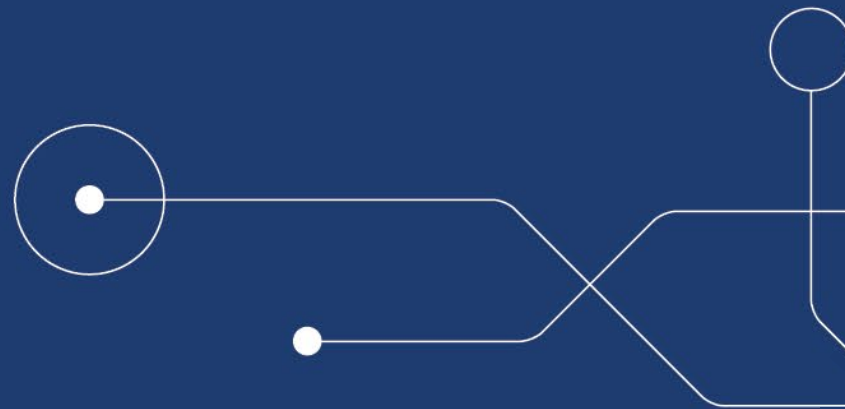


**Summary of the Microplastic and Seafood:
Human Health Symposium
Heriot-Watt University, Edinburgh UK
13-14 September 2022**



FRDC

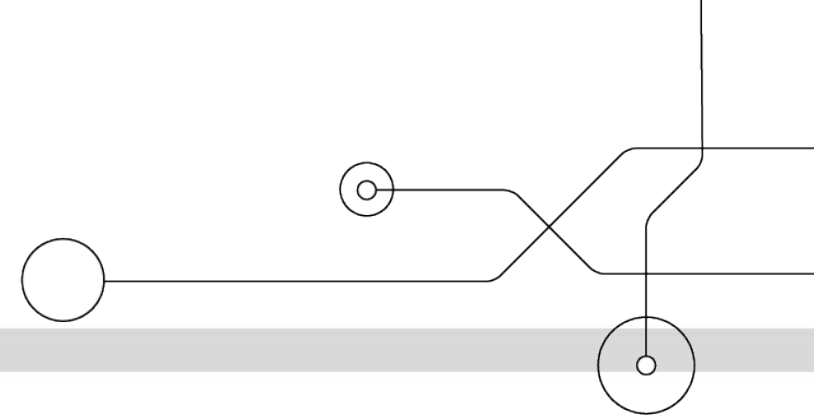
FISHERIES RESEARCH &
DEVELOPMENT CORPORATION



International Coalition of Fisheries Association (ICFA) Meeting, Sep 2022



Purpose of the Symposium



1. Provide an international platform for scientific experts to introduce/present their work on 'microplastics and seafood – effects on human health', and connect with each other, so that they could share their information:

(i) Introduce context of microplastics and seafood; (ii) Plastic polymer chemistry and seafood - potential issues of cooking seafood with microplastics; (iii) Plastic contamination of seafood supply chain - (finfish, aquaculture, shellfish); (iv) Effects of plastic particle ingestion: Bioavailability, bioaccumulation; Effects on gut function including microbiota; Potential for immunotoxicology; (v) Seafood safety and risk assessment; (vi) Communication/miscommunication of plastic particle risk and public perception; (vii) Conclusion/ Gaps in understanding/ Future research

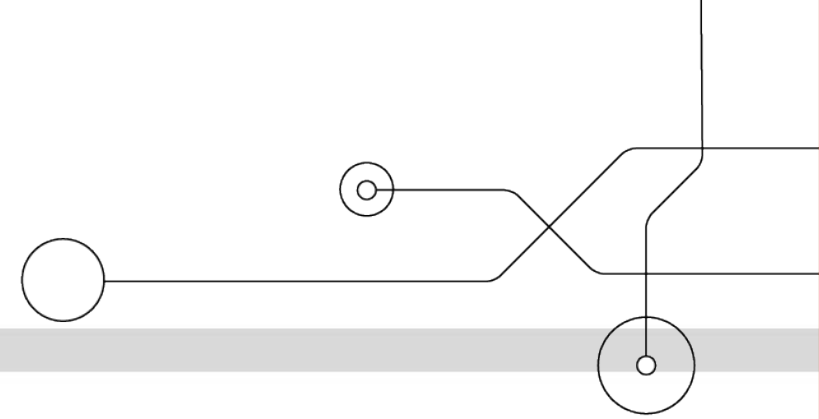
2. Provide an international platform for industry to share their perspectives on microplastics and implications for seafood supply chains; and for scientific experts to learn industry perspectives/priorities

3. Products: Compile a Critical Review Paper, and outreach to industry and public media following/in parallel with publication of scientific manuscript





Key Findings

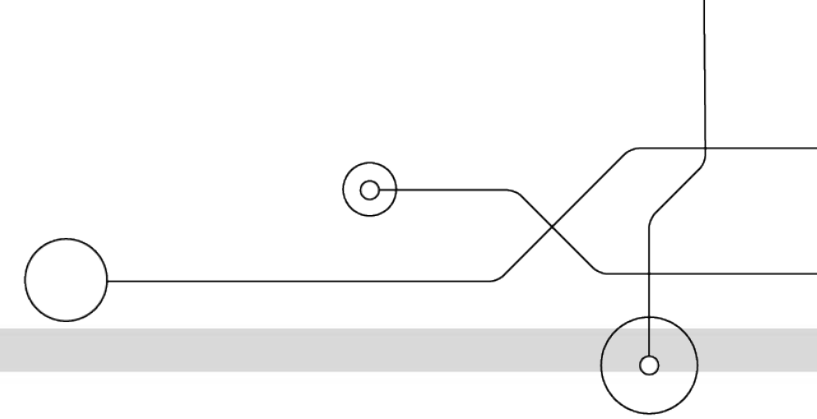


1. Microplastics have been found in a broad range of seafood species globally, mostly in their GI tracts, but also certain polymers in edible tissues of seafood. **Microplastic levels are still very low, and it was discussed broadly that at this level they are not yet an overarching concern for seafood consumers.**

2. **Microplastic levels in seafood are significantly less than what is likely to be consumed from other sources** (e.g., air we breathe, water). There are currently very limited studies investigating microplastic presence in other consumable meats (lamb, poultry, beef etc). More research is needed in this area to allow seafood to be put in context of other food sources.



Key Findings *cont.*

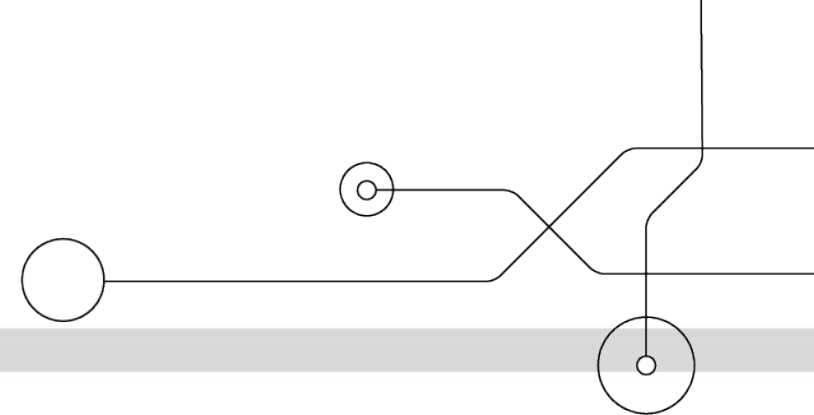


3. One source of microplastic into seafood is via aquaculture. Microplastics have been found in fish meal, processes in the aquaculture environment, abrasion of feed pipes, weathering of nets etc. The chain of processing seafood was discussed, and at which point microplastics may be entering an edible product.

4. It was made clear that there are still many knowledge gaps. **Areas of research that the seafood industry would like addressed include: the quantification of microplastics in seafood compared to other sources; understanding of how processing/supply chain is impacting plastic levels; future recycling and circular economy directions the seafood industry could take; and a greater understanding of human health impacts.**



Key Findings *cont.*

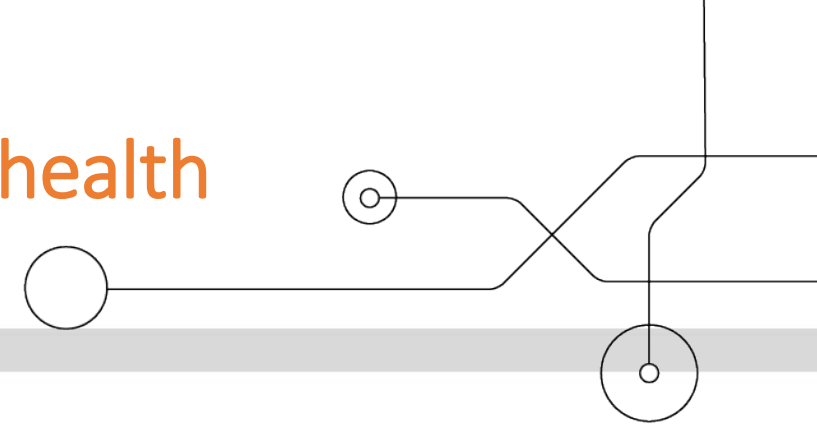


5. Seafood industry representatives want to be proactive in response to this topic rather than reactive. They commented on how we are currently at an advantage with our knowledge on microplastic in seafood compared to previous toxins (e.g., mercury, PFAS) as we are a step ahead. The seafood industry representatives all wanted to assist with the microplastic issue where they can (e.g., plastic-free alternatives, funding for research etc). It was highlighted that **the seafood industry wanted to actively do their part, while “there is still time.”**

6. **A proactive and well-qualified group of scientists and industry are now equipped with the most up to date information on the risks that microplastic pose to seafood.** This group will now be able to use this information to inform next steps, and through the writing of a critical review paper will be able to share this information with the broader community. Industry and scientists agreed that following publication of the manuscript, a coordinated media release across industry and university/research centres press offices would occur to disseminate findings.



Update of current risks to human health

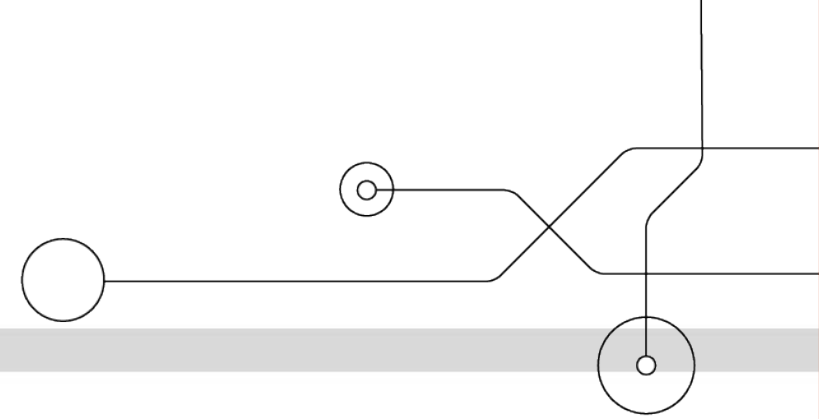


1. Current studies investigating microplastic impacts on human health are currently **very limited**, and not specifically related to seafood.

2. Our human toxicologist scientific expert (Professor Norbert Kaminski) shared with us the **potential concern he has with current literature investigating effects of microplastic on human health**. Current studies use levels of exposure of microplastic (500-2000 $\mu\text{g}/\text{mL}$) which are significantly higher than humans would ever be exposed to in existing environmental conditions, particularly regarding consumption from seafood sources.



Outputs from the Symposium



1. Publication

- Critical Review Paper

2. Outreach

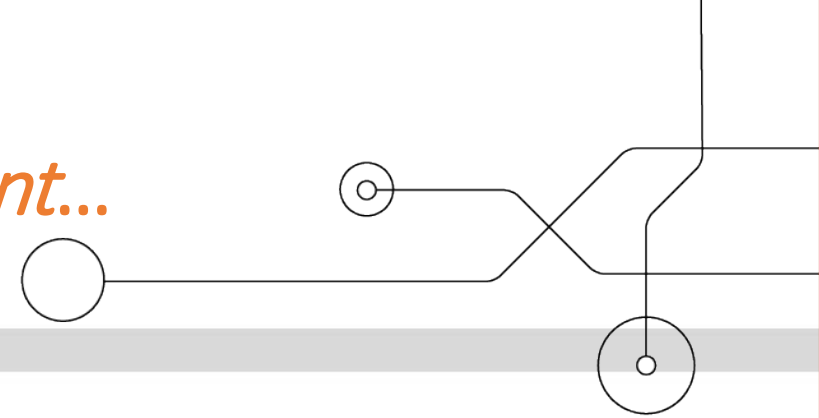
- Outreach to industry and public media following/in parallel with publication of scientific manuscript

3. Capability

- Build networks to share and increase knowledge, competency, experience and skills of the individual participants



Outputs from the Symposium *cont...*



4. Capacity

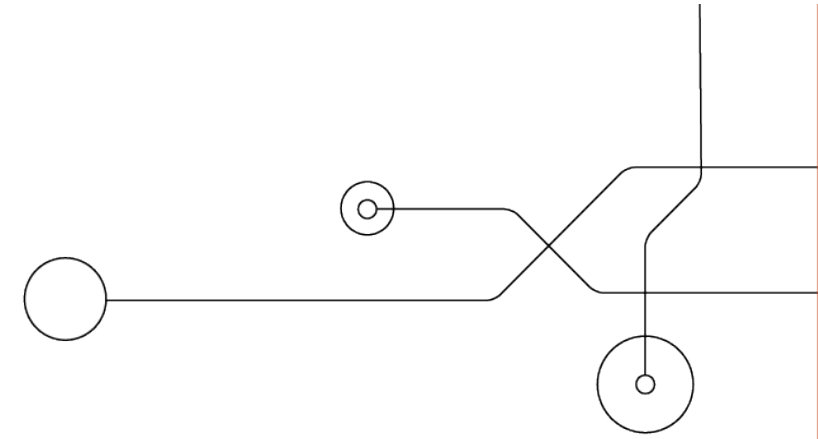
- Application of the learnt/shared capability (human capital) to better understand and address microplastics and seafood to reduce adverse impacts on consumers

5. List of 'Gaps in Understanding'

- Future research needs identified

6. Talking Points

- Agreed Talking Points for ICFA members (and others) to enable ICFA to keep a watching brief on risk



Questions

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Acknowledgements

