SAMARCH Newsletter

FEBRUARY 2021 | ISSUE 01 | SAMARCH PROJECT UPDATE

Welcome

I would like to welcome you to the first SAlmonid MAnagement Round the CHannel project newsletter, we hope you find it interesting and informative. This is the first of a series of newsletters to inform you about the project, its progress and key events. As the project's name suggests, SAMARCH aims to deliver effective tools for the better management of salmon and sea trout in the estuaries and coastal waters of the France-England Channel.

Populations of salmon are under serious threat, having declined by over 70% in the last 30 years and the numbers that entered our rivers in 2018 and 2019 were the lowest ever recorded. Populations of sea trout are also under pressure and need better protection, particularly at sea when they are vulnerable to capture in commercial fishing nets.

Dylan Roberts
Project Manager

What is SAMARCH about?

The €8m SAMARCH project (2017 – 2022) is part funded to 69% by the EU's Interreg Channel VA programme. It is a collaboration between 10 partners who are a blend of research, government and non-government organisations, five based in the UK and five in France. The project was initiated following concerns over the continued decline in the numbers of salmon and sea trout returning to our rivers and a lack of knowledge of these fish in estuaries and coastal waters.

The project has six key objectives:

1. To develop a map of marine habitat use by sea trout for the Channel area based on seascape, tracking the depth and locations of adult sea trout at sea and their genetics.
2. To measure the survival, transition times of sea trout and salmon smolts through four estuaries in the Channel.
3. To create a genetic database of trout in the Channel area to identify the natal rivers of sea trout caught at sea.
4. To improve current models used to manage salmon populations and develop new models for predicting the return rate of salmon from the sea.
5. Using the new information from objectives 1-4, to develop new and inform current policies to improve the management of salmon and sea trout in estuaries and around our coastline.
6. To raise awareness of salmon and sea trout issues, by engaging with stakeholders and students, and through providing work experience and professional training to future environment researchers and managers.

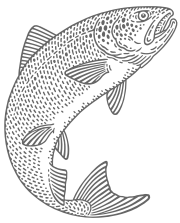
This first Newsletter includes articles by the leaders of each of the project's four work packages, on the aims of their work and progress to date. If you would like further information please contact me on **droberts@gwct.org.uk** or visit the project's web site and blog at **www.samarch.org**

NEWS ON WORK PACKAGES

WORK PACKAGE ONE

Tracking of salmonids through estuaries and coastal waters

By lead researcher Dr Céline Artero



In spring 2018 and 2019, project scientists with the support of the Environment Agency tagged 359 sea trout and 457 salmon smolts with acoustic tags on the Rivers Frome and Tamar in the UK and Rivers Scorff and Bresle in Northern France. This is to investigate their migration speed and mortality rate through the lower river, estuaries and out to sea.

Each winter since 2017 we have tagged a total of 314 seat trout after they had spawned in November and December (known as kelts), as they migrate from back to sea with Data Storage (DST) and acoustic tags. The acoustic tag will tell us when they left the river and when they return to the same river to spawn again.

Recovery of the DST tags will give us information on the migration routes and behaviour, including their swimming depth, of sea trout while at sea. This information is crucial to advise the management of commercial netting at sea to better protect salmon and sea trout. The sea trout were tagged in the River Bresle in Northern France and the Rivers Tamar and Frome in the south of England. So far we are recovering some 26% of the tags through electric fishing the sea trout when they return to the river, being found on beaches or using the Environment Agency trap at Gunnislake on the Lower Tamar and the Agency of French Biodiversity trap on the lower Bresle. ■

Dr Céline and DST tags.

SUMMARY FINDINGS

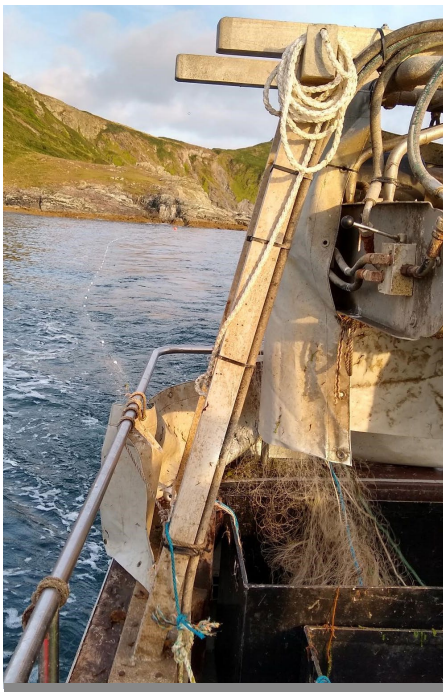
SMOLT TAGGING

Detection loss of smolts was gradual along the estuaries and no specific areas accounted for pronounced increases in detection loss. Further analysis is ongoing to assess the acoustic detection efficiency and smolt mortality along their migration through transitional waters.

- Estuarine detection loss of smolts varied between species and study sites but remained relatively constant between years.
- Detection loss was higher for salmon than sea trout smolts.

SEA TROUT KELTS

- Too date, 26% of the deployed DST's have been recovered. 10% from recaptured fish in traps and by electrofishing and 16% have been found on beaches.
- The tagged sea trout exhibited a strong diving behaviour reaching depths of up to 80m. However, the pattern of this diving behaviour appeared to vary between study sites and by time of day.
- 27% of our sea trout kelts died at sea from predation.



Setting a gill net off Rame Head Cornwall.

WORK PACKAGE TWO

Trout genetics – to create a genetic database for trout in rivers in the Channel area and a map of areas important for sea trout at sea

By Prof Jamie Stevens, Dr Andy King & Dr Sophie Laurney

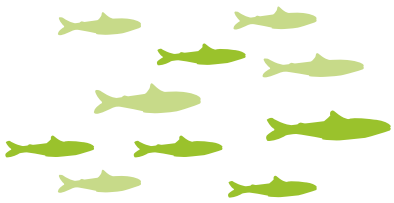
In the summers of 2017, 2018 and 2019 some 2000 samples were collected from juvenile brown trout along 80 rivers in the channel area to develop a data base of trout genetics. Samples were collected in England by Environment Agency teams in the south of England, and in France by INRAE, BGM and SNM with the help of fishermen's associations (Note: in French the fishermen's association would be 'Fédérations départementales de pêche').

In the summer of 2019, under dispensation from the Environment Agency, the project set fixed gill nets to catch salmon and sea trout around the coast of Cornwall and Dorset. This was to collect samples for genetic analysis to monitor movements of fish by comparing their genetics and marine location to the genetic data base. On average 1.7 sea trout were caught per 600m of gill nets set each evening and recovered the following morning. ■

WORK PACKAGE THREE

Generating new information for the models used to manage salmon stocks in England and France

By Dr Marie Nevoux, Dr Stephen Gregory & Dr Etienne Rivot

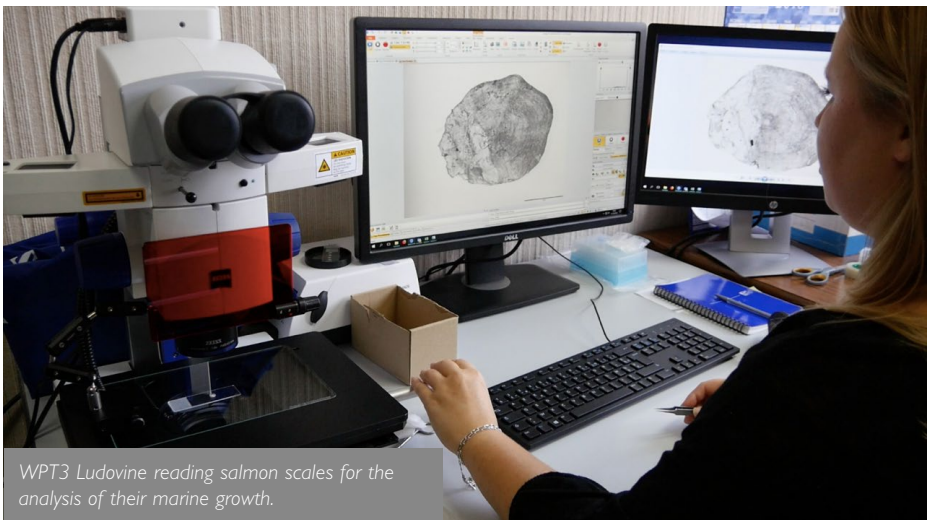


Between 2018 and 2020, Ludivine Lamireau digitised and labelled salmon scales collected from the River Scorff between 1987 and 2017. This consisted of analysing a subsample of 687 salmon smolt scales and 1,777 adult salmon scales. She is now working on the Oir-Sélune scale collection. So far, 868 salmon smolt scales and 918 adult salmon scales have been analysed. In the meantime, we are in the process of cataloguing and sorting out scales collected from the Rivers Frome, Tamar and Bresle, which will be processed later in the project. In the genetic lab, Thibault Jousseaume clipped each of the Scorff's scales for molecular sexing. The first sexing results should be available this summer.

This winter, we captured 70 salmon and 17 sea trout en-route to their spawning grounds on the River Oir. From a survey of spawning we detected 149 redds in River Oir. Because of the low water level this winter, salmon stayed in the main stream to spawn and did not colonise tributaries.

In November 2018, Cécile Tréhin, from France and Olivia Simmons, from Canada, joined the project as PhD students. They will analyse the scale dataset, long term data on the numbers of smolts and adults in the Channel's rivers and describe spatio-temporal patterns in salmon growth at sea, first focusing on the available Rivers Scorff and Frome data.

On 11-12 September, GWCT fisheries scientist Dr Stephen Gregory, co-lead of SAMARCH Work Package 3 – Salmon Stock Assessment Models, met with colleagues from our SAMARCH partner the Environment Agency, Centre for the Environment, Fisheries and Aquaculture Science and Natural Resources Wales, to discuss the latest developments and data used in Atlantic salmon stock assessments. Stephen felt honoured to attend and really enjoyed the detailed and informative discussions and is looking forward to similar discussions in the future. ■



WPT3 Ludovine reading salmon scales for the analysis of their marine growth.

Congratulations to the SAMARCH PhD students Olivia Simmons and Cécile Tréhin who published:

- Simmons, O.M., *et al* (2020). Influence of environmental and biological factors on the over-winter growth rate of Atlantic salmon Salmo *salar parr* in a UK chalk stream. *Ecology of Freshwater Fish*, **29:** 665-678. DOI 10.1111/eff.12542.
- Tréhin, C., *et al* (2021). Growth during the first summer at sea modulates sex-specific maturation schedule in Atlantic salmon. *Canadian Journal of Fisheries and Aquatic Science*. DOI 10.1139/cjfas-2020-0236.

UPDATES

Meetings have been held with the Southern, Sussex, Devon and Severn IFCA's

SAMARCH results have been used to inform consultations with Southern and Cornwall IFCA's

43 undergraduate, 3 Master's students and 2 PhD Students have received training

WORK PACKAGE FOUR

Policy development, stakeholder engagement and training

By Dylan Roberts

This work package is dedicated to engaging with stakeholders, training up and coming managers and designing new policies based on the project outputs to improve the way we manage our migratory salmonids in the transitional and coastal waters of the France-England Channel. To begin this process the project was formally launch in Southampton in January 2018. The launch was attended by a 100 delegates from both sides of the Channel who were briefed on the project's aims by the project manager Dylan Roberts and its Work Package leaders. Over the coming months a number of meetings will be ➤

held with key organisations, including, for example, the Inland Fisheries Conservation Authorities (IFCA's) who manage sea fisheries around the English coastline.

In May 2018 150 anglers, researchers and government officials from France and the UK gathered in the beautiful setting of Mont Saint Michel in Normandy, France, for the SAMARCH Project Forum event. The aim of the event was to officially launch the project in France and to begin the process of engaging with French stakeholders and policy makers to improve and develop new policies for the management of salmon and sea trout, not only on the French and English rivers but also in the Channel waters itself.

In November 2019 100 scientists, managers and manufacturers from seven countries gathered in Southampton for the SAMARCH Salmonid Coastal and Marine Telemetry Workshop. The event aimed to bring together experts in the field to forge closer collaborations and knowledge exchange going forward in this highly technical but quickly developing area of research.

Bournemouth University and l'Institut Agro work closely to help with the Communication and Training Work Package and, so far, have involved well over 40 undergraduate and postgraduate students in training with SAMARCH researchers via internships, work placements and presentations at meetings and conferences. The aim behind this collaborative venture is to train future salmon and sea-trout managers and to ensure communication with the research community, stakeholders and the wider general public. ■

Scientists working to review national stock assessment methods.

Dr Céline Artero at the fish trap located at Gunnislake, on the river Tamar, looking at her tagged sea trout.

The proceedings of the fish tracking workshop can be found here:

www.samarch.org/wp-content/uploads/2020/05/SAMARCH-Tracking-Conference-Nov-2019-final_compressed.pdf

SAMARCH partners

Lead Partner: Game & Wildlife Conservation Trust (GWCT)

University of Exeter

Bournemouth University

Environment Agency

Salmon and Trout Conservation

Institut national de recherche pour l'agriculture, l'alimentation et l'environnement (INRAE)

l'Institut national d'enseignement superieur pour l'agriculture, l'alimentation et l'environnement (l'Institut Agro) (IA)

Office Français de la Biodiversité (OFB)

Bretagne Grands Migrateurs (BGM)

Seine-Normandie Migrateurs (SNM)

We'd love to hear from you! Send us your feedback to **droberts@gwct.org.uk**

Our blogs

Getting ready for kelts!
samarch.org/getting-ready-for-kelts/

From Frome to France!
samarch.org/from-frome-to-france/

Never a dull moment tagging salmon in Dorset
samarch.org/never-a-dull-moment-tagging-salmon-in-dorset/

Our videos

What is the SAMARCH project about?
samarch.org/new-video-what-is-the-samarch-project-about/

SAMARCH – Workpackage 4
youtube.com/watch?v=mYtHeJIREtg

A placement year spent working on SAMARCH
samarch.org/a-placement-year-spent-working-on-samarch-video/

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