

Octopus Farming: False Criticism and Unfounded U.S. Prohibition

National Aquaculture Association¹

Animal rights activists are working to prohibit octopus farming nationally in the United States through federal and state legislation. They have been falsely alarmed by statements made by a [Nueva Pescanova](#), a wild and farmed seafood business based in Spain, claiming a large, indoor octopus farm will be built at the Port of Las Palmas on Gran Canaria Island.

To support an octopus farming prohibition, activists falsely claim dire effects for nutrient pollution, human pathogens, feed type and usage, animal care and sustainability. What are the facts?

Why is there Interest in Farming Octopus?

- Octopuses are an important seafood of global demand which has increased by 59% in the last thirty years from 222,230 t in 1981 to 376,278 t in 2021 (FAO, 2021).
- Current market demand is being satisfied by wild fisheries, and many of these fisheries are poorly regulated with under-reported landings and unsustainable catch rates. (Balguerías et al., 2000; Hernández-García et al., 1998; Martino et al., 2021; Markaida et al., 2015; Noro, 2013; Nottage et al., 2007; Sauer et al., 2021).
- Market demand and value of octopus (\$US' 16.93 kg⁻¹), combined with poor controls or control enforcement, has led to over-exploitation of wild octopus stocks in the Mediterranean Sea and off the coast of Mauritania (Corten, 2014; FAO, 2021; Quetglas et al., 2015; Vázquez-Rowe et al., 2012) and other octopuses are being over-fished extensively within their respective geographic ranges (El-Ganainy & Riad, 2008; Sauer et al., 2011).

Farming Octopus will Relieve Pressure on Wild Stocks

- Sustainable octopus aquaculture is a potential approach to mitigate fishing pressure (Sauer et al., 2021; Vaz-Pires et al., 2004). Some octopus species are argued to be prime candidates for aquaculture because of their short life spans, high rates of food conversion, rapid growth, tolerance to captive conditions and relatively high fecundity (Forsythe & Hanlon, 1988; Vaz-Pires et al., 2004; Vidal et al., 2014). The life history and the rearing techniques for commercially significant species have been intensively researched describing necessary culture conditions and nutritional requirements (Dan et al., 2018; O'dor et al., 1984; Rosas et al., 2014; Villanueva et al., 2014). Mating of adults and the incubation of egg strings has also been achieved, generating a viable source of early planktonic life stages for

¹ The [National Aquaculture Association](#) (NAA) is a U.S. producer-based, non-profit trade association founded in 1991 that supports the establishment of governmental programs that further the common interest of our membership, both as individual producers and as members of the aquaculture community. For over 33 years NAA has been the united voice of the domestic aquaculture sector committed to the continued growth of our industry, working with state and federal governments to create a business climate conducive to our success, and fostering cost-effective environmental stewardship and sustainability. August 28, 2024.

subsequent larval rearing (Iglesias et al., 2004; Uriarte et al., 2011; Vidal et al., 2014).

Can Octopus be Farmed?

No. Commercially-viable octopus farming has yet to be achieved:

- There is a lack of success with planktonic early life stage growth and survival, settlement, commercially feasible diet, and early life stage live feed production on larger scales (Carrasco et al., 2003; Iglesias et al., 2007; Uriarte et al., 2011; Villanueva et al., 2014).
- Ideal culture conditions for planktonic life stages (water temperature, light, tank color) are also unknown (Márquez et al., 2007; Tur et al., 2018).

Would Octopus Farms in the United States Create Harm or Risk to...

Biodiversity: U.S. aquaculture farms are regulated by a [complex federal and state framework](#) focused on protecting and conserving wild species and their habitat. If octopuses were farmed, they will be housed in indoor tank systems designed to prevent escape, closely monitor animal health and well-being, and capture and treat effluents to avoid surface water pollution.

Wild Fisheries: Commercially farmed aquatic animals are fed [compounded, pelleted feed](#) primarily composed of plant protein. If fish or crab meal is required to make pelleted feeds attractive to octopuses, the ingredients will be sourced from managed fisheries or the by-product of current seafood processing.

Harmful algal blooms: U.S. aquaculture farms are categorized as point sources under the Clean Water Act. The U.S. Environmental Protection Agency or delegated state agencies issue [National Pollution Discharge Elimination System](#) permits to aquaculture farms to avoid surface water pollution. There are no known or documented cases of any marine aquaculture operations in the United States causing harmful algal blooms due to nutrient discharges nor are aquaculture facilities cited as impairing freshwater or marine surface waters by any constituent of their discharge.

Human Pathogens: Activists identified anisakid nematodes as a human health risk. Aibinu et. al. (2019) wrote, “Humans are...accidentally infected when [anisakid nematode hosts [crustaceans, cephalopods and fish] are ingested either as raw or inadequately cooked or treated fish/shellfish meals. Hence, the infection has been directly linked to eating habits.” Similarly, the Food and Drug Administration (FDA 2020) identifies uncooked or undercooked octopus and other farmed or wild caught seafood as a human health risk.

Captive Octopus Care: Farms do not succeed unless they care for their captive animals. What those challenges may be are unknown given farming octopus at a commercial scale has not been attempted because of early life stage management and nutrition challenges.

Animal Sentience: Farmers and ranchers recognize livestock, chicken, cow, fish, goat, goose, horse, or pig, in their care are aware of the environment and physical threats to well-being. Ascribing human attributes and perception are not founded on science or fact. (Browman et al. 2019; Diggles et al. 2024). The National Aquaculture Association adheres to an Aquatic Animal Welfare Policy which states, in part, “Aquaculture husbandry practices demand that animals are held in healthy environments, fed a balanced and complete diet, protected from predators, and monitored throughout their life to insure their general quality and health.” To access this Policy and others, click [here](#). Each U.S. state has enacted statutes to punish individuals who engage in cruelty to animals. Click [here](#) to access state law.

Concluding Thoughts

There is little doubt that the detractors, and often well financed critics, of U.S. marine aquaculture have significantly contributed to its lackluster U.S. growth compared to other countries (Tiersch and Hargreaves 2002; Knapp and Rubino 2016). Proponents acknowledge marine aquaculture is not risk free in terms of potential environmental, economic, social and cultural impacts and challenges remain to achieving sustainable production. The good news is these challenges are well known and they are the focus of not only the American science and technology enterprise, but by a global network of scientists from many coastal nations focused on expanding farmed seafood production, restoring at-risk marine species populations (fish and molluscan shellfish). The realities of the current marine aquaculture seascape bode well for a more productive future:

1. There is a clear global imperative to sustainability produce more seafood from capture and culture fisheries to meet constantly growing demand. The U.S. has the marine resources to become a major exporter, if support is provided to solve life cycle and production challenges, not to ban the opportunity to do so.
2. U.S. farmers work within a very complex and effective legal, regulatory, and science-driven environment to anticipate and mitigate potential environmental impacts.
3. Farm level management decisions and federal and state regulatory frameworks are working together to bring about environmentally beneficial siting, operational and production outcomes.
4. Commercial aquaculture advocates in government, universities and the farming community have recognized it is essential to reach out to decision-makers and the public, as well as the critics, with the latest research and empirical results to describe an accurate picture of the risks and rewards to farming the sea.
5. Greater communication and engagement efforts and targeted public research expenditures will enhance the U.S. marine aquaculture track record going forward.
6. Farming aquatic animals is not risk-free. Fortunately, we can and are looking to nations like Canada, Chile, China, Japan, Norway, Panama, Mexico, Ireland, United Kingdom and nations bordering the Mediterranean Sea that are well ahead of the United States in producing farmed seafood to learn from their mistakes and successes.

7. The current federal and state permitting process is thorough, complex, time-consuming and expensive. We believe this is as it should be. As we collectively gain experience, knowledge and environmental data, the time and expense may lessen but the permitting process should always be rigorous. We, as citizens of the United States, are desirous of protecting and conserving the oceans for the next seven generations (Zajicek et al. 2021).

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