

## **Time for Change Argyll and Bute**

### **Fish farming, sustainability, and climate change**

Fish farming in Scotland is in need of reform, as it is unsustainable and contributing to climate change in its present form. Claims that it is part of the solution to the climate crisis don't yet stand up to scrutiny.

Fish oil and fish meal is transported to Scotland from Peru, where the marine ecosystem is being damaged as a result, and the poverty of communities is being exacerbated (Just economics, 2021, p.53). Around one fifth of the wild catch worldwide is used to produce farmed fish (Just economics, 2021, p.11). Soya is transported from Brazil, where it is being produced as a direct result of the destruction of the rainforest (Feedback global, 2019, p.23). Cleaner fish are also fished and shipped to Scotland from other oceans (Just economics, 2021, p.53). The removal of large numbers of forage fish from the world's oceans impacts larger predator species, which are also sought by the fishing industry, and will lead to ecosystem collapse (Just economics, 2021, pp.11, 33-35). The argument that aquaculture has a lower carbon footprint than other farming methods is not calculated including all of these costs.

The shipping of these products to Scotland, and the shipping out to the Far East and the United States of America of the finished product, results in an appalling carbon footprint for the industry (Just economics, 2021, p.53). In Scotland it takes more than twice the tonnage of forage fish to feed the tonnage of fish that are produced in fish farms (Just economics, 2021, p.55).

As the water warms in Scotland's seas, as a result of climate change, fish farming is becoming more challenging. Warmer water temperatures increase disease in the fish farms resulting in large scale losses, and the energy already expended, as well as damage to ecosystems, in growing these fish that perish through disease then gets wasted (Fish Farmer, 2019). As waters warm there is greater pressure to increase production in areas where this is still possible, leading to increased disease loss. These increasing pressures on the industry are likely to lead to its longer-term collapse, and with it the loss of all the jobs it generates.

Where farmed salmon and cleaner fish escape from fish farms they endanger the wild Atlantic salmon populations through the spread of disease and through hybridisation with wild stock leading to a reduced survival rate among the wild population (Salmon and Trout Conservation Scotland, 2021).

There are alternative methods for farming fish in Scotland, but these are not being developed on any scale, and the current open water system is clearly unsustainable on many levels. Research into Integrated Multi-trophic Aquaculture is underfunded and at the present time the industry does not have the knowledge needed to successfully farm seaweed and shellfish in an integrated system with salmon. Nor is there the technology needed to deal with saline waste produced by alternative sea-based systems. There are also possibilities with the use of micro-algae or insects in feed but again, the research needs to be fully funded and tested against causing further harm.

The links below include a report by Feedback Global on the international implications of the industry, an article in Fish Farmer magazine online on rising sea temperatures and aquaculture, articles on IMTA technology by Fish Farming Expert, and an overview of European IMTA policies by IMPAQT, independent research by Just Economics for the Changing Markets Foundation, which includes data relating specifically to the industry in Scotland (see *Appendix 2 – Scotland* in the

*Aquaculture Report*), and a report by Salmon and Trout Conservation Scotland on Scottish Government data regarding the threats to Atlantic salmon.

We hope that all our representatives will read these documents and consider a new role for fish farming in Scotland that leads the way in climate and environmental sustainability.

Feedback global (2019) *Fishy Business: The Scottish salmon industry's hidden appetite for wild fish and land*. Available at: <https://feedbackglobal.org/wp-content/uploads/2019/06/Fishy-business-the-Scottish-salmon-industrys-hidden-appetite-for-wild-fish-and-land.pdf>

Fish Farmer (2019) *Rising sea temperatures hit fish health*. Available at: <https://www.fishfarmermagazine.com/news/rising-sea-temperatures-hit-fish-health/>

Fish Farming Expert (2019) *What is IMTA, exactly?* Available at: <https://www.fishfarmingexpert.com/adam-hughes-eu-imta/what-is-imta-exactly/1335182>

IMPAQT (2020) *Policy and Regulation*. Available at: <https://impaqtproject.eu/our-results/policy/>

Just economics (2021) *Dead Loss: The high cost of poor farming practices and mortalities on salmon farms*. Available at: <https://www.justeconomics.co.uk/uploads/reports/Aquaculture-Report-v5.pdf>

Salmon and Trout Conservation Scotland (2021) *New Scottish Government study confirms the severe damage being done to wild salmon populations by salmon farming*. Available at: <https://salmon-trout.org/2021/10/22/new-scottish-gov-study-damage-wild-salmon/>