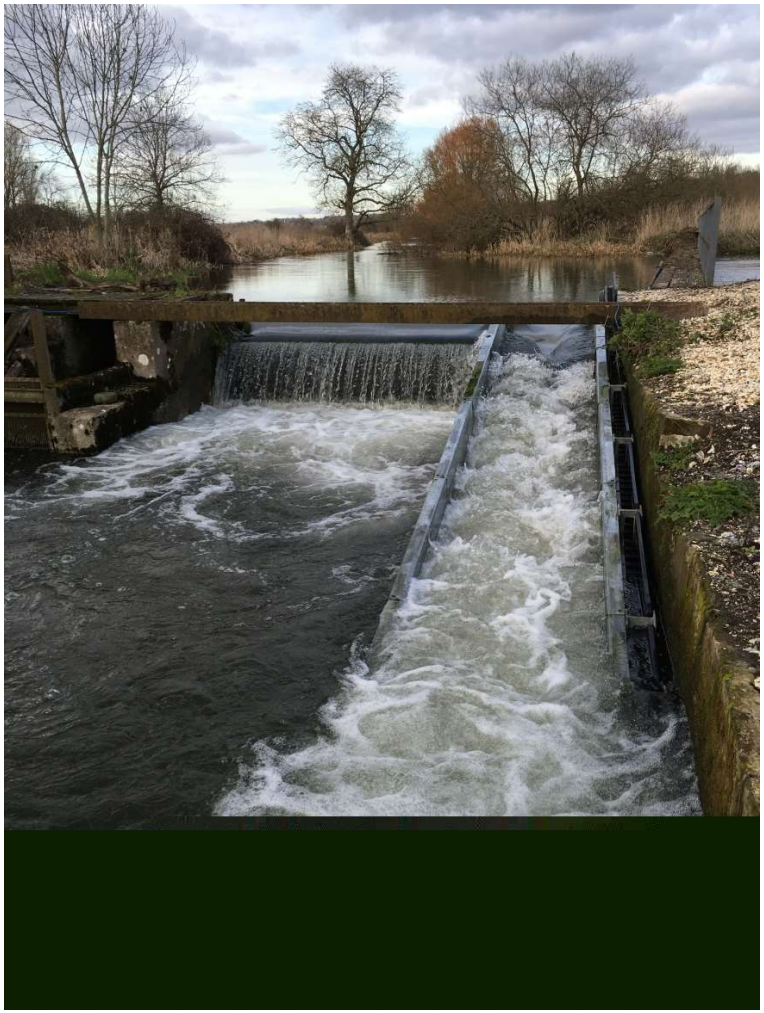
Compensatory stocking
- hydropower

Replacement stocking
- barrier mitigation

Enhancement stocking
- improved fishing

Conservation stocking?

# How should salmon be conserved?



Hatcheries and stocking = Controversy = Habitat improvement

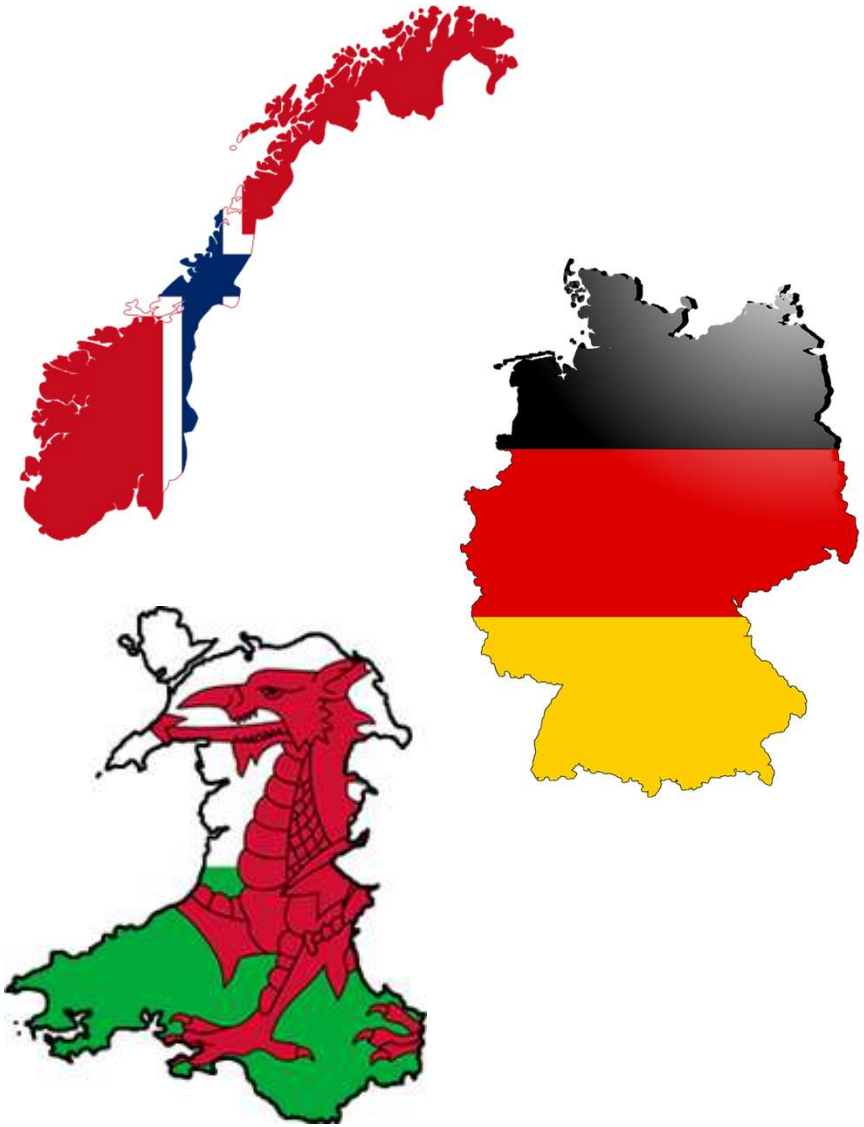
**What** are the main causes and drivers of conflict about “conservation” hatcheries and stocking projects?

**In this article:**

**Identifying and describing** the benefits derived from the use or existence of small-scale, voluntary salmon hatcheries

# Study details and Methods

- Three case studies: Norway, Germany, and Wales
- Qualitative methods
  - Interviews
  - Participant observation
  - Total of 2 months in the field
- Standard ethnographic methods



Three categories of benefits are produced by voluntary hatcheries:

- Psychological

  Example: development of personal identity; development or break from normal routine
- Social

  Example: time spent with peers; networking
- Conservation

  Example: habitat improvement work; stock monitoring

- **Psychological**

  Examples:

  - intergenerational knowledge and skill transfer;

  - Feeling of individual contribution to salmon conservation;


- **Social**

Examples:

- opportunities to do recruitment and conservation education with and for younger generations;
- retention and development of skilled fishers – essential to salmon monitoring and future of fisheries


- **Conservation**

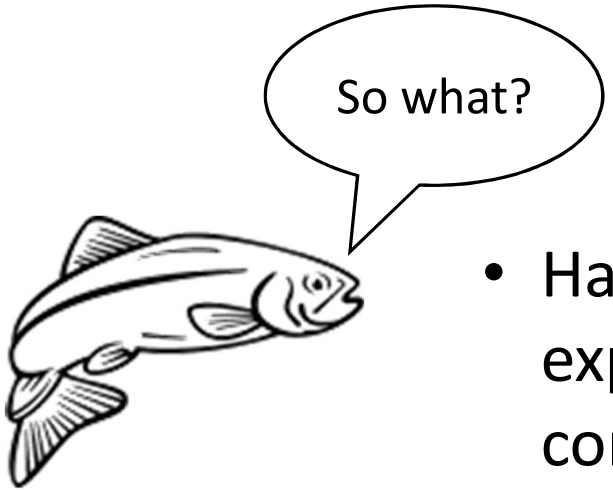
  Examples:

  - invasive species removal (esp. farmed fish);
  - organization of human labor for habitat restoration in future;
  - retention of skill and knowledge necessary to operate hatcheries for disaster mitigation

# Key Findings

- **Accessibility**
- Achievement, contribution, and satisfaction
- Hobby and routine
- Facilitation of conservation work
- Science and biodiversity
- Facilitation of social cohesion
- Networking
- Personal identity
- **Insurance policy**

# Summary




- Hatcheries produce more than just fish, thus expanding the debate about their value as conservation tools within a socio-ecological system

- Knowing that hatcheries provide benefits to cultivators, and what benefits are provided, could open up new avenues for management of voluntary hatcheries in the future

# Implications for hatchery management

1. Benefits produced by hatcheries are novel; difficult or impossible to “replace” with new activity (like angling)

2. Benefits of voluntary hatcheries are not adequately acknowledged and thus are not part of conflict discourse

3. “Value” of hatcheries may be significant if accounting for all benefits produced

# Future research questions

- Could “conservation” hatcheries serve multiple functions (e.g. salmon production; salmon culture/heritage conservation; educational facilities in rural areas)
- How should social objectives be incorporated into biological and ecological management plans?
- How much leverage/power should local groups have over their own catchment areas when making salmon management decisions?

# Tusen takk!