

Comments on the **Environmental Impact of Nueva Pescanova** before the Government of the Canary Islands: General Directorate of Fisheries and the General Directorate for the Fight against Climate Change and the Environment

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The environmental impact assessment (EIA) process is an interdisciplinary and multi-step procedure to ensure that environmental considerations are included in decisions regarding projects that may negatively impact the environment. The EIA process is necessary to identify the possible environmental effects of a proposed activity and how those impacts can be mitigated, in addition to informing decision-makers and the public of the environmental consequences of implementing such a project. The EIA document should identify, predict, and analyze impacts on the physical environment, as well as social, cultural, and health impacts. We are providing comments related to the EIA for an octopus farm project in Las Palmas de Gran Canaria set forth by Nueva Pescanova.

Allowing this project to operate could result in serious biosecurity and biophysical risks with regard to effluents being produced from this facility and discharged to surrounding waterways. There are several issues associated with the information provided by Nueva Pescanova as it relates to the environmental impacts of the proposed project, which we highlighted below.

Law 22/1988 on Coasts, governs seawater and its associated land (the maritime-terrestrial public domain). Thus, the use of, occupation of, or works on, the maritime-terrestrial public domain are subject to authorisation or concession. In addition, discharges from land into the sea require previous authorisation. Law 22/1988 is completed by Law 41/2010 on the protection of the maritime environment that governs the planning, conservation, protection and improvement of the environmental status of the maritime environment.

Regarding water discharges, as it is difficult to determine some unique maximum limits of general applicability, the discharge limit values applicable are set out in accordance with the specific circumstances at stake. Among those circumstances to be considered is the content of the specific plan applicable, which usually includes maximum discharge limit values or quality objectives, as well as the specific characteristics of the discharge to be authorized (e.g., location, pollutants or quantity).

There are very few clarifications in this document sent by Nueva Pescanova regarding limits: [RESPONSE TO THE REQUEST FOR CORRECTION DATED OCTOBER 11, 2021 TO THE INTERESTED PARTY IN THE FRAMEWORK OF THE APPLICATION FILE FOR THE AUTHORIZATION OF DISCHARGE FROM LAND TO THE SEA AND THE CONCESSION FOR THE OCCUPATION OF PORT PUBLIC DOMAIN LANDS](#)

The General Directorate for the Fight Against Climate Change and Environment requested:

- “A more detailed description of the characteristics of the microfiltration treatment to be carried out (procedure, equipment, etc.)”
  - Nueva Pescanova’s response **fails** to address this request, simply stating that they are in the “*drafting phase of the execution project*”.

- “Estimates of the contaminated load, in terms of concentration of carbon, ammonium, nitrite, nitrate, and phosphorus”.
  - Nueva Pescanova’s response indicating that a “*sample collection has been organized on a farm with similar characteristics*”, **fails** to provide any further information, especially due to the unique nature of this farm being the first to harvest octopus
- “Given the foreseeable absence of accumulating organisms in the area, on the samples of sediments, an analysis of the macrofaunal component of the infauna will be carried out, indicating groups and taxa present, with analysis of the composition and abundance, and the determination of the M-AMBI index”.
  - Nueva Pescanova has only stated that they have “*hired a specialist company to carry out the characterization requested*”, which has **failed** to yield any evidence that can be used in this impact assessment thus far.

Furthermore, there is **no mention of impacts on air quality** this project might have.

Law 34/2007 on Air Quality and Atmospheric Environment Protection governs the activities considered as potentially pollutant to the atmosphere. This Law:

1. identifies the polluting substances that must be subject to certain emission limits;
2. imposes that certain activities must obtain a previous air emission authorisation (labeled as A or B) or require a previous communication (labeled as C); and
3. imposes additional obligations such as self-control and keeping an official registry book on air emissions.

The air emission limit values are established by the regional authorities taking into account:

1. the implementation of best available techniques or other appropriate measures to prevent air pollution;
2. technical characteristics of the installation, location and local environmental conditions;
3. air emissions' nature, potential to transfer pollution from one medium to another and incidence for people and the environment; plans or programmes regarding air quality or gas emission reduction; and
4. air emission limit values imposed by laws and regulations or international treaties of which Spain is party (Article 5 of Royal Decree 100/2011).

Finally, Law 21/2013 on environmental assessment includes the obligation to carry out monitoring plans, the result of which must be handed over to the authorities. Similarly, Law 26/2007 imposes on operators the obligation to immediately notify to the authorities any environmental damage or imminent threat thereof caused by them. Failure to comply with these obligations leads to administrative liability.

Nueva Pescanova states that, “*In order to comply with the monitoring program and as a measure to control the quality of the water intake and the discharge emitted into the sea, all pertinent controls will be carried out on a monthly basis.*” However, no further information is mentioned related to specific procedures that will be followed. Additionally, monthly monitoring programs will fail to remedy any harm to the surrounding environment due to the fact that damage can occur much more rapidly, in which the operators would not be aware of in a timely manner. Nueva Pescanova **does not** account for regular, detailed monitoring

procedures, nor do they account for an emergency preparedness plan related to imminent environmental damages or threats.

All regulations found here<sup>1</sup>.

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The largest area of concern that exists at this time is the potential development and rapid spread of unknown pathogens and disease, which could create a substantial public health crisis in Las Palmas de Gran Canaria.

The immune system of octopus is poorly known to date. The lack of genomic information makes it difficult to understand vital processes like immune defense mechanisms and their interaction with pathogens at a molecular level. Nueva Pescanova stated, **“In the case of the octopus, no relevant pathologies are yet known.”** Which also translates to no known treatments, prevention strategies, risks, and the effects of these procedures on the surrounding ecosystems

The major threats to health/disease in octopus are water quality issues, physical injury, and infection (due to parasites or other pathogens), all of which may be interrelated. Host-pathogen interactions can be strongly influenced by the environment. Injuries may be inflicted by captive conditions, handling, and transport. For example, *O. vulgaris* (the species that Nueva Pescanova is requesting to farm) may fight if transported together and eventually bite or cannibalize one another<sup>2</sup>. Pathogens associated with skin lesions (*Photobacterium swingsii*, *Lactococcus garvieae* and *betanodavirus*) have been found in deceased octopuses in previous studies<sup>3</sup>.

Furthermore, *Todarodes pacificus* (utilized as a food item in aquaculture) have been reported to be positive for *Betanodavirus*,<sup>4</sup> which is an agent of a serious viral disease known as VER (viral encephalopathy and retinopathy) that has been detected in a wide range of vertebrate and invertebrate hosts worldwide and caused severe mass mortalities in both farmed and wild

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<sup>1</sup>Cobo, Uría Menéndez-Bárbara Fernández, and Carlos de Miguel. “Environmental Protection Regulations in Spain.” Lexology, 28 Jan. 2019, [www.lexology.com/library/detail.aspx?q=44a8f6be-1293-4969-b864-64df5ecca800](http://www.lexology.com/library/detail.aspx?q=44a8f6be-1293-4969-b864-64df5ecca800).

<sup>2</sup>Borrelli, L, Gherardi, F, Fiorito, G. A Catalogue of Body Patterning in Cephalopoda, Napoli, Italy: Stazione Zoologica A. Dohrn; Firenze University Press, 2006, pp. 626–626.

<sup>3</sup>Fichi, G, et al. “Skin Lesion-Associated Pathogens from Octopus Vulgaris: First Detection of Photobacterium Swingsii, Lactococcus Garvieae and Betanodavirus.” Diseases of Aquatic Organisms, vol. 115, no. 2, 23 July 2015, pp. 147–156, 10.3354/dao02877.

<sup>4</sup>Gomez, DK, Mori, K, Okinaka, Y, Nakai, T, Park, SC. Trash fish can be a source of betanodavirus for cultured marine fish. Aquaculture 2010; 302: 158–163.

marine organisms<sup>5</sup>. *Betanodavirus* was also identified in skin lesions, in the eye and in the branchial heart of *O. vulgaris*.<sup>6,7</sup>

**Nueva Pescanova failed to mention any of these concerns with regard to potential biosecurity hazards during operation.**

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[Synopsis of cephalopod pathology in captivity](#)<sup>8</sup>.

- Bacteria isolated from infection sites of octopuses and squids in a laboratory according to this study:
  - *Acinctohacter lwoffii*
  - *A. hydrophila*
  - *Cytaphaga sp.*
  - *P. putrificiens*
  - *P. stutzeri*
  - *Vibrio alginolyticus*
  - *V. carchariae*
  - *V. costicola*
  - *V. cholerae*
  - *V. damsela*
  - *V. fluvialis*
  - *V. natriegenes*
  - *V. parahaemolyticus*
  - *V. pelagius (biovar 2)*
    - *Vibrio spp.* is considered as a significant problem to the development of the aquaculture sector with severe economic losses worldwide.
    - Vibrios are gram-negative, ubiquitous in marine, estuarine ecosystems as well as aquaculture farms and one of the major microbiota of these ecosystems. Many vibrios are serious pathogens for animals reared in aquaculture.
    - Cholera is a potentially epidemic and life-threatening secretory diarrhea characterized by numerous, voluminous watery stools, often accompanied by vomiting, and resulting in hypovolemic shock and acidosis. It is caused by certain members of the species *Vibrio cholerae*.

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<sup>5</sup>Vendramin N, Patarnello P, Toffan A, Panzarin V, Cappelozza E, Tedesco P, Terlizzi A, Terregino C and Cattoli G. Viral encephalopathy and retinopathy in groupers (*Epinephelus* spp.) in southern Italy: a threat for wild endangered species? *BMC Vet Res* 2013; 9: doi:10.1186/1746-6148-9-20.

<sup>6</sup>Vanni A, Fichi G, Cardeti G, Cersini A, Perrucci S, Lenzi F, DeWolf T, Fronte B, Ricci E, Campeis F and Susini F. Potenziali patogeni in popolazione naturale e in soggetti stabulati di *Octopus vulgaris*. *Atti Società Italiana di Patologia Ittica*, XIX Convegno Nazionale 2013; 80.

<sup>7</sup>Fiorito, Graziano, et al. "Guidelines for the Care and Welfare of Cephalopods in Research –a Consensus Based on an Initiative by CephRes, FELASA and the Boyd Group." *Laboratory Animals*, vol. 49, no. 2\_suppl, 9 Sept. 2015, pp. 1–90, 10.1177/0023677215580006.

<sup>8</sup>Ruth Francis-Floyd, D. V. M. "IAAAM 1987." *VIN.com*, 10 May 1987, [www.vin.com/apputil/content/defaultadv1.aspx?pId=11104&id=3981710&print=1](http://www.vin.com/apputil/content/defaultadv1.aspx?pId=11104&id=3981710&print=1).

- Cholera is endemic or epidemic in areas with poor sanitation; it occurs sporadically or as limited outbreaks in developed countries. In coastal regions it may persist in plankton.<sup>9</sup>
- Treatments (antibiotics and protozoacides) used against disease. These agents were applied to octopuses in various dosages, durations and frequencies:
  - *Acetic Acid*
  - *Antimony*
  - *Acriflavine*
  - *Amikacin sulfate*
  - *Atabrine*
  - *Calcium hypochlorite*
  - *Cefotaxime*
  - *Chloramphenicol*
  - *Formalin*
  - *Furazolidone*
  - *Gentamicin sulfate*
  - *Kanamycin*
  - *Malachite Green*
  - *Metronidazole*
  - *Minocycline hydrochloride*
  - *Neomycin sulfate*
  - *Neosporin*
  - *Nifurpirinol*
  - *Nitrofurazone*
  - *Oxytetracycline - hydrochloride*
  - *Panos*
  - *Piperacillin*

Some of these compounds, e.g. malachite green, have been banned in other EU member states. Denmark banned the compound in the 1990s. Many of these antibiotics are used to treat diseases in humans, so using them in octopuses significantly increases the risk of generating antibiotic resistance, which is a serious threat to the public health of humans, animals and the environment, as established in the report of the United Nations Environment Program, UNEP, in 2021.<sup>10</sup>

This list represents just some of the potential bacterial and chemical threats surrounding waterways and ecosystems could face if Nueva Pescanova is allowed to operate. **They have failed to conduct any relevant analyses or studies that examine the industrial biological interactions that are likely to occur as a result of large-scale production practices, and have no safety nets in place to protect local ecological communities or public health.**

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<sup>9</sup>Finkelstein, Richard A. "Cholera, *Vibrio Cholerae* O1 and O139, and Other Pathogenic *Vibrios*." Nih.gov, University of Texas Medical Branch at Galveston, 2015, [www.ncbi.nlm.nih.gov/books/NBK8407/](http://www.ncbi.nlm.nih.gov/books/NBK8407/).

<sup>10</sup>Environmental Dimensions of Antimicrobial Resistance Summary for Policymakers. [https://wedocs.unep.org/bitstream/handle/20.500.11822/38373/antimicrobial\\_R.pdf](https://wedocs.unep.org/bitstream/handle/20.500.11822/38373/antimicrobial_R.pdf)

Furthermore, *O. vulgaris* will require a carnivorous diet that relies on unsustainable fishing practices, creating a larger strain on already scarce resources. This project appears incompatible with both the European Commission's "Strategic guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030"<sup>11</sup> and the European Green Deal. In fact, these guidelines clearly state that we should be limiting feed producers reliance on fishmeal and fish oil taken from wild stocks and the diversification of European aquaculture should be directed towards non-fed and low-trophic species with a lower environmental footprint such as filter-feeding molluscs, algae and herbivore fish. Domesticating a new carnivorous species clearly goes against those principles. Nueva Pescanova states that, "paralarvae have a clear preference for eating larger Artemia, live food (1.4 mm)". Octopus have a relatively poor food conversion ratio, estimated to be 3:1 by external researchers<sup>12</sup>.

The use of live feed also poses an elevated chance of the spread of disease that can be easily discharged to surrounding waterways. Nueva Pescanova provided information on, "Red Pepper: a complete nutritional profile for Artemia and rotifers, dispersed in water", but failed to recognize the correlation between live feed, their nutritional profiles, and the effects such practices will have on effluents and discharge.

Nueva Pescanova's octopus farm could also 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<sup>13</sup>. 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.

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The project proposed by Nueva Pescanova could have negative effects on the livelihoods of the surrounding communities as well. The United Nations General Assembly has declared 2022 the International Year of Artisanal Fisheries and Aquaculture (IYFA 2022). The vision statement for this year seeks to develop "A world in which small-scale artisanal fishers, fish farmers and fish workers are fully recognized and empowered to continue their contributions to human well-being, healthy food systems and poverty eradication through the responsible and sustainable use of fisheries and aquaculture resources." Nueva Pescanova's industrial operation would not support these initiatives whatsoever. **Industrial farming could negatively affect traditional scale artisanal fisheries, and the communities that rely on these activities to sustain their livelihoods.**

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<sup>11</sup> "COMISIÓN EUROPEA Bruselas, 12.5.2021 COM(2021) 236 final ...." 12 May. 2021,

[https://eur-lex.europa.eu/resource.html?uri=cellar:bab1f9a7-b30b-11eb-8aca-01aa75ed71a1.0014.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:bab1f9a7-b30b-11eb-8aca-01aa75ed71a1.0014.02/DOC_1&format=PDF).

<sup>12</sup>Jacquet, J., Franks, B., Godfrey-Smith, P. The octopus mind and the argument against farming it: Commentary on Mather on Octopus Mind. *Anim. Sentience* 271, (2019).

<sup>13</sup><https://www.npr.org/2016/04/16/474412283/inky-the-octopuss-great-escape>

The maximum term to resolve and notify the resolution is four months, in accordance with the supplementary application of articles 111.4 and 152.13 of Royal Decree 876/2014, of October 10, which approves the General Regulation of Costs. After the period of 4 months without express resolution being notified, the request submitted in accordance with article 68.1 of Law 39/2015, of October 1, of the Common Administrative Procedure of Public Administrations, may be deemed rejected.

Due to substantial evidence we have provided here regarding the negative impacts this project could have on the surrounding environment, we request that the government reject the environmental permit for Nueva Pescanova's octopus farming operation, given there is not sufficient information provided by the company to execute this project.

### **Signatories/Firmantes**

**Aquatic Life Institute**  
**Africa Network for Animal Welfare USA**  
**Albert Schweitzer Foundation**  
**Alianima**  
**Anima International**  
**ANIMAL**  
**Animal Advocacy Africa**  
**Animal Empathy Philippines**  
**Animal Equality**  
**Animal Friends Croatia**  
**Animal Justice Canada**  
**Animal Kingdom Foundation**  
**Animal Law Italia**  
**Animal Nepal**  
**Animal Rights Center Japan**  
**Animal Save Movement**  
**Animals Aotearoa**  
**Animals Australia**  
**Animals Now**  
**Apon Welfare**  
**ARAF-PLATEAU DOGON**  
**ARBA**  
**Arusha Society for the Protection of Animals**  
**Aware**  
**Better Food Foundation**  
**Campaigns and Activism for Animals in the Industry (CAAI)**  
**Catholic Concern for Animals**  
**Center for Biological Diversity**  
**Climate Save Movement**  
**Coalition of African Animal Welfare Organisations**

**Compassion in World Farming**  
**Compassionate Action For Animals**  
**Conservative Animal Welfare Foundation**  
**Crustacean compassion**  
**The Dark Hobby**  
**Deutscher Tierschutzbund**  
**Dharma Voices for Animals**  
**Dieren Bescherming**  
**Djurens Rätt**  
**Dyrenes Alliance**  
**Dyrevernalliansen**  
**Dzivnieku Briviba**  
**Education for African Animals Welfare**  
**Environmental and Animal Society of Taiwan**  
**Essere Animali**  
**Factory Farming Awareness Coalition**  
**Feedback Global**  
**Fish Welfare Initiative**  
**F.R.E.E**  
**Fórum Animal**  
**Friends of Phillip**  
**Future Food 4 Climate**  
**Ghana Animal Welfare Society**  
**Global Aquatic Veterinary Association**  
**Greek Animal Welfare Fund**  
**Green REV Institute**  
**Humane Africa Trust**  
**The Humane Global Network**  
**The Humane League**  
**Humánný pokrok**  
**Institute of Animal Law Asia**  
**Kafessiz Türkiye**  
**Loomus**  
**L214**  
**Mercy for Animals**  
**National Council of SPCAs**  
**Nurture Imvelo Trust**  
**Oikeutta eläimille**  
**Partido Animalista - PACMA**  
**Plataforma ALTO**  
**Planet For All**  
**Plant Based Treaty**  
**Protección Animal Ecuador (PAE)**  
**Proveg**  
**Proyecto ALA**  
**PAZ**



**RSPCA**  
**SAFCEI**  
**SAFE**  
**Sea First**  
**Sentient Media**  
**Shellfish Network**  
**Shrimp Welfare Project**  
**Sibanye Animal Welfare and Conservancy Trust**  
**Sinergia Animal**  
**Sống Thuần Chay**  
**SPCA Montreal**  
**SPCA New Zealand**  
**SPCA Selangor**  
**Tanzania Animal Welfare Society (TAWESO)**  
**University of Guilan**  
**Utunzi Animal Welfare Organization**  
**Vegetarianos Hoy**  
**Vissenbescherming**  
**Viva!**  
**Voiceless**  
**Voices for Animals**  
**Voters for animals rights**  
**Welfarm**  
**West Africa Centre for the Protection of Animal Welfare (WACPAW)**  
**World Animal Protection**  
**WTS**  
**50 by 40**  
**Dr. Andrew Knight, University of Winchester**  
**Dr. Becca Franks, New York University**  
**Dr. Heather Browning, London School of Economics**  
**Dr. Kathy Hessler LL.M., Lewis & Clark Law School**  
**Silvia Barquero, Animal Rights Activist**  
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