

Minutes of the Advisory Committee on Plants and Animals
November 15, 2019 Meeting
Hawaii Department of Agriculture (HDOA)

I. CALL TO ORDER

The meeting of the Advisory Committee on Plants and Animals was called to order by Advisory Committee Chairperson Dr. Kevin Hoffman on Friday, November 15, 2019 at 1:45 P.M. at the Plant Quarantine Branch Conference Room, 1849 Auiki Street, Honolulu, Hawaii 96819.

Members Present:

Dr. Kevin M. Hoffman, Committee Chairperson, Hawaii Department of Agriculture (HDOA)

Kenneth Matsui, Petland/Pets Pacifica

Dr. Maria Haws, Director, Pacific Aquaculture & Coastal Research Center, University of Hawaii at Hilo

Dr. Ryan Okano, Division of Aquatic Resources, Department of Land & Natural Resources (DLNR), Ex Officio Member Designated Representative

Dr. Bruce Anderson, Director, Department of Health

Kenneth Redman, Retired Director of the Honolulu Zoo

Members Absent:

Dr. Benton Pang, Invasive Species Team Manager, U.S. Fish & Wildlife Service

Others Present:

Jodi Yi, Deputy Attorney General

Jonathan Ho, Acting Manager, Plant Quarantine Branch (PQB), HDOA

Trenton Yasui, Acting Inspection & Compliance Chief, PQB, HDOA

Jonathan Kam, Acting Invertebrate & Aquatic Biota Specialist, PQB, HDOA

Noniponimoi Putnam, Acting Land Vertebrate Specialist, PQB, HDOA

Shelby Ching, Inspector, PQB, HDOA

Misty McElyea, Inspector, PQB, HDOA

Christopher Kishimoto, Entomologist, PQB, HDOA

Karen Hiroshige, Secretary, PQB, HDOA

II. INTRODUCTION AND COMMENTS

Chairperson Dr. Kevin Hoffman and the Advisory Committee members introduced themselves.

III. APPROVAL OF MINUTES FROM THE APRIL 17, 2019 AND MAY 20, 2019 MEETINGS

Chairperson Hoffman asked the Committee to review the minutes for the April 17, 2019 and May 20, 2019 meeting before entertaining a motion to approve them.

Chairperson Hoffman inquired regarding the need for discussion. With no further questions or comments, Committee member Dr. Bruce Anderson made a motion to approve the minutes of the April 17, 2019 and May 20, 2019 meeting. The motion to approve was seconded by Committee member Dr. Maria Haws and was passed unanimously.

Vote: APPROVED 6/0.

IV. COMMENTS FROM GENERAL PUBLIC ON AGENDA ITEMS (ORAL OR WRITTEN)

Chairperson Hoffman asked if there were any comments from the general public on any of the agenda items. There were no general public attendees.

V. REQUESTS TO BE REVIEWED BY THE ADVISORY COMMITTEE

Invertebrate and Aquatic Biota:

Request to: (1) Allow the Import of Pacific Oyster, *Crassostrea gigas* and Eastern Oyster, *Crassostrea virginica*, Animals on the List of Conditionally Approved Animals, by Permit, for Water Quality Remediation, by O'ahu Waterkeeper; (2) Establish Import Permit Conditions for the Import of Pacific Oyster, *Crassostrea gigas* and Eastern Oyster, *Crassostrea virginica*, Animals on the List of Conditionally Approved Animals, by Permit, for Water Quality Remediation, by O'ahu Waterkeeper;

(3) Allow the Transfer of Pacific Oyster, *Crassostrea gigas* and Eastern Oyster, *Crassostrea virginica*, Animals on the List of Conditionally Approved Animals, by Permit, for Water Quality Remediation, to O'ahu Waterkeeper; (4) Establish Possession Permit Conditions for the Transfer of Pacific Oyster, *Crassostrea gigas* and Eastern Oyster, *Crassostrea virginica*, Animals on the

List of Conditionally Approved Animals, by Permit, for Water Quality Remediation, to O'ahu Waterkeeper;

(5) Determine the Probable Impact on the Environment if the Pacific Oyster, *Crassostrea gigas* and Eastern Oyster, *Crassostrea virginica*, Animals on the List of Conditionally Approved Animals, are Accidentally Released; and (6) Are the proposed permit conditions sufficient to assure that the Pacific Oyster, *Crassostrea gigas* and Eastern Oyster, *Crassostrea virginica*, animals on the List of Conditionally Approved Animals, presents probably minimal or no significant effects on the environment.

Acting Invertebrate and Aquatic Biota Specialist (IAB) Jonathan Kam provided a synopsis of the request, and made it known that the applicant is available by phone if there are any questions.

Deputy Attorney General Jodi Yi pointed out that Advisory Committee member Dr. Maria Haws, who was present for the meeting, is noted as a responsible party in the applicant's submittal.

Dr. Haws said, "yes" and clarified that she is responsible in the sense that the applicant may obtain some of the requested oysters from her hatchery at UH Hilo, and that she is a technical advisor for the project. Dr. Haws said that she consulted with the ethics commission about potential conflicts with a previous request, and that the commission stated that there is no conflict as long as Dr. Haws is not personally benefitting economically from the project. Dr. Haws said that she was comfortable with voting on the request, and that she typically advocates for stricter permit conditions for these types of requests.

Advisory Committee Chairperson Dr. Kevin Hoffman said that he and Dr. Haws discussed a potential conflict prior to the meeting and that he was ok with her not recusing herself.

Advisory Committee member Dr. Bruce Anderson said that he started the first commercial oyster farm in Hawaii at Moli'i fishpond in Kualoa Ranch, and was involved in past oyster grow-out trials in Pearl Harbor, so he has a lot of experience with managing oyster issues. He said that he has no problem with the use of *C. virginica* in this project since the species was introduced into Pearl Harbor back in the late 1800s and early 1900s, and that it is currently the predominant species in Pearl Harbor. He said that he does have concerns about the use of non-triploid *C. gigas* because it is an aggressive animal, and that using non-triploid *C. gigas* would present a significant risk for proliferating, spread and becoming a nuisance. Dr. Anderson recommended that

only triploid *C. gigas* be allowed for use in the project because they don't waste energy on reproduction and therefore grow like crazy, and because the risk of it reproducing and spreading is much lower, however, he was ok with the use of non-triploid *C. virginica*. He recommended the addition of a permit condition that requires that the oyster cages are labelled "not for consumption". Dr. Anderson said that for bioremediation projects like the Hudson River and Chesapeake Bay projects to really work, non-triploid oysters that can reproduce naturally should be used, so that oyster populations and oyster beds can be restored.

Advisory Committee member Mr. Ken Matsui asked for clarification regarding the applicant's statement that *C. gigas* and *C. virginica* will not reproduce well in Hawaii because waters aren't cold enough. Dr. Anderson said that the statement isn't true. He said that both *C. gigas* and *C. virginica* do really well with water temperatures in Hawaii, and that cold temperatures don't have much of an effect on reproduction. He said that Hawaii's warm water temperatures do make it much more conducive for pests such as *polydora*. He said that *C. gigas* grows like crazy at Moli'i fishpond, and that they can get a market-sized oyster in 6 months. Dr. Anderson said that Hawaii's waters have a year-round growing cycle for microalgae and phytoplankton, unlike the Pacific Northwest where there is none in the winter. As a result, he said it takes growers in the Pacific Northwest 18 months to get a market-sized oyster, and that oysters grow three times as fast in Hawaii.

Mr. Matsui asked if oysters are grown in Hawaii to a marketable size, why does it make sense for Hawaii to ship oysters to the mainland, and for mainland producers to send a similar product back to Hawaii? Dr. Anderson said that it's because there aren't a lot of places to grow oysters in Hawaii because most of Hawaii's waters have very low levels of microalgae and phytoplankton relative to what is found in many places on the west coast. He said that fish ponds are ideal for oyster growth, and that Moli'i fishpond has 800 years of organic matter accumulated at the bottom which drives the production of phytoplankton and microalgae which the oysters eat. Dr. Anderson said that you would expect oysters to do really well in the Ala Wai and Pearl Harbor because there is a lot of phytoplankton and microalgae. He said the discoloration of the water at the Ala Wai and Pearl Harbor is not mud and sediment, but rather phytoplankton and microalgae.

Dr. Anderson said that oyster hatcheries on the west coast have shut down due to ocean acidification. He said that hatcheries in NELHA are able to successfully produce oyster seed and export them to oyster operations in the Pacific Northwest. He said that it isn't well known, but Hawaii produces most of the oysters that are grown in the Pacific Northwest.

Advisory Committee member Dr. Okano asked, at which of the four sites proposed by the applicant, would *C. gigas*, *C. virginica*, and the native oysters be used. Acting PQB IAB Specialist Mr. Jonathan Kam said from his understanding, the applicant intends to use the native oysters whenever possible, but if they were to use *C. gigas* and *C. virginica* it would be in Pearl Harbor. He said that the applicant is already using native oysters in cages as part of their pilot project.

Dr. Haws said that her facility provides Oahu Waterkeeper with the native oyster, *Dendostrea sanvichensis*. She said they've put out about 12,000 so far, and that they are much more difficult to propagate because they are less fecund than *C. gigas* and *C. virginica* because they are very small. Dr. Haws said that Hawaii's higher water temperatures do lead to higher growth rates for *C. gigas* and *C. virginica*, however, the high temperatures are a problem for their reproduction. She said that *C. gigas* and *C. virginica* are adapted to temperate and colder conditions, and they need to accumulate glycogen reserves when the nutrient levels are high and the water is cold. Dr. Haws said that it is possible to find non-native oysters in reproductive condition in Hawaii, but in ten years of surveying the so-called wild stock of oysters, it is very rare to find a diploid non-native oyster in full reproductive condition because they don't have the glycogen reserves to do that. She said that those non-native species that are found in the wild are very thin, very flaccid, not in good commercial condition, and may have only a few gametes. However, she said that the native oysters are clearly adapted to the warmer semi-tropical conditions and tend to spawn all year.

Dr. Haws said that after having spent a considerable amount of time in West Loch in the past year and a half, she can confirm that there is *C. gigas* in West Loch, and low numbers of *C. virginica*. However, she is not sure about the presence of *C. gigas* in the other lochs because she hasn't done extensive surveys there. Dr. Haws said that the non-native oysters are far outweighed by the number of native oysters and other native bivalves like native clams, and *Chama* oysters. She said you see a huge proliferation of native bivalves in West Loch, which is very optimistic in terms of promoting the restoration of our native species. Dr. Haws said that DNA barcoding on specimens they have taken from Kaneohe and Pearl Harbor and validated that *C. gigas* is at both places, just not in high numbers. She said that most of the specimens collected are native oysters, and that although they haven't found *C. virginica* outside of Pearl Harbor, it doesn't mean that they aren't around. She said that one of the interesting finds from the DNA barcoding is that they found two previously undocumented species of oyster in Hawaii, which means that they're finding more biodiversity than they ever suspected, mainly because oysters are just really difficult to identify.

Regarding Advisory Subcommittee member Dr. Fraiola's question regarding quality control for the ploidy state, Dr. Haws said that there are five oyster hatcheries on the Big Island: four commercial facilities and the UH Hilo research and training facility, that all produce some sort of triploid or tetraploid oyster, and the ploidy level of all of these oysters have to be validated by flow cytometry. She said it is of commercial importance to validate ploidy level because if commercial growers were to send oysters that weren't close to one hundred percent triploid, they would end up with a lot of wasted oysters. She said that the oysters from these hatcheries are going to be close to 100 percent triploid or it wouldn't be economically feasible for the commercial recipients.

Regarding Advisory Subcommittee member Dr. Fraiola's question regarding disease, Dr. Haws said that all of the hatcheries on the Big Island export oysters to Washington State, and one of Washington State's permit conditions require that all stages of oysters shipped to the state are tested annually for the most important diseases by a qualified and certified lab. She said that all of these hatcheries are very reputable, and because of these things, the risk of disease being transferred from one of these hatcheries is very low.

Dr. Haws said that she feels that proposed permit condition no.10 is a very reasonable condition, however, she noted that for these types of bioremediation projects, it would not be unreasonable to find oysters in poor condition out there because they are subject to a lot of contaminants. She said, however, that if there is a suspicion of a disease anywhere in any of the molluscan stocks in Hawaii, whether they be from farms or these water quality projects, that she thinks that disease testing should be done. Dr. Haws said that she believes that she did the first round of molluscan disease testing from West Loch in Pearl Harbor, and none of the samples taken tested positive for any of the notifiable diseases which is optimistic; however, she feels that more disease testing needs to be done in Hawaii.

Dr. Haws said that she doesn't believe that the use of *C. gigas* and *C. virginica* for this project is a high risk, however, she does agree that it is best to use triploid wherever possible.

Dr. Haws said that the applicant must have been using an old resume, and that her current affiliation to UH Hilo should only state Professor of Aquaculture. She said that she is no longer the director of the UH Hilo Pacific Aquaculture Coastal and Resource Center (PACRC), and that she no longer has a dual appointment with UH Sea Grant.

Mr. Matsui asked if Hawaii exports oyster juveniles or adults. Dr. Haws said that Hawaii hatcheries export eyed larvae and spat to the mainland.

Mr. Matsui asked if *C. gigas* and *C. virginica* grow very quickly in Hawaii, how is it that the oysters that are found are so thin? Dr. Haws said that many species of oysters, and animals that we call oysters but aren't actually oysters, put all their energy into shell growth because that's what protects them. Dr. Haws said that it's not very unusual to find a very large oyster that has very thin meat, which is a challenge for the commercial growers because you want to make sure that you have enough meat to fill the shell, and that's why the commercial growers tend to use triploids, since they use most of their energy to accumulate glycogen rather than eggs and sperm.

Dr. Anderson said that oyster spat is about the size of a grain of sand, and that 1,000,000 oyster spat can fit into a water bottle; therefore, it is very inexpensive to export. Dr. Haws explained that if adult oysters are bred for the purpose of selling the seed, the adults are mostly going to be diploid; however, if you want to sell triploid spat or larvae, you have to use triploid adults to make them. She said that diploid adult oysters in Hawaii are generally not preferred because they don't get fat and they don't reproduce well, which is why triploids are preferred.

Mr. Matsui asked if the applicant will use diploid native oysters. Dr. Haws said that the native oysters are only diploid.

Dr. Anderson reiterated his recommendation that a requirement to only use triploid *C. gigas* be added to the permit conditions.

Mr. Matsui asked for clarification regarding Dr. Anderson's previous comment that triploid oysters would not be very effective at cleaning the water. Dr. Anderson said that he honestly believes that if you want to see the same success as seen in Chesapeake Bay and other places, that you can't use triploid oysters because you want to see natural reproduction. He said that the utilization of cages, as proposed in this project, is a good first step as a grow-out trial and he would stick with the triploids, then come back to the Board later to request approval for release of non-triploids.

Dr. Haws said that the general consensus, even at the Division of Aquatic Resources, is that even though triploids are preferred, the risk of more invasiveness of the non-natives does not indicate that we should insist on only using triploids because that would place commercial inhibitions on people that can't afford the triploids. She pointed out that there are other species of oysters that are grown in the state that are not triploid, and that not all species can be made into triploid. Dr. Haws said that it is good to encourage the use of triploids for a number of reasons, but we shouldn't place

unreasonable commercial inhibitions on people who may need to use diploid oysters for one reason or another. She said that the reason why she says that diploids don't do very well in Hawaii is because she spent ten years prospecting throughout the wild, and she rarely finds a fully reproductive non-native species. Dr. Haws said that if you see a proliferation of the non-native oyster species, then it probably means that you're either in one of the very rare estuarine conditions like in Pearl Harbor, or that there is a very serious water quality problem.

Dr. Haws said that she agrees with Dr. Anderson in that a significant impact will not be made on water quality unless large amounts of bivalves are used. She said that these types of projects are really good at attracting attention to the issue of water quality in Hawaii, and that Dr. Anderson and his colleagues did a great job with the first pilot bioremediation project in Pearl Harbor which received a lot of attention. She said that the intent is not to introduce huge amounts of non-native oysters to re-establish a population, and that she doesn't think it would be successful anyway because it is very difficult to keep them alive in the wild in the first place. Dr. Haws said that the juvenile stages of oysters are very vulnerable, and that unless you're out cleaning oyster spat cages every other day, they are entirely eaten up by crabs.

Mr. Matsui said that he grew up in Waiawa, and he spoke with Joe Minor who is the caretaker for that area. He said that he has seen small oysters in several places, and he has seen large oysters in some places in the middle loch. He said that it shows that oysters can survive there, but they are not as numerous as they were when he grew up in that area.

Dr. Anderson said that back in the 1970s, surveys were done in West Loch, Middle Loch and East Loch and the reefs were mapped out. He said the two major introductions of oysters in that area was *C. virginica* and that it is very likely that if you saw oysters anywhere in Pearl Harbor, that it would probably be *C. virginica*.

Dr. Haws said that she has surveyed a lot of the old reefs in that area and you see the old *C. virginica* shells and very few live *C. virginica*; however, you do see the native species setting on the old shells which is encouraging. She said that you don't see that on the old shells in Enchanted Lake because that whole environment has become inhospitable for bivalves, but it seems that West Loch is doing much better than people think.

Dr. Anderson said that oysters tolerate a wide range of salinity, so when it rains hard and you see a wide range of salinity levels, you don't see mass oyster mortality.

Advisory Committee member Mr. Ken Redman said that this is a topic that he knows nothing about and that he is getting an education; however, he thinks that the discussion has strayed away from the request in front of them.

Mr. Matsui asked if oysters are being placed into the ocean, how is proposed permit condition no. 13 going to be enforced? Dr. Haws said that she thinks that proposed permit condition no. 13 should be omitted because it pertains more to hatchery permit conditions. Acting PQB Inspection and Compliance Section (ICS) Chief Mr. Trenton Yasui said that condition no. 13 pertains to effluent from a quarantine facility and is only pertinent if quarantine is required at some point. Dr. Haws recommended that proposed permit condition no. 13 be stricken from the conditions.

Mr. Redman inquired about the background of the applicant Oahu Waterkeeper. Mr. Yasui said that the PQB could have the applicant answer Mr. Redman's question and provide some background. He said that the Waterkeepers are an international organization and it's a pretty big movement, but that the applicant can better answer that question.

Dr. Okano revisited his question regarding where the applicant plans to plant each of the requested species of oysters. Mr. Yasui said that if Dr. Okano feels that it is necessary to restrict the planting of the requested species in certain bodies of water, he could propose appropriate permit conditions. He said that the PQB has proposed permit condition no. 4 which may address his concerns. He said that condition no. 4 would only allow the permittee to use the request species at sites that are approved by the PQB, and that if the Advisory Committee recommends that certain restrictions are placed on the planting of oysters in certain bodies of water and the Board approves, then the PQB will enforce that. Dr. Okano was amenable to Mr. Yasui's proposal.

Dr. Anderson reiterated his recommendation that a requirement to only use triploid *C. gigas* be added to the permit conditions.

Dr. Haws disagreed with Dr. Anderson's recommendation. She said that it is an artificial distinction to distinguish between fishponds and open waters since fishponds are intimately connected to open waters, and that there are currently diploid non-native oysters being grown in a good number of fishponds. Dr. Haws reiterated that she has done extensive surveys, and she hasn't seen a proliferation of these non-native oyster species outside of the fishponds. She said that even though oysters grow well in Heeia and Moli'i fishponds, it isn't a proliferation, rather it is scattered specimens. She said with the exception of Pearl Harbor, the historical fact is that you don't see a proliferation of *C. gigas* in Hawaii's waters, which is a good indication that the risk of using diploid *C. gigas* is low. Dr. Haws said that she doesn't understand the concern about using diploid

C. gigas in West Loch when it's been confirmed that there are diploid *C. gigas* already in the area and in Sand Island as well. She said, however, that she's not suggesting that diploid *C. gigas* are introduced into areas where they haven't been documented before. Dr. Haws said that if we start putting prohibitions on the use of diploid non-native oysters, the use of Kumamoto oysters would be excluded because attempts to make polyploid Kumamoto oysters has not been commercially successful.

Mr. Yasui said that if the Board were to approve this request with the Advisory Committee's recommended conditions that restricts the use of the requested oysters to certain bodies of water on Oahu, if another organization wanted to do bioremediation on another island, that request would have to be approved by Board as well, which would nullify the PQB Manager's authority to administratively issue a permit for a project that utilizes the same organism and for the same purpose.

Mr. Yasui said that the applicant's submittal did indicate that oysters may be imported from open waters of other states, which is why the PQB proposed permit condition no. 9, Subsection a(ii). He said, however, that the applicant told them verbally that they do not intend to import from the mainland, and that perhaps we should clarify that with the applicant. Dr. Haws said that the shippers that were provided on the applicant's submittal are all commercial licensed facilities that are governed by the Pacific Northwest regulations, which actually prohibits the transfer of oysters from open water to open water within certain regions. Dr. Anderson suggested that a permit condition is added that only allows oysters to be obtained from hatcheries in Hawaii.

Dr. Okano said that depending on where the applicant intends to use each of the requested oyster species and if they intend to use diploid or triploid, he may want to propose restrictions because he wants to ensure that there is a certain level of risk management.

Acting PQB Manager Jonathan Ho said that the Advisory Committee is reviewing two sets of conditions, one for import and the other for transfer. He said that it is pretty clear that no one wants to allow the importation of oysters from open waters, so the PQB can remove proposed import permit condition no. 9, Subsection a(ii) and proposed possession permit condition no. 10, Subsection a(ii).

(Applicant Ms. Rhiannon Chandler-'Iao, Executive Director of the Oahu Waterkeeper was called by Mr. Kam and participated in the meeting.)

After Mr. Kam called the applicant Ms. Rhiannon Chandler-'Iao, she introduced herself to the Advisory Committee.

Dr. Okano asked Ms. Chandler-'lao where she is planning to use the non-native oyster in her request. Ms. Rhiannon Chandler-'lao said that the non-native oysters would only be used in Pearl Harbor, and if they were to make a change, that they would request to change their permit.

Dr. Okano asked Ms. Chandler-'lao if she would be amenable to a permit condition that only allowed her to put non-native oysters in Pearl Harbor. Ms. Rhiannon Chandler-'lao said that she would be okay with that, as long as Dr. Haws thinks that it is reasonable. Dr. Haws said that she thought that Dr. Okano was okay with the use of non-native oysters outside of Pearl Harbor if the oysters were polyploids. Dr. Haws expressed concern about the condition proposed by Dr. Okano restricting the use of non-native oysters to Pearl Harbor because she said that she has clearly documented that there are Pacific Oysters all through the coast of Oahu, including in the fishponds, in West Loch, and the water of the Ala Wai. Dr. Haws said that if Dr. Okano is concerned about the spread of *C. gigas*, *C. gigas* is already here. She said that *C. virginica* is the species she's concerned about, and that she wouldn't want to see it introduced to a lot of new areas, and that caution should be indicated if Pacific Oysters are introduced to new areas.

Dr. Okano asked Ms. Chandler-'lao if she would be amenable to being restricted to only using triploid non-native oysters in her project.

(Telephone connection with applicant was disconnected for unknown reason prior to Ms. Chandler-'lao reply to Advisory Committee member Dr. Okano's question. Acting PQB IAB Specialist Kam called the applicant Ms. Rhiannon Chandler-'lao.)

Dr. Okano re-stated his previous question to Ms. Chandler-'lao. Ms. Chandler-'lao said "yes, absolutely". Advisory Committee Chairperson Dr. Hoffman said that his understanding is that there aren't any triploid *C. virginica* available and if so, that if the Advisory Committee recommended a permit condition requiring the use of only triploid non-native oysters, the applicant would not be able to use *C. virginica*. Dr. Haws said that she would be fine with the applicant using diploid *C. virginica* in Pearl Harbor. Dr. Anderson said that Dr. Haws previously stated that there are no triploid *C. virginica* available, and that he would be fine with the use of diploid *C. virginica* in Pearl Harbor.

Dr. Anderson reiterated his concern about the use of Pacific Oysters because it hasn't been introduced in large numbers anywhere. He said and that there is a risk that *C. gigas* may become a problem if diploid animals are used, and that triploid *C. gigas* are available at many hatcheries. Dr. Anderson asked Ms. Chandler-'lao if she would

agree to use only triploid *C. gigas* and triploid or diploid *C. virginica* in Pearl Harbor. Ms. Chandler-'lao said, "That sounds great."

Dr. Okano asked if diploid *C. virginica* exist in Pearl Harbor. Advisory Committee Member Dr. Haws confirmed that both diploid *C. virginica* and diploid *C. gigas* are both found in Pearl Harbor.

Dr. Hoffman inquired about the goal of the project. He said that initially the oysters are put out in cages, and asked if this is an experiment to see how the oyster do, and then is the long-term goal to release them out into the environment? Ms. Chandler-'lao said that the long term goal for the native oysters is to increase their numbers in the wild because they are a beneficial species in the marine ecosystem. She said that the benefit of using the non-native oysters is their much larger filtration capacity as compared to the natives. She said that she completely respects the need and desire to use triploid *C. gigas* whenever possible because it is not the target species for repopulation in the wild, and that they want the native oysters to repopulate. Ms. Chandler-'lao said that the broader impact goal of this project is to bring awareness of watershed health and not specifically the water filtration volume of the oysters. She said that she regularly brings discussions to classes about mauka to makai water flow through urban areas, and what it does to nearshore marine environments with regard to impacts on animals and the impacts of pollutants on humans. She said that kids don't want to hear about stormwater or wastewater, but if she talks about how oysters are fighting through pollution to clean our waters, then it's a story that they can resonate with. She said that oysters can tie it all together as a storyteller to help people reflect on their own behavior and make positive changes.

Mr. Matsui asked Ms. Chandler-'lao if she would agree with only transferring oysters locally rather than importing from outside the state? Ms. Chandler-'lao responded that it would not be a problem, and that all of the oysters have been obtained locally so far. She stated that it is her goal to source all of the oysters locally, but she didn't want to remove the ability to import from the request if it may be something necessary for Dr. Haws.

Dr. Haws stated that the question of where the oysters would be sourced from came up because the application listed mostly west coast hatcheries. She said that the confusion is because the parent companies are mostly located in Washington, but their hatcheries are located here in Hawaii, so the suggestion from Dr. Anderson was to source the oysters from a Hawaii-based hatchery. Ms. Chander-'lao said that would be her preference, and that she did not plan on buying oysters from outside of Hawaii.

Mr. Yasui said that PQB would be making a notation in her request to clarify that she only intends to transfer locally, and that the import portion of her request, including the import permit conditions, would be stricken from the request, because there wouldn't be any need for import at all. Ms. Chandler-'lao said, "Wonderful. Thank you."

Dr. Hoffman summarized the additions to the permit conditions as recommended by the Advisory Committee. He said that 1) all oysters should be from Hawaii hatcheries; 2) all *C. gigas* and *C. virginica* shall be only used at Pearl Harbor; 3) all *C. gigas* used shall be polyploid or triploid and *C. virginica* used can be diploid; and 4) warning signage indicating "not for human consumption" shall be placed on the oyster cages. He also confirmed that the Advisory Committee recommends the removal of request items number one (1) and two (2), and proposed import permit conditions, because the applicant no longer intends to import from the mainland.

Mr. Yasui confirmed with the Advisory Committee if their recommendation was to remove quarantine conditions no. 10(a)(ii) and 14 from the proposed possession permit conditions. Advisory Committee Chairperson Dr. Hoffman confirmed.

Mr. Ho said that this request is narrow in scope and that the Advisory Committee is being conservative, and that should the PQB receive a similar request in the future, the PQB will bring it up again for review. He said the discussions about ploidy and where the organisms will be allowed to be used can be brought up again. He said the conditions were drafted with the intent to be used for administrative approval, but based on the Advisory Committee comments, administrative approval will be unlikely.

Mr. Yasui said that there is another project in Ma'alaea Harbor on Maui that is very similar and that it would be a likely candidate for administrative issuance of a permit if these permit conditions are established.

Mr. Yasui asked Dr. Haws if she could clarify her concerns about the use of triploid oysters. Dr. Haws said that it has not been established that there is a high risk, so she felt it was an unnecessary restriction, particularly because both non-native species are already found in Hawaii. Dr. Haws also said that the Advisory Committee should be careful about limiting to only Hawaii hatcheries because two of the larger producers have facilities in the mainland and are just as biosecure as those in Hawaii.

Mr. Matsui commented that trying to find the proper permit condition language to address the authorized site may not be possible to address both requests. Mr. Yasui said that in the past, a condition has been used that would make permit issuance on a case-by-case basis; however, this would affect the Ma'alaea project and it would require full review by the Board.

Ms. Chandler-'lao asked if the permit conditions that are going to be approved would affect the Ma'alaea project, and that they had also submitted a permit application. Mr. Yasui said that after the start of this submittal, PQB was notified that the Maalaea Harbor request was in greater need of oysters. He said the decision was made because this submittal was about 80% complete and because the projects were so similar, that if this request were approved, PQB would administratively issue the Maalaea Harbor project permit, which PQB does for other requests. Ms. Chandler-'lao said that if this is the case, then that project would lose its funding. She said they only want to use triploid *C. gigas* and that *C. gigas* is already present in Maalaea Harbor.

Mr. Matsui asked Ms. Chandler-'lao if they are definitely only using triploid. She replied, "Yes, absolutely." Dr. Anderson said that maybe the Advisory Committee was going a bit overboard on the use of *C. gigas* and that he does not have a problem with the use of triploid *C. gigas* in Pearl Harbor or Ma'alaea Harbor.

Mr. Ho said to address the conservativeness of the proposed sites, that language could be added to condition no. 4 to limit the use of the restricted articles to sites where they are documented to occur. Dr. Anderson said that there should not be language regarding whether or not the organisms exist or not because with regards to triploid *C. gigas* reproduction will not occur. Mr. Matsui asked that the use of triploids could then be extended for use to other areas besides Pearl Harbor? Dr. Okano and Dr. Anderson both agreed. Mr. Ho said that for each request, the sites would be specified and that would allow for administrative approval.

Advisory Committee member Dr. Bruce Anderson made a motion that the Board approve this request with the PQB staff's recommendations. Advisory Committee member Ken Matsui seconded the motion.

Vote: APPROVED 6/0

Motion passes.

VI. ADJOURNMENT

Having no further business, Committee Chairperson Dr. Kevin Hoffman moved to adjourn the meeting. The motion was seconded by Advisory Committee member Dr. Ryan Okano and was unanimously approved. The meeting was adjourned at 4:17 P.M.

Vote: APPROVED 6/0

HDOA Advisory Committee Minutes
November 15, 2019

Respectfully Submitted,

Karen Hiroshige
Advisory Committee Secretary