

BSRS POLICY BRIEF | JUNE 2021

Enhancing fishers' knowledge and skills for climate action and sustainable fishing



UNIVERSITY OF BERGEN

▶ ▶ ▶ The University of Bergen, BSRS 2021 Systems thinking and creative interdisciplinary problem-solving and project management.

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The Sustainable Development target 14.4 Sustainable Fishing: End overfishing and destructive practices, and take climate action through capacity building on knowledge and skills.

3 key points

- Overfishing is an unsustainable method of producing seafood, but currently the most economically efficient way for fishers to maintain their livelihood.
- Fish-farming is a feasible solution to resolve the fishing pressure and meet the increasing demand for seafood in a sustainable way through the use of green-technology.
- Provision of quality and research-based education and skill enhancement could empower existing and future fishers, creating a sense of the belonging as part of the ecosystem, as well as facilitating the sharing of information and skills to sustainable seafood production, possessing and distribution.

Introduction

This policy brief concerns the scarce resources under water. The global food demand keeps rising, and it is projected that the world will need more than 500 megatons (Mt) of meat per year for human consumption (Costello et al. 2020). Seafood is believed to be healthier and more nutritious, rich of bioavailable minerals and vitamins, essential fatty acids and animal protein compared to other source of protein (Hicks et al. 2019). Unfortunately, seafood contributes only 17% of edible meat (Costello et al. 2020) and half of the seafood production comes from small-scale industries (FAO, 2020). However, most capture fisheries are characterized by overfishing and destructive fishing practices (UN SDG's 2030).

While aquaculture is considered a viable solution to reduce the fishing pressure on capture fisheries and meet the increased demand for seafood, there is an urgent need for capacity building on knowledge and skills to fishers and fish farmers towards sustainable fish production, processing, and distribution. As Ziegler et al. (2016) articulated, fossil-based energy sources used on seafood production, processing and distribution of both capture fisheries and aquaculture has contributed greatly to Greenhouse gases (GHGs), as well as toxic emissions, and eutrophication.

Changing the behaviour of these resource users will require education and awareness rising on sustainability issues. Paltzelt and Shepherd (2011) noted that prior knowledge on sustainability empowers people to recognize, develop and utilise opportunities for sustainable business. Since people engage in sustainable practices intentionally based on how they perceive and interpret information around them, we argue for policies and programmes that will build capacity to fishers and fish farmers to change their behaviour and promote sustainability on seafood production, processing, and distribution.

It is of paramount importance to focus on responsible and efficient use of resources by changing fishers' behaviour.

Analysis

Climate change mitigation is an action that requires collective and collaborative efforts from all industries across the globe. The primary goal is to tackle the rising level of anthropogenic greenhouse gases of which fuel usage and emissions are one of the major causes. It is evidenced by the 28% increase of emission from the fishing industry between 1990 and 2011, driven primarily by increased harvest from fuel-intensive crustacean fisheries (Parker et al. 2018). Evidence shows that the operation of fishing vessels represents about 75% - 95% in GHG emissions in the value chain of seafood from capture fisheries because of fuel use (Ziegler et al. 2016). With people increasingly concerned about the carbon footprint of their food, seafood is not exempted from this scrutiny. There is an imminent need to re-think the way seafood is produced to address this concern.

First is the use of renewable energy. The key question to ask is how to increase the use of renewable energy to produce the food. Aquaculture relies on energy, and with this dependence comes the responsibility of ensuring that it is used efficiently with minimal environmental impact.

Second is one-farm development and fishing vessels. It helps reduce the carbon footprint of the fishing and aquaculture industry. There is early evidence to show that carbon reduction can happen at the fish-farm itself using renewable energy such as solar, wind or wave power.

Third is education and training. The education and training part covers both the scientific and practical knowledge on the use of green technology, sustainable fish-farm, awareness of their own behaviour, and perhaps more importantly, fishers' sense of being part of the ecosystem.

To achieve this, there are four important angles to address. First is the way to produce. The production of seafood has been largely relied on catching from the open sea, which results in uncertain supply of seafood, creating dangerous environment for workers, and easy to hurt the wrong fish. A global collaboration with scientific research for a sustainable way to farm fish should be explored to create a more stable environment for seafood production. It links naturally to the second angle which concerns the market behaviour where the supply of seafood must be made more stable through fish-farming. A stable supply will offer certainty on the price of consuming seafood and would drive fisher's business decision to decide how much to produce. Second is to scientifically research and develop a sustainable way to use the resources, and to dissolve it back to its original form of raw materials. Third is on the job training to the fishers through global collective efforts for fishers in different countries to adopt the new technology. Fourth is financial incentive to motivate fishers to establish a common platform for fishers to share information and transfer skillset to fishery technique.



TOGETHER, WE CAN
STOP
OVERFISHING



Fishing activities (source: google image)

Conclusions

The policy brief advocates the need to have collective efforts across different jurisdictions to promote awareness and capacity of fishers and fish farmers on sustainability issues. The research-based education programmes coupled with the use of quality education to tackle climate challenges with the focus on the SDG life below water. It is necessary to enhance stakeholders' ability to adopt a more advanced green technology which is easy to learn, low cost to use, and promote sustainability. It is critical to build fishers' sense of belonging for being part of the global ecosystem.

Recommendations

Develop a sustainable mechanism and methodology for seafood production, possessing, and distribution.

Build a common platform to share information and exchange skills in fishery industry.

Provide quality and research-based education to improve skills and empower existing and future fishers.

Relevant SDGs:

14: Life Below Water

Targets 14.4; 14.a; 14.c

4: Quality Education

Targets 4.7; 4.c

13: Climate Action

Targets 13.2; 13.3; 13.b

IMPRINT

SDG Bergen Science Advice in collaboration with Bergen Summer Research School's 2021 PhD course holders professor Birgit Kopainsky, Dr. Hiwa Målen and Dr. Ingunn Johanne Ness.

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