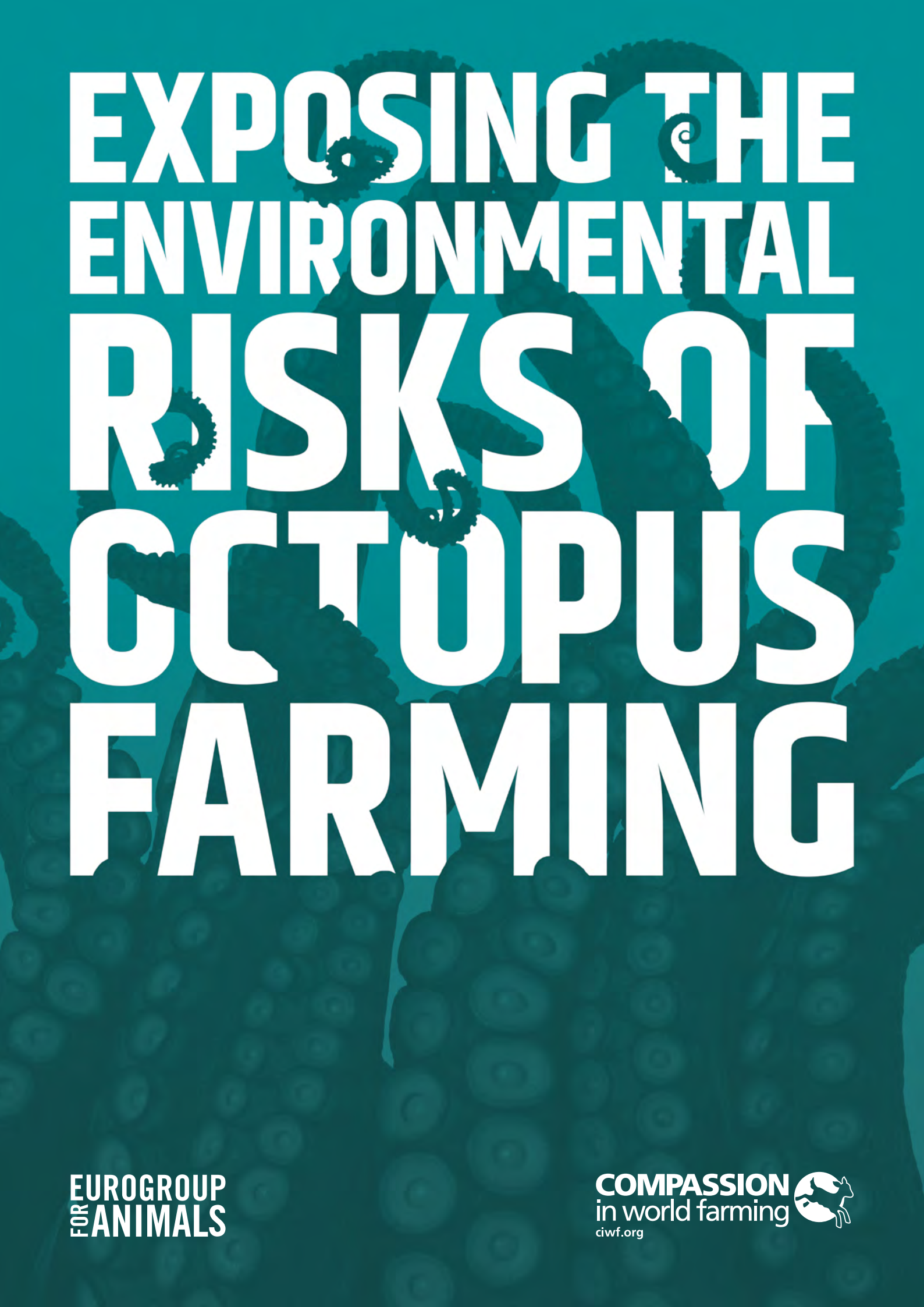
EXPOSING THE ENVIRONMENTAL RISKS OF OCTOPUS FARMING



EUROGROUP FOR ANIMALS

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In March 2023, Compassion in World Farming and Eurogroup for Animals published a joint report - Uncovering the Horrific Reality of Octopus Farming *(1)* – in which plans for the world's first octopus factory farm were exposed publicly. The issues examined in the report were directly linked to an aquaculture licensing application submitted to the Canary Islands Government by Spanish seafood company Nueva Pescanova.

INTRODUCTION

The report made it clear that the octopus farm plans entirely neglected animal welfare. The proposed slaughter method was with ice slurry, a practice that is currently being phased out across the aquaculture sector due to the painful and prolonged deaths it causes *(2,3)*. Another welfare issue uncovered was the proposed stocking density of 10-15 octopuses per cubic metre of aquaculture tank. As naturally solitary beings, these highly crowded conditions are known to lead to stress, aggression, and even cannibalism among octopuses *(4,5)*.

Several environmental issues were also emphasised in the report, including the use of feed ingredients derived from wild-caught fish, and the extremely high energy requirements associated with the proposed land-based aquaculture system *(6–8)*. In addition to these clearly defined issues, there were also several gaps identified within the farm plans. In terms of measurements of potential disease outbreaks among the octopuses in captivity, the company falsely claimed that no relevant octopus diseases exist. The composition and extent of waste to be discharged from the farm into the marine environment was also absent.

Before Nueva Pescanova's application to build an industrial octopus farm can be approved, a favourable environmental impact assessment (EIA) must first be issued by the Government. These evaluation processes are required by the European Union's (EU) EIA Directive to assess direct and indirect environmental impacts of development projects before they begin *(9)*.

Typically, aquaculture projects of this size are subject to a simplified type of assessment procedure. However, the Canary Islands Government's Autonomous Commission for Environmental Assessments (CAEA) rejected the simplified procedure for this octopus farm in 2023, as it could have 'significant' impacts on the surrounding environment. Nueva Pescanova must now undergo a second, more exhaustive type of environmental procedure, requiring considerably more details to be submitted by the company. The reasons behind this decision were published in the minutes and agreements of the CAEA of the Canary Islands Government in early 2024 *(10)*. The minutes exposed the serious environmental threats posed by the farm, and the company's failure to properly address them.

SIGNIFICANT ENVIRONMENTAL THREATS

The following list highlights the environmental risks of the planned octopus farm, as detailed in the minutes and agreements published by the CAEA. These risks relate to public health, the environment and wildlife, as follows:

1 PUBLIC HEALTH

THE CONTAMINATED SEAWATER PLANNED TO BE USED IN THE AQUACULTURE TANKS FOR PRODUCTION COULD POSE HEALTH RISKS TO THE END CONSUMERS *(11)*.

The Food and Agriculture Organization of the United Nations (FAO) has highlighted that "access to high quality and fit-for-purpose water from production to consumption is imperative for ensuring a safe food supply" *(12)*. For its proposed octopus factory farm, Nueva Pescanova did not submit any analytical analyses to ensure the water was sufficient for human consumption, jeopardising food safety. The Directorate of Public Health of the Canary Islands issued an unfavourable report for the octopus farming project due to this serious public threat as well as others listed below.

2 ENVIRONMENTAL POLLUTION

POLLUTION FROM THE FARM'S CONSTRUCTION AND OPERATIONS COULD NEGATIVELY ALTER THE LOCAL WATER, AIR AND NOCTURNAL LANDSCAPE.

For example, as the waste from the farm is planned to be discharged into the port, it is likely that there will be a notable decline in the already poor port water quality. This is expected due to the physical structure and hydrodynamics observed in the port area, keeping this water sheltered and largely excluded from mixing with the sea body. Without proper water circulation, much of the discharged waste will remain trapped directly within the port area.

Another major concern is the absence of information relating to the chemicals that will be used in the farm operations, including their concentrations and disposal. Nueva Pescanova simply stated that 'disinfectants' would need to be used in their aquaculture facility. Chemical contaminants can pose serious risks to the surrounding environment *(13)*. As noted by the Government, Nueva Pescanova should have prepared an exhaustive assessment of any potential chemicals to be used and introduced into the local environment. Instead, they irresponsibly provided zero estimates of their potentially toxic waste. Improper waste disposal causes too many nutrients to accumulate in the seawater through a process called eutrophication. Eutrophication can lead to toxic algal blooms, threatening local marine ecosystems and human health *(14)*.

Linked to the energy-intensive farming system proposed, there will also be pollution in the form of greenhouse gas (GHG) emissions. It is estimated that this land-based octopus farm would introduce an additional 4.58 kilotons of CO_2 per year. The company neglected to propose an effective plan to offset these emissions and properly address their contribution to climate change. The extent of solar panels included in the farm plans was also negligible. As such, the Canary Islands Government is urging the company to reconsider how they could ameliorate their energy efficiency.

Regarding the effects of light pollution, Nueva Pescanova did not evaluate any aspect related to the exterior lighting of their aquaculture project. According to the local legislation to protect the nocturnal landscape, necessary measures must be adopted to diminish any expected light pollution coming from the farm. This is especially important for the protection of wildlife as artificial light has a significant ecological impact on several species, including bats, birds, and insects *(15)*.

It is also very likely that bad odours may be produced as aquaculture facilities generate organic waste from feed and faeces remains. This would negatively impact local companies and businesses in the surrounding area, such as a commercial passenger terminal located very close to the proposed location for the farm. This issue has not been evaluated by the company.

3 USE OF NATURAL RESOURCES

THE PLANNED CONSUMPTION OF NATURAL RESOURCES IS UNSUSTAINABLE AND IMPROPERLY ASSESSED.

Indirectly, the main source of natural resources to be used is related to the farm's energy consumption. The farm has been classified as a large energy consumer due to the extent of fossil hydrocarbons that will need to be burned to meet the electricity requirements of the facility *(6)*.

The farm is also a big consumer of water. The seawater necessary for the octopuses' tanks is estimated at approximately 150,000 m3/year. This water will be returned into the sea, but only after circulating through the aquaculture system which will alter its physical-chemical conditions. These alterations to the water's composition could negatively impact the surrounding seawater and aquatic life.

The consumption of other natural resources is mainly linked to raw materials for animal feed (3,764 t/year) and live feed (27 t/year). Nueva Pescanova has not provided any details relating to the capture origin, species type, extraction methods, volume or kilograms of live animals required to produce the necessary aquaculture feed. As carnivores, octopuses require a diet rich in protein, typically sourced from fishmeal and fish oil *(16)*. The demand for these feed ingredients has significant implications for both food security and environmental sustainability *(7,8)*. It is estimated that 0.5–1.0 trillion fish caught each year are used for reduction to fishmeal and fish oil, estimated to represent nearly 20% of wild-caught fish landings *(17)*. Approximately 90% of wild-caught fish are suitable for human consumption *(8)*. This, therefore, represents an inefficient use of resources. The use of wild-caught fish in aquaculture also creates food security issues in regions such as West Africa, Southeast Asia, and South America from where fisheries supply much of the fish used for feed *(18,19)*. This is highly concerning as octopuses are known to have high feed conversion ratios in comparison to other animals typically farmed in aquatic environments *(5,20)*. The production of their feed ingredients would thus be linked to highly unsustainable practices that exacerbate overfishing and drive inequality in already vulnerable communities *(21–23)*.

4 BIODIVERSITY CONSERVATION

THERE ARE CONCERNING THREATS TO PROTECTED HABITATS AND VULNERABLE SPECIES.

Located merely 800 metres from the eastern margin of the proposed site location is the marine protected area (MPA) called "La Isleta", which is part of the EU's Natura 2000 network. As an MPA, this site is classified as a special zone of conservation due to the specific habitats and species living there (European Environment Agency., Marine Protected Areas). La Isleta consists of protected sandbank, reef and sea cave habitat areas. It also supports species of community interest, such as the Bottle-nose Dolphin *(Tursiops truncatus)*, globally threatened Loggerhead turtle *(Caretta caretta)* and globally endangered Green turtle *(Chelonia mydas) (24).*

According to the Government of the Canary Islands, Nueva Pescanova failed to consider the effects its project could have on this area and other surrounding wildlife. Also, the company has not demonstrated how it will meet certain required actions or mechanisms to restrict the disturbance of birds present in the nearby terrestrial environment. The company neglected to include a description of necessary measures for the prevention of any negative alterations to the protected marine ecosystem of La Isleta.

Another biodiversity concern relates to the seawater intake tower for the collection of water to be used and circulated within the aquaculture system. The construction of this seawater tower could disturb the local benthic communities: organisms that live at the bottom of the sea. Benthic ecosystems are critical for the provision of ecosystem services such as nutrient cycling, supporting biodiversity and the sequestration of large amounts of CO_2 *(25).* In the seawater collection area, there is a particular type of brown algae called Mujo amarillo *(Gongolaria abies-marina)* that is classified as vulnerable in the Spanish Catalog of Threatened Species (CEEA). This species requires special protection, as disruptions to communities of species included within the CEEA are strictly prohibited *(26).* Nueva Pescanova did not take the necessary precautions to ensure the protection of this algae, such as conducting an underwater survey to ensure all protected species and habitats are unaffected.

The planned route for the collection of seawater is also located in an area where cetaceans are present. These cetaceans, such as dolphins, porpoises and whales can be negatively affected by the noise pollution coming from the installation of the sea water intake tower. Cetaceans are very sensitive to changes in soundscapes as they rely on echolocation for navigating their surrounding environment and finding food *(27).* These mammals also rely on the noises they are emitting and receiving for communication between one another *(28).* The EU has adopted measures to protect these special animals from deliberate disturbances under the EU Habitats Directive, yet the company did not assess how they may be affected by the project's construction and operations *(29).*

5 CULTURE AND RECREATION

FROM A CULTURAL PERSPECTIVE, THE PROJECT HAS RECEIVED A NEGATIVE EVALUATION.

Within the proposed project area there are remains of a shipwreck that could be affected. Nueva Pescanova has made no evaluation of the potential impacts their farm construction and operations could pose to this cultural site, though they are required by law to do so (Law 11/2019 of Cultural Heritage of the Canary Islands).

Additionally, a team of legal experts at Legal Natura who assessed the farm plans found that there is a protected recreational diving site in close proximity. The regulations (Decree 102/2018 of July 9) establish that a perimeter of 250 metres must be respected around these special interest diving areas. However, the planned seawater collection point is within these restricted boundaries. Disregarding the local regulations, Nueva Pescanova has not taken proper measures to ensure the diving site is unaffected by their farm's construction and operations.

6 PORT DESIGNATION

IT IS UNCLEAR WHETHER AQUACULTURE ACTIVITY IS PERMISSIBLE AT THE PORT LOCATION.

The approved designation of the port is shipping and transport. This again raises concerns linked to human health as there are high risks of oil spills and shipping pollution within the water catchment area. Local zoning laws prohibit marine aquaculture in areas less than 1000 metres from the port for these reasons. However, it is unclear how this regulation relates to on-land production. The location of the offshore seawater collection point introduces added complexity.

CONCLUSIONS

Nueva Pescanova claims that it is committed to 'maintaining biodiversity', 'protecting the ecosystem' and 'promoting the circular economy'. Yet its own EIA for the farm at the Port of Las Palmas, Gran Canaria, was considered insufficient by the Canary Islands Government.

In its decision to subject the company to a more exhaustive assessment procedure, the Government highlighted that there could be 'significant effects on the environment'. The company neglected to consider these serious threats to public health, the environment and wildlife.

Compassion in World Farming and Eurogroup for Animals believe that, in addition to animal cruelty, the reckless EIA report submitted by Nueva Pescanova is extremely concerning on environmental grounds and that permission to build the farm should be rejected. The seawater proposed to be used for the cultivation of farmed octopuses is unfit for human consumption, disregarding food safety. The construction of the water collection tower could seriously disrupt the bottom-dwelling marine life, including a native and threatened species of brown algae. With the known presence of several dolphin and whale species in the area, the noise from the construction and operations of the seawater tower could negatively affect their ability to navigate, communicate, find food, and avoid dangers. Introducing this new factory farm so close to the port could also significantly worsen the quality of the water there and increase the presence of GHG emissions.

The EU is committed to improving the sustainability of its aquaculture sector. Aside from the potential impacts to the local environment, octopus farming fundamentally goes against this premise. As carnivorous animals, octopuses in farms would require feed composed of wild caught fish, further exacerbating overfishing, and damaging marine ecosystems. What's more, the small fish used to produce this aquaculture feed could instead provide nutrition directly to communities in need, which adds to the issues of food inequality among humans.

Octopus farming is inconsistent with the EU's aquaculture policy and commitment to animal welfare. This highly unsustainable industry should not be introduced nor promoted in the EU.

Due to the myriad concerns for octopus welfare, human health and the environment, the proposal to factory farm octopuses is not a model to be replicated elsewhere in the world either. Heeding these concerns, the US has led the way in opposing the emergence of this industry. The world's first legislative ban on octopus farming was enacted in Washington State in March 2024. Similar laws are being introduced in California, Hawaii and Oregon, with some extending to ban farmed octopus imports *(30)*. The EU should follow suit and focus investments on alternatives to animal-based foods, not perpetuate destructive farming practices that cause extreme animal suffering.

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