

Alaska Department of Fish and Game
Explanation in Response to Public Comments
Regarding Regulations
Governing Mariculture and Aquatic Farms
January 29, 2010

Regulatory History

On April 10, 2009, ADF&G published a notice of proposed changes in regulations dealing with aquatic farming and mariculture program to clarify management practices. Due to requests from the public for more time to comment, a supplemental notice adding to the notice of proposed changes was published May 5, 2009 to extend the comment period to June 22, 2009. A public hearing was requested by the public; a second supplemental notice issued to announce a public hearing to allow oral public comment was published May 15, 2009 adding to the previous notice of proposed changes and the supplemental notice. The hearing was held on June 10, 2009 in Juneau and included Ketchikan by teleconference. Written and oral comments submitted to the department are discussed below.

Background

The regulation of shellfish mariculture has been complicated by the challenge of management of the taking and selling of common property wild stock shellfish from an aquatic farm site by aquatic farm permit holders. With the passing of House Bill 198 in 2005, farmers were allowed to harvest and sell insignificant amounts of shellfish from their farm sites. Regulation revisions were adopted to implement HB 198 and provided a threshold number for insignificant populations of geoduck and other shellfish wild stock to baser issuance of an aquatic farm operation permit on and added management tools to track timing, location, and amount of common property geoduck wild stock harvests on a farm site. It also provided for a financial security requirement to ensure that the permit holder's obligation to restore wild stock takes place on a farm site. Another important requirement was also added, as part of these 2005 regulations, for reasonable compensation for specific farm sites on which the Commissioner allows harvest and sale of excess numbers of geoduck wild stock above the insignificant level that are on the farm site. Reasonable compensation is required because shellfish are a public trust resource committed to the common use of the public and the state stands as a trustee to protect the interest of the people of the state. For more information on these previous 2005 revisions, please refer to the History of Regulations section on the ADF&G Mariculture and Aquatic Farming Program web page specifically relating to Regulation changes (Register 176).

Soon after these regulations went into effect, a contingent of geoduck farm permit holders came to the department to communicate their concern that the 2005 regulation changes were still not workable for them in regards to amount of compensation to the state for excess geoduck wild stock harvest above the insignificant level and the wild stock restoration financial assurance security requirements. The department continued

discussions with this stakeholder group to find solutions agreeable to both parties to help resolve these long standing controversial issues surrounding wild stock geoducks.

The main purpose of the current regulations was to provide provisions which reflect compromises between the stakeholder group and the department on wild stock issues. Other provisions included management tools for on-bottom culture operations and for oversight of hatcheries permitted in the state. Further clarifications on boundary markings for aquatic farm operations were also made. The proposed regulations were developed in conjunction with stakeholder input to ensure that they were practical, reasonable, and focused on helping resolve disputes that hamper the development of the geoduck subtidal aquatic farm industry in Alaska.

Comments and Responses

ADF&G received public comments on regulation revisions from a total of six individuals, one public agency, one association, and one legislator. Oral testimony at the public hearing from four individuals (two provided written comments) was also taken into consideration. ADF&G wants to thank all those individuals for taking the time to provide comments. A summary of the specific issues addressed in the proposed regulations, in the written comments and oral testimony, and an explanation of ADF&G's responses to these issues follows.

1. Modifications to on-bottom farm operation review and determination criteria

The proposed regulations added provisions specific to on-bottom culture aquatic farm operations that requires that both predator exclusion netting and use of hatchery-produced seed be described in the operation and development plan that is reviewed by agencies. The final operation and development plan becomes part of the aquatic farm operation permit and lease. Planting and culturing hatchery-produced seed for on-bottom farm operations is a standard method for improving the productivity of the farm site where native wild stock of the species being cultured resides. A condition of the on-bottom subtidal culture operation permit states "The productivity of your aquatic farm must be increased according to your development plan..."

Predator exclusion devices on planted hatchery-produced seed are traditionally used to protect the shellfish during the critical life stages when natural mortality is highest from predators such as starfish, crabs, gastropods, fish, and birds. Since natural recruitment of wild stock is unpredictable for many on-bottom species, farmers must rely upon planting and cultivating hatchery-produced seed and employing best practices such as the use of predator netting to maintain survival to meet production goals in their own aquatic farm operation and development plans. The predator exclusion provision provides assurances that farmers are practicing sustainable management of their farms and where they are culturing indigenous native species using methods that are scientifically proven to increase production for the specific species and not just collecting wild stock from the aquatic farm parcel. The combined use of hatchery-produced seed and predator netting for on-bottom aquatic farm sites also provides protection for the farmers' seed investment

and helps work toward effective production over the years of the farm operation. In addition, the state trusts the farmers will also employ these effective production techniques in order to eventually meet their obligation to restore wild stock harvested at the site in the event that they cease operations.

COMMENTS:

One commenter recommended replacing “predator netting” with “predator device or material”. Three commenters asked for allowance for other exclusion methods or devices (such as PVC or vexar bags) to protect farm product from predators. Four commenters had questions about the appropriateness of predator netting for on-bottom farm operations. Two commenters asked if the requirements would be retroactive. One commenter asked about the appropriateness of combining the use of predator nettings and hatchery- produced seed for all species being cultured and made recommendations to make a distinction for on-bottom culture operation requirements culturing wild stock littleneck clams as the literature findings show predator netting deployment alone was effective at increasing littleneck clam natural recruitment above those naturally occurring in wild stock populations. One commenter recommended adding an inventory requirement of standing stocks and collection of growth and survival data. One commenter recommended size and age composition data under positive control. One commenter asked for definitions to the best management practice methods listed.

RESPONSE:

The final regulations were modified to replace the term “predator netting” with “predator exclusion device” to address the possible use of various types of predator exclusion devices that may be used for on-bottom intertidal and subtidal operations.

With the exception of littleneck clams intertidal culture operations, the final regulations requires predator exclusion devices and planting of hatchery-produced seed as a means to meet the operational standards considered by the agencies to be biologically and technically feasible for on-bottom aquatic farm operations. Predator exclusion devices and use of hatchery-produced geoduck seed are key elements to any farming business and in combination are effective in increasing survival of the cultured hatchery-produced species being farmed. Planting is generally preceded by the installation of a predator exclusion system. Geoducks are especially vulnerable during the first 1 to 2 years of life when they are still relatively close to the surface. Once they reach a size and degree of maturity where they reside several feet below the surface, they have an increased chance of survival and fewer predators. PVC tubes traditionally used by aquatic farmers culturing intertidal geoducks are also covered by predator exclusion netting on the top of the PVC tube for a limited duration. Predator exclusion netting is a typical gear used to protect hatchery-produced geoduck planted subtidally from predation.

Specific determination criteria relating to the operation and development plan submitted by applicants to demonstrate biological and technical feasibility were modified in the final regulations to separate out littleneck clams from other on-bottom species. The

requirement for littleneck clam on-bottom culture operations was modified to provide for the use of either predator exclusion device at a farm site during the critical early life stages of the cultured littleneck clams or just use of hatchery-produced littleneck clam seed at the intertidal farm parcel. A research study done in Alaska showed deployment of predator exclusion devices alone can be effective in significantly increasing survival of native littleneck clams as compared to clam survival where there is no protection (Brooks, 2001¹). Predator exclusion devices alone can improve recruitment levels in an area where it is used. Again the type and numbers of predators observed at the farm site will be a determining factor on whether predator exclusion devices are used as well. If hatchery-produced littleneck clam seed is used at the site, it is highly recommended that farmers use predator exclusion devices to protect their investment.

Applicants are currently required to describe how they plan to evaluate whether the specified best management practice culture methods they propose to use at their farm site will be successful at improving the productivity at the aquatic farm site. The department believes that maintaining basic inventory information about the farm stock by taking samples in sample plots and measuring growth and collecting estimated mortality information are fundamental activities of a successful farm operation and applicants often indicate they plan to collect and utilize this information.

The final regulations for the section pertaining to the review and determination criteria for issuance of a permit is used for proposed new farm operations and when reviewing specific farm operation amendments. It is also considered when new operations and development plans are submitted as is the case for farms that are transferred to new permit holders and for aquatic farm operation permit renewals that occurs every 10 years.

Technical assistance materials will be developed to further explain the various best management practices or operational methods listed in the regulations to optimize the yield of harvest and improve productivity at the farms site above naturally occurring levels.

2. Defining boundary markings for various types of aquatic farm operations.

The proposed regulations added provisions to the existing identification and marker requirement used to define farm site operations. All farmers are required to have all corners of their farm operations marked as a condition of their Department of Natural Resources (DNR) aquatic farm tideland lease. Markers are not unique to subtidal culture operations as the ADF&G aquatic farm operation permit has a requirement that all four corners are marked as well. For those farms that are allowed to harvest wild stock, marking all farm site corners with buoys on the surface and using boundary markers for subtidal on-bottom farm operations using ground lines helps farmers know the limits of where to harvest wild stock geoducks and for planting their purchased hatchery-produced

¹ Brooks, Kenneth M., 2001. Final Report - Chugach Regional Resources Commission Bivalve Enhancement Program: Bivalve inventories and native littleneck clam (*Protothaca staminea*) culture studies Exxon Valdez Oil Spill Trustee Council Project Number 95131.

geoduck. This management tool is a standard in British Columbia for subtidal geoduck farm operations.

Markers help define the perimeters of farm operations and help minimize conflicts where farm sites are in close proximity of each other and when they share boundaries. This provision protects the farmer's investment by defining their farm site operations. For subtidal operations, the requirement of ground lines helps alleviate any conflicts where co-existing uses are in the area or where commercial geoduck wild stock beds are adjacent to the farm sites. Boundary definitions for these long term farm operations, helps the state 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.

For subtidal aquatic farm sites, the ADF&G aquatic farm permits and DNR aquatic farm leases have historically required marking the corners of the farm site. The aquatic farm operation permit for all subtidal geoduck farms reads "The farm site will be marked on at least four major corners that best delineate the general outlines of the site with concrete block anchors, weighing a minimum of 100 pounds and otherwise sized to secure the marker buoys, under the foreseeable local weather conditions, connected to green #A-2 Polyform or similar buoys by sinking poly line with a maximum 25 foot scope at local, extreme high water. Corner marking buoys must be maintained and easily discernible for the duration of this aquatic farm permit." Similarly, Stipulation 8 for all aquatic farm leases issued by DNR reads "The lessee is required to visibly mark the corners of the site and in accordance with USCG marking requirements. If a site is not in full operation, marking the corners of the operational area is acceptable"

COMMENTS:

Six commenters questioned the expense and the need for permanent buoys and leadlines for the subtidal operations. One commenter estimated the cost for leadline for subtidal operations would be \$4,000 per 5 acres. One commenter estimated that the buoys for suspended would cost \$300 based on 3 corner buoys and another commenter estimate the cost would be \$800-\$900 based on 4 corner buoys. One commenter didn't want to advertise the location of their farm. Recommendations were made by three commenters to use GPS as it is more accurate rather than buoys on the corners. One commenter recommended that existing suspended longline buoys be used at the farm to mark and distinguish the operational area. Two commenters recommended defining markings for subtidal geoducks culture operations only. One commenter recommended that ground lines not be used as they would be buried. One commenter was concerned about water quality issues with the use of leadline. Two commenters recommended only using markers on site after ADF&G notifies the geoduck subtidal farmers 60 days before a fishery or inspection and then ask the geoduck farm permit holders to deploy markers before these events.

RESPONSE:

With the expansion of the industry and increases in clusters of farms in an area, it is important to have proper markings for all farm operations for the various culture methods. Signage, properly marked site boundaries, structures, and equipment is a typical shellfish industry best management practice standard and follows navigable water standards set by the US Coast Guard and US Corps of Engineer for aquatic farm structures. This management tool will continue to help alleviate or minimize conflicts where farm sites are located in areas with multiple uses and are in close proximity to other farm sites and when farm operations share boundaries.

The final regulations made further clarifications and defined operation boundary marking requirements for each aquatic farm operation and handles previous inconsistencies with DNR requirements. Provisions were modified to allow for an option to mark the “operational area” as provided by and consistent with the aquatic farm lease issued by DNR. For those farms that are not in full operation and are not using all of their acreage for operations, provisions were added to allow for buoy markers at each corner of the current operational area. With this new provision, farmers of suspended culture operations that have multiple suspended longlines accompanied by buoys are able to fulfill the corner marking requirement as they do mark their existing operations. Farmers of subtidal farm sites can mark the boundary of their planted operations as they fulfill their rotational schedule as described in their operation and development plan.

Final regulation provisions for on-bottom intertidal culture farm operations were defined and added to allow for less conspicuous markers with existing materials onsite or stakes on all corners. The area around the trays and boxes can easily be marked similar to intertidal culture operations for any hardening areas associated with suspended culture farms.

Final regulation provisions for on-bottom subtidal culture farm operations required all corners to be marked which makes the regulations consistent with current aquatic farm operation permits and DNR lease stipulations. The final provisions replaced “leadline” with “ground lines” and required their use to mark the on-bottom boundary of the subtidal farm parcel or operations. Ground lines are a standard management tool used in British Columbia where subtidal geoduck farm plots are located to ensure that tenured boundary lines are clear and visible underwater to geoduck farmers so that activities such as harvesting and farming are conducted on the tenured farm location and not off of the site. Site inspections can also be done expeditiously when the on-bottom boundaries are marked making it easier for the state divers to locate the farm site operations and check on whether predator netting is adequately secured and anchored. Planting areas identified in farmer’s annual report can also be identified and inspected quicker. As far as the use of GPS coordinates as a substitute for any markers or ground lines, from the department’s experience, the areas where farm sites are located have fast currents and by the time the diver get down to the bottom, the current has taken the diver quite a distance from the original surface boat GPS coordinate. Due the expense, neither department divers nor

geoduck farm permit holders can afford underwater GPS units so the use of ground lines and surface markers would be a much cheaper alternative.

Most farmers specified in their operation and development plans that they would be checking their farm sites throughout the year to maintain their farm operations. Farmers of suspended gear are able to keep their suspended longline buoys and gear in place with adequate anchors so farmers of subtidal farms should be able to do the same. Defouling gear and checking for buoy placement and anchoring, and predator netting maintenance, anchoring, and repair should occur periodically as part of routine farm activities when farmers visit their farm site. This maintenance work would be true for any markers and boundary ground lines used by subtidal farmers and corner weighted marker or stakes used by intertidal farmers.

The estimated costs of marking materials as required in the final regulations were determined to be as follows: 1) Three corner markers for either a suspended culture operation - \$138^{2,3}; 2) Ground lines for subtidal culture operations - \$2,280⁴ for an average sized 6 acre farm site; and 3) Stakes used for one intertidal or subtidal farm culture parcel - \$7.00 or it could be free if using on-site natural materials. Note that the identification buoy or sign depending on the culture operation type has been required of all farm sites for some time and is not a new requirement so the cost of this buoy or sign was not included.

Previous operation permit conditions for subtidal culture operations stated “You will be required to mark the entire subtidal boundary of your farm within 60 days of written notice from the mariculture section in the event of an adjacent limited-entry geoduck clam dive fishery or department sponsored geoduck clam enhancement activity so that the farmed geoduck area is easily distinguishable from the common property geoduck area.” This management tool has not worked effectively in the past for areas where commercial fishery beds are adjacent or surround the farm site, so permanent ground line markings will permanently identify the farm area boundaries on-bottom and will accurately distinguish the farm area from the commercial geoduck fishery bed. Security of a farmer’s farm product is an on-going concern at all farm sites and farmers have to schedule frequent on-site monitoring in order to protect their investments.

3. Compensation percentages to the state for harvest of excess amounts of geoduck wild stock from an aquatic farm site above the insignificant level.

The proposed regulations defined provisions to address stakeholder concerns over the compensation percentages in the existing regulations for the harvest of excess geoduck populations on an aquatic subtidal geoduck farm above the insignificant level. This provision would only apply to a select group of sites. Farmers considered the percentages

² Buoy cost estimate is based on the cost of 3 - A2 polyform buoys = \$87.00 at \$29.00 each, 3 anchors = \$15.00 at \$5.00 each, and line between anchor and buoy = \$36.00 at \$12.00*3.

³ The corner markers should not cost anything additional as farmers should already have these buoys in place at all farm sites as it is a requirement of the DNR lease and for subtidal geoduck culture operation permits. Those farmers using with long lines and buoy suspended gear at their site already are using buoys to mark their operations that will also fulfill the marking requirement.

⁴ Ground line cost estimate is based on the cost of using 6.2 reels of ground line = \$2,254.00 at \$354 for each 330 ft. reel and cement blocks totaling \$25 at \$5 x 9 blocks.

to be too high to make it profitable to harvest existing excess wild stock off of these seven subtidal sites. In this effort, the department reviewed the 2004 economic analysis that was originally based on the 2004 harvest costs provided by Southeast Alaska Regional Dive Fisheries Association (SARDFFA) and accounted for a margin of profitability for farmers after harvest expenses.

The revised analysis in the proposed regulations reduced the compensation to the state for excess harvest of wild stock above the insignificant level from 50% to 24% of the average ex-vessel price or the amount at the first point of sale, whichever is greatest, for live geoducks and 20% to 9% of the average ex-vessel price or the amount at first point of sale, whichever is greatest, for processed geoducks. The revised analysis took the original analysis and provided for a larger profitability margin and updated the data to include geoduck wild stock average of the maximum and minimum 2007 harvest costs provided by SARDFFA. It also included testing fees for Paralytic Shellfish Poisoning (PSP) and costs of water quality samples, both required by Department of Environmental Conservation, and a 3% fish business tax charged by Department of Revenue to all farmers that export fish products out-of-state. Also added in the calculation was the cost of seed required for the reseeded requirement for the early release of the security held by the state. The security is set aside as a financial assurance that farmers restore stock that was harvested within the farm site if operations cease.

Since there was no processed geoduck harvested and sold since 2004 when the harvest cost analysis was calculated, no cost data was available to match the 2007 data used in the revised cost analysis. Therefore, the compensation for processed geoduck in the proposed regulations was determined to be 9% of the ex vessel price based on calculating the proportion from the original percentages calculated in 2004 cost analysis for live and processed (50% and 20%, respectively) and the 2007 cost analysis percentage for live geoduck (24%). This provision would only apply to three subtidal farm sites (11.52 acres) that have traditionally had unacceptable PSP concentrations making it necessary to sell processed product from these sites.

The proposed regulation for compensation would only apply to a limited number of sites that were permitted prior to the passing of HB 198 and were not commercially fished. These seven sites, permitted to three individuals, were eliminated from the commercial fishery opening conducted on all defined geoduck subtidal farm areas as individuals had indicated on annual reports that they had planted some hatchery-produced seed at these sites.

COMMENTS:

Two commenters reported that the cost analysis and 50/50 “net” profit split between the geoduck farm permit holder and the State of Alaska (as used in the cost analysis), was fair or good to the geoduck farmers. Five commenters recommended that the percentage compensation for live geoduck set at 24% in the proposed regulations be lowered with suggested percentages ranging from 3 - 9% and an explanation of their rationale follows:
1) 9% based on 3 times the 3% fisheries business tax set for the commercial dive geoduck

fishery; 2) 5% based on \$2.00/lb. for costs and 0.50/lb. cost estimate for geoduck farmers for PSP sampling; or 3) 3% or 3.5% (incorrectly cited) based on fisheries business tax set for the commercial dive geoduck fishery. One commenter reported that divers can't distinguish between wild and hatchery-produced geoduck so can't sample. One commenter recommended revisions to the cost figures for diver costs and PSP sampling considered for the cost analysis. One commenter asked for a definition of the first point of sale. One commenter recommended that the calculation include business tax, diver costs, and PSP costs. One commenter recommended that if they overplant, then no security would be necessary. Two commenters recommended lowering the processed geoduck compensation as they will lose money harvesting remaining geoduck wildstock off of their farm sites.

RESPONSE:

The final regulations lowered the compensation percentage for excess harvest of wild stock geoduck to 21% from the proposed percentage of 24% for live geoducks. Since wild stock geoduck on the farm sites are common property, the State is entitled to a fair share of the value of those animals. Existing regulations allows geoduck farm permit holders to harvest up to 2,000 lbs. of geoduck wild stock per acre without being required to compensate the State. The compensation to the state would only apply if excess amounts were harvested above the insignificant threshold set in regulations.

The lowered compensation percentage was obtained by looking further at the analysis of costs and reconsidered such factors as 1) the maximum harvest costs rather than the average harvest costs in the common property fishery, 2) recommended diver harvest costs, 3) recommended PSP sampling and harvest costs, and 4) fisheries business tax. The final estimated harvest costs used to determine the percentage were recalculated by taking the maximum amount for harvest costs for the common property fishery and the recommended \$2.00/lb. for farmer harvest cost estimates and averaging these two figures. PSP sampling costs were recalculated based on the recommended costs of PSP sampling of \$500 and adjusting this to account for the expectation that only 80% of the PSP samples being tested passed and taking the actual average geoduck harvest of 772 lbs. per day over 3 days⁵. As the reseeded costs are part of the expenses of running a subtidal geoduck farm operation, this cost was eliminated from the overall calculation. The calculated gross harvest cost was estimated at \$2.00/lb. The net "profit" of \$1.50 was calculated by taking the average 2006-2007 ex-vessel price of \$3.50 per pound and subtracting it from the gross harvest costs of \$2.00/lb. By using a 50/50 sharing of the net "profit", this results in a state share of \$0.75/lb. The 21% percent comes from the state share of \$0.75/lb. divided by \$3.50/lb. the ex-vessel price. If the value of the geoducks is greater, as it has been in years following this initial analysis, this approach greatly favors the geoduck farm permit holders. For example at \$8.00/lb., the State would be due 21% or \$1.68/lb., and the farmers would keep \$6.32/lb.; we estimate the permit holders harvest costs would be \$2.14/lb. (slightly greater than \$2.00/lb. due to more business cost), leaving them a net of \$4.18/lb. The department thinks this final analysis was reasonable.

⁵ Calculation for PSP sample would be $(500/0.8) / (772*3) = 0.27/lb.$

The final regulation provision for the compensation for processed wild stock geoduck harvested in excess amounts above the insignificant threshold was recalculated to be 8% of the ex-vessel price or the first point of sale, whichever is greater, based on the proportion from the original percentages calculated in 2004 cost analysis for live and processed (50% and 20%, respectively) and the 2007 revised cost analysis percentage for live geoduck (21%). The proportion had to be used as there was no average ex-vessel price for processed geoduck in 2007 when the new analysis was completed.

Often commenters used the term “tax” interchangeably for the compensation required to be paid to the state for the use of common property resources. The fisheries business tax that commenters refer to is required by Department of Revenue for any person or business that engages in a fisheries business in Alaska and is paid by the first processor or exporter. Geoduck farm permit holders are using common property resources by harvesting wild stock geoducks on their farm site. As a result, when farmers are approved to harvest excess amounts of wild stock geoducks above the insignificant level set in regulations off select permitted sites that were not commercially harvested, the state has an obligation to ensure that farmers pay the state back for the use of those common property resources. The tax and compensation requirements of the state are collected for two different reasons and can’t be compared or used interchangeably.

The first point of sale would be when an individual sells their product either wholesale or retail to a first processor, exporter, or custom processor of the product taken off the farms site, whichever is used first. The company the product is sold to would have a Department of Revenue Fisheries Business License (FBL) number embossed on the code plate used to imprint an ADF&G fish ticket at the time of delivery. A definition was not included in the final regulations.

4. Financial Security Options for Wild Stock Restoration

The proposed regulations defined how best to handle the security deposits for wild stock restoration as proposed by stakeholders and agreed upon by the department. The proposed regulations provided a waiver option of the security requirement if adequate proof of reseeded was provided by permit holders within the year of wild stock harvest on the farm site. A farmer could harvest wild stock geoduck and reseed the area with hatchery-produced seed as specified in their operational and development plan rotational planting schedule. If the requirement is not met, the geoduck farm permit holder must post security for all animals, taken in that year, that they failed to replace. If wild stock harvest taken from the farm has been replaced within the next year and these activities are reported in that year’s annual report, the security will be released to them. If wild stock has not been replaced, the department will hold the security until they have been replaced. Provisions for what constitutes proof of reseeded provided in the proposed regulations were a combination of ideas in the stakeholder proposal and from the department.

In order to get a waiver from the security, the permit holder must comply with a replacement requirement set at 5 (five) hatchery-produced seed to 1 (one) wild stock taken. This ratio was established for the purpose of the security waiver and does not reflect the overall farm operations and mortalities actually observed at a subtidal farm site nor does it exempt a farmer from the condition in the permit to comply with the approved operation and development plan in the aquatic farm operation permit and lease. The reseedling also does not exempt the permit holder from the statutory requirement that at the termination of the permit, the site must be left with a population of geoducks equal to what was there when the permit was issued.

COMMENTS:

Seven commenters had recommendations or questions about the spat (or seed) size and expressed concerns about the Alutiiq Pride Shellfish Hatchery providing 8 - 10 mm spat. One commenter asked about what happens in the event that hatchery-produced seed is not available. Five commenters recommended a range of viable hatchery-produced seed sizes for the proof of the reseedling requirement with suggested ranges as follows: 3-5 mm, 4-5mm 5-8mm, 6-12 mm, and 15 mm. One commenter recommended that there not be a seed size required. Six commenters questioned the time, stamped digital video due to the expense and the need and practicality of it. One commenter questioned if the video wasn't a violation of privacy and questioned security of the video media and the probability of fabrication. One commenter recommended definitions for "predator exclusion netting" and "properly secured". One commenter recommended a time limit for the predator netting and another commenter asked to have no time limit. One commenter recommended the use of site inspections and further investigation of alternative methods of documenting compliance. Three commenters recommended that the provision apply to geoducks rather than for all wild stock species.

RESPONSE:

The final regulations changed the title of the section to reflect the security for wild stock "geoduck" restoration. Further changes were made for the waiver to the security to allow a smaller seed size and to provide for the ability for a nursery to grow the hatchery-produced seed out to "6 or greater" instead of the proposed 8- 10 mm optimal seed size. According to their 2010 geoduck seed price listing, the Alutiiq Pride Shellfish Hatchery has the capability of providing geoduck farmers and nurseries three seed range sizes: (3 - 4.5); (4.5 - 6mm); and (6 mm and larger). In 2009, 84% of the geoduck farm permit holders requested 6 mm or greater geoduck seed on their transport permit applications. Research studies in Washington and British Columbia have shown that larger hatchery-produced seed (12 – 20 mm) have a greater chance of survival.

The department wants to be assured that the planted hatchery-produced seed has a reasonable chance of surviving to decrease the risk of offering the security waiver option. The department expects that the farmers will at least replace the wild stock that is harvested off their sites to meet the wild stock restoration requirement. The department also expects that subtidal geoduck farmers will follow their approved operation and

development plan and purchase, cultivate, and plant hatchery-produced seed on their farm site parcels, accordingly. If for some reason a geoduck farm permit holder can't purchase or obtain geoduck hatchery-produced seed from the hatchery or nursery in the state, they will not be able to utilize the security waiver option and a security will be required by the state.

Natural mortality of geoducks from predation has been found to be very high up to the first year of the life (Goodwin and Shaul, 1984⁶; Sloan and Robinson, 1984⁷). The time limit for the predator netting would then be limited to these critical life stages where mortalities are known to be high. The justification for a 5:1 ratio of planted hatchery-produced seed for each wild geoduck planted and the requirements for predator control stem from the same expectation of a reasonable chance for the planted hatchery-produced seed to survive.

In addition, the hatchery is not prohibited from selling smaller seed. Farmers can meet the minimum size requirement by holding hatchery-produced seed in a nursery to get the additional growth. Revisions include that the 6 mm seed to be planted at the site can be transported from a certified hatchery or a nursery. Also note that in lieu of meeting the proof of reseeded requirements, the geoduck farm permit holders can elect to provide a financial security using a bond or certificate of deposit.

The final regulations clarified and added more detail on what information should be on the bill of sale from the hatchery and added a proof of reseeded form. Clarifications were also made to the "predator exclusion netting" and "properly secured" definitions. Since the stamped digital video requirement was recommended by stakeholders and agreed to by the department, it was retained in the final regulations.

Using site inspections rather than the criteria listed for waiver of the security option was considered, but ruled out because of a lack of staff resources and funds to conduct annual site inspections on subtidal geoduck farm sites, for this specific purpose.

5. Notification time for wild stock landings.

The proposed regulations clarified that notification to the department needs to be for "each" harvest of wild stock event.

COMMENTS:

One commenter wanted to modify the notification to at least 12 hrs.

⁶ Goodwin, L. and W. Shaul. 1984. Age, recruitment and growth of the geoduck clam (*Panope generosa*, Gould) in Puget Sound, Washington. Wash. Dept. Fish. Progress Rpt. No. 215. 30 p.

⁷ Sloan, N.A. and S.M. Robinson. 1984. Age and gonad development in the geoduck clam *Panope abrupta* (Conrad) from southern British Columbia. J. Shellfish Res. 4: 131-137.

RESPONSE:

No change to the 24 hr. time period in the final regulations as it provides the department and public safety time to prepare for inspections during landing events.

6. Hatchery basic management plan and reports

The proposed regulations provided provisions for an operation plan and annual management plan reflect current hatchery operation permit conditions for the Alutiiq Pride Shellfish Hatchery (APSH). The basic management plan (BMP) is similar to the management tool used in the Enhanced Salmon Hatchery permitting process and provides an excellent mechanism for genetic and disease control management and production. In the proposed regulations, the ADF&G Commissioner would have approval authority for the final APSH operation plan. Once approved, the operation plan would be a condition of the hatchery operation permit and would be followed and adhered to unless a request for an amendment or change in the BMP is approved by the Commissioner.

COMMENTS:

Two commenters had questions regarding the need and rationale for a 5-year hatchery management plan and ability of the hatchery to predict production when it is based on the market. One commenter questioned why the department needed to know the algae used. One commenter recommended that setting facilities be excluded from this plan and reporting provision. One commenter recommended that the list of items to be included in the operation plan be removed.

RESPONSE:

The final regulations eliminated the criteria for what goes into an operation plan and renamed it the basic management plan (BMP). The hatchery BMP would be revised whenever changes are necessary. The basic management plan acts as a management tool that is cooperatively used by the hatchery personnel and the department to implement genetic and disease control measures and management and improve production at the facility. It also will help streamline reviews of fish transport and acquisition applications and assist in providing future funding for the hatchery. This provision does not apply to setting facilities as hatcheries are defined as facilities where propagation of shellfish takes place. Setting facilities do not propagate shellfish and are used to grow out eyed-larvae to an optimum size that can be used by farmers.