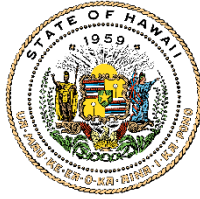


JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAII'
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

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Testimony of
DAWN N. S. CHANG
Chairperson

Before the Senate Committee on
AGRICULTURE AND ENVIRONMENT

Monday, February 10, 2025
1:01 PM
State Capitol, Conference Room 224 & Videoconference

In consideration of
SENATE BILL 1159
RELATING TO AQUACULTURE

Senate Bill 1159 proposes to prohibit the aquaculture of octopus for human consumption. **The Department of Land and Natural Resources (Department) acknowledges the intent of this bill and provides the following comments.**

Octopus aquaculture:

Food produced for human consumption through aquaculture has increased from around 110 million tonnes per year in 2000 to approximately 158 million tonnes per year by 2020 (FAO 2022). Demand for food produced for human consumption is likely to continue to rise as populations increase. Octopuses appear to be ideal candidates for aquaculture because their popularity as menu items has increased (FAO 2022) and they are short lived and produce many offspring. However, it is presently difficult to raise octopuses solely in an aquaculture setting due to challenges in closing the lifecycle. Only one species (*Octopus vulgaris*) has been successfully cultured from eggs to adulthood.

There is very little information on octopus aquaculture for human consumption since there is currently only one facility operating in the world that purportedly has fully completed the life cycle of *Octopus vulgaris* (Canary Islands, Spain). One location in Mexico raises *Octopus maya* species, but they do not breed them in captivity and instead rely on wild populations for the brood stock. Therefore, these are not technically produced through a closed aquaculture system.

DAWN N.S. CHANG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT
RYAN K.P. KANAKA'OLE
FIRST DEPUTY
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MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES
ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Comments on ethical treatment of octopuses:

No current guidelines exist for the treatment of cephalopods in aquaculture, though there are many academic reports on the care and welfare of cephalopods in research and permits are required for research internationally (Carere and Mather, 2019; Ponte et al, 2019; Fiorito et al, 2015).

Octopuses are mostly solitary and often cannibalistic (Hernandez-Urcera et al 2019), so if/when octopus aquaculture for human consumption occurs, appropriate holding tanks would need to be considered. As with any aquaculture operation, care would need to be taken to prevent disease, and identification of welfare biomarkers would need to be established.

Numerous research papers on cephalopod cognition and the ability to experience pain exist in the scientific literature (Crook, 2021; Mather, 2022; Alupay et al, 2014). This has led to questions about the ethics surrounding octopus aquaculture. These questions also apply to any animal that is being cultivated for human consumption.

Octopuses are carnivorous and therefore would require some type of fish or crustacean feed in an aquaculture setting. This is the same with other carnivorous species in aquaculture (tuna, salmon, trout, etc.). Some argue that by feeding octopuses protein, this is effectively removing other possible food resources for humans, thus canceling out the benefits of the aquaculture.

Comments on octopus life cycle:

The day octopus (*Octopus cyanea*) and the night octopus (*Octopus ornatus*) are the most commonly eaten octopus species in Hawai'i. Both species have pelagic paralarvae (the larvae produced by octopuses) which are particularly challenging to grow to adult phase in captivity. Thus far, there have been no successful attempts at closing the life cycle in captivity for either species. The possibility of octopus aquaculture of these species is not presently feasible.

Conclusions:

The question of octopus aquaculture for human consumption is extremely complicated. Currently, no aquaculture of octopuses is occurring in the United States, but that does not mean that it will not happen in the future. If/When octopus aquaculture becomes possible, it warrants further conversation with managers and researchers to ensure appropriate ethical guidelines are considered.

Mahalo for the opportunity to provide comments on this measure.

JOSH GREEN, M.D.
Governor

SYLVIA LUKE
Lt. Governor



State of Hawai'i
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SHARON HURD
Chairperson, Board of Agriculture

DEAN M. MATSUKAWA
Deputy to the Chairperson

TESTIMONY OF SHARON HURD
CHAIRPERSON, BOARD OF AGRICULTURE

BEFORE THE SENATE COMMITTEE ON AGRICULTURE AND ENVIRONMENT

FEBRUARY 10, 2025
1:01 PM
CONFERENCE ROOM 224

SENATE BILL NO. 1159
RELATING TO AQUACULTURE

Chair Gabbard, Vice Chair Richards and Members of the Committee:

Thank you for the opportunity to testify on Senate Bill 1159. The bill prohibits certain octopus aquaculture. The Department offers comments.

A ban on any aquaculture activity that includes the propagation, cultivation, maintenance, and harvesting of any species of octopus for the purpose of human consumption, based on disease transmission and welfare concerns, may have a negative economic impact on a growing industry. The Department is tasked to double food production, however, protecting the biosecurity of the food systems is also a concern.

Disease transmission risk can be reduced through implementing strict biosecurity measures, proper water management procedures, and proactive health monitoring and disease prevention protocols. This bill prompts recognition of the complex challenges in balancing aquatic species welfare with economic, scientific, and practical considerations in the aquaculture industry. The Department comments that continued research would add confidence that both food production and biosecurity issues are met.

Thank you for the opportunity to comment on this measure.



SB-1159

Submitted on: 2/9/2025 4:22:50 PM

Testimony for AEN on 2/10/2025 1:01:00 PM

Submitted By	Organization	Testifier Position	Testify
Edward Richards	Testifying for Animal Rights Initiative	Support	In Person

Comments:

Hawaii Senate Testimony

10 Feb 25 13:00

Good morning Chair Gabbard, Vice Chair Richards, and members of the committee. My name is Edward Richards, I live in Honolulu, and on behalf of Animal Rights Initiative, I am here to voice strong support for Senate Bill 1159 that will prohibit the manufacture of commercially produced octopuses in our state.

The foundation for this bill began in 2021, when the London School of Economics released 300 studies finding octopuses to be highly intelligent, sentient creatures with an exceptional capacity to comprehend suffering, concluding that high-welfare farming of them would not be possible. This prompted the United Kingdom to recognize this under their Animal Welfare Act. However in 2022, plans were announced for the world's first octopus farming facility, aiming to intensively confine and process over 1 million octopuses per year.

In 2017 there was a net pen collapse in Washington that accidentally released almost 300,000 non-native Atlantic salmon into Pacific waters. State legislators were quick to react by not only banning net-pen salmon farming, but also later prohibiting octopus farming in 2024 to avoid repeat catastrophes. Because of their exceptional cognitive abilities, octopuses are known for escaping - making them more likely than any other aquacultured species to spread disease, parasites, and genetic mutations on farms and to wild populations.

Octopus farms would pose a compound threat to Kona crab and other marine populations. Research indicates it takes three to five pounds of crabs and fish to produce a single pound of octopus. Because they can't be fed with soy or corn, it would require the diversion of millions of crabs and fish to be used as feed.

The vast amount of waste generated from such a resource intensive diet would intensify harmful algal blooms and concentrations of toxins in the water, contaminating fish tissues and requiring more bacteria advisories like we are currently seeing all over the state.

The phosphorous and nutrient rich waste serves as fertilizer for algae. The bacteria release body heat while eating and metabolizing, and reflect the blue green pond scum color we're all familiar with. That color absorbs sunlight, further warming the waters, creating a feedback loop of prime conditions for toxic algae to rapidly proliferate.

Hawaii's crustacean landings have been rapidly dwindling since the 90s, with Kona crabs down 80% and lobsters down 98%.

We can not simultaneously intensify crabbing while also rapidly accelerating predation, harmful toxin deposits, and warming waters. These exact conditions led to the collapse of a New England Shrimp Fishery, and we run the risk of creating the same conditions here.

Senate Bill 1159 is the chance to protect our wild caught octopus fisheries and to align with the Hawaii Department of Land and Natural resources strategy to preserve our natural ecosystems.

We are asking for a yes vote. Thank you.



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February 10th, 2025

RE: Memorandum of Support – SB 1159
Prohibits certain octopus aquaculture

Dear Chair Gabbard, Vice Chair Richards, and Honorable Members of the Senate Committee on Agriculture and Environment,

On behalf of the Animal Legal Defense Fund, the nation's preeminent legal advocacy organization for animals, and its hundreds of members in Hawai'i, I greatly appreciate the opportunity to submit this memorandum in support of SB 1159, prohibiting the propagation, cultivation, maintenance, and harvesting of any species of octopus for the purpose of human consumption. The Animal Legal Defense Fund strongly supports this bill as it would prevent the establishment of a practice that is not only inhumane but also carries significant environmental and public health risks. We strongly urge the committee to pass this bill and further the state's reputation as a leader in environmental and animal welfare issues.

Background

In recent years, international companies and countries have begun researching the development of open-ocean net cages and tanks on land to farm octopuses to capitalize on a growing gourmet demand for the animal. Foreign food companies, such as the Spanish company Nueva Pescanova, and countries including Spain, Chile, Italy, Mexico, New Zealand, and Australia, have invested significant funds into this research.¹ Nueva Pescanova has plans to develop the first industrial octopus farm in the Canary Islands. This legislation would prevent the spread of this harmful practice from coming to Hawai'i and having devastating consequences.

It is important to note that there are currently no octopus farms for human consumption in Hawai'i, thus this legislation would have no financial impact on existing businesses. It would simply stop those who are currently researching octopus farming from coming to Hawai'i to set up shop, **at the expense of local fishermen and the local fish and octopus populations**. It would not prevent the sale of wild caught octopus and would not impose any restrictions on the fishing or consumption of octopus. In fact, it would protect local fisherman by stopping largely foreign interests from polluting Hawai'i's waters and harming local octopus. The legislation also **does not** prohibit the breeding or keeping of octopuses for research purposes.

Octopus farming is inhumane

Octopuses have inspired people for centuries due to their unique appearance and expectation defying abilities. Scientists are continuously learning more about them and new discoveries are changing the way the public thinks about these impressive creatures. Beyond their color changing ability, octopuses also have significant cognitive ability. They can learn new skills, can navigate complex mazes, are known escape artists,

¹ *Public Funding of Octopus*, Compassion in World Farming (September 2024), available at https://www.ciwf.org/media/7458920/ciwf-research_octopus-farming-global-public-funding-briefing.pdf?_gl=1*1exkopr*_ga*MTU5Njc4Mjk2NC4xNzM5MTMxMzg0*_ga_RMC05PGGT7*MTczOTEzMTM4My4xLjAuMTczOTEzMTM4OS41Ni4wLjA.*_gcl_au*MTc1NjM0MjY4NS4xNzM5MTMxMzg2.

and even use tools.² Octopuses are so remarkable that the United Kingdom has legally recognized them as sentient beings, those capable of reasoning and experiencing emotions, deserving of enhanced legal protection.³ Because of their complex mental ability, octopuses have high enrichment needs that simply cannot be met in farming environments. Keeping octopus in this manner would subject them to intense boredom and mental stress.

Adding to this stress is the number of animals that are forced together in aquatic farm settings. In nature, the octopus is a solitary creature, viewing other octopuses as threats. Thus, cramming a large number of them into small pools together would be cruel and cause significant stress. It could likely also result in aggression and fighting among the animals, putting their lives in danger before they even reach slaughter. Potential injuries and poor water quality from the high-stocking density within farm systems also puts them at an increased risk for the spread of disease and parasites. Finally, there is currently no accepted humane method of slaughter for octopuses, which would leave them vulnerable to unnecessarily cruel slaughter practices.

Octopus farming has significant environmental risks associated with it

Octopus farming is not the sustainable practice its proponents claim that it is. As is the case with the intensive farming of other aquatic species, octopus farming could harm the surrounding ecosystems and marine life by spreading pollution and changing water temperatures. Runoff from octopus farms contains high levels of nitrogen and phosphorous, which produces toxins that are harmful to both humans and marine life of all kinds.

There is also a significant risk of farmed octopuses escaping their enclosures, as they are notorious for doing, and impacting local populations. This has been seen in salmon farms with escaped salmon spreading pathogens, creating genetic abnormalities, and increasing competition with local populations.⁴ Further, the wild harvesting of octopuses for the purpose of farming is a major threat to the sustainability of local populations. Octopuses are also carnivorous, feeding primarily on crustaceans, and require large amounts of feed in confined environments. This would require further devastation to already declining local marine populations by commercially harvesting crabs and other animals to use as feed. Hawai'i's local populations of octopus and other marine life, including the day octopus, should not be put at such a significant risk particularly when so many people rely on **wild** populations for food.

² Peter Godfrey-Smith, *The Mind of an Octopus*, Scientific American (Jan. 1, 2017), available at <https://www.scientificamerican.com/article/the-mind-of-an-octopus/>.

³ *Lobsters, octopus and crabs recognised as sentient beings*, UK Department for Environment, Food & Rural Affairs (November 19, 2021), available at <https://www.gov.uk/government/news/lobsters-octopus-and-crabs-recognised-as-sentient-beings>.

⁴ Jennifer S Ford and Ransom A Myers, *A Global Assessment of Salmon Aquaculture Impacts on Wild Salmonids*, PLOS Biology (Feb. 12, 2008), available at <https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.0060033>; see also Courtney Flatt and John Ryan, 'Environmental Nightmare' After Thousands Of Atlantic Salmon Escape Fish Farm, National Public Radio (Aug. 24, 2017), available at <https://www.npr.org/sections/thesalt/2017/08/24/545619525/environmental-nightmare-after-thousands-of-atlantic-salmon-escape-fish-farm>.

Octopus farming poses a risk to public health

Octopus farming has the potential to become a significant public health risk. Industrial aquaculture farms are breeding grounds for pathogens, and octopus have been found to be hosts of multiple pathogens and zoonotic diseases that can spread to humans, such as cholera.⁵ The use of antibiotics, many of which are used to treat humans as well, to combat these pathogens has the potential for the creation of multi-drug resistant bacteria. The United Nations has labelled antibiotic resistance as a leading threat to human health globally.⁶ There is simply no reason to bring these risks to Hawai'i.

Washington became the first state in the world to ban the farming of octopus in 2024, and California quickly followed suit. Oregon is also considering a bill this session to prohibit the practice. The passage of this bill here in Hawai'i would be a strong step toward protecting the Pacific Ocean and its precious ecosystems from unnecessary harm.

For the above welfare, environmental, and public health reasons, the Animal Legal Defense Fund strongly urges the committee to vote yes on this bill. Mahalo nui loa for your time and consideration.

Sincerely,

Lindsay Vierheilig
Legislative Affairs Manager
Animal Legal Defense Fund
lvierheilig@aldf.org

⁵ John W. Forsythe, *A Synopsis of Cephalopod Pathology in Captivity*, National Resource Center for Cephalopods, available at <https://www.vin.com/apputil/content/defaultadv1.aspx?pld=11104&id=3981710&print=1>.

⁶ *Environmental Dimensions of Antimicrobial Resistance, Summary for Policy Makers*, UN Environment Programme (2022), available at https://wedocs.unep.org/bitstream/handle/20.500.11822/38373/antimicrobial_R.pdf.

SB-1159

Submitted on: 2/8/2025 11:14:50 PM

Testimony for AEN on 2/10/2025 1:01:00 PM

Submitted By	Organization	Testifier Position	Testify
Ted Bohlen	Testifying for Hawai'i Reef and Ocean Coalition	Support	Written Testimony Only

Comments:

SUPPORT!

Hawaii Reef and Ocean Coalition (by Ted Bohlen)

SB-1159

Submitted on: 2/8/2025 5:21:53 PM

Testimony for AEN on 2/10/2025 1:01:00 PM

Submitted By	Organization	Testifier Position	Testify
Jenny Yagodich	Individual	Support	Written Testimony Only

Comments:

In SUPPORT of SB1159 to prohibit the farming of octopuses for human consumption.

SB-1159

Submitted on: 2/10/2025 7:59:41 AM

Testimony for AEN on 2/10/2025 1:01:00 PM

Submitted By	Organization	Testifier Position	Testify
Edward Richards	Individual	Support	Written Testimony Only

Comments:

Please support this legislation and vote it out of committee!