



# MASTS-SFC Saltire Emerging Researcher Scheme (MASTS-SERS)

## Final Report

MASTS in association with the Scottish Funding Council supported the Saltire Emerging Researcher Scheme, which represented an important and exciting opportunity for Post Graduate Researchers (PGR) and Early Career Researchers (ECR) to engage in substantive collaboration with colleagues from Europe (EA, EEA and EFTA countries).

The scheme aimed to promote mobility between Scotland and European research partners with the aim of strengthening existing, and seeding future, research relationships. Participants are expected to demonstrate the impact of their exchange through the publication of novel research work, the formation of new collaborations and project/ funding submissions, and the dissemination of their results.

As your exchange has now come to a close, we ask that you reflect on the exchanges and provide a report by filling in the form below. The reports will need to demonstrate the potential benefits of the grant for both the recipient and their collaborators. Please return this within four weeks of completing your exchanges to [masts@st-andrews.ac.uk](mailto:masts@st-andrews.ac.uk). When you do so, you are agreeing that your answers may be used to promote the activities of MASTS, including being used on the website and social media channels.

Please note that MASTS may also contact you, the participants, and/or your supervisors to gather additional post-exchange impact information. This information must be provided on request.

## Contact information

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## Exchange overview

<b>Title</b>	Building capacity and drafting publications to bridge the interdisciplinary divides between aquatic animals, nutrition, and health outcomes.
<b>Start date</b>	01/06/2022
<b>End date</b>	31/09/2022
<b>Project location(s)</b>	Bergen, Norway

### Abstract (max 300 words)

Provide a brief summary of the exchange using language accessible to a non-specialist. Describe what the exchange objectives were, the activities that were carried out, and the subsequent outcomes. This may be published on the MASTS website.

Our objective was to build an interdisciplinary relationship between Pounds and Dr. Kjellevoid. While Pounds has experience in fisheries, aquaculture, and social science methods, Dr. Kjellevoid helped train her in micronutrient composition analysis and dietary assessments. They combined their expertise to understand how social and production factors affect the nutritional value of the fish to consumers. Their case study is the Kenyan communities around Lake Victoria, where Pounds is conducting her PhD research.

Kenyan communities on Lake Victoria's lakeshore rely on fisheries for their livelihoods and diets. These rural communities are characterised by high rates of poverty, illness, and food insecurity. We ask: "What elements affect micronutrient intake from fish? What role do these elements play in these communities' food security?" Obvious answers include income levels, access to fish markets, the availability of fish in markets, and the prices of fish. Yet, cooking methods, knowledge around healthy food choices, personal preferences, what parts of the fish are eaten (e.g., the head? The eyes?) and even gendered norms around who gets what part of the fish also affect individuals' micronutrient intake. For example, (1) fried fish have less micro-nutrients than boiled yet provide more calories that are important for energy-poor diets, and (2) some of the most nutrient-rich parts of the fish may be prioritised for certain family members. These factors create inequalities between individuals.

Pounds collected fish samples while in Kenya. Though virtual calls, Dr. Kjellevoid instructed Pounds on field-sampling collection and preservation methods. In Bergen, the duo designed methods to explore the relationship between social factors (e.g., traditional cooking methods, consumer preferences, livelihoods), production and harvest factors (e.g., targeted species) and micronutrient intake. This resulted in innovative, interdisciplinary methods for fieldwork in 2023. Additionally, they drafted budgets and explored potential funding opportunities for labwork, resulting in a funding application.

### Impact (max 600 words)

Please demonstrate the impact of your exchange from your perspective, and that of your exchange partner. Describe what the wider benefits of the exchange were to you as participant, your own and host institutions, and the wider community.

This exchange has benefited Pounds' PhD by allowing Pounds and Dr. Kjellevoid to draft methods for Pounds' fieldwork in Kenya, beginning in February 2023. Designing interdisciplinary methods is essential for Pounds' PhD, where she takes a systems-based approach to understanding the role of fish in food security. Collaboration and learning from Dr. Kjellevoid has added to Pounds' experience and doctorate education.

Dr. Kjellevoid enjoys working with early-stage researchers generally and is excited to be a part of interdisciplinary partnerships. She recognizes the importance of face-to-face discussions for researchers

from different disciplines, as it takes time to learn each others' perspectives and jargon. Through funding applications (like, for example, the KTN Agrifood Challenge that Pounds has applied for with the help of Dr. Kjellevoid), Dr. Kjellevoid will be able to process the fish samples in her laboratory.

In working side-by-side and even engaging in social events together, Pounds and Dr. Kjellevoid developed a strong relationship that has not only achieved the aims of this immediate project, but also inspired additional collaborations. Through Dr. Kjellevoid's professional network, Pounds has also been able to connect with other researchers at the Institute of Marine Research (IMR) and the University of Bergen (UoB). As a result, Pounds and her UoS supervisor Dave Little have applied for BBSCR funding to bring our new Norwegian partners to the UK for a workshop at the University of Stirling (UoS) next year, on the 'Working along the aquaculture-fisheries continuum for food security', which aims to develop policy recommendations and establish state of the art in this field. Local universities (e.g. the University of Edinburgh or Royal Highlands & Islands) will also be invited. This will further strengthen the links between institutions within Scotland and between Scotland and Norway.

Most importantly, the research that Pounds and Dr. Kjellevoid are doing together will ultimately provide policy and industry recommendations to support the food security of nutritionally-vulnerable communities along the Kenyan lakeshore of Lake Victoria. These communities rely on freshwater fisheries for food, yet so many factors influence the nutritional benefits of fish to individuals' diets. Some factors include:

1. Different species have different micronutrient composition. Particular species may be more beneficial to these communities than others. For example, species rich in iron will be more valuable to women of reproductive age.
2. Traditional customs around how different species are cooked will alter the nutritional value of the consumed product. For example, while boiling can retain the integrity of the amino acid profile, drying the fish may allow it to provide nourishment during lean periods.
3. Certain fish species may be more affordable than others, depending on supply and demand dynamics of local markets.
4. Livelihoods and wealth of people in the communities will affect their ability to afford fish and diverse diets.

Ultimately, our partnership will allow us to make food security recommendations based on the micronutrient value of different fish-based foods, so that these communities can maximize the nutrition coming from these fisheries in affordable ways. We will be able to track micronutrient intake and relate it to these different factors. This will allow us to identify the most vulnerable demographics and make targeted and culturally-sensitive recommendations to these groups and support their food security.

### **Outputs (max 300 words)**

Has this exchange resulted in clear outputs, such as the generation of a proposal, research results, or publication? Please provide brief details here. Do any of these outputs have relevance to larger programmes such as the UN SDGs, Blue Economy Action Plan etc?<sup>1</sup>

This exchange has:

1. Allowed us to collect all required fish samples for micronutrient composition analysis;
2. Resulted in a budget for completing the micronutrient composition analysis;
3. Produced a funding application for the KTN Agri-food Challenges Fund;
4. Produced a funding application for the BBSRC Networking Fund;
5. Created new professional relationships between researchers at the UoS, IMR, and UoB;

<sup>1</sup> All successful applicants will be expected to represent, promote and formally acknowledge the sponsors (MASTS, SFC & Scottish Government) during the course of their project and in any subsequent related outputs. All research outputs and any material used publicly must carry the funders' logos. The following acknowledgement should be used in all publications resulting from this funding. ["This work received funding from the Scottish Funding Council Saltire Emerging Researcher Scheme and the MASTS pooling initiative (The Marine Alliance for Science and Technology for Scotland) and their support is gratefully acknowledged. MASTS is funded by the Scottish Funding Council (grant reference HR09011) and contributing institutions"]

6. Enabled the design of interdisciplinary methods for Pounds' PhD thesis, which will result in at least one publication;
7. Resulted in a public [website](#) and a [video](#) describing the project and our collaboration.

Pounds' PhD thesis directly addresses SDGs 2 'Zero Hunger' and 3 'Good Health and Wellbeing' because it examines micronutrient intake of impoverished and vulnerable communities. It also touches on SDGs 1 'No poverty' and 10 'Reduced inequalities' because it considers the effect of livelihoods and social inequalities on this micronutrient intake. By understanding the roles of fish species from fisheries and aquaculture, we can develop policy recommendations for supporting livelihoods in food systems as part of the Global Blue Economy Action Plan. This work also contributes directly to the [Kenya Health Sector Strategic Plan](#), which aims to 'reduce mortality due to dietary risk factors by 37%'.

### The Future (max 300 words)

How do you plan to ensure a sustainable collaboration in the longer-term and maximise opportunities and impact in the future? How will you carry forward the benefits now the exchange has been completed? Please outline five concrete plans for future collaboration as a result of your exchange.

Our five concrete plans are:

1. Co-author publications resulting from the research as outputs of this exchange and my PhD;
2. Reciprocate the exchange, where Dr. Kjellevoid comes to the UoS for the aforementioned workshop;
3. Apply for KTN Agrifood funding for micronutrient composition analysis for part of the fish samples;
4. Keep searching and applying for other funding opportunities (used the drafted funding proposal) to conduct the rest of the micronutrient composition labwork;
5. Co-supervision of MSc student thesis in 2023 to continue developing well-rounded food security scientists through this interdisciplinary collaboration.

### Any further comments (max 500 words)

Please use this space to provide any additional comments. These may include, but are not limited to; what you would do differently if you could take the exchange again; what contingency measures you had to use (if any); details of any unexpected benefits or problems; any significant variations in costs;

The exchange lasted two weeks instead of three. This was because the funding was awarded later than expected, and prices for accommodation had increased. Yet, we were able to maximize the time and achieve our aims during the two weeks. A third week would have been useful to connect with other institutions and collaborators in Bergen.

While I was able to collect, label, and package all the fish samples while in Kenya, we have experienced some delays with the permit to export the samples. The samples are being held in a freezer unit in Kenya until we can get the permit finalized. The IMR has agreed to pay for the shipping costs, since this cost will occur outside of the project timeframe.

### Final expense report

Item Number	Description	Cost per Unit	Number of Units	Total Amount (£)
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<b>1</b>	Return flight (Edinburgh - Bergen)		<b>1</b>	£ 310.10
<b>2</b>	Accomodation (Bergen)	<i>Please see supplementary excel file</i>	<b>3</b>	£ 1,162.14
<b>3</b>	Food (Bergen)		<b>22</b>	£ 288.62
<b>4</b>	Transportation (Bergen)		<b>6</b>	£ 143.46
<b>5</b>	Fish samples & transportation consumables (eg cooler boxes)		<b>3</b>	£ 505.16
<b>6</b>	Non GDP Transfer Fees		<b>72</b>	£35.80
<b>6</b>	Pounds' time	£2,400/month	<b>2</b>	£4,800
<b>Total</b>				<b>£ 7,245.28</b>
<b>In-kind contributions</b>	Training & Staff time	£120/hour (1440 NOK/hour)	16	£ 1,920
<b>In-cash contributions</b>				
<b>Grand Total</b> (Total requested from scheme + In-kind + Cash)				<b>£9,165.28</b>