

COVID-19 reveals vulnerability of small-scale fisheries to global market systems

Seafood consumption provides nutrients linked to reductions in malnutrition and disease for nearly half the global population.¹ Almost half of the world's seafood comes from small-scale fisheries (SSFs), which also employ 90% of the world's fishers² and provide crucial food and livelihoods in coastal communities globally. This important industry virtually collapsed in January, 2020, as the onset of the COVID-19 pandemic shuttered one of the world's largest seafood markets, China. The closure of a single dominant market highlighted the growing vulnerability of SSFs to global market shocks, as many such fisheries increasingly rely on a limited number of foreign buyers rather than less lucrative domestic markets.³ Furthermore, local management strategies available to SSFs can be effective at maintaining local fishing stocks but are incapable of ensuring the stability of a globalised market.

For example, despite a wide-range of resilience strategies for spiny lobster fisheries worldwide, the global market for spiny lobster—valued at US \$912 million in China alone⁴—halted before the WHO declared COVID-19 a public emergency. This halt occurred because China imports 90% of global spiny lobster catch, a trend shared by many other high-value fisheries, including abalone and sea cucumber. Recognising this vulnerability, lobster fishers in Mexico and Australia previously attempted to gain access to additional markets via Marine Stewardship Council certification, but none could offer the premium prices of the dominant market.⁵ Without international solutions, SSFs—and their associated livelihoods, nutrition, and health—face an uncertain future. Global pandemics might be once in a lifetime, but other

unpredictable market shocks, such as recessions, political instability, trade wars, or natural disasters are common.

Now is the time for action: SSFs are crucial to global food security and livelihoods,¹ but they lack capacity to mitigate global market forces. Acknowledging the vulnerability of locally managed SSFs to reliance on a single market, and implementing global-level solutions to protect against global market volatility are central to enhancing sustainability of the global food system and supporting millions of livelihoods worldwide. International financial institutions, such as the World Bank, have begun to develop insurance opportunities to buffer SSFs against future crashes. These mechanisms need to be further developed and scaled. Furthermore, the UN Food and Agriculture Organization (FAO) has identified market diversification as key to SSF sustainability in the face of unpredictable market shocks. Therefore, there is a need for the FAO to expand their Voluntary Guidelines for Securing Sustainable SSFs to include guidance for SSF market diversification, specifically strategies to create new, premium demand. Finally, the UN Sustainable Development Goals and the upcoming UN Decade of Ocean Science for Sustainable Development are key milestones and opportunities for increasing SSF resilience, including designing and implementing market diversification, as key principles of fisheries sustainability.

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- 1 Troell M, Jonell M, Crona B. The role of seafood in sustainable and healthy diets. The EAT-Lancet Commission report through a blue lens. 2019. https://eatforum.org/content/uploads/2019/11/Seafood_Scoping_Report_EAT-Lancet.pdf (accessed April 24, 2020).
- 2 Food and Agriculture Organization of the UN. Voluntary guidelines for securing sustainable small-scale fisheries in the context of food security and poverty eradication. 2019. <http://www.fao.org/3/i4356en/i4356EN.pdf> (accessed April 24, 2020).
- 3 Food and Agriculture Organization of the UN. A research agenda for small-scale fisheries. 2004. <http://www.fao.org/3/ae534e/ae534e00.htm#Contents> (accessed April 24, 2020).
- 4 Harkell L. China's direct imports of crustaceans now worth billions. 2019. <https://www.undercurrentnews.com/2019/02/05/chinas-direct-imports-of-crustaceans-now-worth-billions/> (accessed April 24, 2020).
- 5 Bellchambers LM, Phillips BF, Pérez-Ramírez M. From certification to recertification the benefits and challenges of the Marine Stewardship Council (MSC): a case study using lobsters. *Mar Policy* 2014; **50**: 249–60.

