

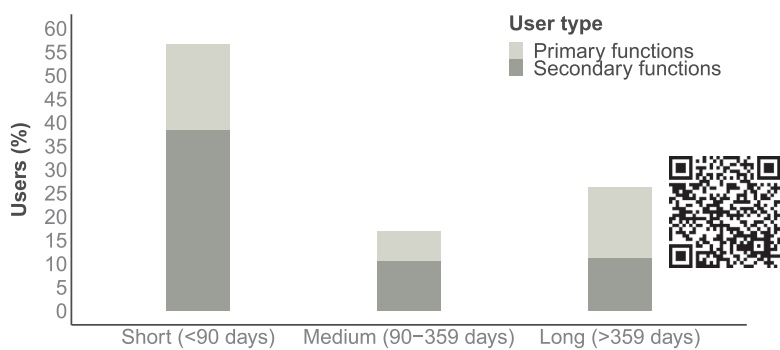
Christian Skov¹, Hans Jakob Olesen¹, Finn Sivebæk¹ & Casper Gundelund¹

Recreational fishing, such as angling, can impact fish populations. Data collection from recreational fisheries is a logistical and financial challenge due to the disperse and diffuse nature of the activity. A digital citizen science platform allows anglers and researchers to collaborate for sustainable fish stocks and fisheries. In addition, it gives a lot of novel opportunities to management.

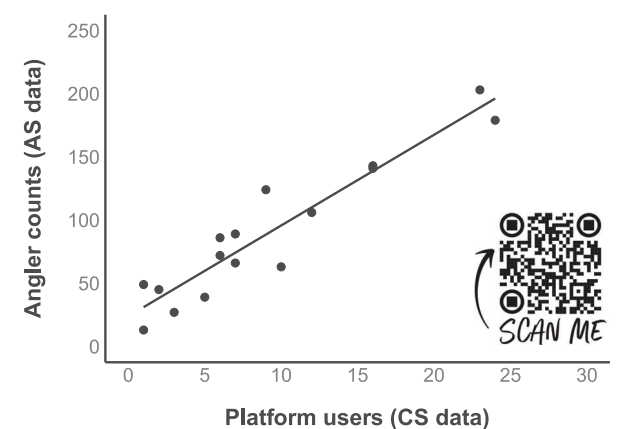
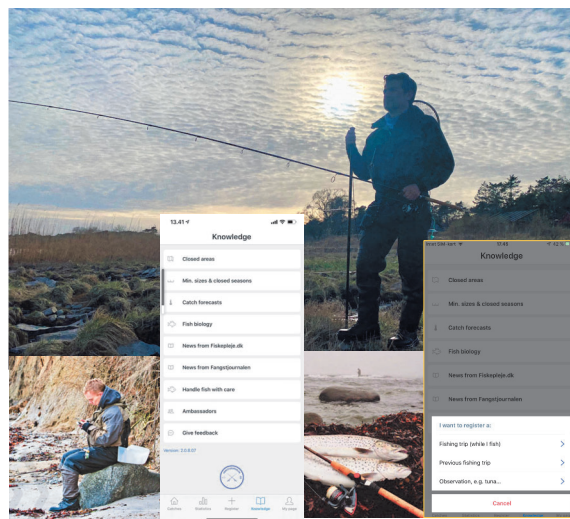
Data quality and participant characteristics

Citizen science contributes with data from angling trips. In return, citizens get easy access to knowledge about fish and fisheries, and local legislation. The digital platform also facilitates two way communication between researchers and citizens. So far, several lessons from the platform have been learned with regards to data quality and participant characteristics.

Sea trout (*Salmo trutta*) data from an electronic citizen science platform (mobile app and web page) was compared with three independent traditional surveys: an interview survey, an aerial survey, and an internet recall survey. General alignment between methods were found, e.g. catch data and angling effort data. However, in other types of fisheries, e.g. cod (*Gadus morhua*), citizen science data does not match data from traditional surveys. More research is needed to understand why.



Retention
An interview survey revealed that citizen scientists were younger and more dedicated to their hobby. This should be considered when extrapolating from the platform to population level. In addition, 21 % of participants contribute with data (primary functions) for minimum three months. Some participants use the platform without contributing with data (secondary functions), e.g. to learn about fisheries regulations.

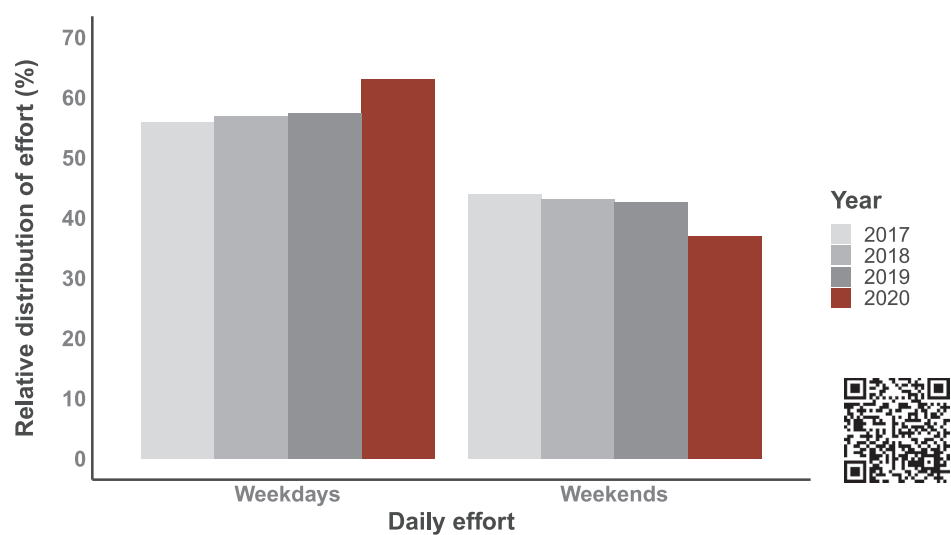


Relationship between number of anglers counted from airplane (AS) and the corresponding number of citizen scientists (CS) using the digital platform during the same time. Data suggest that around 10% of the anglers in the study area (the Danish Island of Funen) were citizen scientists and that number of citizen scientists were a good proxy for the number of anglers-at least during the three-month study duration. However, knowledge about the temporal and spatial consistency of this result is warranted.

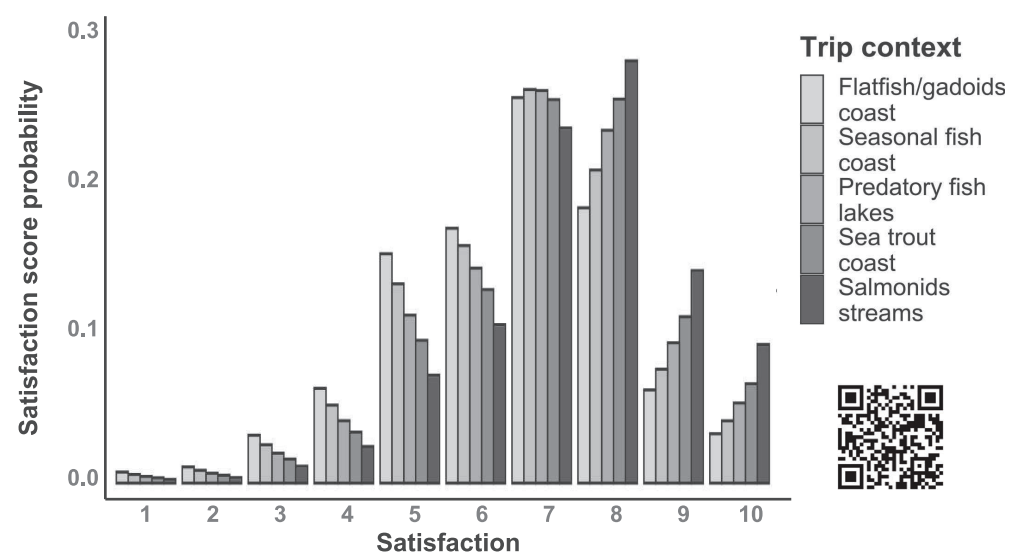
Citizen science offers huge opportunities

The citizen science platform makes it possible to explore novel fisheries management topics. During the Covid-19 lockdown in spring 2020, it was used to track angler behaviour, which would have been difficult with traditional survey methods.

Introducing the citizen scientists to very short questionnaire surveys, facilitated by the electronic platform, provide social science insights into motivation and satisfaction patterns of the citizen scientist, e.g. why they go angling and how satisfied were they by the end of the fishing trip. Patterns of satisfaction gives insights about where fisheries management attention should be paid.



Citizen science data informed about how Covid-19 changed the participants in recreational fisheries and their fishing behaviour. This figure shows that people increased fishing activities on weekdays during the spring lockdown in 2020. The participants recruited during the covid-19 lockdown in spring 2020 were also younger, less experienced, less committed anglers and more likely to be from urban areas.



Citizen science was used to investigate drivers of satisfaction in the Danish recreational fisheries. Among other things, data from the platform revealed that trip context act as a moderator of satisfaction. Satisfaction can be seen as an indicator for the current state of the fisheries. For example, anglers fishing for flatfishes/gadoids was overall less satisfied compared to anglers fishing for coastal sea trout.



*Scan the QR code for the platform of fangstjournalen

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Contact
Christian Skov
ck@aqu.dtu.dk

