Dam Removal: Marieberg Dam

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Overview

• Mörrumsån River:
  • Why it is important
  • Improving longitudinal connectivity
  • Dam removal
    • Whole ecosystem monitoring
    • Impacts on fish movement/connectivity
Mörrumsån Diversity
Length: 185 km
Drainage basin: >3 300 km²
Fish: 24 species

- *Salmo salar* (Threatened)
- *Anguilla anguilla* (Critically endangered)
- *Alcedo atthis* (Listed)
- *Unio crassus* (Endangered)
- *Margaritifera margaritifera* (Endangered)
- *Lutra lutra* (Near threatened)
Mörrumsån History

A modern sport fishery was developed in 1941

Today: 12-13 000 anglers/year

King Valdemar II
1231 Jordebok
Mörrumsån A regulated river

Granö
Fridafors övre
Fridafors nedre
Hemsjö övre
Hemsjö nedre
Marieberg
Mörrumsån Fish passage

Granö
Fridafors övre
Fridafors nedre
Hemsjö övre
Hemsjö nedre
Marieberg
Mörrumsån Future Improvement

Addition of fish passage solutions

Dam removal

Annual Power Generation (GWh)

- Granö
- Fridafors övre
- Fridafors nedre
- Hemsjö övre
- Hemsjö nedre
- Marieberg

Granö
Fridafors övre
Fridafors nedre
Hemsjö övre
Hemsjö nedre
Marieberg
Holistic Monitoring

- Invertebrate Communities
- Food Webs
- Decomposition Rates
- Genetics
- Vegetation Sedimentation
- Fish Movement
Monitoring

Fish Communities

Invertebrate Communities

Environmental Parameters

BACI design
Radio Telemetry

2018 Smolt Migration
Pre-Dam-Removal
Smolt Tracking

Goals:

• Determine the extent of delays caused by Marieberg dam

• Characterize migration patterns in entire river
Smolt Tracking

Spring 2018

Hemsjö Övre

Hemsjö Nedre
Smolt Tracking

Tagging Results:
47 radio tagged ATS smolt

Tagging Period:
April 29 - May 23

Spill ON

Spill OFF
Marieberg Kraftverk

Smolt Tracking

Hemsjö övre
Hemsjö nedre

Marieberg

20km
Smolt Tracking

Successes:
32% reached the sea
3.4% lost per km
Dam Effect

Losses:
Minimized due to surplus spill

Speed

![Graph showing migrating speed vs distance with a dam and reservoir labeled.]

Migrating Speed (km/h) vs Distance (km)
Next Steps

Time-to-Event Analysis

Abiotic Factors
- Discharge
- Diel Period
- Water Temp.
- Distance
- Tree Cover
- River Width

Biotic Factors
- Length
- Condition Factor
- Smolt Status

Continued Monitoring pre-dam-removal

Smolt tracking 2019
Thanks for listening