

Nueva Pescanova: Prioritizing Profits and Polluting Las Palmas

The World's First Large Scale Commercial Octopus Farm

Synopsis

- Nueva Pescanova claims no relevant pathologies in octopus are known, but a 234-page handbook on pathogens and diseases in cephalopods challenges this claim.
- Nueva Pescanova argues that no antibiotics will be used in the farm. However, with the high likelihood of disease in such an environment, any octopus farm will likely need to rely on antibiotics. This will continue to foster global antimicrobial resistance, in animals and ultimately, humans.
- Nueva Pescanova's octopus farm could have detrimental effects on the environment, and the economies of surrounding communities.

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AQUATIC LIFE
—INSTITUTE—

Nueva Pescanova: prioritizing profits and polluting Las Palmas. Known as the Port of Light, Las Palmas de Gran Canaria could soon become a dark scene of suffering for millions of octopuses, and the latest disaster for global food production.

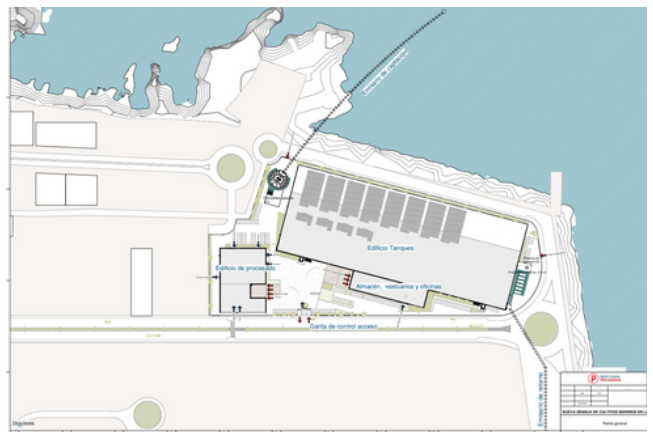
In this document, we discuss the significant threats that this octopus farm could trigger within the surrounding communities, and pinpoint several examples of infractions that have already occurred in order to demonstrate the lack of consideration given to the health and wellness of the 404,000 people of Las Palmas!¹

BACKGROUND INFORMATION

Octopus vulgaris (the common octopus) has been highlighted as a species of interest in recent aquaculture developments. However, there are many negative aspects to consider.

Octopuses have long been proven to be capable of experiencing pain and suffering, they also exhibit cognitive complexity and sophisticated behavioral patterns. Farming systems would result in high stress for octopus due to spatial constraints, high densities, and sociability, which consequently increase aggression/cannibalism at different life stages. Octopus skin is particularly sensitive, and can be easily damaged during handling, transportation, or stressful confinement situations. Furthermore, a humane stunning and slaughtering protocol has not yet been established² for these animals.

The world's first commercial octopus farm is set to occupy 61,972.42 m² in La Esfinge basin, within the port of Las Palmas de Gran Canaria.



The farm would consist of a main building that contains units for the entire breeding and production phase, and a second building in which the frozen product processing and storage phases are concentrated. 10 mg octopus will be kept under a system of 58 tanks. Surviving octopus from 10 mg, until reaching an average weight of approximately 50 g, would then be kept under a system of 601 tanks.

Since the inception of this project, scientists have consistently highlighted their concerns regarding octopus farming, all of which are related to the fact that these animals, like many others exploited within the food system, are not suited in any way, shape, or form for large-scale farming.

DISEASE

All octopus are known to be susceptible to skin infections caused by bacteria.³ The mere contact of the suckers of one individual to another is sufficient to cause skin damage.⁴ Based on pathologies of octopus identified in small-scale culture conditions, it is predicted that industrial octopus aquaculture will only increase the chance of occurrence.⁵ Disease in aquaculture not only impacts the animals, but can also have deleterious effects on the health of communities within close proximity of the farm. Allowing this project to operate, could lead to unpredictable, public hazards.

Nueva Pescanova has stated that, “In the case of the octopus, no relevant pathologies are yet known.”* However, the 234-page Handbook of Pathogens and Diseases in Cephalopods⁶ that was created in partnership with the European Commission begs to differ.

In Chapter 8 of the Handbook of Pathogens and Diseases in Cephalopods, a comprehensive analysis compiled by more than 40 authors from 3 continents, a bacterial infection found in *Octopus vulgaris* is visually depicted:

8 Bacteria-Affecting Cephalopods

Fig. 8.2 White skin lesion on head in an adult female of *O. vulgaris* cultured in Italy

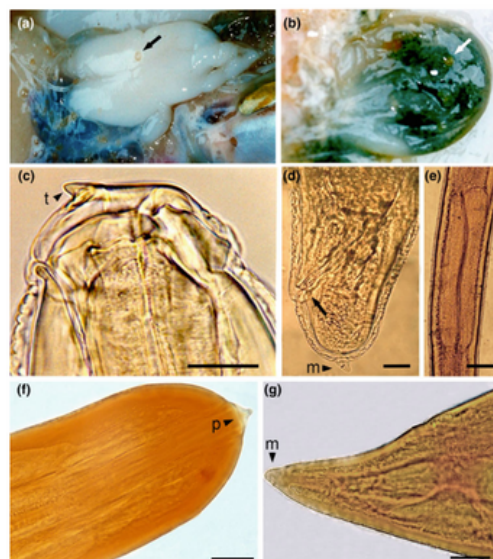


Handbook of Pathogens and Diseases in Cephalopods. Edited by Camino Gestal et al., Cham, Springer International Publishing, 2019

This specific species of bacteria (*V. parahaemolyticus*) can infect humans. The strains affecting humans have the ability to produce causative agents of seafood-borne acute gastroenteritis and septicemia⁷ which can lead to septic shock, and in some cases, death.

Parasitic risks are also associated with octopus. Anisakid nematodes have been an extensively reported parasitic agent affecting octopus seafood products in Europe:

Fig. 12.4 Anisakid nematodes from various cephalopod species in Europe. Third-larval stages are easily recognized macroscopically (a, b) coiled and encysted in different organs (arrows). Light microscopy images of the anterior (c) and posterior (d) extremities with the characteristic ventriculus (e) of *Anisakis simplex* showing some morphological structures (striated cuticle, boring tooth, excretory pore, lips, esophagus, intestine, anal gland, anus, and mucron) in lateral view. *Cyathocola* sp. nematode from *Octopus vulgaris* (f, g). Anterior (f) and posterior (g) extremities showing the characteristic pseudolabia and mucron, respectively. Scale bars: C: 50 µm; D: 30 µm; E: 150 µm; F: 20 µm; G: 20 µm



Handbook of Pathogens and Diseases in Cephalopods. Edited by Camino Gestal et al., Cham, Springer International Publishing, 2019

These parasites are found covering the outer and inner membranes of internal organs, and at fresh postmortem condition, can be also found actively moving within the mantle cavity.

The Center for Disease Control and Prevention (CDC) states that, “Anisakiasis is a parasitic disease caused by anisakid nematodes (worms) that can invade the stomach wall or intestine of humans. The transmission of this disease occurs when infective larvae are ingested from fish or squid that humans eat raw or undercooked.

*All information related to Nueva Pescanova's octopus farm, including quotations and further details, have been obtained from documents provided by Nueva Pescanova in their Environmental Impact Assessment (EIA) that was sent to the government of the Canary Islands in 2022. These documents were previously available online, however, we suspect that the overwhelming backlash has prompted their removal because they are no longer publicly accessible.

In some cases, this infection is treated by removal surgery. The signs and symptoms of anisakiasis are abdominal pain, nausea, vomiting, abdominal distention, diarrhea, blood and mucus in stool, and mild fever. Allergic reactions with rash and itching, and infrequently, anaphylaxis, can also occur.” The high pathogenicity for humans, high prevalence, and abundance in various commercially exploited species draws particular attention to this biohazard.⁸

Nueva Pescanova has completely failed to recognize the variety of diseases that have already been observed for *O. vulgaris*, and they have failed to incorporate any farm management practices to prevent the next public health crisis for Las Palmas communities, even though there are documented risks associated with octopus production.

ANTIBIOTICS

Nueva Pescanova claims that, “The use of antibiotics is not contemplated for any of the stages of the productive process of octopus farming.”

Aquaculture farms are a breeding ground for pathogenic bacteria that must be treated with antibiotics. In the 2021 *International Journal of Environmental Research and Public Health*, authors state, “The use of antibiotics in aquaculture is well known and this practice can cause the spread of antibiotic residues in the marine environment, increasing the rates of antibiotic resistance in aquatic bacteria and, critically, transfer that resistance to human pathogens”⁹:

Antibiotic resistance in animals results in antibiotic resistance in humans. In 2019, 4.95

million people died of an antibiotic-resistant infection; 1.27 million of which were attributable to antibiotic resistance of the infection.¹⁰

“Antimicrobials” refer to a group of agents that can reduce the possibility of infection and sepsis, that include antibiotics, antiseptics, and antifungals. A 2020 study estimates the aggregate global antimicrobial use in 2030 will be 236,757 tons. Aquaculture would constitute 5.7% of this value but carries the highest use intensity per kilogram of biomass (164.8 mg kg⁻¹). This study suggests that antimicrobial use for some farmed aquatic species, can be more intense than levels used in terrestrial agriculture and human treatments.¹¹

Keeping this trend projection in mind, it is extremely likely that any octopus farm would have to rely on antibiotics when there is an inevitable disease outbreak, and significantly contribute to antimicrobial use/overuse due to the fact that any prescriptive measures would be farm-wide experiments at the time of outbreak.

For example, the bacteria *V. lentus* was isolated from skin lesions and the gill heart of diseased octopus, and was able to induce both skin lesions and mortality in healthy octopuses (0.5–1 kg) maintained in the laboratory.¹² It showed a wide antimicrobial susceptibility pattern, having the highest, with amoxicillin, cefotaxime, chloramphenicol or piperacillin.¹³ Safer strategies of treatment are still unavailable for infection in octopus.

COMMUNITY RISKS

Similar to other carnivorous species in aquaculture (salmon, shrimp, etc.) that

depend on wild-caught fish to feed the farmed animals, octopus farming would only amplify pressure on wild populations. Nueva Pescanova claims, “We have determined octopuses’ nutritional needs and are developing specific diets for the different stages of their growth. This diet uses discards and by-products of already-caught fish not intended for human consumption. It’s a circular economy solution that avoids resorting to fishing wild animals.”¹⁴

Nueva Pescanova has not released detailed information regarding the feed formulation that it will use during the production cycle. Therefore, it is currently impossible to determine whether or not this claim is accurate. Others have reported that Nueva Pescanova will feed the octopus a manufactured pellet feed that typically includes fishmeal and fish oil as main ingredients for carnivorous aquatic species.¹⁵

It’s important to note that, A circular economy for aquaculture should mimic natural systems so that waste does not exist.¹⁶ Octopus farms do not support the notion of a circular economy whatsoever.

The increased exploitation of octopus and other cephalopods has led to a corresponding growth in processing industries, and the subsequent generation of large amounts of waste, demanding considerable disposal costs.¹⁷ The processing of octopus, squids, and cuttlefish creates vast amounts of solid and liquid waste by-products in the forms of skin, head, cuttlebone, pen, ink, and viscera. Serious environmental and economic problems can occur without appropriate management.¹⁸

However, in the EIA, Nueva Pescanova only accounted for “residues of animal tissues” and deemed these animal by-products

“non-hazardous waste” despite the fact that byproducts can carry safety concerns. They also estimated the main hazardous waste generated at the facility would be mineral oils (LER 130205), and contaminated rags from maintenance tasks as well as polluting packaging and laboratory waste.

In signed statements accompanying the EIA it was noted that, “Although the total production of waste is high...there will be no generation of marine litter derived from the execution of the project.” While simultaneously declaring that, “The aquaculture facility does not have a high risk of generating significant acute contamination events, although its proximity to the sea constitutes the main risk factor. In any case, the facility may have to develop a risk analysis in this regard, although at this time of development of the project has not been carried out.” Nueva Pescanova’s octopus farm could have detrimental effects on local aquatic animals either indirectly through unknown contaminants and pollutants transferred through discharge, or directly through farmed and wild aquatic animal interactions made possible by instances of escape. In 2016, an octopus kept in New Zealand’s National Aquarium squeezed through a slight gap at the top of the tank, then slithered about 8 feet overland to slide down a drainpipe more than 160 feet long and, finally, into Hawke’s Bay.¹⁹ If any escapes were to occur due to human/training errors or natural disasters that harm the integrity of enclosures, then diseases, pathogens, chemicals, etc. could be passed from farmed populations to wild populations of *O. vulgaris* in the Canary Islands. Large amounts of waste generated from known escape artists, coupled with close proximity to the sea is a recipe for widespread

contamination.

Impacts on the surrounding communities and their economies as a result of this influx of a variety of wastes and potential contamination events were never considered but could have harmful implications for neighboring populations. Operations would fail to bolster the local economy, and Nueva Pescanoa would likely seek cheap materials and services to cut high production costs resulting from expensive antibiotics, excessive mortality rates, and substantial amounts of aquafeed for each cycle considering that each octopus would require approximately 3

times the weight of the animal in order to sustain itself.²⁰ Small-scale fishermen are viewed as an integral part of the local community but are highly affected by aquatic farms since the marine area they use, the wild stocks they catch, or the ecosystem they depend on are all subject to changes as a result of farm operation.²¹

Based on 5 decades of study in industrial agriculture and 3 decades of study in industrial aquaculture, there's substantial evidence that similar issues can, and will, translate over to octopus farming if it is allowed to persist.

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