

Aquatic Life Institute (ALI), a US-based NGO that strives to enhance the lives of aquatic animals worldwide in both aquaculture and capture fisheries, urges the Koronivia Joint Work on Agriculture (KJWA) to consider aquaculture and fisheries as part of a sustainable food systems transition to tackle climate change under the UNFCCC. Addressing aquaculture and fisheries directly links to the FAO's core mandate to eliminate hunger, food insecurity and make agriculture, aquaculture and fisheries more sustainable¹. While fishing and fish farming are often not included in food and agriculture nor climate change policy discussions, both are highly relevant to climate change mitigation and adaptation.

Aquaculture has been increasingly touted as the solution to the future demand for food and stressed wild fish populations. Every year, 100 billion fish and 400 billion shrimp are farmed and contribute negatively to climate change emissions, environmental impacts and public health risks. Furthermore, many farmed fish species are carnivorous, thus requiring wild-caught fish in their diet, and further depleting populations². To date, policy-makers have largely failed to see the connection between intensive animal farming and farmed fish.

Aquaculture and Fisheries for Climate Change Mitigation

Shifting away from intensive aquaculture to extensive farming of low-trophic and non-carnivorous species will help mitigate climate change in various ways, including reducing greenhouse gas emissions. Reducing the amount of wild fish required for aquaculture feed is directly linked to climate change mitigation. One method in which fishes are caught to feed farmed fish is through bottom trawling, which produces a significant amount of carbon emissions due to the release of otherwise sequestered carbon. At the same time, aquaculture will be increasingly affected by climate change in many ways, for example, through increasing ocean acidity, dissolved oxygen, and temperature increases, as well as more intense and unpredictable weather events. In addition, aquatic animals, and particularly large mammals, play a significant role in sequestering carbon, thereby reducing the amount of carbon dioxide in the atmosphere. Finally, the preservation and restoration of wetlands and coastal habitats, which are often preferred locations for aquaculture, also serve as carbon sinks.

Aquaculture and Fisheries for Climate Change Adaptation

Sustainable aquaculture and fisheries, ones that work to positively enhance the lives of the animals, can contribute positively to climate change adaptation by providing alternative sources of protein and income, especially for communities vulnerable to climate change. Small-scale fisheries and aquaculture can provide a source of food and income for communities affected by a changing climate, as traditional agricultural practices are no longer viable in some areas. For instance, rising sea levels and increased water temperatures have rendered some crop farming practices and traditional fishing unviable in coastal areas, making aquaculture an alternative source of livelihood for communities. Also, industrial-scale

¹ Food and Agriculture Organization (FAO). (2016). The State of World Fisheries and Aquaculture 2016. Retrieved from <http://www.fao.org/3/a-i5555e.pdf>

² Aquatic Life Institute (ALI). (2021). Submission to the Koronivia Joint Work on Agriculture (KJWA). Retrieved from <https://unfccc.int/sites/default/files/resource/ALI-KJWA-Submission-Final.pdf>

fishing has depleted many coastal areas of fish populations, which were previously relied on by local fishers. Reducing fishing intensity gives local fish populations an opportunity to rebuild, and local communities a source of nutrition, food security and income once again³.

The Nexus Between Aquatic Animal Welfare and Sustainable Food Systems

An important consideration by policy-makers in the KJWA is the subject of animal welfare for aquatic animals in both aquaculture and fisheries. Improved animal welfare for not only farmed land animals, but also aquatic animals, is inextricably linked to ethical, environmental and social issues, and therefore should be an integral component of all sustainable food systems policies moving forward. In a food production system that is highly intensive, coupled with low animal welfare considerations, the results include decreased health, increased disease, antibiotic use, mortality, environmental and ecosystem impacts, and ultimately lower resource efficiency and productivity – the opposite of sustainability.

We present the following policy recommendations for improving aquatic animal welfare to support the UNFCCC and FAO's mandates⁴:

1. Shift away from intensive aquaculture and industrial-scale fishing to extensive aquaculture of low trophic, non-carnivorous species, and artisanal-scale fishing.
2. Promote seaweed aquaculture as a means of economic development and food security for coastal communities.
3. Promote a shift towards plant-rich, healthy and affordable food, and resilient agroecological practices that support smallholder farmers and local communities.
4. Secure locally-centered livelihoods in coastal fishing communities, shifting subsidies away from industrial fishing and fish farming to local artisanal fishing and/or seaweed and multi-trophic aquaculture (seaweed with shellfish/bivalves that filter/oxygenate water).
5. Include aquatic animals and aquatic animal welfare in all UN Sustainable Development Goals and agri-food policies.

Sustainable aquaculture and fisheries play a critical role in mitigating and adapting to climate change as part of a holistic food systems approach. As the only program focused on agriculture and food security under the UNFCCC, the KJWA is an extremely important tool to drive transformation in the sustainable food systems transition. By incorporating sustainable aquaculture and fisheries in the evolution of agricultural and food systems policies, we can reduce carbon emissions, improve food security, and provide an alternative source of livelihood for vulnerable communities. We urge the KJWA to provide concrete and holistic solutions to the climate and environmental challenges we face today.

This submission is supported by:

³ Intergovernmental Panel on Climate Change (IPCC). (2019). Climate Change and Land: An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. Retrieved from <https://www.ipcc.ch/srccl/chapter/chapter-5/>

⁴ United Nations Framework Convention on Climate Change (UNFCCC). (2018). The Koronivia Joint Work on Agriculture. Retrieved from <https://unfccc.int/topics/land-use/workstreams/koronivia-joint-work-on-agriculture/koronivia-joint-work-on-agriculture>

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