

AMBER

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D5.8 Citizen Science Material

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Authors: World Fish Migration Foundation and the AMBER consortium.

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Executive summary

This is 1.0 version of the Citizen Science Material. This document is a deliverable of the AMBER project. This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 689682.

AMBER has developed and implemented a novel Citizen Science program to engage with the public and optimise the collection and analysis of information on stream connectivity across the EU. The material discussed in this report relates to promotional material for AMBER and the Citizen Science app (Barrier Tracker).

Barrier Tracker is an app developed for tablets and smartphones that will enable users to both collect and assess barrier data. Volunteers will use the AMBER app to take geo-referenced photos of stream barriers across Europe and upload them directly onto the internet, or at later stage via a dedicated citizen science portal. At the citizen science portal, users will then be able to classify uploaded photos into different barrier structures, determine barrier dimensions, and assess their potential impacts.

They will also be able to screen Google Earth images to help identify additional barrier structures in European rivers.

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1 INTRODUCTION

Citizen Science (CS) provides a great opportunity to improve AMBER's contribution to research. The most important opportunities provided by CS include:

1. More data collected for the time available i.e. utilising the European public to do mass surveillance of barriers, thus achieving greater spatial coverage of records.
2. Active engagement of the public with science and the environment and promoting both EC funded work and the importance of connectivity in rivers.
3. Increased cost effectiveness (or lower cost) compared to monitoring by professionals (Blaney *et al.*, 2016).

2 GOALS OF THE CITIZEN SCIENCE PROGRAMME

AMBER has developed and implemented a novel CS program to engage with the public and optimise the collection and analysis of information on stream connectivity across the EU. The project has created a "citizen science app" for tablets and smartphones that will enable users to both collect and assess barrier data. Volunteers will use the AMBER 'Barrier Tracker' app to take geo-referenced photos of stream barriers across Europe and upload them directly onto the internet. A CS portal will soon be available which will also allow photos to be uploaded as well as barrier information (type, height etc.) The CS web portal will also provide a facility to screen Google Earth images to help identify additional barrier structures in European rivers.

The CS strategy will help us complete the European inventory of stream barriers at a fraction of the cost and time and, in a way that would not be possible without a much greater investment in staff and resources, maximizing AMBER's value for money.

3 TARGET AUDIENCES

The target audiences for participation in the CS Programme were identified based on consideration on which audiences are most likely to be interested in river connectivity or would find themselves in contact with river barriers. This includes non-professional and professional (amateurs or recreational) users of rivers and streams. Such users can be divided into different River and Stream User Groups (RUGs). The different motivational drivers of each of the RUGs was investigated as detailed below.

3.1 Non-professional

- Canoeing & Kayaking
- Rowing
- Sailing
- Angling & Hunting
- Walking & Hiking
- Running

- Cycling
- Swimming
- Wake boarding
- River rock climbing
- Rafting

3.2 Professional

- Industrial
- Fishing
- Boating & Shipping
- Water supply
- Water management
- Flood control
- Hospitality
- Agriculture
- Energy production
- Biodiversity
- Education
- Hatcheries
- Government

3.3 Motivation

Motivations for the public or professional participation in CS can vary. It may be inherent satisfaction from knowing that the user is benefiting science and the environment, or the motivation may be an objective outcome, such as barrier recording for specific management objectives. These motivations must be understood in order to successfully recruit participants, sustain participation, and ensure data output quality. To 'help wildlife in general' and to 'contribute to scientific knowledge' are considered primary motivations for both citizen scientists and environmental volunteers (Geoghegan *et al.*, 2016).

4 MATERIALS & METHODS

4.1 Smartphone Application

A smartphone application has been developed for the Citizen Science Programme. With this application, participants can upload new barriers into the general database. Combining the smartphone application with the Citizen Science Programme allows for the gathering of more data and greater spatial coverage of records than would have been possible using conventional surveys.

Participants using the smartphone application when encountering a barrier will contribute the following data to the general database:

- Photo of barrier
- Location of barrier
- Height of Barrier (approximation)

As well as additional information (please see D5.4 Smartphone/tablet application deliverable for more details).

4.2 Citizen Science Portal in AMBER website

The portal through which citizens can be more fully involved in the CS of the AMBER project is hosted on the AMBER website <http://amber.international/>. This portal relates to the AMBER Barrier Tracker app and allows users to:

- View all app recorded barriers on a map interface and see information about each
- View a satellite map to look for obvious barriers and then register locations using the map
- Classify barriers already submitted via the app
- View an “ID Guide” on the barriers, as featured in the app
- View information on, and easily download, the app
- Share some information about the project via social media
- Learn more about barriers and the importance of river connectivity

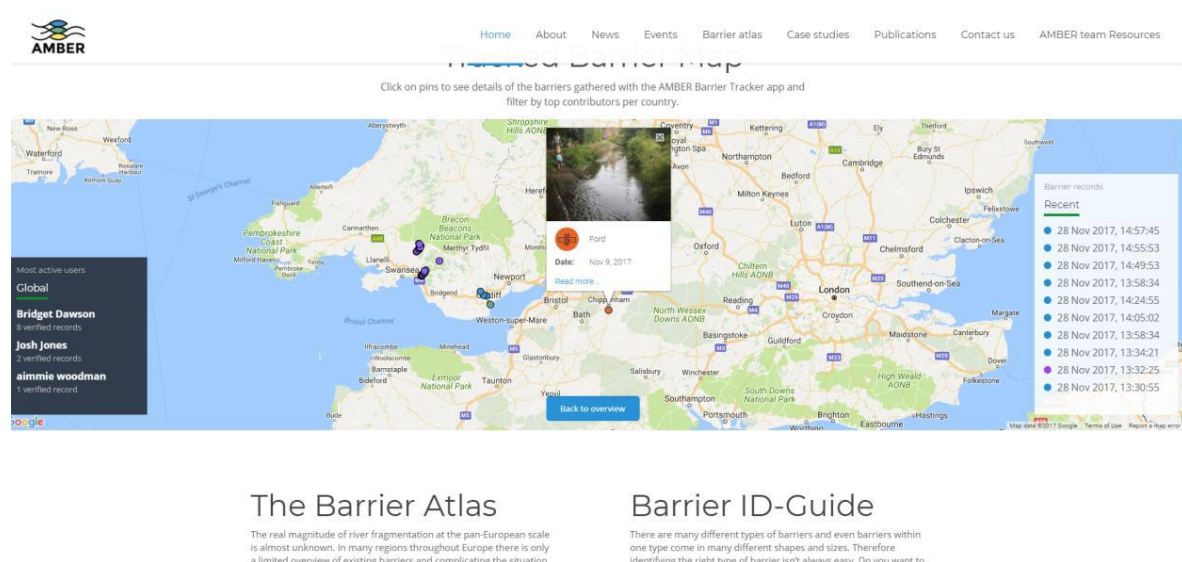


Figure 1. Current progress on Citizen Science Portal (delivery date, Milestone 6: 21 April 2018)

4.3 Dissemination Materials

Dissemination materials have been prepared with the aim of raising awareness and communicating the Barrier Tracker app and the Citizen Science Portal. The launch of the CS Programme, including both the website and app, will take place on 21st April 2018, coinciding with the World Fish Migration Day to reach a larger audience. Several events will be organized by AMBER partners and celebrated in different countries.

As well as ensuring dissemination occurs through various channels (professional and public; through events, news, direct contact and the internet), there are materials that have been designed for the CS Programme: a promotional video and a flyer. These will be released on **21st April 2018**, will be uploaded into the AMBER website, and distributed through the dissemination channels of the project.

4.3.1 Promotional Video

To publicise the app a promotional video has been prepared. This will be officially released closer to World Fish Migration Day but a link can be found here:

<https://www.youtube.com/watch?v=QjHJwy2wODM&feature=youtu.be>



Figure 2. Screenshots of the Barrier Tracker app promotional video

4.3.2 Promotional flyer

In addition to the existing AMBER promotional material (video, flyers, posters and leaflets, see Deliverable 5.2) and educational material (see Deliverable D5.7), a new promotional flyer has been developed specifically for the launch of the app (Figure 3),



Figure 3. AMBER promotional leaflet

5 REFERENCES

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