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STATE OF ALASKA

DEPARTMENT OF FISH AND GAME DIVISION OF COMMERCIAL FISHERIES

SARAH PALIN, GOVERNOR

P.O. BOX 115526
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March 31, 2008

The Honorable John Harris
Speaker of the House
And
The Honorable Paul Seaton
Chairman, House Fisheries Committee
Alaska State Capitol
Juneau, AK 99801-1181

Dear Representatives Harris and Seaton:

Thank you for your letter of March 19, 2008 inquiring about my efforts to work with the geoduck industry to resolve specific farming issues relating to geoduck wild stocks. Alaska Department of Fish and Game (ADF&G) has reviewed and considered the proposal package provided by Mr. Paul Fuhs, who represents Pac Alaska. My response letter to Mr. Fuhs required consultation with the ADF&G Commissioner's Office, Department of Law, and Department of Public Safety because of the legal complexities of his proposals and for development of ADF&G alternative solutions. A copy of this letter was sent to you and has also been enclosed here for your reference.

The letter explains the legal framework to which ADF&G must adhere in its management of aquatic farm sites that have wild stock geoducks residing on them. It also provides a potential solution to the concern that small numbers of geoduck wild stock may remain and be intermixed with hatchery-produced wild stock despite the best efforts of farmers to harvest those clams prior to seeding the site with hatchery spat.

In addition, ADF&G has been pursuing cooperative planning with the Alaska Shellfish Growers Association (ASGA), the Southeast Alaska Regional Dive Fisheries Association (SARDFA), and individual geoduck farmers to address site selection conflicts which pose an obstacle to the growth of the geoduck mariculture industry. A workshop is being planned for April 15 in Ketchikan to identify potential geoduck sites and to discuss strategies for the growth of the geoduck industry. This forum will also serve to exchange information among all geoduck stakeholders including parties that appealed the geoduck sites applied for in the 2005 application

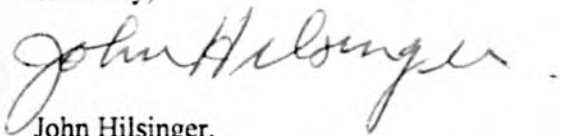
opening. This workshop is the start of implementing a broader concept of community-based mariculture development zones for the culture of multiple species. ADF&G along with the Marine Advisory Program, ASGA, and other interested parties will be working cooperatively with this goal in mind. A copy of the draft agenda is attached for your information.

Regarding the lawsuits brought by Gary Zaugg and Stephen Lacroix of Pac Alaska against the state, the Department of Law attorneys have responded to the plaintiff's request to stay the lawsuits and those suits have been stayed.

Another issue, which may be of interest to you, is the request by Alutiiq Pride Shellfish Hatchery to import geoducks from Washington State for use as broodstock in order to sell spat back to Washington farmers. Such importation would have to be approved by the Alaska Board of Fisheries (Board) and I have suggested the proponent may wish to submit a proposal to the Board for consideration. There are significant pathology and genetics issues related to this endeavor. Until the Department can review and evaluate plans for failsafe mechanisms in the hatchery to ensure complete genetic and disease isolation of the Washington State animals, we are reserving our decision.

I believe I have outlined a responsible approach to moving forward toward resolving farming issues related to geoduck wild stocks. Hopefully, this approach will also be applicable to other species and will go a long way toward allowing the aquatic farm industry to develop. If you have additional questions or concerns, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "John Hilsinger".

John Hilsinger,
Director

Enclosures

Response Letter to Mr. Paul Fuhs
Agenda for Geoduck Workshop
Letter to Mr. Jeff Hetrick

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

SARAH PALIN, GOVERNOR

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March 20, 2008

Mr. Paul Fuhs
Paul Fuhs Professional Service
P.O. Box 20664
Juneau, AK 99801

Re: Response to Geoduck Management Resolution

Dear Mr. Fuhs:

Thank you for your letter and information packet of February 14, 2008, providing specific proposals for managing geoduck wild stock on aquatic farm sites and replacement of wild stocks harvested. I understand that these suggestions are to help address specific concerns from Pac Alaska and to aid geoduck farmers in general to improve efficiency of their operations. I share your interest in the development of the shellfish mariculture industry in Alaska including geoduck farming. However, some aspects of shellfish farming pose legal issues, both constitutional and statutory, which determine the extent to which the state may allow farmers to take and sell wild geoducks, which are a common property resource. The Alaska Department of Fish and Game (ADF&G) has worked with farming interests to address some of the legal issues that confront development of the industry while seeking solutions that are within the confines of the law. ADF&G has attempted to accommodate the industry with cost saving alternatives for subtidal surveys and the security deposit and has provided geoduck farmers with an early return option for financial securities provided to the state. With this in mind, I appreciate the opportunity to provide a response to your proposals.

You offered a proposal for managing geoduck wild stock on aquatic farm sites that states: "After applying cultivation techniques identified by the department and allowing a five year period for 'further growth and propagation', the remaining stocks become aquatic farmed product". This activity would be inconsistent with both current statutory and constitutional provisions. The Superior Court decision in *Alaska Trademark Shellfish, LLC v. State*, 1KE-00-211 CI (Ketchikan Superior Court July 18, 2001) authorized the state to allow farmers to select sites that contained some wild stock so long as the sites did not have commercially significant quantities on them. Allowing aquatic farmers to select sites with commercially significant amounts of wild geoducks and to sell geoducks for private gain would violate the "no exclusive right or special privilege of fishery" clause in the Alaska Constitution because the farmer would be the only one to eventually

harvest and sell commercially significant amounts of a public resource. Under the logic of your proposal, we would apparently also be able to allow farm sites in areas where there are commercially significant amounts of wild geoduck stocks and allow farmers to harvest and sell them later, as long as some "cultivation" took place. We don't think the state constitution allows that interpretation.

Harvesting and selling wild stock geoducks from a farm site in excess of the significance limit is also not allowed by statute. AS 16.40.100(b)(2) only authorizes the harvest and sale of an "insignificant population." To correct any mistaken issuance of a permit on a site where the wild stocks exceed an insignificant population, AS 16.40.100(f) allows, after a best interest finding, the harvest by the farmer of excess wild stocks, with payment of compensation to the state; there is no other provision for disposition of commercially significant stocks.

Permit conditions for subtidal aquatic geoduck farms provide the permit holder 5 years within which to harvest the insignificant amounts of wild stock geoducks found on the site at the time of permitting. ADF&G thinks this preparation activity which is used to clear the area for planting of hatchery-produced geoduck seed is a fundamental step in on-bottom subtidal aquatic farming of geoducks. Although we would expect that farmers would be able to harvest a very high percentage of the insignificant wild stock on their site by repeatedly harvesting throughout the 5-year window, we also understand that even with the best harvesting practices there may still be some wild stocks remaining on the farm site after this time period. As you noted, subsequent harvest of even a small number of these wild geoducks mixed in with farmed animals raises enforcement questions.

As an alternative, I would like to suggest a possible solution to the concerns over the small quantities of geoduck wild stock remaining on the farm site that may have been missed or overlooked during the 5-year harvest period. The proposal is summarized below.

On a farm site that has been determined by the ADF&G to support an insignificant quantity of wild stock geoducks (less than 2,000 pounds per acre), the permit holder may harvest wild stock geoducks after the 5-year harvest period specified in the permit as long as the total harvest of wild stock geoducks is no more than 2,000 pounds per acre and the wild stock geoducks do not exceed 5% of the combined weight of wild and farmed geoducks being harvested at any one time. For example, if the permit holder harvested 9500 lbs. of hatchery-produced geoducks on their farm site, the permit holder would be able to harvest 500 lbs. (5% of the total of 10,000 lbs.) of geoduck wild stock remaining on that farm site. The geoduck wild stock harvested in this manner would have to be kept in separate containers from the hatchery-produced geoducks harvested from the farm site and each of these containers marked with the farm site permit ID, the area, and date of harvest. If harvest of wild stock geoducks occurs from more than one farm site, the geoducks would have to be kept in separate containers and each container marked with the farm site permit ID, the area and date of harvest. The harvest of these 5% of geoduck wild stock would still fall under the same reporting and fish ticket requirements as for all wild stock harvested on a subtidal geoduck farm site (5 AAC 41.270).

As you noted in your proposal, ADF&G will know when geoducks are being harvested from each farm site because the Alaska Department of Environmental Conservation will require Paralytic

Shellfish Poisoning sample testing to be completed prior to any geoducks sales. Given an insignificant (less than 2,000 pounds per acre) initial population and an expected harvest of at least 80% to 90% of the wild geoducks during the first five years, this allowance should adequately provide for any remaining wild geoducks mixed in with farm production.

You also offered a second proposal for the replacement of wild stock harvested. ADF&G has an obligation to ensure that the statutory provision for reseedling is upheld to ensure restoration of geoducks equivalent to the wild stock that originally existed on a farm site. There are different options to achieving this. One is to require restoration at the end of the tenure of the farm and then to take legal action against those who fail to perform; the other is to require a bond in advance which could go towards paying the cost of reseedling at the end of the farm site tenure and hold that bond for the duration of farming activities. The former option penalizes the public in the event an unscrupulous operator leaves without reseedling. The latter option ties up money for the duration of the farm site.

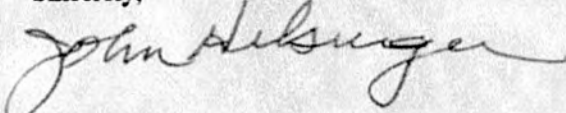
ADF&G worked closely with industry to develop a third "early release" option that looks out for the public interest while not tying up the money for so long. Under the early release option, farmers can regain the money set aside in a certificate of deposit for reseedling after meeting certain performance measures that show evidence to ADF&G that besides having a shellfish transport permit for spat and a receipt for having purchased spat, the farmer is following best farming practices on their farm site. Best farming practices include: planting hatchery-produced geoducks and growing them to a viable stage, deployment of predator exclusion materials, monitoring, and other farming husbandry activities. The requirement to show best farming practices in addition to a receipt for spat and a shellfish transport permit is a reasonable requirement to protect the public's interest in seeing the area reseeded.

ADF&G has further reduced the burden of this option by reducing the security amount by 50% to accommodate the needs of the industry to keep administrative startup costs low. ADF&G believes that the early release option should allow farmers to regain their money within 3 years of obtaining a permit for the average sized farm site of 6 acres. At this point in time, ADF&G personnel have not received any requests for this early release option, nor has any of the required information been provided to the ADF&G. As part of the review associated with granting an early release request, a site inspection would need to be completed. We understand there has been some confusion on the interpretation of wild stock restoration security regulation and plan to clarify the regulations soon.

The financial well being of the aquatic farmers is an important consideration for ADF&G. That is why we have made accommodations described above. We also expect that the farmers will fulfill their obligation to farm their permitted farm sites and not simply harvest wild geoducks. The state must find a way to maximize utilization of shellfish resources including geoducks while upholding its obligation as the steward of the resource for the citizens of Alaska. I hope you find that the proposal offered in this letter a responsible approach to meeting the farmers' concerns with regard to small numbers of wild geoducks remaining on the on the site after the

5-year harvest period. We also look forward to working with the geoduck farmers, Alaska Shellfish Growers Association, and the Southeast Alaska Regional Diver Fisheries Association to identify more potential farm sites for subtidal geoduck farms.

Sincerely,

A handwritten signature in cursive script, appearing to read "John Hilsinger".

John Hilsinger
Director

Cc:
Representative Seaton
Speaker Harris
Senator McGuire

**DRAFT AGENDA
GEODUCK INDUSTRY/ADF&G MEETING
KETCHIKAN
APRIL 15, 2008**

ADFG Office 2030 Sea Level Dr, Suite 207 Conference Rm

Stakeholders: ADF&G, Aquatic Farm Operation Permit Holders (Geoduck farm sites), ASGA, SARDFA, and DNR.

Goal: Work cooperatively together to assist the Alaska mariculture industry to work toward resolving farm siting controversies with other user groups so that the industry can grow in a responsible, stable, and sustainable manner in an attempt to improve the economic development opportunities for Alaskans in coastal communities.

Objectives:

- Determine areas suitable for potential geoduck farm sites, discuss potential conflicts, seek comments from stakeholders, and get stakeholder agreement on site locations.
- Provide stakeholders information on site selection criteria, limits on multiple sites/applications, existing regulatory framework to protect the common property resources, and concessions made to geoduck farmers to reduce risks and financial outlay.

Meeting Outcome: Identify potential farm site areas, obtain concurrence from stakeholders on concept of development zones, and identify next steps to be taken.

Facilitator: Gary Freitag

8:30 am

Topic: Introduction

Goal, Objectives, and Outcome for meeting

Ground rules

Future perspective of where we want to be

PNP/Mariculture Restructuring and how it fits

Person(s): Gary Freitag, John Hilsinger, and Rodger Painter

Process: Remarks – Q&A

Product: Participants understand meeting format, goals, and desired outcome

9:15 am

Topic: Overview of Existing Information on Areas Surrounding Existing Geoduck Farm Areas

Location of permitted, pending, denied, and available sites including HB 208; department survey data; special commercial dive harvest data; farmer wild stock harvest data.

Person(s): Cynthia Pring-Ham

Process: Remarks – Q&A

Product: Participants know background on current sites and relation to fishing areas

10:30 am

Topic: Break

10:45 am

Topic: Overview of Commercial Geoduck and Sea Cucumber Dive Fisheries Locations and Recon Surveys

Person(s): Flip Pryor and Scott Walker

Process: Remarks – Q&A

Product: Participants know background on commercial fishery

11:30

Topic: Geoduck Mariculture Development Zones

Discuss potential areas and zone concept, potential conflicts and concerns, and obtain user comments, outline the process and determine steps to be taken.

Person: Gary Freitag

Process: Facilitated work session to identify potential geoduck mariculture development zones and potential farm sites

Product: Participants understand process of developing ideas

12:00 pm

Topic: Working lunch – Continue Geoduck Mariculture Development Zones

1:00 pm

Topic: Continue Geoduck Mariculture Development Zones

Discuss potential areas and zone concept, potential conflicts and concerns, and obtain user comments, outline the process and determine steps to be taken.

Person: Gary Freitag

Process: Facilitated work session to identify potential geoduck mariculture development zones and potential farm sites

Product: Master list of suggestions placed on maps

3:15 pm

Topic: Break

3:30 pm

Topic: Current and future strategies for application process and farm sites

Multiple applications from one entity

Multiple sites on applications

Excessive applications

Significance of wild stock

Wild vs. farmed differentiation

Reseeding

Other species

Pre-existing wild stock as farm product

Others

Person(s): Cynthia Pring-Ham

Process: Remarks – Q&A

Product: List of continuing issues and potential solutions

4:45 pm

Topic: Review Results and discuss future meetings

Person(s): Gary Freitag

Process: Facilitated review of suggestions and discussion of where we go from here

Product: Participants know resulting suggestions

Adjourn 5:00 pm

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

Division of Commercial Fisheries

**SARAH PALIN
GOVERNOR**

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March 28, 2008

Mr. Jeff Hetrick
Alutiiq Pride Shellfish Hatchery
P.O. Box 369
Seward, AK 99664-0369

Dear Mr. Hetrick:

Please forgive the time taken to review your request to consider allowing importation of geoduck clams from Washington State for use as broodstock at the Alutiiq Pride Shellfish Hatchery (APSH), and subsequent export of the larvae and/or spat to either Washington or British Columbia. This request involved comment and investigation by a variety of Department staff. As I understand it, the purpose of this request is primarily for APSH to generate additional revenue from the sales of the export spat, which would be used to help support APSH operations to produce more Alaska-origin spat, geoduck or other species, for Alaska aquatic farmers. While this is a worthy business goal, there are some issues that prevent immediate approval of the idea.

This geoduck proposal is not analogous to the program for culture of transboundary river sockeye salmon at Snettisham Hatchery to which you refer to in your letter. Those sockeye stocks are from shared transboundary watersheds where the adults migrate through Alaskan waters to reach Canada and then only gametes are physically brought into Alaska under quarantine. The fish already spend considerable time as smolts and adults in Alaskan waters. Consequently, these sockeye are not strictly exotic stocks and could potentially stray and/or spawn in Alaskan watersheds. Also, transport of adult animals is not permitted.

With regard to the proposed geoduck work, currently there are no state statutes or regulations that allow the importation of geoducks into Alaska. AS 16.40.130 prohibits any shellfish broodstock importation unless authorized by the Board of Fisheries (Board) in regulation. The Board has authorized only two importations: 5AAC 41.070(b) permits importation of *Crassostrea gigas* oyster spat; and 5AAC 41.070(d) permits weathervane scallop spat originating from Southeast Alaska, including Yakutat, brood stock scallops exported south. The latter

importation has not occurred in many years. The Board of Fisheries would have to authorize the importation you are requesting.

ADF&G has pathology concerns for all import and export activities, and notes that most of the projects that are ongoing at Alutiiq Pride Shellfish Hatchery (and there are many) require isolation of the animals and depuration of the effluent for genetic or pathology concerns because stocks were collected from geographically separated sites in Alaska. However, none of the sites are as geographically separated as Washington State where the risk of exotic disease is greater due to interstate commerce of many shellfish species. Further, this risk would be undertaken every year if adult geoducks are to be replaced annually for spawning unlike the much lower risk imposed by annual spat importation of certified oysters. Also, at some point the physical space of the hatchery in Seward will become limiting and unable to provide adequate quarantine for the many projects currently permitted. If geoducks, or other shellfish, were permitted for import into Alaska, the increased effort for certification of out- of-state brood stocks, which is every year as indicated in the application, would be in addition to the pathology effort already performed for in-state transports, including native geoducks. Therefore, these out-of-state exams would have to be performed by ADF&G approved state or private labs in the Pacific Northwest (PNW) as is currently done for all Pacific oyster brood stock certifications. Most PNW growers contract with a single private lab for certification which means there may be significant cost to APSH for this required diagnostic service.

ADF&G also has genetics concerns for importation of Washington State geoducks. There is significant genetic structure among geoduck clams within and between Washington State and British Columbia (Miller et. al 2006¹). Significant genetic structure difference between Washington and Alaska geoducks is also likely. Interbreeding among genetically differentiated populations can result in outbreeding depression (Allendorf and Ryman 1987²). With an import of Washington State geoduck clams to Alaska, ADF&G has concerns about the potential of inadvertent mixing of stocks and would require failsafe isolation procedures to preclude mixing or interbreeding. For APSH to establish the necessary failsafe conditions could mean significant effort and the Department would like to review the plans for ensuring such isolation before taking a final position.

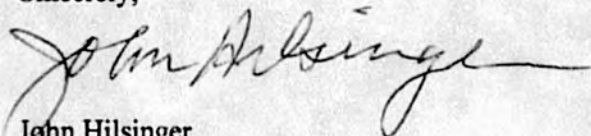
I realize that APSH may have a limited number of options open to it for extra revenue; however, ADF&G has no authority to permit importation of geoducks at this time. You may wish to consider bringing a regulation change proposal to the attention of the Board of Fisheries. Also, please keep in mind that were the Board of Fisheries to authorize importation, ADF&G would still have pathology and genetics concerns, and would require assurance of isolation for your proposed Washington State geoduck stocks. I have little doubt that Washington State would have similar concern regarding the spat shipped back into Washington State.

¹ Miller, C. M., K. J. Supernault, L. Shaorong, and R. E. Withler. 2006. Population structure in two marine invertebrate species (*Panopea abrupta* and *Strongylocentrotus franciscanus*) targeted for aquaculture and enhancement in British Columbia. *Journal of Shellfish Research*. 25:33-42

² Allendorf F. W. and N. Ryman. 1987. Genetic management of hatchery stocks. In: N. Ryman and F. M. Utter, editors. *Population genetics and fishery management*. Seattle, USA. University of Washington Press. pp. 141-159.

ADF&G realizes the importance of APSH to the aquatic farming industry in Alaska, and will continue to work with you to try to find viable options to produce more Alaska-origin spat, geoduck or other species, and continue to provide it to farmers and nurseries here in Alaska. Please feel free to contact either Mariculture Coordinator Cynthia Pring-Ham at (907) 465-6150, Ted Meyers of the ADF&G Pathology Laboratory at (907) 465-3577, or Deputy Director Patti Nelson at (907) 465-6105 regarding these issues or any additional alternatives to your usual operations that you may wish to consider.

Sincerely,

A handwritten signature in dark ink, appearing to read "John Hilsinger", with a long, sweeping horizontal line extending to the right.

John Hilsinger
Director

Geoduck

From Wikipedia, the free encyclopedia

The **geoduck** (pronounced /ˈɡuː.iː.dʌk/ i.e. "gooey duck"[1]), *Panopea abrupta* or *Panopea generosa*, is a species of large saltwater clam, also known as the **king clam** or **elephant trunk clam**.

The name is derived from a Nisqualli First Nation word meaning "dig deep", and its phonemically counterintuitive spelling is likely the result of poor transcription. Alternate spellings include *gweduc*, *gweduck* and *goiduck*.

Native to the Pacific Coast of the United States and Canada (primarily Washington, British Columbia, and Southeast Alaska), it is the largest burrowing clam in the world, weighing in at an average of one to three pounds (0.5 - 1.5 kg) at maturity, but specimens weighing over 15 pounds (7.5 kg) and as much as 2 meters (6 ft) in length are not unheard of.

It has a life expectancy of about 146 years, with the oldest recorded at over 160 years. This makes the Geoduck one of the longest-living organisms in the Animal Kingdom.

Scientists speculate that the geoduck's longevity is the result of low wear and tear. A geoduck sucks plankton down through its long siphon, filters them for food and ejects its refuse out through a separate hole in the siphon. Adult geoducks have few natural predators, which may also contribute to their longevity. In Alaska, sea otters and dogfish have proved capable of dislodging geoducks; starfish also attack and feed on the exposed geoduck siphon.

Geoducks are broadcast spawners. A female geoduck produces about 5 billion eggs in her century-long lifespan—in comparison, a human female produces about 500 viable ova during the course of her life. It is possible that this fact, in conjunction with the phallic shape of the siphon, has led to the belief that the shellfish has aphrodisiac properties.

Industry and impact

The world's first geoduck fishery was created in 1970, but demand for the semi-forgotten clam was low. Today, they sell in Asia for up to US\$30/lb (US\$65/kg). The Jumbo clam, like abalone, is highly regarded in Chinese cuisine. Its large, meaty siphon is prized for its savory (umami) flavor and crunchy texture. It is extremely popular in Hong Kong, China and Japan, where it is considered a rare tasty treat. Geoduck is mostly eaten cooked in a fondue-style Chinese hot pot or raw sashimi style, dipped in soy sauce and wasabi. On Japanese menus, geoduck is called *mirugai* or *mirukuigai*. (Although *mirugai* is sometimes translated to English as "Giant Clam", it is distinguished from "Himejako" sushi made from *Tridacna gigas*.)

Geoduck

Pacific geoduck clam
Scientific classification
Kingdom: Animalia
Phylum: Mollusca
Class: Bivalvia
Order: Myoida
Family: Hiatellidae
Genus: <i>Panopea</i>
Species: <i>P. abrupta</i>
Binomial name
<i>Panopea abrupta</i> Conrad, 1849



Seafood Geoduck display in a Chinese restaurant with price

The geoduck's high market value has created an 80-million-U.S.-dollar annual industry, with harvesting occurring in both Washington state and the province of British Columbia. It is one of the most closely regulated fisheries in both countries; in Washington, Department of Natural Resources staff are on the water continually, monitoring harvests, and the same is true in Canada where the Underwater Harvesters' Association manages the Canadian Fishery in conjunction with Canada's Department of Fisheries and Oceans. Demand has also led to a rapidly developing aquaculture industry.

Geoduck aquaculture on private tidelands in Puget Sound, particularly in South Puget Sound, has been steadily growing over the last ten years, averaging

about 10 new acres of cultivation per year. Currently less than 0.001% of Puget Sound is dedicated to geoduck farming. Geoduck farms use "predator exclusion devices" in which to plant the seed geoducks. These devices are 10-14 inch long, 4-6 inch diameter PVC pipes pushed into the sediment of the tideland. There are approximately 20,000 to 43,500 of these PVC pipes planted per acre on tidelands. These nursery tubes typically stay in the beach for the first one to two years of a crop cycle.

The Environmental Defense Fund has done extensive studies of aquaculture and has found that bi-valve aquaculture like geoduck clams are very beneficial to the marine environment. {Goldburg, Rebecca, et al. "Marine Aquaculture in the United States," as prepared by Environmental Defense for Pew Oceans Commission, 2001.} The primary reason for this is because geoduck clams are filter feeders and eat micro algae which proliferates as more nitrogen enters the marine ecosystem. Increases in nitrogen are due to more septic systems as well as bigger flows from city sewage systems throughout Puget Sound, increasing quantities of pet wastes, and increased fertilizer use from farms and lawns. When farmed geoduck clams (which ingest and retain nitrogen in their tissues) are harvested there is a net reduction in nitrogen in the marine ecosystem.

It should be noted that the water must be certifiably clean in order to plant geoducks commercially. This is a requirement of the Washington State Department of Health, and of the Interstate Shellfish Sanitation Council.

While some communities in Puget Sound have installed state of the art septic systems to comply with efforts by environmental groups and state officials to clean up Puget Sound, more than 3000 acres (12 km²) of shellfish beds have been lost to farming between 1992 and 2004 due to fecal contamination from human activities and development. Substantial portions of the state's shorelines are already so developed or degraded that they are unsuitable for harvesting, and other areas continue to follow suit.

Some shoreline owners have expressed concerns including aesthetics, effects on native geoduck populations, wildlife interactions, farm debris, and harvest techniques. Although some marine shoreline owners take issue with the visual impacts, the tubes are actually only visible 2-3% of daylight hours over a 6-year crop cycle. The reason for the low visibility is because geoduck are farmed in the lower

elevations of the beach and are covered by water most of the time. However, since the lowest tides in the summer are during mid-day, the visual impact of the tubes is greatest at the very time when the people of Puget Sound are likely to be exploring the beach. During the summer, farms are visible for as much as 5 hours during the day, every other week.

Effects on native geoduck populations from geoduck farming will be minimal to non-existent. Each year new hatchery brood stock is taken from the wild stock. Farmed animals are not used as brood stock so genetically, farmed geoduck are the same as wild stocks. Moreover, wild geoduck occupy the intertidal zone down to 300 feet below sea level. DNR and the tribes co-manage the wild fishery and only harvest geoduck between the -18 to -70 foot depths. Most of the wild geoduck stock is left untouched and unaltered.

Wildlife interactions are a concern and geoduck growers are adapting growing techniques to minimize these effects. A biological assessment examining the impacts of geoduck farming was completed and no long term effects on threatened or endangered species were identified.

Farm debris includes displaced net tops, rubber bands, and tubes. The netting tops used on the nursery pipes can come off and float away onto other beaches as debris and the rubber bands also can become debris in Puget Sound. To offset these environmental impacts most geoduck farmers have been embraced environmental codes of practice including regular maintenance and debris clean-up of their own farms. In addition, the industry now does two annual beach cleanups to collect marine debris from all beaches in areas where they farm. Although as much as 20% of the debris collected in each cleanup has been aquaculture related, less than 5% of the 120 cubic yards collected to date has been related to geoduck farming. Unfortunately, because of the currents in Puget Sound, nets and tubing can be found far from any poorly maintained geoduck operations.

Harvesting takes place every 4-6 years. Water pressure hoses using up to 50 gallons of water per minute are used to liquefy the sediment in order to extract the geoducks. There are limited impact studies related to intertidal harvest of geoduck as of August 2006, although the sub-tidal environmental impact studies done for the fisheries in BC and WA have found no detrimental effects in harvesting the clams. Geoduck farming is only conducted in clean, uncontaminated sediments so concern is limited to short term increases in turbidity and short term effect on benthic organisms. It should be noted that the Department of Natural Resources of Washington State conducted the environmental impact study. DNR is itself in the business of leasing subtidal lands for commercial geoduck harvest and starting this year, intertidal lands for commercial geoduck farming.

Compared to terrestrial farming, shellfish farming in general and geoduck farming in particular produces high quality protein using natural systems without the use of antibiotics, fertilizers, herbicides, or pesticides.

ALASKA STATE LEGISLATURE

Gooley duck farms, I have a major problem with the way they are permitted, from what I have discerned about from the Alaska Statutes is that the criteria for permitting them hasn't been followed, the part where the majority of a community has said that they didn't want these gooley duck farms here in Sitka were ignored in the first permitting, not only that but the area where they first permitted a gooley duck farm is heavily used by seals and has at least 3 seal haulouts along with sea lion haulouts that I know about.

The area's around Sitka clear up to Hoonah sound has many places families take their kids for overnight camping or longer, camping spots can be seen in many places in the woods, the idea of gooley duck farms bringing a lot of money into an area is false, at the most only a couple of people possibly will be involved in the harvest for a couple of days and they are off to market, trying to use a work force for the permitting is false, as can be seen in the time that it takes commercial divers to harvest and market gooley ducks. Also killing off a population of indigenous gooley ducks is also wrong because they are only adjacent to the inter-tidal zone that is to be used.

Let's hope that no more ideas like gooley duck farms are hatched, or oyster farms that a section of beach is given to the oyster farms as a way to profit, then because of the license to harvest clams is in hand digging clams anywhere seems to have become legal.

2

The next thing I will talk about is the mixing zones in known salmon streams, books written on the economics of the loss of salmon point out that the long term husbanding of salmon far exceeds the value of short term commercial gains, I will also point out in the history of the constitution of Alaska, Bob Bartlett said that where you have long term wealth such as in renewable resources, they shouldn't be sacrificed for short term gains, as has been done in places all over the United States, the value of the loss of the East Coast salmon was computed out and this value far exceeded the gains that the dams put in for logging and the farming use altogether. I will also say that heavy equipment was run up and down streams to clean mud off them when no one was looking.

3

A habitat division is very important to the people of the whole of the USA, this has been realized in many states because of loss of resources, this is the reason for a habitat division, it was placed in the Fish and Game departments because people trained in these resources were in this department, the correlation of data that was pertinent to a habitat question could be had from professional people that were conversant with things to do with habitat.

Frank Murkowski was unhappy with the permitting process that was stopped when managers in Fish and Game told people no this isn't good science to permit this project, the DNR was in the permitting business and steam rolled over as many objections as possible to do a permit, having a separation of processes, in my mind and many people I have talked to is good

sense, we need to remember that permitting something now full blast and finding a few years down the line that it was inconsistent with good long term management is wrong and to late.

Lastly I will say that right now we still have some people that are dedicated to doing the job of the habitat division as in the past, but attrition lost many good people when habitat was moved to DNR, attrition will continue as the years go by, DNR will get people that need to fast track projects over time, this is the natural way of department managers, I will also say that Habitat in the DNR does not have the same advocacy that it had under the Department of Fish and Game, so far that advocacy has not been needed but as time goes by, when attrition has weakened the Habitat division, there will come a time that a strong advocacy will be needed,

If the past has any consideration in the Department of Fish and Game commerce and conservation were consistent with long term gain for the State of Alaska, the only other way I can see that the State of Alaska can get a consistent long term interaction with DNR and DFG is to create another Department with it's own commissioner and call it the Department of Habitat, in this way we will not have a new Governor using his authority to by pass environmental concerns that he is unhappy with.

Professional Departments with a longtime working experience is harder to disrupt like has been done with the Habitat Division, it will also not pit different segments of our population and development peoples of the state against each other.

Lastly I will say that with our healthy fish stocks, I mean all fish stocks, trout, salmon char and what ever, Alaska is the envy of our nation, it takes little observation to see that salmon on every river from California to Mexico are in trouble. That trout stocks throughout the United States are also in trouble, the Atlantic Salmon is all but extinct in all the nations in the Atlantic Ocean except in hatchery stocks, that come to the table with a high pollutant content in their system, they are filled with chemicals that help them survive in fish farms, our country is finally waking up to this problem and many don't want the situation/

I will also tell you that we have the same trouble in the Bering Sea where the pollution dropout is recorded in the eggs of ducks and sea gulls, the pollution in the Great Lakes is so bad that there are warns out not to eat the fish, DDT is in the herring like fish, The coho and pink salmon that were planted there as a new sport fish have high concentration of this in their flesh, I hope that continued pollution will not do this in Alaska, we don't want continued debate how much dumping into fresh water can continue to increase, because it runs off into our oceans.

Talking about fresh water dumping is one thing, thinking that dumping in salt water is a horse of a different color so to speak, anyone familiar with tides know that there are two tides, incoming and out going, there are no closed systems, incoming tides flood into fish streams and tidal flats bringing the pollutions to everything in grasp.

Strengthening the pollution laws with tax credits to support new ways to eliminate this pollution is the intelligent way to approach this matter as is being done in many places in the globe called earth, why don't we try and join the long term habitation of mankind on our bio sphere.

Because I am sure that none of you want to eat a wonderful resource that will either kill you, make you sterile or create a long term health issue to you and your family.

RALPH GUTHRIE
380 KAAGWAANTAN
SITKA, ALASKA
99835

I am sorry that I have dragged this testimony out so far, but the habitat division is so important to the health of our fisheries and our state over all.

Because the history of development encroaches on all areas of human existence, in Washington they wrote into their constitution that they would protect the salmon resources because they were very important to the early people of that state, gradually the great logging interests from the east coast moved west than into Washington State, buying from that legislature the deletion of the statute that protected the salmon on the Washington coast and rivers.

Today we look at the Columbia River with very few wild stocks of king salmon and other salmon, the mitigation of these stocks are still inadequate to provide a sports and commercial salmon use, the early estimate of king salmon alone was 49 million fish, there were dog salmon, coho and sockeye as well, most are gone and a few voices that talk about it are blown into the wind of commercial interests, this same reasoning has occurred all the way down to the Santa Cruz River in California.

A recent exhibition of this when George Bush order water on the Klamath River retained for irrigation use, thus destroying 4 years of rehabilitation that had been worked so hard to achieve, everyone that used these fish and these waters lost, another aspect to the fish loss is the warming of the water killing off the over winter smolt's and the incoming fish.

The Pebble Mine people talk about mitigation on the Bristol Bay Rivers, as has been experienced in the Pacific Coast States also on our Eastern Sea Coast States, is that mitigation doesn't work, when the Pebble Mine is gone and the salmon in Bristol Bay are gone then we have nothing except history in someones memory book, history is what we want, it must say the past, the present and the future, this is healthy history.

Old Frank was pretty smart, he knew that putting the Habitat division in the DNR that it would grow weak, pretty soon development would have now opposition, many of us fisherman vote here in Alaska and spend our money here, we want the history that represents, the past, present and future.

Without strong protection, our coastal communities will start drying up, this means commercial as well as sports, if you have a hard time believing this all you have to do is look at your brethren in all the coastal communities in the lower forty-eight states that are trying to keep there salmon and trout species alive with hatcheries, fish that don't respond as well as their wild cousins did.

What I have been saying that as things are going with the Habitat Division in the DNR permitting department this department will grow weaker at the

loss to all Alaskans and for that matter the world that comes to our door to enjoy catching one of our fish species, we can continue on where Habitat is at and look to a different future, or we can make a decision to remember that our Constitution Framers set out to accomplish and that is the long term protection in our renewable resources.

Ralph Guthrie

A handwritten signature in dark ink, consisting of the letters 'R', 'G', and 'L' in a stylized, cursive script.

THOUGHT PROCESS

Many things
Gets a mind going
To day
Coming home to a program
Of Law and Order Criminal intent
The lawyers summation
Was saying
That taking the law
Into your own hand
Everyone loses
The same can be said
When you with hold the law
From people
Like was done
To the Negro's of the south
Like was done
To the American Indian
And is still being done today
Yes everyone loses
With lands in Federal Custody
But this is old history
Hiding from the law
Behind high office
Is also a loser
For all those who came after
Running from the scene
Of an accidental shooting
Is multi-abuse of the law
Which most likely
Wouldn't have amounted to much
But the question hasn't been answered
In the eyes of the people
The questions remains
Why did the Vice-President
Of the USA run
And hide behind his office.
But the abusing of the law
Of our land
Goes even higher
To the Presidents
Authorization of illegal acts
Such as
Detention without representation
Torture of prisoners
To obtain confessions
Kidnapping and incarceration
In secret camps
Illegal wire tapings
How much did we lose?
As a country of laws
Some folks have stood up
To object to the loss
Of a constitutional ideal
Then the lie in each case
Or perhaps it may be called perjury
Where have we gone
With all these inroads
On the law
That we all hope
To live by
Certainly many in congress
Justifies this in the name

Of a War on Terrorism
So also do many
Of our citizens justify it
Because they are from
The same party as the President
And your party
Can't do wrong
Or people in high places
Know best.
To me
Doing these things
Go against my inner self
I am a Tlingit Alaskan native
It has only been a few years
Since equality under the law
Was bestowed on my people,
For me also
It has been only a few years
Since the Jack Boots
Walked the streets of Europe
This was terrorism
I wonder how long
Before this will happen
In the USA
In the name of terrorism
We are now discriminating
Against our own people
We call them Gay
God made these people
Who of you would argue
That God made man
In his own image
Are we of the stature
To judge the whole image of God
How doe we justify this type of
discrimination when we only discern
The barest image of god
Yes, we have lost something
By allowing blatant disregard for the law,
That something is a thing
Called humanity
Called civilization
When the Constitution
Of the United States
Was drawn up
It was by a people
That didn't want oppression
What they drew up
They could have no idea
Where it was going
But today we are here
Because the law
Interpreted those words
So that we could live together
As one people
Conceived in Liberty
And Dedicated that all men
Are equal under the law.
Each persons eyes must be open
To this and reach out and say no
To torture, illegal detention,
Illegal wire taps, to any form
Of discrimination
Otherwise these things don't stop there.

They grow to tyranny.
There have been many people
That have transcended the time
That they live in by
Establishing a fulcrum
That changed the world
That they were living in
Those people like Jefferson
And the Adams who didn't like
What was imposed on them.
Then men like Martin Luther King
And Mahatma Gandhi
who peaceably fought oppression
Achieving great acts peaceably
Perhaps even General Mac Arthur
Who helped raise Japan out
Of the ashes of war
Or General Marshall
Who instituted the marshal plan
We as a people
Need to recognize those folks
That law and integration
Meant something real to them
You need to decide
What is real to you.

RALPH GUTHRIE
380 KAAGWAANTAAN
SITKA, ALASKA 99835

Katie Shows

From: Louie Flora
Sent: Tuesday, February 06, 2007 1:45 PM
To: Katie Shows
Subject: FW:

From: Kelly Burnett
Sent: Tuesday, February 06, 2007 1:44 PM
To: Louie Flora
Subject:

9:01:32 AM

REPRESENTATIVE LEDOUX asked for a definition of how the work "opportunistic" was being used in this context.

9:01:37 AM

MS. PRING-HAM explained that the department does not have the funds to collect samples specific to this species, however, when conducting surveys for other projects, the samplers will "opportunistically pick a few samples up" to be provided to a lab for genetic analysis. To Representative LeDoux's follow-up question, she responded:

[Unfortunately, we [the department] don't have a mandate for this, ... doing research for ... shellfish. Most of the monies are going to other commercial fish endeavors; ... we have to do it on an opportunistic basis. I have a little money in Mari culture [division] to try and get some of the analysis done.]

9:02:42 AM

Katie Shows

From: Louie Flora
Sent: Monday, February 05, 2007 1:14 PM
To: Katie Shows; Rep. Paul Seaton
Subject: Geoduck testimony

From: Kelly Burnett
Sent: Monday, February 05, 2007 12:23 PM
To: Louie Flora
Subject: Here you are.

9:33:13 AM

REPRESENTATIVE JOHANSEN referenced the State of Washington and British Columbia's policies and procedures for similar mariculture industry, and asked if it would not provide an adequate model that could be applied for the purposes of adopting HB 26. He acknowledged the "hesitancy" held by the department to support this measure due to the lack of base line science, specific to this species being introduced into the Gulf. He asked, "What needs to happen for the department to get that process rolling." Further, he inquired what the time span for producing a marketable geoduck would be.

9:34:16 AM

MS. PRING-HAM responded that the department does not have data to establish the growth rate of geoduck clams in the waters of South Central. However, she estimated that it takes 7-8 years in Southeast, but given the colder waters of South Central it could be 9-10 years. She underscored that the department does not have growth data for Alaskan waters and the available growth information is based on research from British Columbia and the State of Washington. She said,

Again, there is probably no study we could do in South Central that would make us feel safe; but introducing geoducks there would not cause a problem to the ecosystem. Once you introduce something, you've started the whole chain reaction. I did mention that you could do studies in Southeast just to see the impacts within a plot, but again, the food chain is so complicated that it's hard to design a study. You can design the changes to the benthic organisms ... but we just don't have a good handle on the ramifications to this particular project.

Cross references. — For penalties for class B misdemeanors, see AS 12.55.035(b)(6), 12.55.036, and 12.55.135.

Sec. 16.40.199. Definitions. In AS 16.40.100 — 16.40.199

(1) "aquatic farm" means a facility that grows, farms, or cultivates aquatic farm products in captivity or under positive control;

(2) "aquatic farm product" means an aquatic plant or shellfish, or part of an aquatic plant or shellfish, that is propagated, farmed, or cultivated in an aquatic farm and sold or offered for sale;

(3) "aquatic plant" means a plant indigenous to state water or that is authorized to be imported into the state under a permit issued by the commissioner;

(4) "commissioner" means the commissioner of fish and game;

(5) "hatchery" means a facility for the artificial propagation of stock, including rearing of juvenile aquatic plants or shellfish;

(6) "insignificant population" means a population of shellfish that, in the determination of the commissioner, would not attract and support a commercial fishery for that species of shellfish and the harvest and sale of the shellfish would not result in significant alteration in traditional fisheries or other existing uses of fish and wildlife resources if the population were included within an aquatic farm site;

(7) "positive control" means, for mobile species, enclosed within a natural or artificial escape-proof barrier; for species with limited or no mobility, such as a bivalve or an aquatic plant, "positive control" also includes managed cultivation in unenclosed water;

(8) "shellfish" means a species of crustacean, mollusk, or other invertebrate, in any stage of its life cycle, that is indigenous to state water or that is authorized to be imported into the state under a permit issued by the commissioner;

(9) "stock" means live aquatic plants or shellfish acquired, collected, possessed, or intended for use by a hatchery or aquatic farm for the purpose of further growth or propagation. (§ 2 ch 145 SLA 1988; am § 6 ch 13 SLA 2005)

Revisor's notes. — Paragraph (6) was enacted as (9). Renumbered in 2005, at which time former paragraphs (6) — (8) were renumbered as (7) — (9).

Effect of amendments. — The 2005 amendment, effective July 1, 2005, added paragraph (9) [now (6)].

NOTES TO DECISIONS

"Stock" implies growth through action. — By requiring stock to be intended for use for further growth or propagation, the statutory definition of "stock" demands something more than passive growth; its express terms command an intent to "use" the wild stock "for" further growth, and these purpos-

ive words unmistakably signal an intended use that will produce growth through action; a mere waiting period between issuance of a permit and commercial harvest would not meet this definition. *Alaska Trade-mark Shellfish, LLC v. State*, 91 P.3d 953 (Alaska 2004).

Article 3. Finfish Farming.

Section

210. Finfish farming prohibited

Sec. 16.40.210. Finfish farming prohibited. (a) A person may not grow or cultivate finfish in captivity or under positive control for commercial purposes.

(b) This section does not restrict

(1) the fishery rehabilitation, enhancement, or development activities of the department;

(2) the ability of a nonprofit corporation that holds a salmon hatchery permit under AS 16.10.400 to sell salmon returning from the natural water of the state, as authorized under AS 16.10.450, or surplus salmon eggs, as authorized under AS 16.10.420 and 16.10.450;

(b) Stock may not be transferred to or from an aquatic farm or hatchery required to have a permit under AS 16.40.100 without prior notice of the transfer to the commissioner. A notice of transfer shall be submitted at least 45 days before the proposed date of transfer.

(c) A notice of transfer must be accompanied by a report of a health inspection of the stock. The department shall conduct the inspection or contract with a disease diagnostician to conduct the inspection. The cost of inspection shall be borne by the department.

(d) The department may restrict or disapprove a transfer of stock if it finds that the transfer would present a risk of spreading disease.

(e) A person may not sell, transfer, or offer to sell or transfer, or knowingly purchase or receive, an aquatic farm product grown or propagated in the state unless the product was grown or propagated on a farm with a permit issued under AS 16.40.100. The permit must be in effect at the time of the sale, transfer, purchase, receipt, or offer. (§ 2 ch 145 SLA 1988)

Sec. 16.40.150. Disease control and inspection. (a) The department shall order the quarantine or the destruction and disposal of diseased hatchery stock or of aquatic farm products when necessary to protect wild stock. A holder of a permit issued under AS 16.40.100 shall report to the department an outbreak or incidence of disease among stock or aquatic farm products of the permit holder within 48 hours after discovering the outbreak or incidence.

(b) A holder of a permit issued under AS 16.40.100 shall allow the department to inspect the permit holder's farm or hatchery during operating hours and upon reasonable notice. The cost of inspection shall be borne by the department.

(c) The department shall develop a disease management and control program for aquatic farms and hatcheries.

(d) The department may enter into an agreement with a state or federal agency or a private, state-certified provider to provide services under (b) and (c) of this section, or inspections under AS 16.40.110(b). (§ 2 ch 145 SLA 1988)

Sec. 16.40.155. Records and reports confidential. Records required by statute or by a regulation adopted by the department concerning aquatic farm stocks or production, prices, and harvests of aquatic farm products and wild stocks, and annual statistical reports of individual aquatic farms or hatcheries required by statute or by a regulation adopted by the department are confidential and may not be released by the department, except that the department may release the records and reports

(1) to the Department of Revenue and the Department of Natural Resources to assist the departments in carrying out their respective statutory responsibilities;

(2) as necessary to comply with a court order;

(3) provided by an aquatic farm or hatchery permit holder to the permit holder whose activity is the subject of the records or reports;

(4) regarding cumulative annual harvests of wild stocks at individual aquatic farm sites. (§ 5 ch 13 SLA 2005)

Effective dates. — Section 8, ch. 13, SLA 2005 makes this section effective July 1, 2005.

Sec. 16.40.160. Regulations. The commissioner may adopt regulations necessary to implement AS 16.40.100 — 16.40.199. (§ 2 ch 145 SLA 1988)

Sec. 16.40.170. Penalty. A person who violates a provision of AS 16.40.100 — 16.40.199, a regulation adopted under AS 16.40.100 — 16.40.199, or a term or condition of a permit issued under AS 16.40.100 — 16.40.199, is guilty of a class B misdemeanor. (§ 2 ch 145 SLA 1988)

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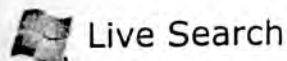
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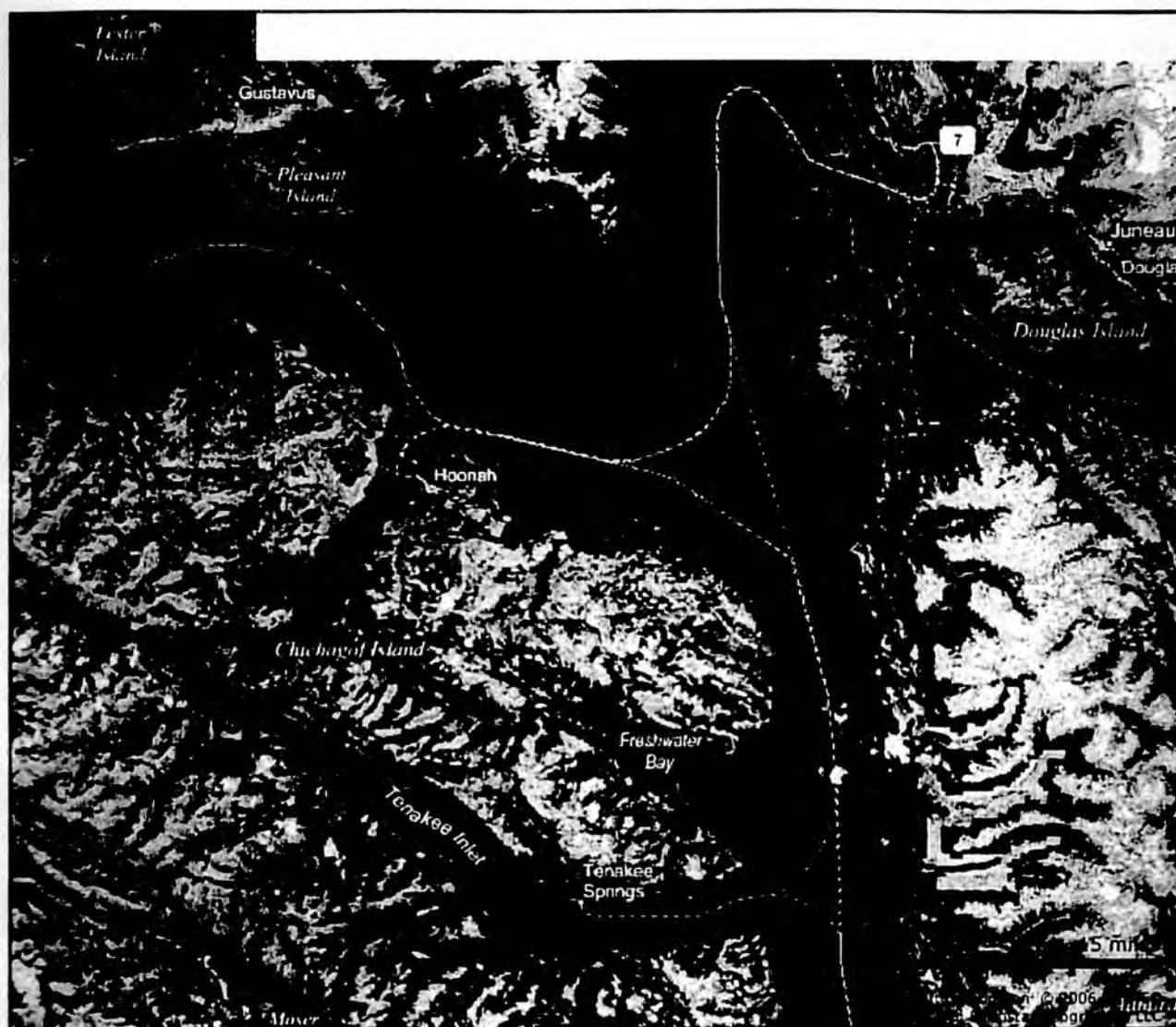
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Bridget Cove, 35m N
of Juneau on
Glacier Hwy



Bridget Cove is the northern most geodeck farming permit that has been issued (intertidal)

Cross references. — For penalties for class B misdemeanors, see AS 12.55.035(b)(6), 12.55.036, and 12.55.135.

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**LEGISLATIVE AFFAIRS AGENCY
LEGISLATIVE INFORMATION OFFICE**
201 Katlian Street, Suite 200A, Sitka, AK 99835
Phone: 747-6276 Fax: 747-5807
Email: sitka_lia@legis.state.ak.us

DATE: Feb 9, 2007

TO: House Fisheries

FAX: 485-3472

3 pages, including cover sheet

FROM: Ralph Guthrie

MESSAGE: Here is written testimony that Mr. Guthrie would like the Fisheries Committee members to have in their packets. Thank you.

*Thanks for letting me
know*

Denise M.

COMMENT FROM SITKA ON
GEODUCKS, MIXING ZONES,
HABITAT DIVISION

Goosey duck farms, I have a major problem with the way they are permitted, from what I have discerned about from the Alaska Statutes is that the criteria for permitting them hasn't been followed, the part where the majority of a community has said that they didn't want these goosey duck farms were ignored in the first permitting, not only that but the area where they first permitted a goosey duck farm is heavily used by seals and has at least 3 seal haulouts that I know about.

The area's around Sitka clear up to Moonah sound has many places families take their kids for overnight camping or longer, camping spots can be seen in many places in the woods, the idea of goosey duck farms bringing a lot of money into an area is false, at the most only a couple of people possibly will be involved in the harvest for a couple of days and they are off to market, trying to use a work force for the permitting is false, as can be seen in the goosey ducks harvested commercially. Also killing off a population of indigenous goosey ducks is also wrong.

Let's hope that no more ideas like goosey duck farms are hatched, or oyster farms that a section of beach is given to the oyster farms as a way to profit, then because of the license to harvest clams is in hand digging clams anywhere became legal.

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The next thing I will talk about is the mixing zones in known salmon streams, books written on the economics of the loss of salmon point out that the long term husbanding of salmon far exceeds the value of short term gains, I will also point out in the history of the constitution of Alaska, Bob Bartlett said that where you have long term wealth such as in renewable resources shouldn't be sacrificed for short term gains, as has been done in places all over the United States, the value of the loss of the East Coast salmon was computed out and this value far exceeded the gains that the dams put in for logging and the farming use altogether.

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RALPH GUTHRIE
380 KAAGWAANTAAN
SITKA, ALASKA
99835

1. I am against the sacrificing of the Beach resources of clams to start a aquatics business. That down the line may prove to be a more financial benefit to the State.

2. We need monitoring of Salmon discharge waste in Narrows Channel for higher levels of bacteria that may be toxic affecting seafood + shell fish used by a community such as Petersburg, Ketchikan, Sitka + Juneau. Testing should be done winter, spring, summer + fall. for water levels testing clams worms shrimp + needle fish.

RJ

STATE OF ALASKA
STATE CAPITOL
HOUSE RESOURCE COMMITTEE CHAIRMEN
REPRESENTATIVE PAUL SEATON

DEAR REPRESENTATIVE SEATON

I would like to clarify my position statement at the teleconference meeting on Feb 7th,

The discharge effluent discharged in the narrow bodies of water in the channels of water around Ketchikan, Petersburg, Sitka and Juneau are subjected to tidal distribution.

This means there is an incoming tide and an outgoing tide, the waste water and ground up material go in and go out, in each of these estuaries there are fish streams that this outflow affects because the discharge travels to these fresh water streams and some of it does over and over again.

Also the deteriorating discharge stays in the water traveling around to all areas in the estuaries, so far there hasn't been an outbreak of a disease in any of these areas but the chance is there as has been documented by the DEC in the Columbia river Washington and Oregon areas.

With the flow of water going into fresh water salmon spawning areas this discharge in these waters needs to be looked at carefully, with studies that monitor the shell fish and the flood waters into these streams.

Lastly it is not necessary to discharge fish wastes into salt water as is the practice now, there is a business that converts fish wastes into usable products, what the legislature needs to do is to encourage the different fish plants to make use of this venture.

This venture is now doing the fish wastes in Excursion inlet, a far seeing company.

RALPH GUTHRIE
380 KAAGWAANTAAN
SITKA, ALASKA
99835

A handwritten signature in dark ink, appearing to be 'RG' with a stylized flourish underneath.

Mary Jane Shows

From: Willy Dunne [wdunne@xyz.net]
Sent: Monday, February 05, 2007 8:46 PM
To: Rep. Paul Seaton
Subject: *****SPAM***** HB26 statement
Follow Up Flag: Follow up
Flag Status: Purple
Attachments: image001.png



Kachemak Bay Conservation Society

3734 Ben Walters Lane • Suite 202

Homer, AK 99603-3734

kbcs@xyz.net

February 5, 2007

HB 26: Allowing the Culture of Geoduck Clams Outside of their Native Range

House Bill 26 reverses long standing ADFG policies and regulations which currently prohibit the culture of shellfish species in areas where they are not native. This bill allows a non-indigenous species to be introduced in coastal ecosystems with potentially harmful consequences, while also being inconsistent with several existing laws (AS 16.35.210 and AS 16.40.105(3)).

In addition to being ecologically harmful, passage of this bill would directly benefit one private business. The bill's Sponsor Statement acknowledges that passage of the bill would financially assist the Alutiiq Pride shellfish hatchery in Seward. This hatchery was established with extensive subsidies of public funds and property and has yet to prove itself as a viable business without further subsidy. Expanding the culture of non-native shellfish species in order to bail out a private hatchery operating under a faulty business plan is poor public policy.

Since geoduck clams are highly mobile in the larval stage, introducing them into marine waters outside of their native range could result in the species spreading far beyond a limited aquatic farm site. If this bill is to be considered at all, it is imperative that it specify that only **sterile** geoduck seed be allowed to be farmed outside of the natural range of the species.

During recent public testimony, shellfish experts from ADFG, University of Alaska, and the mariculture industry all indicated there is no way to predict what harm may come to

coastal environments as a result of introducing a non-native species. Alaska has the best managed fisheries in the world as a result of science based management utilizing precautionary principles. If the range of geoduck farming is to be expanded, the concerns of these experts need to be addressed by amending the bill to prevent fertile seed stock from being cultured outside the native range of the species.

For more information contact Willy Dunne: 235-7578 or wdunne@xyz.net

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No virus found in this outgoing message.

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Version: 7.5.432 / Virus Database: 268.17.27/671 - Release Date: 2/5/2007 4:48 PM

Katie Shows

From: Marilyn Sigman [cacs@xyz.net]
Sent: Tuesday, February 06, 2007 10:10 PM
To: Katie Shows
Subject: *****SPAM***** geoduck legislation
Follow Up Flag: Follow up
Flag Status: Purple

Dear Katie,

I am still concerned about the bill introduced by Paul Seaton and the comments in his recent newsletter concerning prohibiting the use of the rationale that there are no geoducks in an area to deny an aquatic farming permit. This means, if I can get the double negatives straightened out, that geoducks could be farmed as a species in areas of Alaska outside its range and habitat where it is technically a nonindigenous species. This sets a precedent and contradicts major efforts underway by state and federal fish and wildlife agencies to prevent the establishment of nonindigenous species. The Pacific oyster is a cultured species in Alaska but it cannot reproduce in our waters. Global warming may change this equation. We should be taking a zero risk approach to allowing species to be introduced that can alter the ecology to which the local species are adapted. Although the newsletter states that competition could still be used as a rationale to deny a permit, the consequences of introducing species into new environments are difficult, if not impossible, to forecast and many introductions have had devastating consequences on local ecologies that were unforeseen.

New methods of aquatic farming in Kachemak Bay and in the Critical Habitat Area, such as on-bottom clam culture, have been very controversial in past years. Certain portions of Kachemak Bay like Peterson Bay are currently closed to new farm applications, but only because it has been determined that the floating oyster farms are at capacity in this area. To my knowledge as a former Fish and Game habitat biologist, the Critical Habitat Area is not categorically closed to aquatic farm permits. The majority of the existing oyster farms, if not all of them, are located in the Critical Habitat Area. The legislation that created the CHA has led to differing interpretations about what uses are permitted or excluded and so has been alternatively interpreted liberally and stringently as the political winds have shifted with different state administrations.

For these reasons, this bill is bad ecology and poor public policy.

Sincerely,
Marilyn Sigman
Homer

Marilyn Sigman
Executive Director
Center for Alaskan Coastal Studies
Homer, AK 99603
(907)235-6667

01-05-07
Seward, Alaska

Honorable Members of House Fisheries Committee

Regarding Testimony on HB 26
David J. Otness, Shellfish farmer

Dear Members through the Chair, 1

To those of you in particular who have not had extensive exposure to the politics inherent to mariculture, allow me to state as one with years of frustration under his belt, ADF&G has not been a good partner in encouraging the growth we have attempted to secure in this wonderfully promising industry. In fact this extends into other sectors of ComFish as I will demonstrate. This is and has been a state-wide problem for many years and hopefully one we can finally address under this new administration. We will be watching closely as the new Commissioner makes his personal stamp evident.

My background in all of this represents 3 generations of commercial fishermen originally out of Petersburg. My grandfather fished out in the Gulf of Alaska in January in a 46 ft wooden boat as far back as 1917. They delivered fish into Seldovia and Prince Rupert, B.C.; Anchorage was hardly more than a tent town. There were no radars, radios, depth sounders or any means of rescue if things went bad. A good compass and good sea sense was what you had in your deck. I would not be writing if it were otherwise.

I first went to sea with my father at the age of five. This was salmon seining in the Territorial days of fish traps, I was working in the power skiff by the time I was 7 and running it by myself at the age of 9. That was also my first season commercial longlining. We used to pull the seine in by hand with what was called a turn table which was mounted on the stern with a center pivot pin, the roller on the outboard toward the seine as we hauled it in. It was a time of big arms.

Coastal Alaska in the 1950's was characterized by hard times and pulling together. Between the fish traps taking the majority of salmon and Japanese and Russian trawlers scooping up halibut nearly on our front porch we truly were left with subsistence as a major means of getting by. The winters were exceptionally cold and often the deer meat we had to eat was blue because the animals were starving. I remember my father getting 18 in 1 day, feeding a lot of people in Petersburg. Clams were an important component to our diet as well, in many forms unimaginable today. Clam hotcakes for breakfast, anyone? I learned our beaches early.

II

When I was 11 my father's boat, the Teddy J, was lost with all hands [5] off Prince Rupert. According to cousin Captain Richard Hofstad, one of the first skippers on the State Ferry System, she probably struck Alexandra Reef. This was my grandfather's boat and eventually would have been mine. I was almost aboard that trip but had school. This event left my mother with 6 mouths to feed in April of 1962. Dad had just cashed in an insurance policy worth \$70,000 for boat improvements. Bad timing.

I spent my first winter in the bush in 1968-69 at the age of 17. My trapping partner was Mike Potts, 18, just out of high school in Minnesota. We considered ourselves mountain men and I guess we were as no one once came to check on us in 4 months. We ended up eating 11 deer that winter and probably 75 lbs of Gravy Train dog food. It was one of the coldest winters on record and our clam shovels and smelt net were useless in the thick shore ice and no airplane could land to pick us up even if they had tried. They didn't try and so we spent an extra month waiting for the ice to go out. My partner's Brittany spaniel didn't know some of the thoughts extreme hunger will manifest regarding mans' best friend becoming mans' best meal. We had incipient scurvy when finally picked up.

The reason for this extended forward is to acquaint the reader with what I consider my extensive personal background in Alaska's natural resources and partaking of them from Southeast to the Arctic and Aleutian Islands, all the way to their territorial terminus at Attu Island. FYI Attu is 7000 miles due north of the center of New Zealand. As a matter of fact, I've taken abalone in S.E., cockles 6 inches across on Unalaska Island, dug 5gallons of butter clams from 2 cubic feet of beach soil at Chernofski Harbor, taken Horse clams in excess of 4lbs [ea] in Kuiu Bay on the Alaska Peninsula [shells as big as dinner plates]. I've dug on razor clam beaches where a shovel is not required, simply grabbing them [carefully] by their extended necks. I've seen miles of wave rowed razors on the beaches of Unimak Bight, brown bears feeding on them every 50 feet, after a big southeaster rolled them up ashore.

Port Moller, Herendeen Bay, Cinder River, Egegik, Togiak, Orca Inlet, Kayak Island, Yakutat, Seymour Canal, Taku Harbor, China Poot, [the old-timers pronounced it "pot"], Constantine Harbor[s], Shelikoff Bay, Russian Harbor, Elrington Passage, Kamishak Bay, Silver Salmon Creek, Kukak Bay, Chignik, Aniakchak Bay. You get the picture. In the course of my 56 years in Alaska I have sailed virtually every navigable waterway all the way to Prudhoe Bay and whenever and wherever possible have gone ashore, whether hunting, fishing, but most of all, beachcombing. I have made it my business to be aware of food sources wherever I might eventually find myself shipwrecked. I make a point of looking for good anchorages and trying them out under good weather conditions. One outstanding feature of most of these diverse places is the commonality of bivalve species across this broad geographical range.

Regarding HB 26, I feel there is over-blown concern regarding species crossing boundary lines we have drawn when we attempt to determine why a certain area hasn't supported a

III

given species. And yet several miles, several hundred or one adjacent beach away there may have been spat deposition which took and did fine. There are so many variables as to how the spawning, travel, maturation {or not}, deposition of gametes {or not}, ever occurs in a given area. The same thing is true in terms of survival of the adult animal. Was there a specific predator responsible for a beach being cleared; a series of predators, infestations, temperature variations, high or low? Excessive silt deposition, not enough nutrients, tsunami or storm damage, oil spills, earthquakes. Even beyond the "64" quake and the "89" spill there have been great numbers of undocumented temblors as well as shipwrecks going back to WW II. An earthquake that doesn't make headlines or even merits notice to the average Joe is big news indeed to ocean denizens if near the epicenter. The mud that covers shelving rock in the Gulf of Alaska can be several feet thick, providing favored and excellent habitat for Tanner crab. One earthquake can bare that shelf of mud and these are no longer productive grounds, let alone the mortality from the mudslide. I have observed this fishing crab. Ocean currents and gyres could easily be why areas are skipped over, populated or not. This does not rule out random deposition naturally. There are so many variables to a species' ability to adapt and thrive, but not necessarily ones precluding the feasibility being transplanted without harming a species which did manage to thrive before, during and/or after an ecosystem changing event. I have seen so many areas where these bivalve species co-exist, and with proper disease prevention protocols I sincerely believe geoduck transplantation will prove to be "much ado about nothing".

The ocean is an ongoing/undergoing dynamic and we bear witness to it, particularly now with our increasing awareness of apparent climate change, and by being out on site shellfish growers are the sentinels of change, we know what is new, we observe everyday on the farm. Therein lies another issue, being charged excessively for PSP tests while providing the state with information for the public good. More on that to an appropriate committee.

Testimony such as Willie Dunn's of Kachemak Bay Conservation Society [or whatever the incarnation/acronym] reflects obstructionism masking as valid concern, one more permutation of "The sky is falling". Honorable ladies and gentlemen of the Committee, the sky has always been falling and God willing, we will continue to survive it. The contemporary theme seems to be we must fear "fear itself." I maintain we should act with reason, courage and alacrity *towards* opportunity rather than falling prey to the notion that HB26 will some how undermine the foundations of life on earth. The opposite seems to be recurring throughout our society---- as a measure of what we allow ourselves to do as humans----- just because we obviously have acted heedlessly in the past. Blatant past mistakes should not be allowed to tether us to that past. Alaska's uncertain economy and unpredictable budget are crying out for a positive sign, particularly in the coastal economy. We have been striving to be heard for nearly two decades and unless we move ahead reasonably as well as prudently, the State of Alaska will have killed off an industry of world wide significance.

IV

There is both humor and despair involved our shellfish growers' community self - description as the "Gray Oyster Cult" and most of our bane originates from ADF&G. Some of this is personality, some is regulatory, it all adds up to a defensiveness of authority manifested as offensiveness from the Department, i.e. "the Culture". Of course there are good people in the system but I will reiterate: many of us will be watching the new Commissioner for expected change, particularly after finding the Joint Board procedure lacking in forwarding names to the Governor.

I have observed and tried to work with the Department over the years in many different areas and fisheries with mixed success. The largest single ongoing problem is their refusal to work co-operatively with fishermen in data gathering, anecdotal information and by extension discounting valid information, even to the point of ignoring information provided by a Tech authorized to gather data on a commercial vessel. This attitude is rampant throughout Alaska in crab statistical areas [Prince William Sound, Southeast and the Dutch Harbor small boat fishery to name a few] and unless there are recent changes it probably still prevails. Many of us have offered our boats and gear for free to the Department for survey work and as a rule it does not happen. There are fisheries that could be providing income to coastal communities but for ADF&G's insistence on using Dept vessels which invariably come with the caveat "we don't have enough funding to survey". Many of us fishermen who know the grounds have seen time and again they don't have the innate knowledge one gets from spending a lifetime on those waters. Most recently the humpback whale killed in an ADF&G herring seine in Sawmill Bay provides a clue as to who should be doing survey work..

Another recent, most egregious case, involved the S.E. king crab fishery where the Dept vessel found CPUE's of approximately 4 legal crab per pot. A separate vessel skippered by a professional crab fisherman documented approximately 40 legal crab per pot. The biologist in charge refused the documented information of the second vessel, refused to open the season, and by that act cost the town of Petersburg nearly \$ 1,000,000 dollars to its November economy{ She got moved sideways in the Dept. instead of out}. These actions ripple across Alaska in towns like Cordova, Seward, Homer, Ketchikan and out to the Alaska Peninsula and Kodiak. Not all the time, but often enough to form a pattern of the "Culture". We of the Gray Oyster Cult have been hammered by these guys even worse as we don't have the economic clout nor stature enough to try to change this on our own----- except when the Legislature steps up to the plate as Representative Seaton is doing with this bill.

Members of the Committee, I implore you to take an honest look at what's at stake here. I urge you to look at The McDowell Report on Alaska Seafood Economic Strategies [Dec 2006], and also the NOAA Ten Year Aquaculture plan, also from last year. This industry is the future of Alaska's fisheries. Please pass this bill. Thank you.

Louie Flora

From: Tehben Dean [tehbendean@mac.com]

Sent: Tuesday, February 06, 2007 3:32 PM

To: Rep. Paul Seaton

"House Bill 26 reverses long standing ADFG policies and regulations which currently prohibit the culture of shellfish species in areas where they are not native. This bill allows a non-indigenous species to be introduced in coastal ecosystems with potentially harmful consequences, while also being inconsistent with several existing laws (AS 16.35.210 and AS 16.40.105(3))."

I strongly oppose this bill.

Where do you stand on this issue?

Tehben

Louie Flora

From: Nina Faust [fausbail@horizonsatellite.com]
Sent: Wednesday, February 07, 2007 8:14 AM
To: Rep. Lindsey Holmes; Rep. Kyle Johansen; Rep. Paul Seaton; Rep. Bryce Edgmon; Rep. Peggy Wilson; Rep. Gabrielle LeDoux; Rep. John Harris
Cc: Sen. Gary Stevens
Subject: HB 26

House Fisheries Committee
Alaska State House
Juneau, AK 99811

Dear Committee Members:

With Global Warming and increased temperatures in Alaska, the the threat of introduced species is no longer just a threat. We are seeing encroachment of plant and animal species we thought would not be a problem in our cold climate. New invasives have even been found in Kachemak Bay. With this in mind, it comes as a surprise that you have sponsored HB 26, which would allow the introduction of geoduck clams, a non-indigenous species, to be introduced to areas where they are not native. It has been a long-standing policy within ADF&G to prohibit non-native shellfish introductions, which we believe is a very wise policy. So many unknown consequences of a non-native introduction could threaten our native shellfish populations. We personally think this bill is a bad idea.

By allowing the transfer of geoduck clams to areas where they are not native, the potential for these shellfish to escape into the marine environment is relatively high since in the larval stage they are very mobile. Sterile geoduck seed would prevent this from happening but there would have to be a 100% effective means of assuring that all the seeds were sterile. We don't believe introducing a non-native shellfish is worth the risk to our rich marine ecosystem just to benefit a shellfish hatchery in Seward. Please do not pass this bill.

Sincerely,

Nina Faust
P.O. Box 2994
Homer, AK 99603

Ed Bailey

Alaska State Legislature

State Capitol, Room 102
Juneau, AK 99802
Phone: 465-2689
Fax: 465-3472
Toll Free (800) 665-2689
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Homer, AK 99603
Phone: 235-2921
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REPRESENTATIVE Paul Seaton

District 35

Mariculture has the potential to diversify the economic base of coastal communities impacted by the changing dynamics of the fishing industry. HB 26 allows this expansion of this clean water industry by permitting geoducks to be farmed subtidally in the Gulf of Alaska even if wild geoducks are not present. The bill does not exempt farmers from any health, safety, or other transfer provisions relating to hatchery seed.

The Alutiiq Pride Shellfish Hatchery is the only hatchery that supplies mariculture spat and seed in the State. It was initiated by the State to be a self-sustaining operation in association with the private mariculture farms permitted by the State. Their business plan relies on the sale of geoduck seed. However, the informal policy of the Department of Fish and Game prevents geoduck seed from being utilized by farms anywhere outside of southeast Alaska. These restrictions on the sale of geoduck seed cause the sole hatchery for the mariculture industry in Alaska to require continual subsidy by the State. HB 26 will allow the mariculture industry to develop around the Gulf of Alaska, providing a potentially strong market for seed and private sector financing for the operation of the hatchery.

As non-mobile filter feeders, farmed geoducks will not prey on any local commercial, sport or personal use fish. There have been no reports of species displacement in sedimentary habitat by geoduck clams. Farmed geoducks will not interfere with personal recreational boaters as they are cultivated in the sediment below mean low tide without the numerous buoys and floating cages used in oyster farms. No infectious disease has been identified in any geoduck population or the geoduck farming industries of Washington, British Columbia, or Alaska.

The conflict surrounding geoducks in southeast Alaska is between the dive fishermen who harvest wild stock and farmers who wish to farm in areas with existing wild stock. HB 26 would not expand this conflict because there is no wild stock in much of the proposed area. This bill will not override any Department of Natural Resources farm site leasing or Department of Fish & Game permit regulation.

HB 26 eliminates unnecessary hindrances to the growth of the mariculture industry in Alaska while adequately considering the health of our marine ecosystem.

AMENDMENT # 1 - Adopted

OFFERED IN THE HOUSE

BY REPRESENTATIVE SEATON

TO: HB 26

1 Page 1, line 7, following "section.":

2 Insert "If, under this section, the commissioner issues a permit for an aquatic farm to
3 culture geoducks in a management area that does not have wild geoduck stocks when the
4 permit is issued, the permit may not allow operations for that purpose in the intertidal habitat
5 or environment."

FISCAL NOTE

STATE OF ALASKA
2007 LEGISLATIVE SESSION

Fiscal Note Number: _____
 Bill Version: HB026-DFG-CF-02-01-07
 () Publish Date: _____

Revision Date/Time (Note if correction): _____ Dept. Affected: Fish and Game
 Title Geoduck Aquatic Farming Exemption RDU Commercial Fisheries Division
 Component Headquarters Commercial Fisheries Management
 Sponsor Representative Seaton Component No. 2171
 Requester House Fisheries Committee

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0

CAPITAL EXPENDITURES						
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CHANGE IN REVENUES ()						
-------------------------------	--	--	--	--	--	--

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type--Do not abbreviate)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2007) cost: 0.0

Mark this box (X) if funding for this bill is included in the Governor's FY 2008 budget proposal: ☐

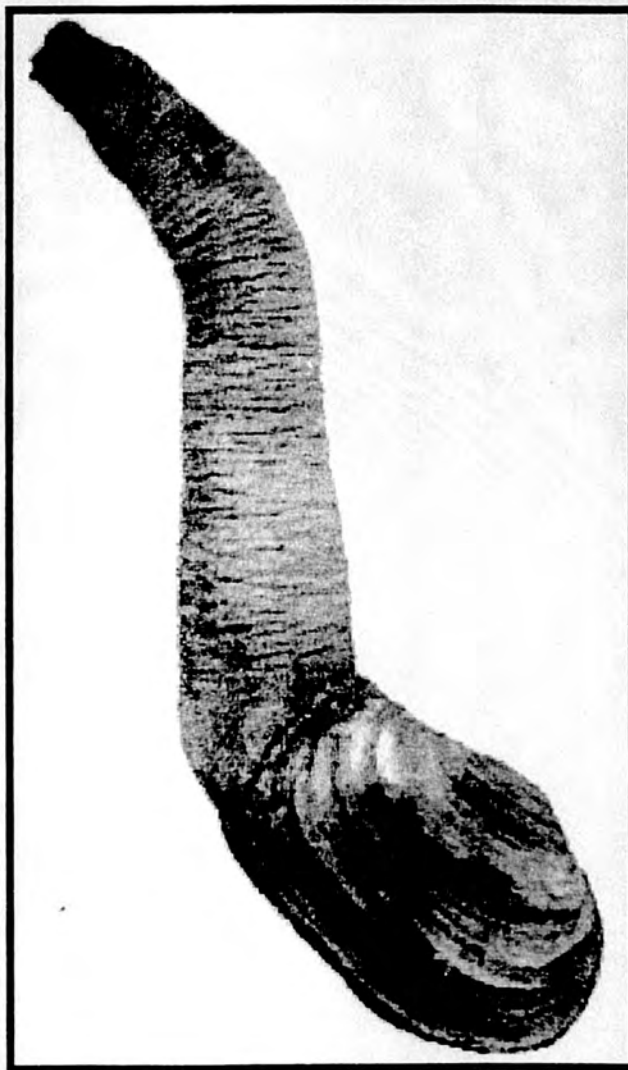
POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: (Attach a separate page if necessary)

This legislation provides policy direction to the Department of Fish and Game and, in itself, creates no additional cost to the department.

Prepared by: Geron Bruce, Assistant Director Phone 465-6151
 Division Division of Commercial Fisheries Date/Time 1/31/2007 11am
 Approved by: Tom Lawson, Director of Administrative Services Date 2/1/2007
 Agency Department of Fish and Game



What is a GEODUCK?

HB 26 – Expanding Geoduck Farming
House Fisheries
February 2, 2007

Geoduck

From Wikipedia, the free encyclopedia

The **geoduck** (pronounced /ɡuː.iː.dʌk/ i.e. "gooey duck"^[1]), *Panopea abrupta* or *Panopea generosa*, is a species of large saltwater clam, also known as the **king clam** or **elephant trunk clam**.

The name is derived from a Nisqualli First Nation word meaning "dig deep", and its phonemically counterintuitive spelling is likely the result of poor transcription. Alternate spellings include *gweduc*, *gweduck* and *goiduck*.

Native to the Pacific Coast of the United States and Canada (primarily Washington, British Columbia, and Southeast Alaska), it is the largest burrowing clam in the world, weighing in at an average of one to three pounds (0.5 - 1.5 kg) at maturity, but specimens weighing over 15 pounds (7.5 kg) and as much as 2 meters (6 ft) in length are not unheard of.

It has a life expectancy of about 146 years, with the oldest recorded at over 160 years. This makes the Geoduck one of the longest-living organisms in the Animal Kingdom.

Scientists speculate that the geoduck's longevity is the result of low wear and tear. A geoduck sucks plankton down through its long siphon, filters them for food and ejects its refuse out through a separate hole in the siphon. Adult geoducks have few natural predators, which may also contribute to their longevity. In Alaska, sea otters and dogfish have proved capable of dislodging geoducks; starfish also attack and feed on the exposed geoduck siphon.

Geoducks are broadcast spawners. A female geoduck produces about 5 billion eggs in her century-long lifespan—in comparison, a human female produces about 500 viable ova during the course of her life. It is possible that this fact, in conjunction with the phallic shape of the siphon, has led to the belief that the shellfish has aphrodisiac properties.

Industry and impact

The world's first geoduck fishery was created in 1970, but demand for the semi-forgotten clam was low. Today, they sell in Asia for up to US\$30/lb (US\$65/kg). The Jumbo clam, like abalone, is highly regarded in Chinese cuisine. Its large, meaty siphon is prized for its savory (umami) flavor and crunchy texture. It is extremely popular in Hong Kong, China and Japan, where it is considered a rare tasty treat. Geoduck is mostly eaten cooked in a fondue-style Chinese hot pot or raw sashimi style, dipped in soy sauce and wasabi. On Japanese menus, geoduck is called *mirugai* or *mirukuigai*. (Although *mirugai* is sometimes translated to English as "Giant Clam", it is distinguished from "Himejako" sushi made from *Tridacna gigas*.)

Geoduck

Pacific geoduck clam
Scientific classification
Kingdom: Animalia
Phylum: Mollusca
Class: Bivalvia
Order: Myoida
Family: Hiatellidae
Genus: <i>Panopea</i>
Species: <i>P. abrupta</i>
Binomial name
<i>Panopea abrupta</i>
Conrad, 1849



Seafood Geoduck display in a Chinese restaurant with price

The geoduck's high market value has created an 80-million-U.S.-dollar annual industry, with harvesting occurring in both Washington state and the province of British Columbia. It is one of the most closely regulated fisheries in both countries; in Washington, Department of Natural Resources staff are on the water continually, monitoring harvests, and the same is true in Canada where the Underwater Harvesters' Association manages the Canadian Fishery in conjunction with Canada's Department of Fisheries and Oceans. Demand has also led to a rapidly developing aquaculture industry.

Geoduck aquaculture on private tidelands in Puget Sound, particularly in South Puget Sound, has been steadily growing over the last ten years, averaging

about 10 new acres of cultivation per year. Currently less than 0.001% of Puget Sound is dedicated to geoduck farming. Geoduck farms use "predator exclusion devices" in which to plant the seed geoducks. These devices are 10-14 inch long, 4-6 inch diameter PVC pipes pushed into the sediment of the tideland. There are approximately 20,000 to 43,500 of these PVC pipes planted per acre on tidelands. These nursery tubes typically stay in the beach for the first one to two years of a crop cycle.

The Environmental Defense Fund has done extensive studies of aquaculture and has found that bi-valve aquaculture like geoduck clams are very beneficial to the marine environment. {Goldburg, Rebecca, et al. "Marine Aquaculture in the United States," as prepared by Environmental Defense for Pew Oceans Commission, 2001.} The primary reason for this is because geoduck clams are filter feeders and eat micro algae which proliferates as more nitrogen enters the marine ecosystem. Increases in nitrogen are due to more septic systems as well as bigger flows from city sewage systems throughout Puget Sound, increasing quantities of pet wastes, and increased fertilizer use from farms and lawns. When farmed geoduck clams (which ingest and retain nitrogen in their tissues) are harvested there is a net reduction in nitrogen in the marine ecosystem.

It should be noted that the water must be certifiably clean in order to plant geoducks commercially. This is a requirement of the Washington State Department of Health, and of the Interstate Shellfish Sanitation Council.

While some communities in Puget Sound have installed state of the art septic systems to comply with efforts by environmental groups and state officials to clean up Puget Sound, more than 3000 acres (12 km²) of shellfish beds have been lost to farming between 1992 and 2004 due to fecal contamination from human activities and development. Substantial portions of the state's shorelines are already so developed or degraded that they are unsuitable for harvesting, and other areas continue to follow suit.

Some shoreline owners have expressed concerns including aesthetics, effects on native geoduck populations, wildlife interactions, farm debris, and harvest techniques. Although some marine shoreline owners take issue with the visual impacts, the tubes are actually only visible 2-3% of daylight hours over a 6-year crop cycle. The reason for the low visibility is because geoduck are farmed in the lower

When they are about three feet deep, they settle in for life, unable to move from their burrows. A geoduck siphon may stretch to over three feet to reach the sea floor. Geoducks are filter feeders, sucking in water through the incurrent siphon to extract plankton, and pushing the remaining water out through their excurrent siphon.

Growth rings on their shell have shown that some geoducks can live for over 140 years.

Pring-Ham manages the mariculture program and issues permits for aquatic farms in Southeast Alaska. "We also do site inspections and provide technical assistance, guidance and training to farmers," she said.

Every two years, the Department of Natural Resources (DNR) provides an opening from January to April to apply for a tidal submerged land lease. A lengthy, multi-agency six-month review of the application is completed; and if it meets all the state regulatory review standards, a lease from DNR and an operation permit from ADF&G are issued for a 10-year period. An average geoduck farm site is about six acres.

Sites must be surveyed to make sure that there are no more than 12,000 pounds of wild geoducks already existing on the farmsite. Recent legislation and court rulings have made it clear that sites that attract or support a commercial fishery will not be granted an operation permit. The department is working with the farmers to find ways to decrease the survey costs and time that it takes to do them, so data is more readily available to the department for making this decision. Delays in issuing the permit may occur due to current limitations on how many surveys can be done by the department each year.

Harvesting geoducks is no walk on the beach. They are usually found in water 25 to 100 feet deep, and then another three feet down in the muddy sea floor.

Harvesting is usually by "hookah" diving - wearing a drysuit and breathing air through a hose to the surface. This allows divers to stay down longer and work harder without the inconvenience of scuba tanks. Divers carry an air hose, or "stinger," used to blow the mud and silt away from a geoduck. The blast from a stinger can stir up so much bottom silt that divers can no longer see, and must extract the geoduck by feel. Great care must be taken not to injure the geoduck's neck or shell.

Other countries are looking to contribute to the lucrative geoduck market, Pring-Ham said. "China is starting to produce hatchery-raised geoduck seed for farming, so this may mean potential competition for the U.S."



Buried in the ocean floor, geoducks are filter feeders, sucking in water through the incurrent siphon to extract plankton, and pushing the remaining water out through their excurrent siphon.



Geoducks can live to 140 years old.

However, it won't be long before look off. That's when the Alaska Department of Natural Resources (DNR) will start issuing permits for geoduck farming. The department is currently working on the regulations for geoduck farming. The department is currently working on the regulations for geoduck farming. The department is currently working on the regulations for geoduck farming.

Not surprisingly, interest in geoduck farming is growing. The department is currently working on the regulations for geoduck farming. The department is currently working on the regulations for geoduck farming. The department is currently working on the regulations for geoduck farming.

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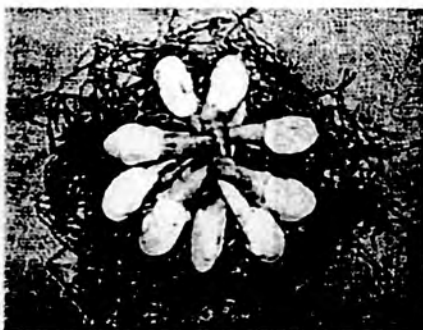
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Geoducks: Southeast Gets a Toehold in the Market World's Largest Burrowing Clam Can Live 140 Years

By Amy Carroll



Geoducks can live for decades; growth rings on their shells have shown that some geoducks live more than 140 years.

Geoducks are the world's largest burrowing clam. Pronounced "gooey-duck," they aren't gooey and they aren't ducks. Their name is derived from a Nisqually Indian term meaning "dig deep."

There has been a small commercial geoduck fishery in Southeast Alaska since the early 1980s. With the intent to diversify the state economy and highlight Alaska seafood in the world market, the Aquatic Farm Act of 1988 allowed The Alaska Department of Fish and Game (ADF&G) to issue permits for construction and operation of aquatic farms and hatcheries.

However, it wasn't until 2002 that the profit potential of the geoduck harvest really took off. That's when the Alaska Department of Environmental Conservation and Southeast Alaska Regional Dive Fisheries Association (SARDFA) established a more efficient Paralytic Shellfish Poisoning (PSP) monitoring plan. Test results are posted online immediately after being entered into the database, which allows more of the geoducks to enter the market live, not processed. The market price for live geoducks is \$5 to \$10 a pound, for processed it is less than \$1 a pound. According to SARDFA, 90 percent of the 2004-2005 commercial season harvest was delivered live.

Not surprisingly, interest in geoduck farming has skyrocketed. "In the recent 2005 aquatic farm opening, over 97 percent of the 141 proposed aquatic farm sites are for culturing geoducks," said Cynthia Pring-Ham, Mariculture Coordinator for ADF&G.

Currently, most of Alaska's 400,000 pound geoduck harvest is destined for Hong Kong and China, where they sell for up to \$30 a pound. Their texture has been variously described as sweet, crunchy, or rubbery.

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The most prized meat is the siphon, eaten raw, sashimi style with soy sauce and wasabi, or cooked in Chinese hot pot soups.

Prime geoduck harvesting areas in Southeast Alaska include Ketchikan's Gravina Island, Craig, Metlakatla, Wrangell, and Symond's Bay near Sitka.

Geoducks reach sexual maturity at three years. After five to 10 years, when their weight is between two and four pounds, they are considered harvestable. They will continue to grow until they are about 15 years old and can reach weights of 14 pounds.

"In Washington state it takes seven years for geoducks to reach a harvestable weight of two pounds, but the waters are colder up here so they may grow slower in Alaska," Pring-Ham said. "We don't have complete growth data yet, since the most mature cultured geoducks at permitted farm sites are only three years old."

The average age of geoducks harvested commercially in Alaska is 44 years.

Wild geoducks reproduce by "broadcast spawning" – releasing eggs and sperm into the water and relying on the movement of the water to unite them. Within 40 to 50 days, the immature geoducks will slowly burrow into the muddy ocean floor at the rate of about one foot a year.

elevations of the beach and are covered by water most of the time. However, since the lowest tides in the summer are during mid-day, the visual impact of the tubes is greatest at the very time when the people of Puget Sound are likely to be exploring the beach. During the summer, farms are visible for as much as 5 hours during the day, every other week.

Effects on native geoduck populations from geoduck farming will be minimal to non-existent. Each year new hatchery brood stock is taken from the wild stock. Farmed animals are not used as brood stock so genetically, farmed geoduck are the same as wild stocks. Moreover, wild geoduck occupy the intertidal zone down to 300 feet below sea level. DNR and the tribes co-manage the wild fishery and only harvest geoduck between the -18 to -70 foot depths. Most of the wild geoduck stock is left untouched and unaltered.

Wildlife interactions are a concern and geoduck growers are adapting growing techniques to minimize these effects. A biological assessment examining the impacts of geoduck farming was completed and no long term effects on threatened or endangered species were identified.

Farm debris includes displaced net tops, rubber bands, and tubes. The netting tops used on the nursery pipes can come off and float away onto other beaches as debris and the rubber bands also can become debris in Puget Sound. To offset these environmental impacts most geoduck farmers have been embraced environmental codes of practice including regular maintenance and debris clean-up of their own farms. In addition, the industry now does two annual beach cleanups to collect marine debris from all beaches in areas where they farm. Although as much as 20% of the debris collected in each cleanup has been aquaculture related, less than 5% of the 120 cubic yards collected to date has been related to geoduck farming. Unfortunately, because of the currents in Puget Sound, nets and tubing can be found far from any poorly maintained geoduck operations.

Harvesting takes place every 4-6 years. Water pressure hoses using up to 50 gallons of water per minute are used to liquefy the sediment in order to extract the geoducks. There are limited impact studies related to intertidal harvest of geoduck as of August 2006, although the sub-tidal environmental impact studies done for the fisheries in BC and WA have found no detrimental effects in harvesting the clams. Geoduck farming is only conducted in clean, uncontaminated sediments so concern is limited to short term increases in turbidity and short term effect on benthic organisms. It should be noted that the Department of Natural Resources of Washington State conducted the environmental impact study. DNR is itself in the business of leasing subtidal lands for commercial geoduck harvest and starting this year, intertidal lands for commercial geoduck farming.

Compared to terrestrial farming, shellfish farming in general and geoduck farming in particular produces high quality protein using natural systems without the use of antibiotics, fertilizers, herbicides, or pesticides.



Seafood Geoduck display in a Chinese restaurant with price

The geoduck's high market value has created an 80-million-U.S.-dollar annual industry, with harvesting occurring in both Washington state and the province of British Columbia. It is one of the most closely regulated fisheries in both countries; in Washington, Department of Natural Resources staff are on the water continually, monitoring harvests, and the same is true in Canada where the Underwater Harvesters' Association manages the Canadian Fishery in conjunction with Canada's Department of Fisheries and Oceans. Demand has also led to a rapidly developing aquaculture industry.

Geoduck aquaculture on private tidelands in Puget Sound, particularly in South Puget Sound, has been steadily growing over the last ten years, averaging

about 10 new acres of cultivation per year. Currently less than 0.001% of Puget Sound is dedicated to geoduck farming. Geoduck farms use "predator exclusion devices" in which to plant the seed geoducks. These devices are 10-14 inch long, 4-6 inch diameter PVC pipes pushed into the sediment of the tideland. There are approximately 20,000 to 43,500 of these PVC pipes planted per acre on tidelands. These nursery tubes typically stay in the beach for the first one to two years of a crop cycle.

The Environmental Defense Fund has done extensive studies of aquaculture and has found that bi-valve aquaculture like geoduck clams are very beneficial to the marine environment. {Goldburg, Rebecca, et al. "Marine Aquaculture in the United States," as prepared by Environmental Defense for Pew Oceans Commission, 2001.} The primary reason for this is because geoduck clams are filter feeders and eat micro algae which proliferates as more nitrogen enters the marine ecosystem. Increases in nitrogen are due to more septic systems as well as bigger flows from city sewage systems throughout Puget Sound, increasing quantities of pet wastes, and increased fertilizer use from farms and lawns. When farmed geoduck clams (which ingest and retain nitrogen in their tissues) are harvested there is a net reduction in nitrogen in the marine ecosystem.

It should be noted that the water must be certifiably clean in order to plant geoducks commercially. This is a requirement of the Washington State Department of Health, and of the Interstate Shellfish Sanitation Council.

While some communities in Puget Sound have installed state of the art septic systems to comply with efforts by environmental groups and state officials to clean up Puget Sound, more than 3000 acres (12 km²) of shellfish beds have been lost to farming between 1992 and 2004 due to fecal contamination from human activities and development. Substantial portions of the state's shorelines are already so developed or degraded that they are unsuitable for harvesting, and other areas continue to follow suit.

Some shoreline owners have expressed concerns including aesthetics, effects on native geoduck populations, wildlife interactions, farm debris, and harvest techniques. Although some marine shoreline owners take issue with the visual impacts, the tubes are actually only visible 2-3% of daylight hours over a 6-year crop cycle. The reason for the low visibility is because geoduck are farmed in the lower

elevations of the beach and are covered by water most of the time. However, since the lowest tides in the summer are during mid-day, the visual impact of the tubes is greatest at the very time when the people of Puget Sound are likely to be exploring the beach. During the summer, farms are visible for as much as 5 hours during the day, every other week.

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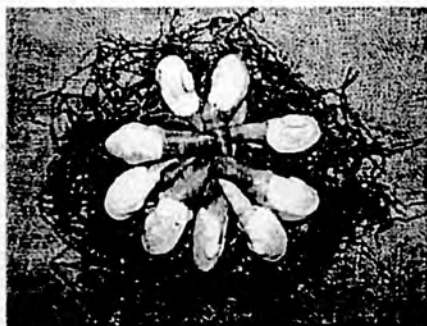
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When they are about three feet deep, they settle in for life, unable to move from their burrows. A geoduck siphon may stretch to over three feet to reach the sea floor. Geoducks are filter feeders, sucking in water through the incurrent siphon to extract plankton, and pushing the remaining water out through their excurrent siphon.

Growth rings on their shell have shown that some geoducks can live for over 140 years.

Pring-Ham manages the mariculture program and issues permits for aquatic farms in Southeast Alaska. "We also do site inspections and provide technical assistance, guidance and training to farmers," she said.



Buried in the ocean floor, geoducks are filter feeders, sucking in water through the incurrent siphon to extract plankton, and pushing the remaining water out through their excurrent siphon.

Every two years, the Department of Natural Resources (DNR) provides an opening from January to April to apply for a tidal submerged land lease. A lengthy, multi-agency six-month review of the application is completed; and if it meets all the state regulatory review standards, a lease from DNR and an operation permit from ADF&G are issued for a 10-year period. An average geoduck farm site is about six acres.

Sites must be surveyed to make sure that there are no more than 12,000 pounds of wild geoducks already existing on the farmsite. Recent legislation and court rulings have made it clear that sites that attract or support a commercial fishery will not be granted an operation permit. The department is working with the farmers to find ways to decrease the survey costs and time that it takes to do them, so data is more readily available to the department for making this decision. Delays in issuing the permit may occur due to current limitations on how many surveys can be done by the department each year.

Harvesting geoducks is no walk on the beach. They are usually found in water 25 to 100 feet deep, and then another three feet down in the muddy sea floor.

Harvesting is usually by "hookah" diving – wearing a drysuit and breathing air through a hose to the surface. This allows divers to stay down longer and work harder without the inconvenience of scuba tanks. Divers carry an air hose, or "stinger," used to blow the mud and silt away from a geoduck. The blast from a stinger can stir up so much bottom silt that divers can no longer see, and must extract the geoduck by feel. Great care must be taken not to injure the geoduck's neck or shell.

Other countries are looking to contribute to the lucrative geoduck market, Pring-Ham said. "China is starting to produce hatchery-raised geoduck seed for farming, so this may mean potential competition for the U.S."

Article 2. Aquatic Farming.

Section

- 100. Aquatic farm and hatchery permits
- 105. Criteria for issuance of permits
- 110. Permit application, renewal, and transfer
- 120. Aquatic stock acquisition permits
- 130. Importation of aquatic plants or shellfish for stock
- 140. Limitation on sale, transfer of stock, and products

Section

- 150. Disease control and inspection
- 155. Records and reports confidential
- 160. Regulations
- 170. Penalty
- 199. Definitions

Cross references. — For legislative findings and policy in connection with the enactment of AS 16.40.100 — 16.40.199, see § 1, ch. 145, SLA 1988 in the Temporary and Special Acts; for applicability to persons operating an aquatic farm or related hatchery on June 9, 1988, see § 18, ch. 145, SLA 1988 in the Temporary and Special Acts.

Legislative history reports. — For legislative letter of intent for ch. 145, SLA 1988 (HCS CSSB 514 (RIs)), which enacted AS 16.40.100 — 16.40.199, see 1988 House Journal 3716.

Sec. 16.40.100. Aquatic farm and hatchery permits. (a) A person may not, without a permit from the commissioner, construct or operate

(1) an aquatic farm; or

(2) a hatchery for the purpose of supplying aquatic plants or shellfish to an aquatic farm.

(b) A permit issued under this section authorizes the permittee, subject to the conditions of AS 16.40.100 — 16.40.199 and AS 17.20, to

(1) acquire, purchase, offer to purchase, transfer, possess, sell, and offer to sell stock and aquatic farm products that are used or reared at the hatchery or aquatic farm; and

(2) except as provided in (f) of this section, harvest and, without further cultivation, sell an insignificant population that may be present at the aquatic farm site of a wild stock of a shellfish species intended to be cultured at the site.

(c) The commissioner may attach conditions to a permit issued under this section that are necessary to protect natural fish and wildlife resources.

(d) Notwithstanding other provisions of law, the commissioner may not issue a permit under this section for the farming of, or hatchery operations involving, Atlantic salmon.

(e) Upon the expiration or termination of a permit issued under this section, a person who holds a permit for an aquatic farming site where wild stocks of shellfish indigenous to the site are cultured shall, as a condition of the permit, restore the wild stock of shellfish, as consistent with sustained yield management of the wild stock, to the population level that existed on the site when the permit for the site was initially issued by the commissioner. A permit holder is not required to restore that portion of the wild stock of shellfish that was removed from an aquatic farming site by a common property fishery conducted after the issuance of the permit for the aquatic farming site.

(f) If the wild stock of a shellfish species to be cultured at an aquatic farm site exceeds the amount determined by the department to be an insignificant population and if the commissioner determines in writing that removal from the site of that portion of the stock that exceeds an insignificant population would benefit the public and that removal of the stock by a person other than the permittee would unreasonably interfere with the operation of the aquatic farm, the commissioner may authorize the permittee to remove and sell the excess amount of the wild stock from the site, if the permittee pays reasonable compensation, as defined by the department, to the department for the harvest and sale of the excess wild stock. The department shall deposit the money received under this subsection into the general fund. The legislature may appropriate the money received under this section to the department for shellfish management and

enhancement. (§ 2 ch 145 SLA 1988; am § 7 ch 72 SLA 1998; am § 1 ch 81 SLA 2002; am §§ 1 — 3 ch 13 SLA 2005)

Effect of amendments. — The 2002 amendment, effective June 21, 2002, added subsection (e).

The 2005 amendment, effective July 1, 2005, in

subsection (b) added the paragraph designations and rewrote paragraph (2); added the last sentence in subsection (e); and added subsection (f).

NOTES TO DECISIONS

Application of article. — This article empowers the Alaska Department of Fish and Game to grant, or entitles the holder of an operation or stock acquisition permit to claim, exclusive rights to harvest and sell existing wild geoduck stocks. Alaska Trademark Shellfish, LLC v. State, 91 P.3d 953 (Alaska 2004).

Exclusive rights to existing wild stocks. — This section, the operation permit statute, neither states

nor implies that a right to harvest and sell wild stocks arises from an operation permit; by requiring all aquatic "farm products" and "stock" acquired or sold by an aquatic farm to be "used or reared at" the farm, this provision precludes harvesting unfarmed, wild geoduck stock for the purpose of sale. Alaska Trademark Shellfish, LLC v. State, 91 P.3d 953 (Alaska 2004).

Sec. 16.40.105. Criteria for issuance of permits. The commissioner shall issue permits under AS 16.40.100 on the basis of the following criteria:

- (1) the physical and biological characteristics of the proposed farm or hatchery location must be suitable for the farming or the shellfish or aquatic plant proposed;
- (2) the proposed farm or hatchery may not require significant alterations in traditional fisheries or other existing uses of fish and wildlife resources;
- (3) the proposed farm or hatchery may not significantly affect fisheries, wildlife, or their habitats in an adverse manner;
- (4) the proposed farm or hatchery plans and staffing plans must demonstrate technical and operational feasibility; and
- (5) the proposed farm site may not include more than an insignificant population of a wild stock, on the site, of a shellfish species intended to be cultured. (§ 2 ch 145 SLA 1988; am § 4 ch 13 SLA 2005)

Effect of amendments. — The 2005 amendment, effective July 1, 2005, added paragraph (5) and made related stylistic changes.

Editor's notes. — Section 7, ch. 13, SLA 2005,

provides that (5) of this section does not apply to an aquatic farm permit issued under AS 16.40.100 before July 1, 2005, until the permit's expiration or termination.

NOTES TO DECISIONS

Quoted in Alaska Trademark Shellfish, LLC v. State, 91 P.3d 953 (Alaska 2004).

Sec. 16.40.110. Permit application, renewal, and transfer. (a) An applicant for an aquatic farming or hatchery permit required under AS 16.40.100 shall apply on a form prescribed by the commissioner. An application for a permit must include a plan for the development and operation of the aquatic farm or hatchery, which must be approved by the commissioner before the permit is issued.

(b) An application for renewal or transfer of a permit must be accompanied by fees required by the commissioner, a report of the disease history of the farm or hatchery covered by the permit, and evidence that satisfies the commissioner that the applicant has complied with the development plan required under (a) of this section. The commissioner may require a health inspection of the farm or hatchery as a condition of renewal. The department may conduct the inspection or contract with a disease diagnostician to conduct the inspection.

(c) A person to whom a permit is transferred may use the permit only for the purposes for which the permit was authorized to be used by the transferor, and subject to the same conditions and limitations. (§ 2 ch 145 SLA 1988)

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Sec. 16.40.120. Aquatic stock acquisition permits. (a) A person may not acquire aquatic plants or shellfish from wild stock in the state for the purpose of supplying stock to an aquatic farm or hatchery required to have a permit under AS 16.40.100 unless the person holds an acquisition permit from the commissioner.

(b) An acquisition permit authorizes the permit holder to acquire the species and quantities of wild stock in the state specified in the permit for the purposes of supplying stock to

(1) an aquatic farm or hatchery required to have a permit under AS 16.40.100;

(2) the department.

(c) The commissioner shall specify the expiration date of an acquisition permit and may attach conditions to an acquisition permit, including conditions relating to the time, place, and manner of harvest. Size, gear, place, time, licensing, and other limitations applicable to sport, commercial, or subsistence harvest of aquatic plants and shellfish do not apply to a harvest with a permit issued under this section. The commissioner of fish and game shall issue or deny a permit within 30 days after receiving an application.

(d) The commissioner shall deny or restrict a permit under this section upon finding that the proposed harvest will impair sustained yield of the species or will unreasonably disrupt established uses of the resources by commercial, sport, personal use, or subsistence users. The commissioner shall inform the Board of Fisheries of any action taken on permit applications for species that support commercial fisheries subject to limited entry under AS 16.43 and of any permits denied because of unreasonable disruption of an established use. A denial of the permit by the commissioner must contain the factual basis for the findings.

(e) The Board of Fisheries may adopt regulations for the conservation, maintenance, and management of species for which an acquisition permit is required.

(f) Except as provided in (d) of this section or in a regulation adopted under (e) of this section, the commissioner shall issue a permit if

(1) wild stock is necessary to meet the initial needs of farm or hatchery stock;

(2) there are technological limitations on the propagation of culture stock for the species sought;

(3) wild stock sought is not fully utilized by commercial, sport, personal use, or subsistence fisheries; or

(4) wild stock is needed to maintain the gene pool of a hatchery or aquatic farm.

(g) Aquatic plants and shellfish acquired under a permit issued under this section become the property of the permit holder and are no longer a public or common resource. (§ 2 ch 145 SLA 1988)

NOTES TO DECISIONS

Scope of stock acquisition permits. — No right to harvest wild geoducks for general commercial purposes emerges under this section, the stock acquisition permit statute; stock acquisition permits issued under this section only allow their holders to acquire

wild stock for limited purposes: To supply stock to the Alaska Department of Fish and Game or to a licensed aquatic hatchery or farm. *Alaska Trademark Shellfish, LLC v. State*, 91 P.3d 953 (Alaska 2004).

Sec. 16.40.130. Importation of aquatic plants or shellfish for stock. A person may not import into the state an aquatic plant or shellfish for the purpose of supplying stock to an aquatic farm or hatchery unless authorized by a regulation of the Board of Fisheries. (§ 2 ch 145 SLA 1988)

Sec. 16.40.140. Limitation on sale, transfer of stock, and products. (a) A private hatchery required to have a permit under AS 16.40.100 may sell or transfer stock from the hatchery only to an aquatic farm or other hatchery that has a permit issued under AS 16.40.100, except that shellfish stock may also be sold or offered for sale to an aquatic farm or related hatchery outside of the state.

(b) Stock may not be transferred to or from an aquatic farm or hatchery required to have a permit under AS 16.40.100 without prior notice of the transfer to the commissioner. A notice of transfer shall be submitted at least 45 days before the proposed date of transfer.

(c) A notice of transfer must be accompanied by a report of a health inspection of the stock. The department shall conduct the inspection or contract with a disease diagnostician to conduct the inspection. The cost of inspection shall be borne by the department.

(d) The department may restrict or disapprove a transfer of stock if it finds that the transfer would present a risk of spreading disease.

(e) A person may not sell, transfer, or offer to sell or transfer, or knowingly purchase or receive, an aquatic farm product grown or propagated in the state unless the product was grown or propagated on a farm with a permit issued under AS 16.40.100. The permit must be in effect at the time of the sale, transfer, purchase, receipt, or offer. (§ 2 ch 145 SLA 1988)

Sec. 16.40.150. Disease control and inspection. (a) The department shall order the quarantine or the destruction and disposal of diseased hatchery stock or of aquatic farm products when necessary to protect wild stock. A holder of a permit issued under AS 16.40.100 shall report to the department an outbreak or incidence of disease among stock or aquatic farm products of the permit holder within 48 hours after discovering the outbreak or incidence.

(b) A holder of a permit issued under AS 16.40.100 shall allow the department to inspect the permit holder's farm or hatchery during operating hours and upon reasonable notice. The cost of inspection shall be borne by the department.

(c) The department shall develop a disease management and control program for aquatic farms and hatcheries.

(d) The department may enter into an agreement with a state or federal agency or a private, state-certified provider to provide services under (b) and (c) of this section, or inspections under AS 16.40.110(b). (§ 2 ch 145 SLA 1988)

Sec. 16.40.155. Records and reports confidential. Records required by statute or by a regulation adopted by the department concerning aquatic farm stocks or production, prices, and harvests of aquatic farm products and wild stocks, and annual statistical reports of individual aquatic farms or hatcheries required by statute or by a regulation adopted by the department are confidential and may not be released by the department, except that the department may release the records and reports

(1) to the Department of Revenue and the Department of Natural Resources to assist the departments in carrying out their respective statutory responsibilities;

(2) as necessary to comply with a court order;

(3) provided by an aquatic farm or hatchery permit holder to the permit holder whose activity is the subject of the records or reports;

(4) regarding cumulative annual harvests of wild stocks at individual aquatic farm sites. (§ 5 ch 13 SLA 2005)

Effective dates. — Section 8, ch. 13, SLA 2005 makes this section effective July 1, 2005.

Sec. 16.40.160. Regulations. The commissioner may adopt regulations necessary to implement AS 16.40.100 — 16.40.199. (§ 2 ch 145 SLA 1988)

Sec. 16.40.170. Penalty. A person who violates a provision of AS 16.40.100 — 16.40.199, a regulation adopted under AS 16.40.100 — 16.40.199, or a term or condition of a permit issued under AS 16.40.100 — 16.40.199, is guilty of a class B misdemeanor. (§ 2 ch 145 SLA 1988)

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Sec. 16.40.120. Aquatic stock acquisition permits. (a) A person may not acquire aquatic plants or shellfish from wild stock in the state for the purpose of supplying stock to an aquatic farm or hatchery required to have a permit under AS 16.40.100 unless the person holds an acquisition permit from the commissioner.

(b) An acquisition permit authorizes the permit holder to acquire the species and quantities of wild stock in the state specified in the permit for the purposes of supplying stock to

(1) an aquatic farm or hatchery required to have a permit under AS 16.40.100;

(2) the department.

(c) The commissioner shall specify the expiration date of an acquisition permit and may attach conditions to an acquisition permit, including conditions relating to the time, place, and manner of harvest. Size, gear, place, time, licensing, and other limitations applicable to sport, commercial, or subsistence harvest of aquatic plants and shellfish do not apply to a harvest with a permit issued under this section. The commissioner of fish and game shall issue or deny a permit within 30 days after receiving an application.

(d) The commissioner shall deny or restrict a permit under this section upon finding that the proposed harvest will impair sustained yield of the species or will unreasonably disrupt established uses of the resources by commercial, sport, personal use, or subsistence users. The commissioner shall inform the Board of Fisheries of any action taken on permit applications for species that support commercial fisheries subject to limited entry under AS 16.43 and of any permits denied because of unreasonable disruption of an established use. A denial of the permit by the commissioner must contain the factual basis for the findings.

(e) The Board of Fisheries may adopt regulations for the conservation, maintenance, and management of species for which an acquisition permit is required.

(f) Except as provided in (d) of this section or in a regulation adopted under (e) of this section, the commissioner shall issue a permit if

(1) wild stock is necessary to meet the initial needs of farm or hatchery stock;

(2) there are technological limitations on the propagation of culture stock for the species sought;

(3) wild stock sought is not fully utilized by commercial, sport, personal use, or subsistence fisheries; or

(4) wild stock is needed to maintain the gene pool of a hatchery or aquatic farm.

(g) Aquatic plants and shellfish acquired under a permit issued under this section become the property of the permit holder and are no longer a public or common resource.

(§ 2 ch 145 SLA 1988)

NOTES TO DECISIONS

Scope of stock acquisition permits. — No right to harvest wild geoducks for general commercial purposes emerges under this section, the stock acquisition permit statute; stock acquisition permits issued under this section only allow their holders to acquire

wild stock for limited purposes: To supply stock to the Alaska Department of Fish and Game or to a licensed aquatic hatchery or farm. *Alaska Trademark Shellfish, LLC v. State*, 91 P.3d 953 (Alaska 2004).

Sec. 16.40.130. Importation of aquatic plants or shellfish for stock. A person may not import into the state an aquatic plant or shellfish for the purpose of supplying stock to an aquatic farm or hatchery unless authorized by a regulation of the Board of Fisheries. (§ 2 ch 145 SLA 1988)

Sec. 16.40.140. Limitation on sale, transfer of stock, and products. (a) A private hatchery required to have a permit under AS 16.40.100 may sell or transfer stock from the hatchery only to an aquatic farm or other hatchery that has a permit issued under AS 16.40.100, except that shellfish stock may also be sold or offered for sale to an aquatic farm or related hatchery outside of the state.

enhancement. (§ 2 ch 145 SLA 1988; am § 7 ch 72 SLA 1998; am § 1 ch 81 SLA 2002; am §§ 1 — 3 ch 13 SLA 2005)

Effect of amendments. — The 2002 amendment, effective June 21, 2002, added subsection (e).

The 2005 amendment, effective July 1, 2005, in

subsection (b) added the paragraph designations and rewrote paragraph (2); added the last sentence in subsection (e); and added subsection (f).

NOTES TO DECISIONS

Application of article. — This article empowers the Alaska Department of Fish and Game to grant, or entitles the holder of an operation or stock acquisition permit to claim, exclusive rights to harvest and sell existing wild geoduck stocks. Alaska Trademark Shellfish, LLC v. State, 91 P.3d 953 (Alaska 2004).

Exclusive rights to existing wild stocks. — This section, the operation permit statute, neither states

nor implies that a right to harvest and sell wild stocks arises from an operation permit; by requiring all aquatic "farm products" and "stock" acquired or sold by an aquatic farm to be "used or reared at" the farm, this provision precludes harvesting unfarmed, wild geoduck stock for the purpose of sale. Alaska Trademark Shellfish, LLC v. State, 91 P.3d 953 (Alaska 2004).

Sec. 16.40.105. Criteria for issuance of permits. The commissioner shall issue permits under AS 16.40.100 on the basis of the following criteria:

- (1) the physical and biological characteristics of the proposed farm or hatchery location must be suitable for the farming or the shellfish or aquatic plant proposed;
- (2) the proposed farm or hatchery may not require significant alterations in traditional fisheries or other existing uses of fish and wildlife resources;
- (3) the proposed farm or hatchery may not significantly affect fisheries, wildlife, or their habitats in an adverse manner;
- (4) the proposed farm or hatchery plans and staffing plans must demonstrate technical and operational feasibility; and
- (5) the proposed farm site may not include more than an insignificant population of a wild stock, on the site, of a shellfish species intended to be cultured. (§ 2 ch 145 SLA 1988; am § 4 ch 13 SLA 2005)

Effect of amendments. — The 2005 amendment, effective July 1, 2005, added paragraph (5) and made related stylistic changes.

Editor's notes. — Section 7, ch. 13, SLA 2005,

provides that (5) of this section does not apply to an aquatic farm permit issued under AS 16.40.100 before July 1, 2005, until the permit's expiration or termination.

NOTES TO DECISIONS

Quoted in Alaska Trademark Shellfish, LLC v. State, 91 P.3d 953 (Alaska 2004).

Sec. 16.40.110. Permit application, renewal, and transfer. (a) An applicant for an aquatic farming or hatchery permit required under AS 16.40.100 shall apply on a form prescribed by the commissioner. An application for a permit must include a plan for the development and operation of the aquatic farm or hatchery, which must be approved by the commissioner before the permit is issued.

(b) An application for renewal or transfer of a permit must be accompanied by fees required by the commissioner, a report of the disease history of the farm or hatchery covered by the permit, and evidence that satisfies the commissioner that the applicant has complied with the development plan required under (a) of this section. The commissioner may require a health inspection of the farm or hatchery as a condition of renewal. The department may conduct the inspection or contract with a disease diagnostician to conduct the inspection.

(c) A person to whom a permit is transferred may use the permit only for the purposes for which the permit was authorized to be used by the transferor, and subject to the same conditions and limitations. (§ 2 ch 145 SLA 1988)

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Article 2. Aquatic Farming.

Section

- 100. Aquatic farm and hatchery permits
- 105. Criteria for issuance of permits
- 110. Permit application, renewal, and transfer
- 120. Aquatic stock acquisition permits
- 130. Importation of aquatic plants or shellfish for stock
- 140. Limitation on sale, transfer of stock, and products

Section

- 150. Disease control and inspection
- 155. Records and reports confidential
- 160. Regulations
- 170. Penalty
- 199. Definitions

Cross references. — For legislative findings and policy in connection with the enactment of AS 16.40.100 — 16.40.199, see § 1, ch. 145, SLA 1988 in the Temporary and Special Acts; for applicability to persons operating an aquatic farm or related hatchery on June 9, 1988, see § 18, ch. 145, SLA 1988 in the Temporary and Special Acts.

Legislative history reports. — For legislative letter of intent for ch. 145, SLA 1988 (HCS CSSB 514 (Rls)), which enacted AS 16.40.100 — 16.40.199, see 1988 House Journal 3716.

Sec. 16.40.100. Aquatic farm and hatchery permits. (a) A person may not, without a permit from the commissioner, construct or operate

- (1) an aquatic farm; or
- (2) a hatchery for the purpose of supplying aquatic plants or shellfish to an aquatic farm.

(b) A permit issued under this section authorizes the permittee, subject to the conditions of AS 16.40.100 — 16.40.199 and AS 17.20, to

- (1) acquire, purchase, offer to purchase, transfer, possess, sell, and offer to sell stock and aquatic farm products that are used or reared at the hatchery or aquatic farm; and
- (2) except as provided in (f) of this section, harvest and, without further cultivation, sell an insignificant population that may be present at the aquatic farm site of a wild stock of a shellfish species intended to be cultured at the site.

(c) The commissioner may attach conditions to a permit issued under this section that are necessary to protect natural fish and wildlife resources.

(d) Notwithstanding other provisions of law, the commissioner may not issue a permit under this section for the farming of, or hatchery operations involving, Atlantic salmon.

(e) Upon the expiration or termination of a permit issued under this section, a person who holds a permit for an aquatic farming site where wild stocks of shellfish indigenous to the site are cultured shall, as a condition of the permit, restore the wild stock of shellfish, as consistent with sustained yield management of the wild stock, to the population level that existed on the site when the permit for the site was initially issued by the commissioner. A permit holder is not required to restore that portion of the wild stock of shellfish that was removed from an aquatic farming site by a common property fishery conducted after the issuance of the permit for the aquatic farming site.

(f) If the wild stock of a shellfish species to be cultured at an aquatic farm site exceeds the amount determined by the department to be an insignificant population and if the commissioner determines in writing that removal from the site of that portion of the stock that exceeds an insignificant population would benefit the public and that removal of the stock by a person other than the permittee would unreasonably interfere with the operation of the aquatic farm, the commissioner may authorize the permittee to remove and sell the excess amount of the wild stock from the site, if the permittee pays reasonable compensation, as defined by the department, to the department for the harvest and sale of the excess wild stock. The department shall deposit the money received under this subsection into the general fund. The legislature may appropriate the money received under this section to the department for shellfish management and

LEGAL SERVICES

DIVISION OF LEGAL AND RESEARCH SERVICES
LEGISLATIVE AFFAIRS AGENCY
STATE OF ALASKA

(907) 465-3867 or 465-2450
FAX (907) 465-2029
Mail Stop 3101

State Capitol
Juneau, Alaska 99801-1182
Deliveries to: 129 6th St., Rm. 329

MEMORANDUM

February 6, 2007

SUBJECT: Aquatic Farming Permits (HB 26; Work Order No. 25-LS0179\K)

TO: Representative Paul Seaton
Attn: Katie Shows

FROM: Brian J. Kane *BJK*
Legislative Counsel

You have requested an opinion regarding four issues brought up by the Department of Fish and Game that relate to HB 26.

(1) The department suggested the phrase "fisheries administrative area" be used in section 2 of the bill instead of "fisheries management area" (with a conforming change to "management area" in section 1). The exact phrase suggested by the department does not appear in statute anywhere, but "administrative area" is referenced in the definition of "fishery" in AS 16.05.940(14). The phrase "management area" is defined in AS 29.60.450(f)6 as "one of the geographical units designated by the Board of Fisheries by regulation adopted under AS 16.05.251(a)(2) for the management of commercial fisheries of the state. . . ." Using this definition, which references AS 16.05.251, I opted to use the phrase "fisheries management area," which was also the phrase used in the initial request by your office, to describe the units to which the bill refers. However, the phrase "fisheries administrative area" could just as easily be used in this bill without resulting in any material difference.

(2) The department, according to the fax from your office, stated that "allowing the unconstrained transfer of geoduck seed as proposed by section 2 of the bill is inconsistent with and would override the intent expressed in existing statutes including" AS 16.35.210 and AS 16.40.105(3). The recorded "legislative intent" that is attached to AS 16.35.210 is addressed toward private landowners only, so is not at issue here. The text of AS 16.35.210(a) provides the following exception to its prohibited activities: "unless permitted by AS 16.05 - 16.40 or by a regulation adopted under AS 16.05 - 16.40." The bill in question adds a new section to AS 16.40 and is thus placed within the range of statutes for the exception in AS 16.35.210. Basically, the proposed AS 16.40.145 would be "permitting" the geoduck transfer.

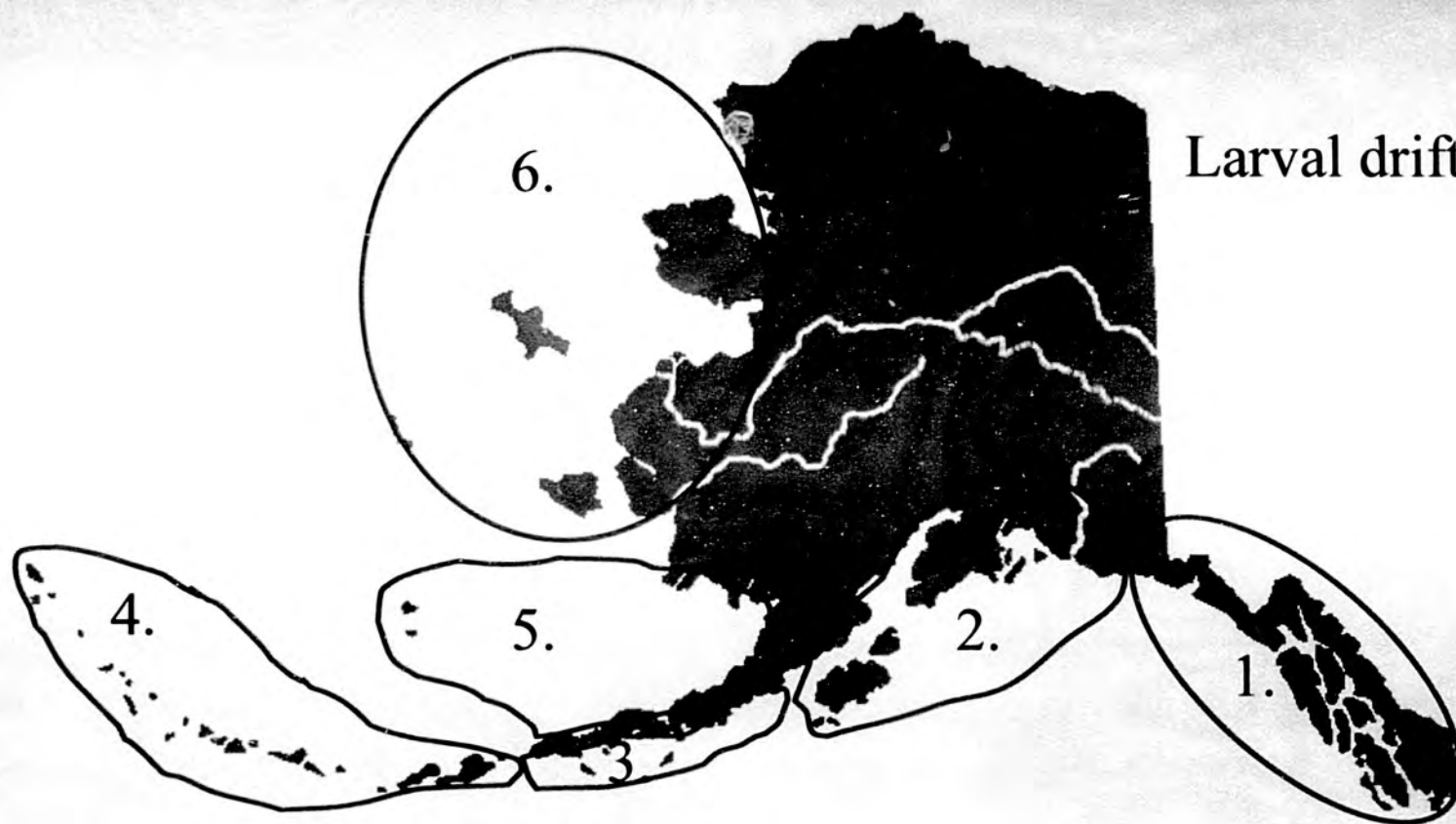
(3) The department, according to the fax from your office, stated that "section 2 might be interpreted to allow transfers to unpermitted hatcheries or farms because it requires consistency with AS 16.40.140(b) - (d) but does not reference (a) which generally

Representative Paul Seaton
February 6, 2007
Page 2

prohibits transfer of stock to a farm or hatchery within the state unless that farm or hatchery has a permit under 16.40.140." From my understanding, one of the objectives of this bill was to allow a certified hatchery to transfer geoduck seed to *any* aquatic farm located in the specified fisheries management (or administrative) area. Hence, section 2 of the bill is drafted so that hatcheries falling under this section only needed to be consistent with AS 16.40.140(b) - (d). One possible option to remedy this concern would be to add language in AS 16.40.140(a) noting the exception created by the proposed AS 16.40.145.

(4) The department, according to the fax from your office, stated that "allowing the unconstrained transfer of geoduck seed as proposed in section 2 of the bill would also require modification to regulations adopted based on current statutes. . . ." Whether or not regulations need to be modified is a decision to be made by the commissioner or the Board of Fisheries. I believe that statutes are amended without taking into account the impact upon regulations, and that the regulations should then be adopted or amended to conform with the existing statutes.

BJK:ljw
07-057.ljw



Larval drift zones

- (1) Southeastern Alaska, from the Canadian border north to Cape St. Elias.
- (2) Prince William Sound and Cook Inlet, from Cape St. Elias west and south to Cape Igvak, including Kodiak Island.
- (3) Chignik and the Alaska Peninsula-Aleutian Islands, from Cape Igvak west to the tip of Unimak Island.
- (4) The Aleutian Islands, including all islands west of Unimak Pass.
- (5) The southeast Bering Sea and north Alaska Peninsula, from the westernmost tip of Unimak Island north to the Kuskokwim River, including the Pribilof Islands.
- (6) The northeast Bering Sea, including all coastal islands north of the Kuskokwim River.

Current OTC farm sites	Culture Method	Designation	No. of Leases	Max. Size	Total Acres	ADL No.
Southcentral						
Sheep Bay	Intertidal	Designated	2	5	10	228768 228769
Upper Port Fidalgo	Intertidal	Designated	2	5	10	228764 228765
Hawkins Island	Intertidal	Designated	2	5	10	228760 228761
			6		30	SC Alaska Intertidal Culture acres available
Beartrap Bay	Suspended	Designated	4	5	20	228772 228773 228774 228775
East Squaw's Bay	Suspended	Designated	1	5	5	228777
Port Chatham	Suspended	Designated	2	2	10	228780 228781
Sheep Bay	Suspended	Designated	2	10	20	228766 228767
St. Matthew's Bay	Suspended	Designated	2	3	6	228770 228771
Upper Port Fidalgo	Suspended	Designated	1	10	10	228762
West Squaw's Bay	Suspended	Designated	1	5	5	228779
			13		76	SC Alaska Suspended Designated acres available
Southeast						
Morse Cove Entrance	Intertidal	Designated	4	5	20	107052 107053 107121 107122
Steamer Bay	Intertidal	Designated	1	5	5	107134
Sykes Cove	Intertidal	Designated	1	10	10	107091
West Pond Bay	Intertidal	Designated	2	10	20	107048 107049
			8		55	SE Alaska Intertidal Culture acres available
Carroll Inlet	Suspended	Designated	4	10	40	107083 107084 107085 107086
Cholmondeley Sound/Babe Is.	Suspended	Designated	3	10	18	107070 107071 107072
Deer Island #2	Suspended	Designated	1	10	10	107114
Deer Island #3	Suspended	Designated	1	10	10	107115
Deer Island #4	Suspended	Designated	1	10	10	107116
East Goose Bay	Suspended	Designated	1	10	10	107147
Gardner Bay	Suspended	Designated	2	10	20	107093 107094
Giant's Head	Suspended	Designated	2	10	20	107141 107142
Heceta Island	Suspended	Designated	1	10	10	107057
Ingraham Bay	Suspended	Designated	4	10	40	107102 107103 107104 107105
Johnson Cove	Suspended	Designated	4	10	40	107098 107099 107100 107101
Kaguk Cove	Suspended	Designated	3	10	30	107058 107059 107061
Kasaan Bay	Suspended	Designated	3	10	30	107138 107139 107140
Little Goose Bay	Suspended	Designated	2	10	20	107143 107144
Lower Zimovia Strait	Suspended	Designated	2	10	20	107108 107109
Menefee Inlet	Suspended	Designated	3	10	30	107111 107112 107113
Middle Islands	Suspended	Designated	3	10	30	107128 107129 107130
Morse Cove	Suspended	Designated	2	10	20	107050 107051
Niblack Anchorage	Suspended	Designated	3	10	30	107095 107096 107097
Niblack Islands	Suspended	Designated	1	10	10	107110
Nossuk Bay	Suspended	Designated	5	10	50	107064 107065 107066 107067 107068

Current OTC farm sites	Culture Method	Designation	No. of Leases	Max. Size	Total Acres	ADL No.								
Pond Bay	Suspended	Designated	8	10	80	107037	107038	107039	107040	107041	107042	107043	107044	
South Duke Island	Suspended	Designated	3	10	30	107045	107046	107047	107048	107049				
South Entrance Bay	Suspended	Designated	1	1	1	107123								
South Rocky Pass	Suspended	Designated	1	5	5	107124								
SW Dall Head (North)	Suspended	Designated	1	5	5	107117								
SW Dall Head (South)	Suspended	Designated	1	3	3	107118								
SW Little Goose Bay	Suspended	Designated	1	10	10	107145								
Three-Way Passage	Suspended	Designated	3	10	30	107131	107132	107133						
Traitor's Cove	Suspended	Designated	4	10	40	107087	107088	107089	107090					
West Goose Bay	Suspended	Designated	1	5	5	107146								
Zimovia Islets	Suspended	Designated	1	3	3	107106								
			76		710	SE Alaska Suspended Designated acres available								
Total Designated Sites			103		871	Total Designated statewide acres available								
			8		22	SE Alaska Intertidal Culture acres available								
West Pond Bay	Intertidal	Designated	5	10	50	103048	103049							
Stokes Cove	Intertidal	Designated	1	10	10	103081								
Stewart Bay	Intertidal	Designated	1	2	2	103134								
Worcester Cove Entrance	Intertidal	Designated	1	2	50	103025	103027	103151	103155					
			43		12	SE Alaska Suspended Designated acres available								
West Steward's Bay	Suspended	Designated	1	2	2	338118								
Upper Port Fidalgo	Suspended	Designated	1	10	10	338105								
St. Matthews Bay	Suspended	Designated	5	3	2	338110	338114							
Green Bay	Suspended	Designated	5	10	30	338100	338101							
Port Chatham	Suspended	Designated	5	5	10	338180	338181							
East Steward's Bay	Suspended	Designated	1	2	2	338111								
Besler Bay	Suspended	Designated	4	2	50	338115	338117	338119	338122					
			8		30	SE Alaska Intertidal Culture acres available								
Hawkins Island	Intertidal	Designated	5	2	10	338100	338101							
Upper Port Fidalgo	Intertidal	Designated	5	2	10	338104	338102							
Green Bay	Intertidal	Designated	5	2	10	338108	338103							
Current OTC farm sites	Culture Method	Designation	No. of Leases	Max. Size	Total Acres	ADL No.								



**ADF&G TESTIMONY ON HB 26
(Legal Perspective)**

- **Lines 11-12: the term "fisheries management area" is not defined or used in statute or regulation and could lead to confusion, it would be better to use the commonly used term "fisheries administrative area."**
- **Allowing the unconstrained transfer of geoduck seed as proposed in section 2 of the bill is inconsistent with and would override the intent expressed in existing statutes including:**

AS 16.35.210 which generally prohibits the release, transport, and possession of nonindigenous fish (including fertilized eggs). *"Non-indigenous fish means a species of fish that is not native to the body of water in which the fish is released or is intended to be released."*

AS 16.40.105(3) which generally prohibits the commissioner from issuing a permit where the proposed farm or hatchery could significantly affect fisheries, wildlife, or their habitats in an adverse manner.

- **Further as currently worded, section 2 might be interpreted to allow transfers to unpermitted hatcheries or farms because it requires consistency with AS 16.40.140(b)-(d) but does not reference (a) which generally prohibits transfer of stock to a farm or hatchery within the state unless that farm or hatchery has a permit under 16.40.140.**
- **Allowing the unconstrained transfer of geoduck seed as proposed in section 2 of the bill would also require modification to regulations adopted based on current statutes including:**

5 AAC 41.070 which generally prohibits import and release of live fish (including fertilized eggs) with certain specific exceptions (which do not currently include geoduck) (Note: although there are currently no certified hatcheries for geoduck outside Alaska, there are outside certified oyster hatcheries & outside facilities could be certified for geoduck)

5 AAC 41.240(a)(3) which includes provisions generally prohibiting issuance of an aquatic farm or hatchery permit unless the commissioner determines that the farm or hatchery *"is compatible with fish and wildlife resources in the area"*

5 AAC 41.295(d) which prohibits transport of stock between aquatic farm, hatchery, and stock acquisition sites except within an approved larval drift zone.

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME OFFICE OF THE COMMISSIONER

SARAH PALIN
GOVERNOR

P.O. BOX 115526
JUNEAU, AK 99811-5526
PHONE: (907) 465-4100
FAX: (907) 465-2332

January 30, 2007

The Honorable Paul Seaton
Chairman, House Fisheries Committee
House of Representatives
Alaska State Capitol
Juneau, AK 99801-1182

Re: HB 26

Dear Representative Seaton:

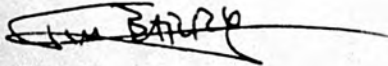
Thank you for meeting with the department January 16, 2007, to discuss House Bill (HB) 26. The department is supportive of continued growth of the Shellfish Mariculture Industry and considers it to be vital to the future growth of Alaska's coastal economy. Shellfish farming has enormous growth potential which can help sustain communities from Southeast to the Aleutian Islands. The department is also responsive to balancing the need to facilitate the development of the mariculture industry while developing science-based regulations to protect the wild populations that support commercial, subsistence, and sport fisheries. The regulations currently in place provide reasonable precautions that would protect wild stocks of species that support commercial fisheries or may support developing fisheries in the future and yet ensure continued, responsible growth of the mariculture industry.

We have included with this letter additional materials for your reference in regard to HB 26. A white paper has been provided that summarizes the problems with the introduction of a species to an area outside their natural range (Enclosure 1). In addition, a brief historical perspective on the development of the larval drift zones and the industry stakeholder involvement in this process (Enclosure 2) has been provided. During the process, the department made considerable compromises with the industry and reduced the number of larval drift zones from 12 to 6 which became effective and are currently in regulations in 5 AAC 41.295 **Stock Transport Permits**. Another white paper highlights the success of the department's shellfish importation prohibition disease policies that have been in place for over 20 years in ensuring none of the diseases or exotics, that have had disastrous impacts elsewhere, are introduced to Alaska (Enclosure 3).

The statutory and regulatory framework that are currently in place that restricts transport of geoducks to areas outside its natural range and outside the established larval drift zone for that species have been summarized as well (Enclosure 4). A map of the current transport zones is included on page 3. In addition, a figure depicting the geoduck life cycle has been included for

reference and to highlight that geoduck are not entirely sessile and that during part of their planktonic larval stage, geoduck larvae can be transported by currents for several months before settling in an area (Enclosure 5).

Sincerely,



Tim Barry
Legislative Liaison

Enclosures:

1. Introduced Species
2. Alaska Larval Drift Zone Development
3. Shellfish Importation Prohibition and Disease Policies
4. ADF&G Laws, Regulations and Guidelines Related to Shellfish Transport & Aquaculture
5. Geoduck Clam Life Cycle

cc: The Honorable John Harris
The Honorable Kyle Johansen
The Honorable Gabrielle LeDoux
The Honorable Peggy Wilson
The Honorable Bryce Egmon
The Honorable Lindsey Holmes



Attachment 1
Introduced Species
(Transporting Geoducks Outside Their Natural Range)

Alaska Department of Fish and Game considered both introduced species and genetics issues while developing policies and regulations to control stock transport of mariculture species. Importing species into novel habitats can cause various changes in biological diversity while importing stocks can cause changes in genetic diversity. The farming of geoducks in Southcentral Alaska is a question of introduced species.

Some introduced species (such as many agriculture crops and pets) have proven to be beneficial. However, others are very damaging. Although introduction of species into novel habitats was common in previous decades, this practice has largely been stopped because of the unpredictable outcomes. Often unanticipated and substantial adverse impacts have eroded recipient ecosystems and hurt native species. These risks are often greatest with highly fecund aquatic (or marine) species because of larval dispersal.

Any beneficial effects of introductions usually occur immediately while harmful effects are often delayed. One sector of the economic community may see short-term benefit while delayed harmful effects on native species and other taxa cause economic loss, sometimes catastrophic loss, to other sectors through predation, competition, hybridization, or the introduction of diseases.

In summary, introduced species are a major threat because their interactions with other biota are unpredictable; they can change entire habitats placing ecosystems at risk; and they can crowd out or replace native species that are beneficial and economically important.

It is important to note that the State of Alaska has taken an aggressive stance against the use of introduced species both instate and in neighboring jurisdictions:

Alaska opposes the introduction of Atlantic salmon in British Columbia and Washington because of the potential negative ecological and economic affects on the Pacific and Alaskan fishing industry; and

Citizens of Alaska have taken an aggressive negative stance against the US proposed offshore farming legislation based upon arguments that include the risks of introduced species.

The current larval drift zones to delimit invertebrate stock and species transfers were established after ADF&G:

Held a series of staff meetings to in Juneau, Kodiak, and Homer to identify issues and potential pathways to husband and yet responsibly regulate the mariculture industry;

Synthesized the issues and staff considerations into a report that included a bibliography of all of the published scientific information on molluscan genetics and aquaculture;

Published the report on the www and distributed it to the Alaska Shellfish Growers Association and Alaska Sea Grant for input and comments; and

Discussed this report in a series of public meetings that included commercial and mariculture stakeholders who offered input into the mariculture regulations; substantial industry input shaped the larvai drift regulations now in place.

During this process ADFG and mariculture industry leaders recognized that the use of sterile production lots would likely reduce, though not eliminate, the risk of introduced species. ADFG agreed to evaluate requests for the use of sterile exotics (e.g., geoducks in SC Alaska).

Sterile Fish and Shellfish

Several cost effective and simple strategies have been developed to sterilize fish and shellfish. These are routinely used in aquaculture and mariculture in other states and are becoming more common in Alaska. Because sterile fish cannot reproduce, the potential negative impacts of introductions may be tightly controlled. Alaska permits the widespread use of Pacific Oysters because they are naturally sterile in cold Alaska waters.

Decades ago Alaska stocked rainbow trout widely, including introductions beyond the species natural range. That program has been modified; it is current ADFG policy to only stock sterile rainbow trout into novel habitats. ADFG has also developed a sterile grayling program.

University of Alaska and NOAA fisheries have used USDA and Alaska Sea Grant monies to develop sterile pink, Chinook, and chum salmon.

Unfortunately the study of sterile geoducks has not surfaced as a priority. Alaska Sea Grant has expressed a deep interest in promoting mariculture in Alaska, and the Alutiq Pride Hatchery has expressed interest in sterile geoducks.

The following lists some examples of introduced species as well as some "fun fact" associated them:

Of all 1,880 imperiled species in the United States, 49% are endangered because of introduced species alone or because of their impact combined with other forces.

Introduced species are a greater threat to native biodiversity than pollution, harvest, and disease combined.

Through damage to agriculture, forestry, fisheries, and other human enterprises, introduced species inflict an enormous economic cost, estimated at \$137 billion per year to the U.S. economy alone.

Asian carp, introduced into the US to control algae in catfish farms, are spreading out of control. They have become the dominant large fish in the Illinois River and are infesting large swaths of the Missouri and Mississippi Rivers to the detriment of economically important native species.

Zebra mussels, accidentally introduced into the Great Lakes from southern Russia, have spread unpredictably, upset ecosystems, threaten native wildlife, damaged structures, and caused other serious problems. Millions of dollars are spent each year in attempting to control these small but numerous mollusks.

Introduction of Pacific Oysters destroyed the existing oyster industry in Chesapeake Bay.

In addition, the following websites provide some good information, suitable for the lay person, about introduced species:

http://en.wikipedia.org/wiki/Introduced_species

<http://www.actionbioscience.org/biodiversity/simberloff.html>



Attachment 2 Alaska Larval Drift Zone Development

Alaska has seen increased interest in subtidal geoducks aquatic farming with proposals for 137 farm sites being submitted and reviewed in the 2005 application opening. This emerging industry relies exclusively on the Alutiiq Pride Shellfish Hatchery in Seward for hatchery "seed" source for 16 geoduck farm sites currently permitted. It also is an important seed source for other culture species used at 61 aquatic farm sites and nurseries scattered throughout Southcentral and Southeast Alaska.

The state established an interim genetic policy in 1994 to protect the genetic diversity between shellfish wild stocks by prohibiting the transport of farm stocks between Commercial Fisheries Regions I (Southeast Alaska and Yakutat), II (Central Alaska; Prince William Sound, Cook Inlet, and Bristol Bay) and IV (Westward; Kodiak, Chignik, Alaska Peninsula, and Aleutian Islands), but allowing transports within a region. The interim genetic policy for shellfish transport was analogous to the ADF&G Genetic Policy for salmon. That policy is still in place and states that stocks (salmon) will not be transported between major geographical areas; Southeast, Kodiak Island, Prince William Sound, Cook Inlet, Bristol Bay, Arctic Yukon Kuskokwim, Interior. The rationale for the three zones for shellfish transport were based on a larval drift model developed by Ray Ralonde¹ which considered ocean current patterns or breaks that would delimit larval movement into zones and result in discriminate discrete population stocks.

As the industry grew there was more pressure to permit transport of farmed stocks and new brood stock through the single hatchery and around the state. ADF&G began work to define a set of regulations to both facilitate growth of the industry while conserving the wild stocks which support commercial, sport, subsistence and personal use fisheries.

Species-specific differences in life history might have discrete larval drift zones that would lead to different transport restrictions. Some mollusks, based on genetics, may be subdivided on fine geographic scale and others may be genetically identical across large distances. For example, weather vane scallops might be subdivided into more population stocks than littleneck clams. However, there is currently no direct genetic evidence of stock structure for shellfish species in Alaska.

¹ Ralonde, R. 1993. Shellfish Aquaculture in Alaska and the Potential of Interaction with Wild Species. P. 27-39 in: M.R. Collie and J.P. McVey (eds.) *Interactions between Cultured Species and Naturally Occurring Species in the Environment*. Proceedings of the Twenty Second U.S. Japan Aquaculture Panel Symposium. Alaska Sea Grant Report SG-95-03.

Improvements to the interim policy were considered after further collection of species-specific characteristics and physical barriers that may lead to the formation of discrete populations. The ADF&G interim policy was inappropriately lumping diverse zones in Region IV into one transport region. Barriers such as 1) the Alaska Peninsula that divides the Bering Sea from the Gulf of Alaska, 2) strong currents in Unimak Pass separates the Aleutian islands, 3) Shelikof Strait separates the Kodiak Archipelago, and 4) the distance separates the Pribilof Islands in the Bering Sea mandated more than one transport zone for that area. Major gyres often restrict larval transport and promote larval retention. Kachemak Bay may support discrete populations because of these effects of gyres and currents. Each of these zones represents an area of discrete larval drift and deserves separate consideration. Transports would be restricted between clear larval drift zones established using the Ralonde larval drift model and those developed in collaboration with data from ADF&G biologist from the regions. The department concluded that a conservative risk-averse approach was advisable so that stocks should be protected until more knowledge that transports and mixing is not harmful.

Further discussions and input were collected from the mariculture industry stakeholders in the development of the new guidelines and draft language for proposed regulations. The Mariculture industry had the need for 1) transporting mollusks to farms within the natural range of the species where threat species does not presently occur and 2) transporting mollusks to farms outside the natural range of the species. Issue No. 1 for transport within the natural range was considered a low risk. Unfortunately, there is little research available on the distribution, genetics, and life history including reproduction and larval drift of Alaska species to clarify the boundaries. Observations of rare individuals may not be a signal of "viable" persistent spawning populations and may indicate that the species is not suitable for that area. However, it is extremely difficult to determine what constitutes a viable population. Issue No. 2 on transporting outside the natural range was not considered as existing regulations proscribed transfer outside the "documented" range of a species. Transport of mollusks is limited to within the natural range of the species by existing regulations. Ralonde indicated that habitat barriers and marine currents prevented shellfish from Southeast into Prince William Sound.

The six Alaska larval drift zones referenced in the Aquatic Farm Regulations, 5 AAC 41.295 regarding stock transport permits, were carefully developed after meetings with Commercial Fisheries Division staff in Southeast, Southcentral, and Kodiak and the Mariculture industry stakeholders, Ray Ralonde, Aquaculture Specialist from the Alaska Sea Grant Marine Advisory Program, and Rodger Painter, the president of the Alaska Shellfish Growers Association. Substantial industry input shaped the larval drift regulations now in place. From this collaborative effort it was assured that **reasonable precautions** were in place that would protect wild stocks of species that support commercial fisheries or may support developing fisheries in the future and yet ensure continued growth of the mariculture industry.

In terms of other authorities in the Northwest, the state of Washington has a policy that recognizes several genetic zones within the state where geoduck brood stocks are to be

obtained. These are much more restrictive than larval drift zones. Stock from one zone cannot be taken to another zone. Many of these zones are localized to embayments where each is considered a subpopulation. In other words, brood stock must come from very local waters. In British Columbia, zones have been established and movement of organisms is overseen by both provincial and federal joint committees which consider genetics, disease, and ecology of the area and the specific species being transported and the risk to transporting to another area. Risk assessment studies conducted in the field are required by the committee to provide more information to assess the overall risk. Those with low risk are allowed to move outside the established zones whereas those with high risks are not allowed to be transported. Conditions on the transport permit are established to protect native stocks and minimize introduction of disease.

The department is responsive to balancing the need to facilitate the development of the Mariculture industry while developing science-based regulations to protect the wild populations that support commercial, subsistence and sport fisheries. There are clear mandates for ADF&G funding to work on salmon and groundfish issues. The department does not have funding currently to improve our understanding of the distribution, genetics, and life history of bivalves/shellfish in Alaska including larval period, larval drift zones, mechanism for larval retention, reproduction, and other biological information to identify the stock structure of these invertebrates and plants species. The department also doesn't have funding for needed risk assessment studies to determine associated risks from transports in specific local areas including: competition (displacement or disruption) of native species, benthic habitat modification (local vs. ecosystem effects and short term and long term effects), and predator-prey interactions. The industry should share in the responsibility to promote research and publish the information on the range of species. In addition, the industry should promote sterile stock research as these individuals are not capable of reproducing and hence would be more acceptable in farming situations. Use of sterile stock would diminish the genetic impacts on and interactions with wild stocks.



Attachment 3 Shellfish Importation Prohibition and Disease Policies

The ADF&G and private pathology labs examine bivalves that are used in aquatic farming for a variety of pathogens listed below. The number of bivalves examined is limited and is considered just a snapshot in time and may not represent the entire disease picture. However, so far as we know none of these diseases or other exotics have been introduced into Alaska, primarily due to the shellfish importation prohibition and the stringent disease policies that have been in place for over 20 yrs.

Histological examination of geoducks is performed on geoducks in Alaska for the following diseases:

Perkinsus spp. Including *P. marinus* and *P. atlanticus*.

Bonamia spp.

Haplosporidium spp. *Plasmodia* and spores.

Matreilia spp.

Mikrocytos mackini

Marteilioides chungmuensis

Introcytoplasmic inclusion bodies and lesions consistent with bivalve iridovirus infections including hemocyte viruses (HIVD), gill viruses (GNVD) or OVVD.

In the stock of geoducks so far examined the pathology labs have found no pathogens (agents or parasites) of transport significance in the broodstock collected for the hatchery or the spat produced at the hatchery. Examinations of geoduck tissue revealed prokaryotic inclusions in the gills which are typical of rickettsia which are no transport significance. Likewise there have been no pathogens of transport significance reported in the literature for geoducks either in BC or WA, but then again there has not been a lot of work on this species either. There is no such condition as "disease free" organisms, but certainly geoducks so far seem to be of low risk in transporting pathogens.

The larval drift zones are used by pathology to limit histological examination of indigenous shellfish if they are to be transported within the same larval drift zone. The assumption is that if larvae are widely dispersed within a given drift zone, then so are the potential pathogens that occur within that stock. Hence, their disease histories would be the same. After several years of examining oysters and clams in Alaska this has been the case.

In addition, bringing geoducks from BC would require a change in Alaska statutes and would set a precedence for importation of other shellfish species that would most likely follow where there are more serious concerns for exotic pathogens.

The use of ADF&G's disease policies prevent significant pathogen introductions into and within Alaska that have occurred in the Pacific Northwest and elsewhere. Examples are as follows:

1. Internal parasitic copepod, *Mytilicola*, imported from Europe is now indigenous in most Pacific oysters in the Pacific Northwest. This parasite causes poor growth and condition but rarely causes mortality. The AK shellfish policy requires that only spat less than 20 mm be allowed for importation into Alaska to reduce the likelihood of its introduction.
2. *Bonamia*, a protozoan parasite, was most likely introduced into WA and ME from flat oysters *Ostrea edulis* imported from CA. Now the parasite is found in most flat oysters in both WA and BC which can cause serious mortality. Pacifics are resistant.
3. *Haplosporidium nelsoni* was introduced into the Chesapeake Bay from Delaware Bay in the 1950s and along with *Perkinsus marinus* (another protozoan) decimated the American oyster industry there which has never recovered. Hence the current EIS regarding the introduction of the Suminoe oyster, *Crassostrea ariakensis*, from Asia. Ironically, although the Suminoe oyster may be resistant to these two pathogens, it has been found very susceptible to a previously unknown, but indigenous *Bonamia* that causes serious mortality.
4. *Haplosporidium* sp. was brought to the west coast with American oysters where it is less pathogenic for Pacific oysters, but nonetheless affects where they are transported.

In conclusion there is always a disease risk that can be measured in degrees. Therefore, if the shellfish species is indigenous then why import the same species from somewhere else and therefore put at risk or any risk on the very resource or other species that are to be protected, enhanced or farmed.



Attachment 4
Selected Fish and Game Laws, Regulations and Guidelines
Related to Shellfish Transport and Aquaculture

The following is a list of laws, regulations, and guidelines relating to aquatic farms and transport of mollusks to areas outside their natural range.

1) Site Location - Unsuitable Physical and Biological Characteristics

As part of the Aquatic Farm Act and regulations, applications are reviewed by ADF&G and during the review and determination process, proposed sites that reported to 1) ice over in the winter such as some intertidal areas, 2) have colder temperatures or salinity levels from freshwater influence outside the geoduck tolerance range, or 3) have a high influence of glacial silt would be determined to be unsuitable for the culture of geoducks. In addition, if the department determines that the proposed aquatic farm operation plans do not demonstrate that they will be feasible due to physical and biological characteristics of the location for the specific species proposed for culture, the department will not be able to issue a permit for these proposed farm sites. Regulations and statutes pertaining to these requirements are located in 5 AAC 41.240 and Section 16.40.105 and are listed below.

5 AAC 41.240. Review and determination

- (a) The commissioner will review aquatic farm and hatchery operation permit applications, department surveys, and other site specific information and will issue an aquatic farm or hatchery operation permit if the commissioner determines that, to the extent practicable,
 - (1) the physical and biological characteristics of the location are suitable for culture because
 - (A) the operation is protected from oceanographic and atmospheric extremes or is designed to withstand such extremes;
 - (B) the water exchange rates, water temperatures, currents, salinity, and primary productivity are sufficient to support an aquatic farm and maintain a healthy environment for other marine organisms;
 - (C) for on-bottom culture, the substrate composition is suitable for the target species or can be enhanced and still maintain a healthy environment for other marine organisms;

Sec. 16.40.105. Criteria for issuance of permits.

The commissioner shall issue permits under AS 16.40.100 on the basis of the following criteria:

- (1) the physical and biological characteristics of the proposed farm or hatchery location must be suitable for the farming or the shellfish or aquatic plant proposed;
- (4) the proposed farm or hatchery plans and staffing plans must demonstrate technical and operational feasibility; and ...

2) Proposed culture species outside the natural range

ADF&G identified salient issues that were relevant to development of a genetics policy for shellfish in Alaska to help responsible husbandry and overall growth of the mariculture industry and providing a summary Regional Information Report in 2001 of those issues along with a bibliography of all of the published scientific information on molluscan genetics and aquaculture¹. The issues listed in the report were 1) there were no reports of research into genetics and population boundaries of mollusks in Alaska, 2) for each species: what is the appropriate geographic scale to restrict transfer? Are there species specific life history and population genetic differences that warrant special consideration? At what scale should stock transfers be limited? What factors (such as demography, larval drift, salinity, current, substrate, competitors/predators, turbidity, depth, temperature should the policy team consider when regulating stock transfer? 3) What hatchery guidelines are important to ensure maintenance of within population genetics variability in hatchery stocks? The relative high fecundity of mollusk species may easily lead to inbreeding in the Alutiiq Pride Shellfish Hatchery. The stocking of inbred mollusks may negatively impact adjacent wild stocks of the same species and under certain circumstances may even impact the hatchery produced species on aquatic farm sites. 4) In other states there is a promotion of the use of sterile hatchery stocks to reduce the potential genetic impact of Mariculture. In what circumstances should the State of Alaska permit or promote the use of sterile hatchery stocks?

Current larval drift zones to delimit stock and species transfers and that addressed some of the salient issues were established in collaboration with the mariculture industry which provided considerable input in the larval drift regulations now in place. Specifically, the Department regulations specify that transport of stock acquisition and an aquatic farm site will be limited to waters within an approved larval drift zone of the state. This provision in 5 AAC 41.295 (see below for full text) is in place to eliminate or minimize the transfer or spread of pathogens and disease from one drift zone to another. Geoducks northern most observed range based on reconnaissance studies is up near Tenakee, Alaska. Transplanting geoducks into the southcentral areas would be outside their natural range and outside the larval drift zones where acquisition would take place. Limitations of stock transport are also in place to ensure that genetic integrity of wild populations is maintained. See the Figure 1 for Map of the drift zones.

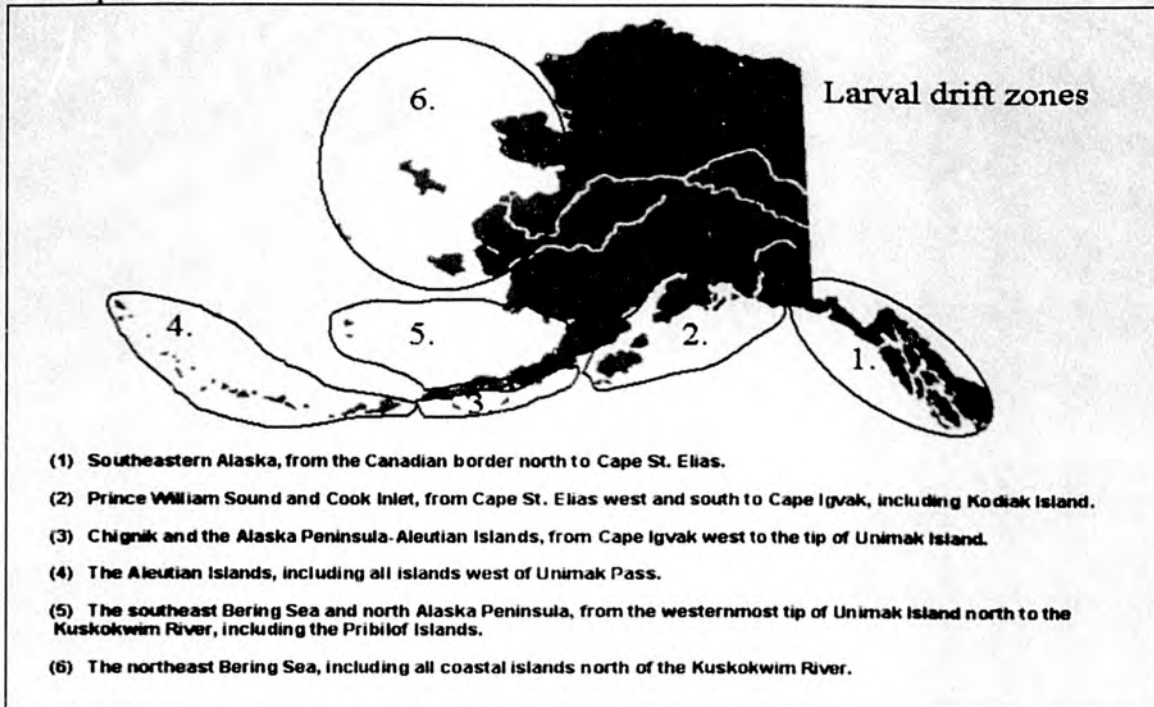
In addition, in conjunction with the genetic policies and larval drift zones, ADF&G is responsible for monitoring and controlling shellfish diseases statewide to prevent spread of both fish and shellfish infectious diseases within and outside Alaska's borders. Regulations and policies² relating to shellfish health and disease control require that the transport of indigenous shellfish species within Alaska for mariculture purposes have 1) an approved shellfish transport permit, and 2) an acceptable disease history be on record for the shellfish stock to be transported from the donor site regardless of whether the

¹ Moore, D and J. Seeb, 2001. Annotated Bibliography of the Genetics of Bivalve Mollusks. Regional Information Report No. 5J01-09. Alaska Department of Fish and Game. 45 pp.

² Meyers, T. 2003. Regulations Changes, Policies, and Guidelines for Alaska Fish and Shellfish Health and Disease Control. Regional Information Report No 5J03-07. 67pp.

stock originated from the certified source or whether a disease history exist for the stock at another site, and 3) if no disease history is on record, histological samples and examination must be completed before a shellfish transport permit is issued. The discreteness of stocks or populations as determined by the planktonic drift zone of larval dispersal by ocean currents is used to determine the distance of transport needed before pathology examination is required.

1: Map of six distinct larval drift zones for shellfish



5 AAC 41.295. Stock transport permits

(c) Transport of stock between aquatic farm, hatchery, or stock acquisition sites will be approved, without an inspection and report required in (b) of this section, if the commissioner determines that both sites are in close proximity to each other and are within the larval drift zone for wild stock of the species, and

(1) the disease history for the stock on site is acceptable based on previous laboratory examination of samples; or

(2) the risk of disease transmission between sites is minimal.

(d) Transport of stock between aquatic farm, hatchery, or stock acquisition sites will be limited to waters within an approved larval drift zone of the state. For the purposes of this section, "larval drift zone" includes all coastal and island areas in

(1) Southeastern Alaska, from the Canadian border north to Cape St. Elias;

(2) Prince William Sound and Cook Inlet, from Cape St. Elias west and south to Cape Igvak, including Kodiak Island;

(3) Chignik and the Alaska Peninsula-Aleutian Islands, from Cape Igvak west to the tip of Unimak Island;

(4) the Aleutian Islands, including all islands west of Unimak Pass;

(5) the southeast Bering Sea and north Alaska Peninsula, from the westernmost tip of Unimak Island north to the Kuskokwim River, including the Pribilof Islands; and

(6) the northeast Bering Sea, including all coastal islands north of the Kuskokwim River.

3) Introduced Species Prevention

Introduced species are a major threat because their interactions with other biota are unpredictable; they can change entire habitats placing ecosystems at risk; and they can crowd out or replace native species that are beneficial and economically important. It is important to note that the State of Alaska has taken an aggressive stance against the use of introduced species both instate and in neighboring jurisdictions. The department's conservative approach to any introductions of species that may potentially disturb the marine ecosystem where transports/species transplants are proposed ensures that the native wild stocks important to subsistence, commercial, recreational use and overall health of the marine environment are protected. Alaska has specific requirements to eliminate transport of non-indigenous aquatic species of shellfish that is not native to the body of water in which the shell fish is released or is intended to be released (See Sec. 16.35.210 below for full text in the statutes).

Geoducks are not native to the southcentral waters and no research is available on what the total impact would be to the southcentral benthic ecology. Pacific oysters are the only

non native aquatic farm species that are allowed to be cultured in Alaska because this species does not spawn in Alaska here due to the colder water temperatures (See Article 3, 5 AAC 41.070 below for full text).

The department and the mariculture industry recognized that the use of introduced sterile aquatic farm species into areas for which they were not native might be a possibility and would likely reduce, though not eliminate, the risk of introduced species. Currently, research is being conducted in Washington to develop sterile hatchery geoduck stocks that are made through the production of interspecies hybrids or triploids (three sets of chromosomes), but there have been no definitive results as of yet.

In the issuance of a permit, ADF&G must also consider whether it may significantly alter traditional fisheries or other existing uses of fish and wildlife resources or may affect fisheries, wildlife or their habitat in an adverse manner (See below for statutes Sec 16.40.100 and Sec 16.40.105 pertaining to criteria).

Sec. 16.35.210. Nonindigenous fish.

(a) **A person may not knowingly release, or transport, possess, import, or export for the purpose of release, into the water of the state live nonindigenous fish or live fertilized eggs of nonindigenous fish, unless permitted by AS 16.05 - AS 16.40 or by a regulation adopted under AS 16.05 - AS 16.40.**

(e) In this section, ...

(2) **"nonindigenous fish" means a species of fish that is not native to the body of water in which the fish is released or is intended to be released; ...**

(4) **"water of the state" means any water of the state forming a river, stream, lake, pond, slough, creek, bay, sound, estuary, inlet, strait, passage, canal, sea, or ocean, or any other body of water or waterway within the territorial limits of the state.**

5 AAC 41.070. Prohibition on importation and release of live fish.

(a) Except as provided in (b) - (d) of this section, **no person may import any live fish into the state for purposes of stocking or rearing in the waters of the state.**

(b) **Live oysters native to and originating from the Pacific Coast of North America may be imported for aquaculture purposes, under a permit required by this chapter, and may be released into the waters of the state only if the**

(1) **broodstock is derived from oysters commercially cultured on the Pacific Coast of North America through three or more generations; and**

(2) **disease history or an inspection indicates no incidence of disease that is not indigenous to Alaska. ...**

Sec. 16.40.100. Aquatic farm and hatchery permits.

...

(c) **The commissioner may attach conditions to a permit issued under this section that are necessary to protect natural fish and wildlife resources.**

...

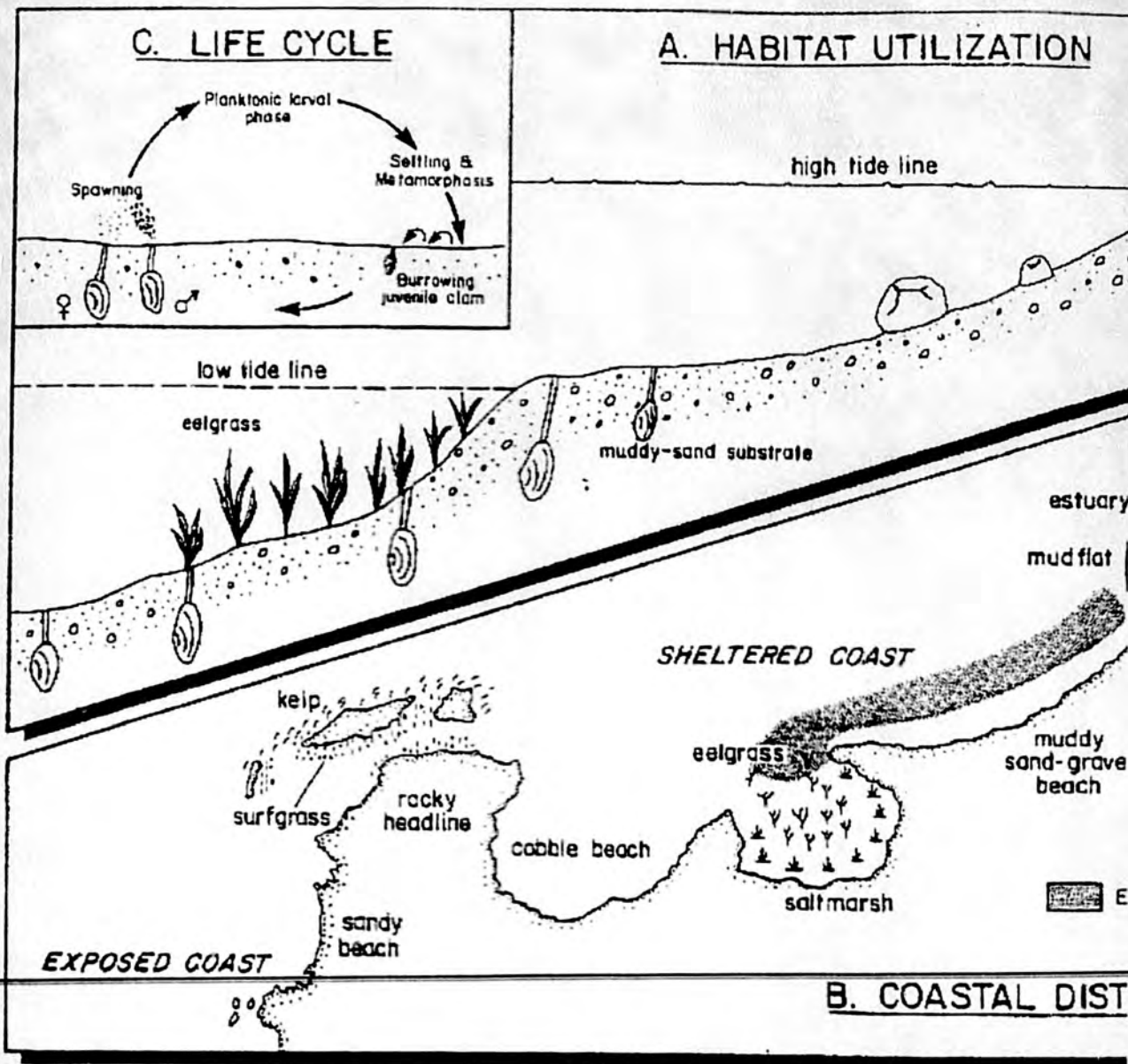
Sec. 16.40.105. Criteria for issuance of permits.

The commissioner shall issue permits under AS 16.40.100 on the basis of the following criteria:

- (2) the proposed farm or hatchery may not require significant alterations in traditional fisheries or other existing uses of fish and wildlife resources;
- (3) the proposed farm or hatchery may not significantly affect fisheries, wildlife, or their habitats in an adverse manner; and

ATTACHMENT 5

Geoduck Clam



Generalized life cycle of the geoduck clam: Male and female clams spawn annually beginning in late April and peaking in late June. Mass fertilization occurs in water column. Fertilized eggs develop rapidly into ciliated, motile larvae. Larval phase includes several stages (i.e. trochophore, veliger and umbooned), during which time the larvae drift in the plankton for 7 weeks and are dispersed by water currents. The larval phase ends when larvae settle, change form, and attach themselves to a suitable substrate. May spend several months settling different areas using byssal threads as a "parachute" for transport by currents. Upon final settling, juvenile geoduck creates permanent burrow where it usually remains for life. Adults may live to over 140 years and reach a maximum shell length of 23 cm.