Assess and protect jumbo flying squid

Nearly 1 million tonnes (*1*) of jumbo flying squid (*Dosidicus gigas*) are caught in the southeast Pacific annually. A transnational stock, the jumbo flying squid is harvested by thousands of artisanal vessels in Ecuadorian, Peruvian, and Chilean waters and hundreds of industrial Chinese vessels in the high seas (*2*). However, the jumbo flying squid stock has never been assessed across its entire distribution in the southeast Pacific. Although it is the most harvested invertebrate species in terms of tonnes landed (*1*), crucial population data remain unknown. In recent years, the yield has dropped substantially, suggesting that the stock could be in decline (*3*). To ensure sustainable practices, the international community should work together to monitor, assess, and manage the jumbo flying squid stock.

The South Pacific Regional Fisheries Management Organisation (SPRFMO) regulates harvests in the high seas, including the jumbo flying squid. The SPRFMO has taken some management actions, such as placing caps on the number of fishing vessels and implementing common protocols for data collected by observers on vessels operating in the high seas (*4*). However, a lack of international cooperation has hindered efforts to build a regional database and ensure that SPRFMO commission members share biological samples, mechanisms that are necessary for conducting regional stock assessments.

The SPRFMO mandates periodic performance reviews conducted by independent experts to assess the effectiveness of the management measures adopted by the organization (*5*). In 2024, the second SPRFMO performance review highlighted existing gaps in jumbo flying squid regional stock assessment and in data sharing among nations currently participating in the fishery (*6*). Closing such gaps through collaboration could prevent a collapse like that of the jumbo flying squid fishery in the Gulf of California (*7*) and could decrease the likelihood of large, unpredictable fluctuations in total catch like those of the Argentine shortfin squid (*Illex argentinus*) stock in the southwest Atlantic (*2*). Because El Niño's large-scale cycles create intense ecosystem and population variability (*8*), the jumbo flying squid stock should be assessed through ecosystem-based models.

The jumbo flying squid stock supports the livelihoods of thousands and provides food security to millions globally (*2*, *9*). The SPRFMO has successfully recovered species before; in 2013, the organization implemented policies that restored the large jack mackerel stock (*10*). To make similar progress with the jumbo flying squid, the SPRFMO will need to coordinate with Ecuador, Peru, Chile, and China. With strengthened international scientific collaboration, SPRFMO can protect the stock before it needs a recovery plan.

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The jumbo flying squid population could be in decline, but crucial data remain unknown.

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Tariffs imperil US–Canada precision agriculture

Precision agriculture encompasses a data-driven suite of sensors, artificial intelligence (AI) analytics, and GPS-guided machinery that reduces fertilizer and pesticide inputs, increases yields, and boosts climate resilience (*1*). These tools deliver substantial environmental benefits by cutting agricultural runoff, economic gains through improved efficiency, and health advantages by reducing chemical exposure. In North America, farmers' access to and ability to afford precision agriculture technology depend on the free movement of its components across the

US–Canada border (*2*). The recent tariffs and retaliatory tariffs have disrupted the flow of goods and raised prices, threatening the expansion of precision agriculture in the US and Canada.

As of 4 June, the Trump administration reinstated a 50% tariff on imported steel (up from 25%) and simultaneously imposed substantial tariffs on printed circuit boards and related technical parts (*3*)—measures known to elevate costs throughout electronics and automation supply chains, including sensors and probe components (*4*). When 25% steel duties were imposed in 2018, the sticker price of new combines and replacement parts—vital components of precision agriculture—jumped by about 6%, and Saskatchewan dealers reported that growers were canceling plans for upgrades (*5*). Variable-rate fertilization systems, which rely on key hardware elements such as steel and printed circuit board components, enable North American farms to reduce nitrogen use by about 15% (*6*, *7*). Rising input costs now place those efficiency gains at risk.

Revenue shocks compound the squeeze. China's 8 March announcement of a 100% tariff on Canadian canola oil and meal—CAD920 million in 2024 exports—slashes the margins farmers rely on to finance next-generation tools (*8*). Every lost dollar or delayed component slows the diffusion of climate-smart technology.

To facilitate access to these tools, policy-makers should exempt precision agriculture hardware, software, and research inputs from any current or future tariff schedules, and future trade deals should include comprehensive exemptions for climate-smart agricultural inputs and technologies. These exemptions for agricultural technology would pay for themselves many times over through avoided fertilizer, water, and greenhouse gas costs (*9*). The US and Canadian governments should establish a bilateral US–Canada innovation fund that protects shared research and open-data protocols from political cycles. Policy-makers should also convert existing safety-net programs into "innovation dividends" that automatically rebate a portion of farmers' purchases of sensors and broadband and autonomous equipment during trade shocks. Keeping ideas, components, and data flowing freely is the surest path to resilient food systems—especially as drought, wildfire smoke, and soaring input prices challenge growers.

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