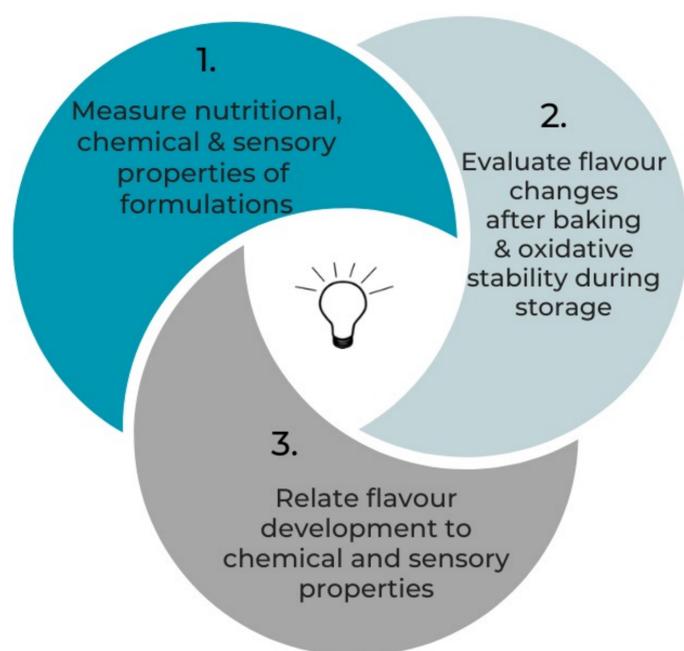


### Background:

Global demand for seafood is predicted to continue to rise. However, >90% of wild fisheries are classified as overfished or harvested at maximum capacity<sup>1</sup>. This creates an urgent need for new approaches to meet the demand for more sustainable seafoods. Alternative seafoods from plant sources are a promising approach to meet the increasing demand on fisheries whilst ensuring sustainability.

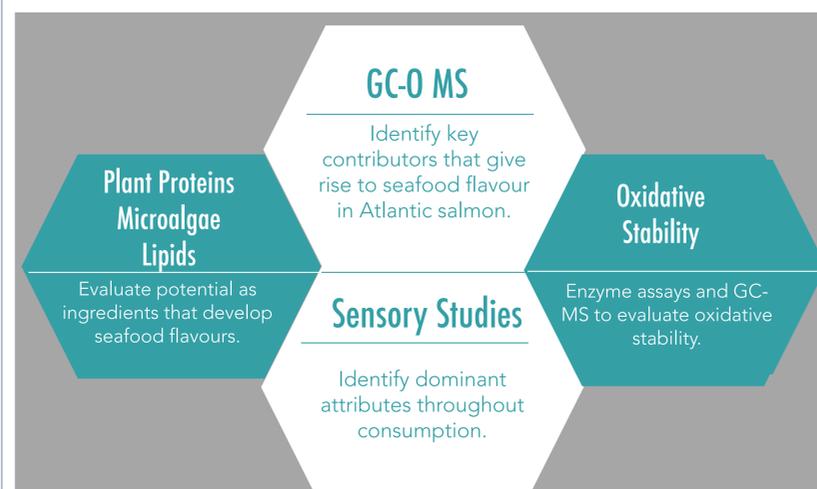
Flavour is an important attribute that determines acceptability of alternative seafood products<sup>2</sup>. However, food matrix interactions can impact flavour release and stability, and thus overall acceptability. Moreover, little is known about how changes in formulation will impact flavour perception in alternative seafoods.

**Aim:** To investigate whether different combinations of plant, microalgae, and lipid ingredients contribute to seafood flavour and stability during storage.



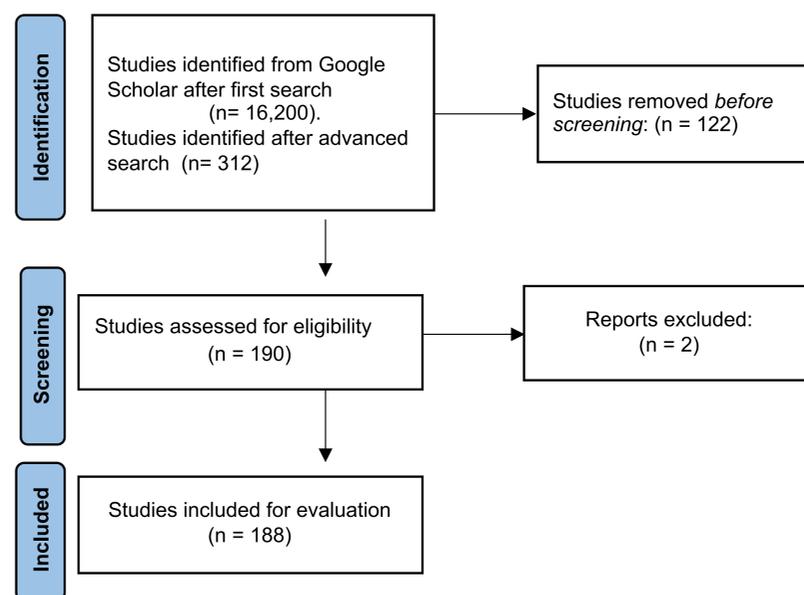
**Figure 1.** Overall research objectives.

### Methods:



**Figure 2.** Overview of methods that will be used.

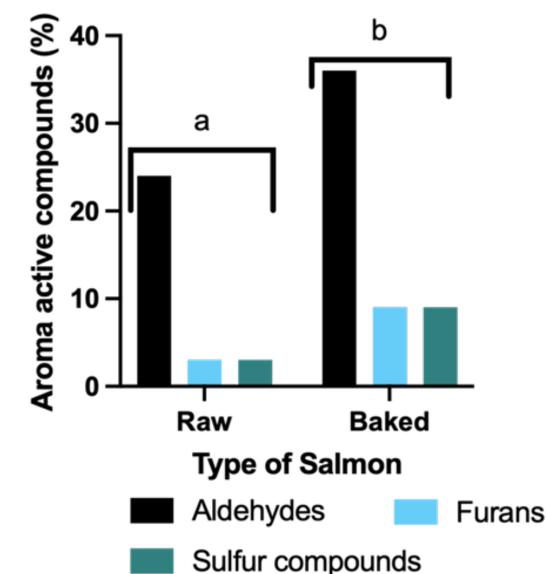
- Proteins from various plants, microalgae & lipids will be blended to evaluate the presence of seafood flavours.
- Sensory evaluation studies will be done to identify attributes perceived as dominant during consumption.
- Enzyme and natural antioxidants will be used to evaluate the stability of formulations during storage.



**Figure 3.** Identification of studies that used plant proteins, lipids, or microalgae as ingredients to generate seafood flavours.

### Preliminary Results:

**Increased relative abundance of aldehydes and sulfur compounds in baked salmon.**



**Figure 4.** Compounds of interest for alternative seafood flavour development.

### Conclusion:

To understand the key contributors that give rise to seafood flavour a literature search and GC-O MS studies with raw and baked Atlantic salmon were conducted.

The preliminary data shows significant differences in the relative abundance of key aroma active volatiles that contribute to seafood flavours.

- This knowledge will be used to guide the targeted development of formulations with novel proteins, microalgae and lipids.

### References:

1. GFI (2021). Alternative seafood, Industry update.
2. English et al. (2019). *Journal of Food & Nutritional Sciences*. 1 (3): 139-148.