2002 Annual Mariculture Report

by Jackie Timothy

REGIONAL INFORMATION REPORT[1] NO. 5J03-09

Alaska Department of Fish and Game
Division of Commercial Fisheries
P.O. Box 25526
Juneau, Alaska 99802-5526

June 2003

[1] The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports in this series undergo only limited internal review and may contain preliminary data, this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

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ABOUT THE AUTHOR

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ACKNOWLEGMENTS

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INTRODUCTION

The Aquatic Farm Act (Section 19, Chapter 145, Session Laws of Alaska (SLA) 1988) was signed into law on June 8, 1988, authorizing the commissioner of the Alaska Department of Fish and Game (ADF&G) to issue permits for the construction and operation of aquatic farms and hatcheries. The intent of the program was to create an industry in the state that would contribute to its economy and strengthen the competitiveness of Alaska seafood in the world marketplace, broadening the diversity of products and providing year-round supplies of premium quality seafood. The law allowed aquatic farming of shellfish and aquatic plants and placed a moratorium on finfish farming. In 1990, Alaska Statute (AS) 16.40.210 became law, prohibiting finfish farming in Alaska.

The Alaska Departments of Fish and Game, Natural Resources (DNR) and Environmental Conservation (DEC) developed regulations to administer the aquatic farm program during 1988 and 1989. In 1997, DNR made additional regulation changes to meet the requirements of a Supreme Court decision and allow permit holders and applicants to enter directly into an aquatic farmsite lease. The commissioner of ADF&G amended regulations in 2001 to address issues raised by proposals to conduct on-bottom farming of indigenous shellfish species, and again in 2002 in response to a Superior Court decision requiring the department to determine "significance" in terms of populations of naturally occurring shellfish species.

Kevin and Lucinda Sidelinger in Halibut Cove.

Don Nicholson and Sharon Gray in the Blashke Islands.

AQUATIC FARM AND HATCHERY PROGRAM UPDATE

Status of Existing Program

An aquatic farm opening, the period when applications are accepted by the State for review, is conducted every other year between January 1 and April 30. All applications are reviewed under

a batch process that requires participation from the ADF&G, DNR, DEC, the US Army Corps of Engineers, coastal districts and the public during the Alaska Coastal Management Program consistency review. The process from start to finish takes approximately one year.

Prior to the 2001 aquatic farm opening, the Alaska Shellfish Growers Association requested that the state's natural resource agencies reconstruct the streamlined aquatic farm application so that questions about an aquatic farming proposal were asked up front, rather than during the review process. The state's natural resource agencies responded by developing an application for the 2001 aquatic farm opening that was still streamlined, but more comprehensive.

Seventeen aquatic farm applications were reviewed during the 2001–2002 review cycle. Four applicants withdrew voluntarily from the review process and one application was denied because the proposed aquatic farm was sited in an area where a traditional fishery occurred. Twelve new aquatic farm permits were issued, demonstrating that an applicant who adheres to the aquatic farm siting guidelines developed by the state's natural resource agencies and the Alaska Shellfish Growers Association has a high probability of receiving a permit to operate an aquatic farm in Alaska.

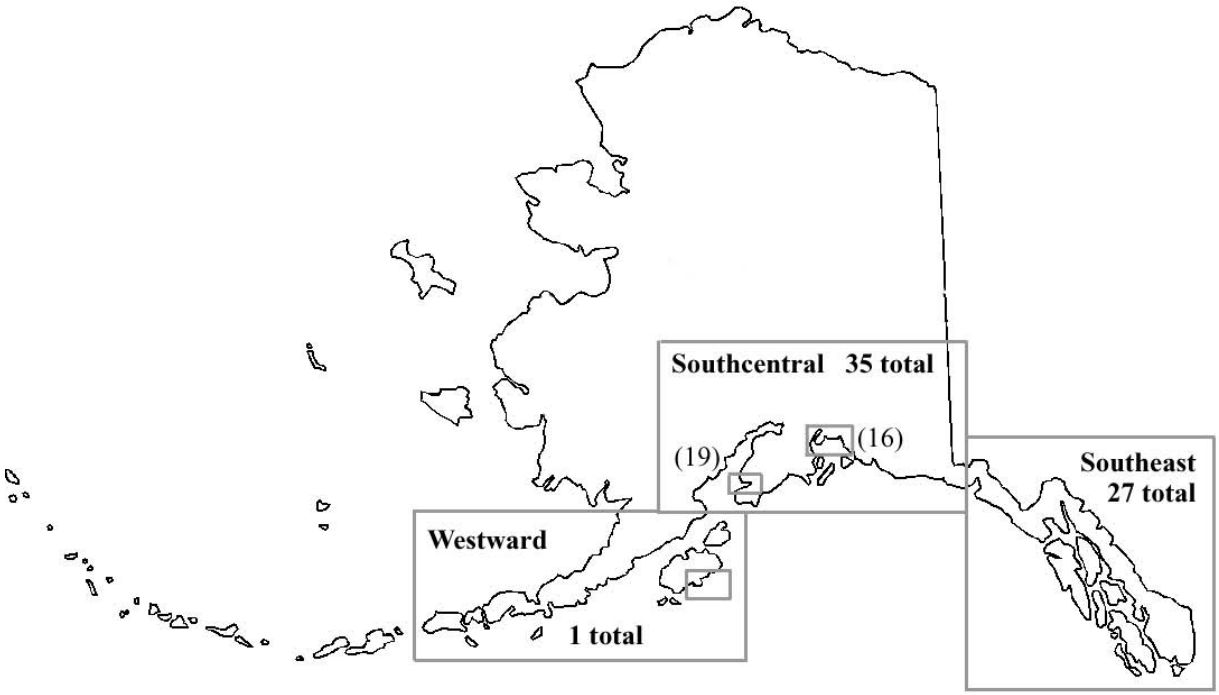

Figure 1. Aquatic farms in Alaska.

By the end of 2002, a total of 63 Pacific oyster, *Crassostrea gigas,* blue mussel, *Mytilus trossulus,* giant rock scallop, *Crassadoma gigantea,* Pacific littleneck clam, *Protothaca staminea,* and Pacific geoduck clam, *Panope abrupta*, farms were permitted statewide (Figure 1). Of 63 permitted aquatic farms, 24 reported some level of sales activity. Statewide aquatic farm sales in 2002 were valued at $523,060 (Table 1), an increase of 33.6% over 2001.

Table 1. 2002 Statewide Aquatic Farm Sales.

		Southeast	Southcentral	TOTAL
Market Sales				
	Oysters	287,364	632,646	920,010
	Value	$124,770	$275,422	**$400,192**
	Clams (lbs)	40,726	0	40,726
	Value	$115,038	0	**$115,038**
	Mussels (lbs)	0	3,361	3,361
	Value	$0	$5,419	**$5,419**
	Other	23 (lbs)	4,194	
	Value	$345	$2,066	**$2,411**
Total 2002 Aquatic Farm Market Sales				**$523,060**

This growth is primarily a reflection of the increase of oyster sales in Southcentral Alaska. While Southeast Alaska oyster sales increased in 2002, they were not as high as any of the years from 1994 to 2000 (Figure 2).

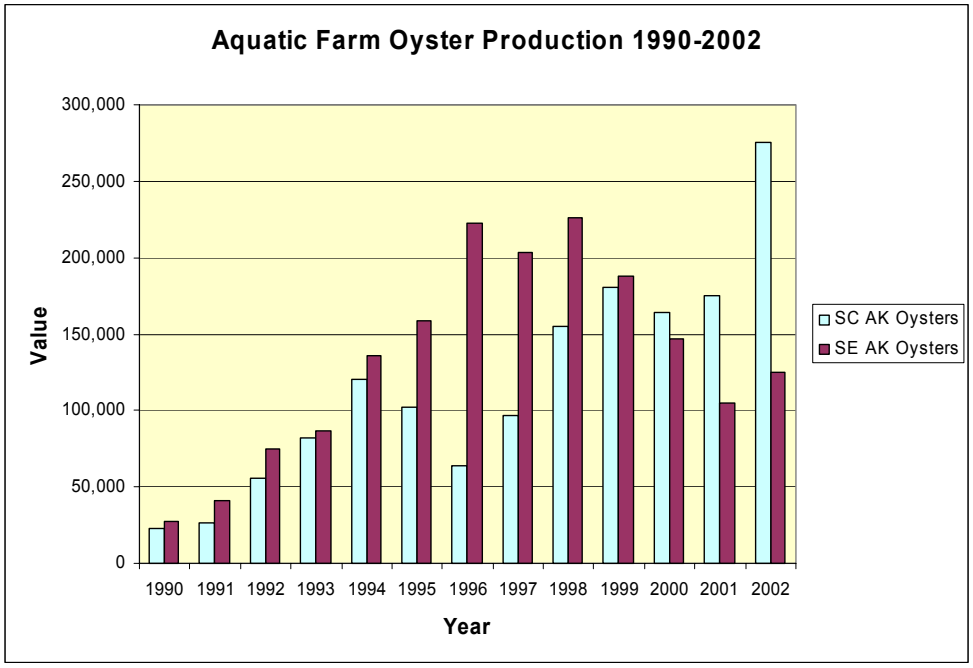

Figure 2. Statewide Aquatic Farm Pacific Oyster Production 1990–2002.

The predominant species grown in Southcentral Alaska is the Pacific oyster, while Pacific oyster sales in Southeast Alaska were only slightly higher than that of Pacific littleneck clams. The numbers represented in the following figures (Figure 3 and 4) do not include naturally occurring littleneck clams commercially harvested from beaches in preparation for farming.

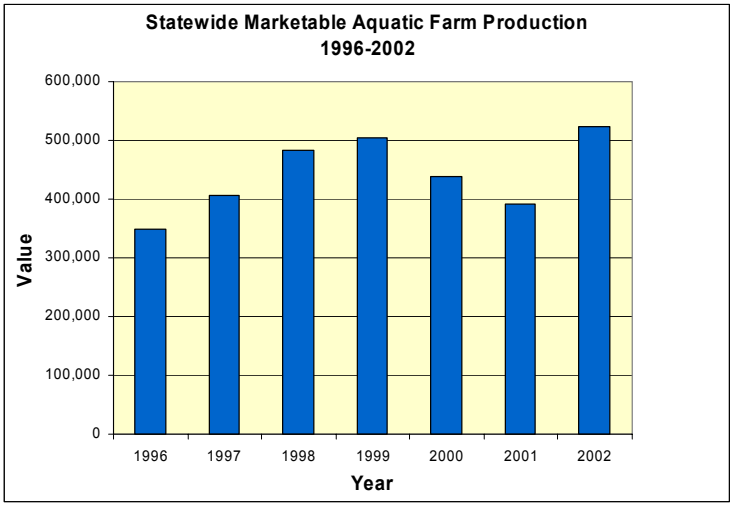

Figure 3. Statewide marketable aquatic farm production of all species, 1996–2002.

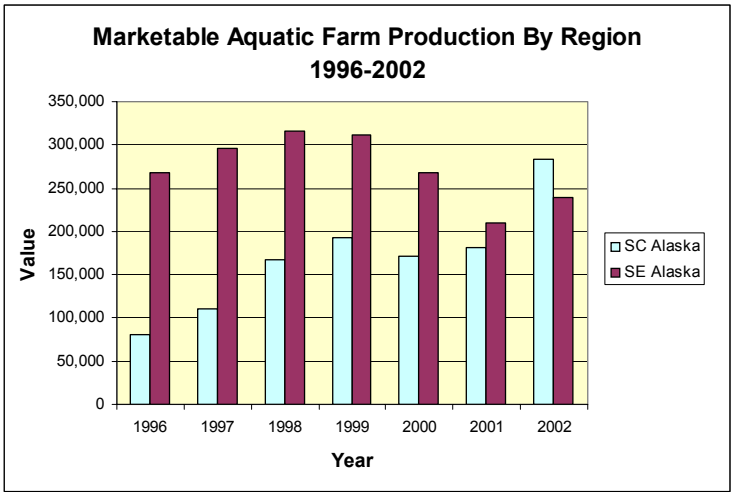

Figure 4. Statewide marketable aquatic farm production of all species by region, 1996–2002.

Seventy Alaskans were employed on aquatic farms in 2002 (Table 2). This figure represents those jobs directly attributable to farm employment and does not include secondary jobs in the processing or product preparation sectors.

Table 2. Summary of Alaskan Aquatic Farm Employment in 2002.

Employment Summary	Southeast	Southcentral	Total
Number of employees	19	51	70
*Days Worked	1,423	2,164	3,587

*does not include owner/operator work days

Total acreage permitted for aquatic farming in 2002 was approximately 196, up from 169 acres in 2001. DNR and ADF&G conducted joint agency compliance inspections across the state in

2001–2002, except for one Kodiak farm. Most farms were in compliance with the terms of their leases and operation permits.[1] DNR issued letters of non-compliance to those that were not.

Changes in the Southeast Commercial Pacific Littleneck Clam Fisheries

Aquatic farming regulations adopted January 20, 2002, protect the public interest by allowing ADF&G to hold fisheries to remove legal-size standing stock from aquatic farmsites when there are more animals on the site than can be collected, acquired, or used by a hatchery or aquatic farm under a stock acquisition permit. The mariculture section was assigned the management responsibility of common property Pacific littleneck fisheries on aquatic farmsites for increased efficiency of the administration of both programs.

New Aquatic Farm Program Signed into Law

On June 20, 2002, Governor Knowles signed House Bill (HB) 208 requiring the DNR to identify, and offer for lease at auction, 90 sites suitable for aquatic farming, divided as follows: 60 sites for oysters and other suspended culture species; 20 sites for clams and other intertidal culture species; and 10 sites for geoduck and other subtidal culture species. HB 208 became law on June 21, 2002 under Chapter No. 81, SLA 2002.

DNR solicited nominations, and together with the other state natural resource agencies is reviewing the suitability of 140 nominations and 46 closed farmsites. The DNR will notice preliminary best interest findings on July 1, 2003 for those sites requiring Alaska Coastal Management Program and public review. The resource agencies will hold public meetings, and final findings will be noticed October 20, 2003. The target number of sites will be offered at public auction by February 2004. Sites not taken at the auction will be available on a first-come, first-served basis in an over-the-counter offering.

The only difference between the process under HB 208 and the current Aquatic Farm Program is that the applicable authorizations will be available almost immediately after the sites are awarded at auction. Leases entered into under the HB 208 process are subject to the same Aquatic Farm Program requirements under AS 38.05.083 and Title 11 of the Alaska Administrative Code Chapter 63 (11 AAC 63). Operation permits are subject to the same Aquatic Farm Requirements under AS 16.40.100 and Title 5 of the Alaska Administrative Code Chapter 41 (5 AAC 41).

The Qutekcak Hatchery in Seward

The Qutekcak Hatchery is the only instate source of Pacific oysters and the only hatchery source of indigenous shellfish. One of the recently adopted mariculture regulations requires instate

[1] Aquatic farmers whose operating permits were issued before 2002 have been given permission to operate under their expired operating permits. Operating permits will be revised and issued as soon as possible.

shellfish hatcheries to prepare an annual management plan. The Qutekcak shellfish hatchery is a forprofit business that deals with private property and writes the plan autonomously.

The hatchery has on hand: Southeast and Southcentral Alaska Pacific littleneck clam brood and seed; Molluscan Broodstock Program Pacific oyster brood and spat; and basket cockle brood and seed from Southeast Alaska. The hatchery is still working on and improving spawning methods for basket cockles.

Additionally, the hatchery has on hand giant rock scallop brood and seed from Southeast Alaska and anticipates the release of 25,000 spat to Southeast Alaska and California farms in September 2003. However, giant rock scallops are the most difficult species to spawn at the facility. Progress has been made with the last brood spawned in November 2002 and the animals are being conditioned to spawn again.

Finally, the hatchery has on hand Pacific geoduck clam brood and seed from Southeast Alaska. The announcement that five million Pacific geoduck clam larvae were setting in July of 2001 with greater than 90% survival was good news to the industry and the department. On November 28, 2001, the Qutekcak Hatchery shipped 28,000 Pacific geoduck clam seed to Ketchikan where they were transported to a permitted intertidal beach nursery site at Tenass Pass on Prince of Wales Island (no ADF&G operating permits for subtidal aquatic farms had been issued). The seed was planted at 100 spat per square foot in a sand/mud beach at the zero foot tide level. Vexar mesh was placed both below and above the seed to reduce predation or the loss of the seed from growing too deeply into the beach. Unfortunately, unusual subfreezing weather caused the seed to die before and during planting.

Given the lack of permitted on-bottom aquatic farms in 2001, the Qutekcak Hatchery offered each permitted Southeast Alaska oyster grower 100 free Pacific geoduck clam seed to plant in suspended socks that were exhibited and described during the November 2002 Alaska Shellfish Growers Association conference. Those farmers accepting the seed agreed to collect survival and growth data with photographs of the 100 seed for at least three years.

After ADF&G operating permits were issued for subtidal farms in 2002, five-thousand Pacific geoduck clam seed were planted subtidally in predator exclusion devices in early August 2002 on leased farmsites on West Gravina Island. Later that month, 35,000 geoduck seed were planted using a predator netting strategy being utilized in British Columbia on the West Gravina farmsites and on a farmsite on Slate Island. No other seed was available from the Qutekcak Hatchery in 2002. Preliminary results from the West Gravina and Slate Island plantings will be available in the 2003 annual mariculture report.

Mariculture Technical Center

The Alaska Native Harbor Seal Commission used the Mariculture Technical Center space at the Qutekcak Hatchery in November 2002 for harbor seal research. The work did not interfere with operations at the adjacent hatchery facility, and when the research was finished, the center was left in the condition in which it was found. Otherwise, the space is not being used for the

purposes for which it was designed, specifically research and development projects, demonstration projects, and forprofit projects, such as a private hatchery.

Shellfish Nurseries

There are six shellfish nurseries licensed to operate in the state. The Kachemak Shellfish Growers Cooperative operates a nursery in Halibut Cove in Kachemak Bay. The Halibut Cove Nursery supplies oyster spat to 13 growers in Kachemak Bay and is certified by the State's pathologist annually.

Bob Hartley at the KSGC Nursery.

Tom Henderson's Stedman Cove Nursery.

Michael Vigil at the Chenega Village Nursery.

Another Pacific oyster spat nursery in Kachemak Bay is operated at the Fell farmsite in Jakolof Bay. Three nurseries are operating in Prince William Sound: an oyster spat nursery on the Sczawinski farmsite in Squaw Bay; an oyster spat nursery on the Aguiar farmsite in Simpson Bay; and an oyster spat and littleneck clam seed nursery at the dock at the village of Chenega. In Southeast Alaska, there is an oyster spat nursery operated at the Henderson farmsite in Stedman Cove. These nurseries generally produce only enough seed for the farmsite on which they are located. However, in times of excess production, farmers may sell seed to other farmers, per normal department transport protocol for an uncertified facility.

Shellfish/Aquatic Plant Acquisition and Transport Permits

Shellfish/aquatic plant acquisition and transport permitting volume remained stable in 2002. Where possible, combining fish resource permits with transport and acquisition permits resulted in review economy and reduction in redundant processing.

The mariculture coordinator made the following changes to transport and acquisition permit application forms and processing procedures for efficiency:

- Transports of spat and seed from a certified source can be applied for on an application for seed transport from a certified hatchery (application available on the mariculture website at http://www.cf.adfg.state.ak.us/geninfo/enhance/maricult/maricult.htm). The review time for

these transports is lessened because the department's pathologist has already completed the histological examination of these animals.

- Acquisition and transport of shellfish brood or seed and aquatic plants that are not from a certified source may be applied for on an application for acquisition and transport. This application is also on the mariculture website.

- Requests for transport and acquisition permits are now sent to department staff who request to be on the distribution list by email, rather than by regular mail. The email details the shellfish or aquatic plant type being requested by both common and scientific names; whether the request is for an acquisition and/or transport permit; the applicant's name and company; the permit number; the area from which the shellfish or aquatic plants will be acquired and where they will be transported; the brood source; the number of shellfish or aquatic plants needed and their size; the expected transport dates; and the procedure for transport.

Hatchery Certifications

Six Pacific oyster spat suppliers were certified in 2002. Three were Lower 48 facilities. The Qutekcak Hatchery is also certified for seed from indigenous species (Table 3). Though Pacific oyster spat supplies were adequate to meet demands, timing of shipments and size of spat continued to be of concern to growers.

Mariculture Research and Development

A Fish Resource Permit was issued to Rodger Painter for a mariculture research project in Chernofski Harbor, on the northwest corner of Unalaska Island, to explore the potential of the area for oyster culture. Growth trials were conducted at the Tanadgusix dock located directly across from Mutton Cove, near Observatory Point, and at Cutter Point. Three 10-tier lantern nets were suspended from each of the TDX and Observatory Point docks, and from a 30-foot longline at Cutter Point. One thousand Pacific oyster spat from the Qutekcak Shellfish Hatchery were placed in each net for a total of 9,000 animals. Data collection included growth comparisons between Chernofski Harbor and Sea Otter Sound in Southeast Alaska, water temperature, salinity, and plankton bloom densities, and seasonal levels of paralytic shellfish poisoning. The department is awaiting the final report on this project.

Statewide On-Bottom Mariculture Conference

A November 2001 conference exploring on-bottom mariculture in Alaska featured experts from the U.S. and Canada addressing genetics, disease, habitats, and other issues associated with farming bivalves in northern regions. The two-day conference was held at the Millennium Hotel in Anchorage following the Alaska Shellfish Growers Association conference and at the same time that public hearings were held on aquatic farm regulation changes.

Table 3. Certified Sources of Pacific Oyster Spat and Seed from Indigenous Species.

Source	Brood Origin	Animal	Scientific Name	Certified through
Jon Agosti Qutekcak Shellfish Hatchery P.O. Box 369 Seward, AK 99664 qshatch@arctic.net (907)224-5181 (907)224-5282(fax)	Mixed West Coast	Pacific oyster	*Crassostrea gigas*	12/31/2003
	West Prince of Wales Island	Littleneck clam	*Protothaca staminea*	12/31/2003
	Tatitlek/Kachemak Bay	Littleneck clam	*Protothaca staminea*	12/31/2003
	Clarence Strait	Geoduck clam	*Panopea abrupta*	12/31/2003
	Annette Island/Sitka Sound	Rock scallop	*Crassoadoma gigantea*	06/30/2002
	Annette Island	Basket cockle	*Clinocardium nuttalli*	12/31/2003
James Aguiar Eagle Shellfish Farm P.O. Box 2211 Cordova, AK 99574 jaguiar@ctcak.net (907)424-3481	Mixed West Coast	Pacific oyster	*Crassostrea gigas*	10/31/2002
Kevin Sidelinger Halibut Cove Nursery P.O. Box 659 Homer, AK 99603 (907)296-2217	Mixed West Coast	Pacific oyster	*Crassostrea gigas*	12/31/2003
Grant Hunt Lummi Shellfish Hatchery 2616 Kwina Road Bellingham, WA 98226 shellops@memes.com (360)384-2303 (360)380-1205(fax)	Lummi Bay/Portage Bay	Pacific oyster	*Crassostrea gigas*	12/31/2003
Candice Way Coast Seafoods Company Quilcene Office P.O. Box 327 Quilcene, WA 98376-0327 coastquil@olympia.net (800)423-2303 (360)765-3345 (360)765-3045(fax)	Quilcene Hatchery	Pacific oyster	*Crassostrea gigas*	12/31/2003
Sean Matson Oregon State University Hatfield Marine Science Center 2030 S. Marine Science Drive Newport, OR 97365 sean.matson@hmsc.orst.edu (541)867-0156	Molluscan Broodstock Program West Coast	Pacific oyster	*Crassostrea gigas*	12/31/2003

The Aquatic Farm Act includes on-bottom mariculture as an aquatic farming option.[2] Therefore, at the 2001 conference, the department restated its 1996 on-bottom conference position that acceptable husbandry methods are those methods that will improve the productivity of the farmsite above what would occur in natural conditions and may include: predator exclusion; the reduction of competitors; density manipulation by culling and redistribution; importing naturally produced spat; programmed harvest to optimize growth and shellfish condition; habitat improvement; and seeding with hatchery produced spat.

SHELLFISH RESTORATION AND ENHANCEMENT PROGRAM

ADF&G is required by AS 16.05.092 to encourage the investment by private enterprise in the technological development and economic utilization of the fisheries resources, and through rehabilitation, enhancement, and development programs, do all things necessary to ensure perpetual and increasing production of the food resources of state waters. The annual mariculture report will be updated yearly to report on mariculture projects designed for the perpetual use, benefit, and enjoyment of all citizens.

When a private enterprise approaches the department with a proposal for shellfish enhancement or restoration activities on public beaches, the department will participate in preliminary studies, sampling, and data collection efforts conducted under the authority of a Fish Resource Permit. After the studies and sampling are completed and the resultant data is compiled, the department will determine if the project will benefit citizens without adversely affecting fish, wildlife and their habitats. If the determination is positive, the mariculture section will work with the principal investigator(s) on the proposal provided the applicant has sufficient funds to cover the cost of the proposed activities and completes all required applications and paperwork, including, but not limited to:

- A comprehensive report that includes the compiled data, a summary of the data, and an analysis of the survey results;
- A detailed and thorough description of the proposed restoration or enhancement activities, including a topographical and vicinity map with map titles and scale;
- A Coastal Project Questionnaire (CPQ);
- A letter for submittal to the U.S. Army Corps of Engineers (USACE) stating intent to work under a Nationwide Permit number 4 (NWP 4), with a USACE application for a Section 404 and Section 10 permit attached, and;
- A DNR tidelands permit application.

ADF&G will submit the information to the appropriate reviewing agencies and the public under existing laws and regulations.

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[2] The aquatic farm statute §16.40.199(1) defines an aquatic farm as "… a facility that grows, farms, or cultivates aquatic farm products in captivity or under positive control." Positive control is defined as immobile shellfish and aquatic plants that are cultivated in unenclosed water (§16.40.199(6)).

Restoration of Razor Clams, Siliqua patula, on the Copper River Delta

Principal Investigators (PIs): Mary Anne Bishop, Ph.D., Prince William Sound Science Center, and Sean P. Powers, Ph.D., Assistant Professor of Marine Sciences, University of South Alabama & Senior Marine Scientist, Dauphin Island Sea Lab

From 1916 until the late 1950s, the City of Cordova supported a large commercial razor clam fishery. By the early 1960s, and before the 1964 earthquake, the razor clam fishery collapsed from overharvest. Since that time, continued exploitation, tectonic events, and low recruitment have created a significant reduction in adult stocks. The net result is a population that cannot seed itself throughout its geographic potential.

In 2002, ADF&G issued a Fish Resource Permit to the PIs listed above to determine: 1) the current status of the razor clam population in the area; 2) if suitable habitat existed for the re-establishment of the razor clam population; 3) potential mechanisms for restoring razor clam populations, and; 4) a restoration plan for razor clams. Completed studies indicate that seeding with hatchery recruits during the early spring when predators are less abundant, coupled with the adoption of regulations requiring the implementation of bag and size limits (similar to those in Cook Inlet), may restore the razor clam population in the area to the point of commercially viability.

Given suitable habitat does exist and predation levels are low in an area (or can be controlled by simple mechanisms, e.g., vexar netting), replenishment of razor clam stocks using hatchery produced seed clams is an attractive option. We are investigating the potential for this approach by coordinating with the Qutekcak Shellfish Hatchery to produce sufficient quantities of seed clams (size range = 5 to 12 mm) to initiate large-scale seedings. Both the hatchery scientists as well as the PIs on this project believe that the hatchery phase will be successful as hatchery production of razor clam seed has been proven in the State of Washington.

During 2003 and 2004, at each of two beaches, approximately 60 razor clams will be collected for lab analyses necessary to meet state guidelines for use as brood stock. After regulatory requirements have been met, 100 adult razor clams from multiple locations will be collected and transported to the Qutekcak Shellfish Hatchery to serve as a hatchery brood stock. Once a sufficient quantity of seed is produced (> 20,000 5 to 12 mm seed clams), experiments will be conducted to evaluate the optimal size for planting (taking into account both the hatchery costs and the survival probability of different size clams) as well as mechanisms to decrease predation on seed clams (either from avian or aquatic predators). These evaluations will be performed as rigorously designed experiments.

Following initial seedings, growth and survivorship will be monitored for at least 1 year after planting. Additional funds will be sought for follow-up evaluations. Seedings will occur in replicate plots at three beaches and at two tidal elevation (the elevation that the previous surveys identified as optimal for juveniles). Stocking density (25, 50, 100 m^2), seed size (5 to 6 mm vs.10 to 2 mm), and predator protection (vexar covered bottom vs. uncovered bottom) within plots will be varied as part of the experimental design. Additional seed produced by the hatchery beyond

the needs of the experiment will be planted at previously surveyed areas (after ADF&G approval). All applicable state guidelines for the production and planting of hatchery clams will be met as part of the Qutekcak Shellfish Hatchery contract.

Over the short term, historic razor clam beds will be restored to densities that will support recreational and commercial harvests, providing residents access to a traditional food and boosting the region's economy. Over the long term, the restored beds will be fished in a sustainable manner, and information from this project will be used to monitor population trends in the remaining razor clam beds to help managers develop the scientific basis and methods for future protection and conservation measures.

Restoration of Pacific Littleneck Clams in Prince William Sound and Kachemak Bay

Principal Investigator: Jeff Hetrick, Chugach Regional Resource Commission

Littleneck clam enhancement projects continued in Southcentral Alaska under the authorization of Fish Resource Permits (FRP) issued to the Alaska ADF&G.

Port Graham (FRP CF-02-004)
On March 28, 2002, approximately 230,000 three to five mm Pacific littleneck clams were transported to Port Graham from the Qutekcak Hatchery in Seward. The seed clams were planted under predator control netting. This is a continuation of work conducted for the Exxon Valdez Oil Spill Trustee Council and is funded through American Native Association.

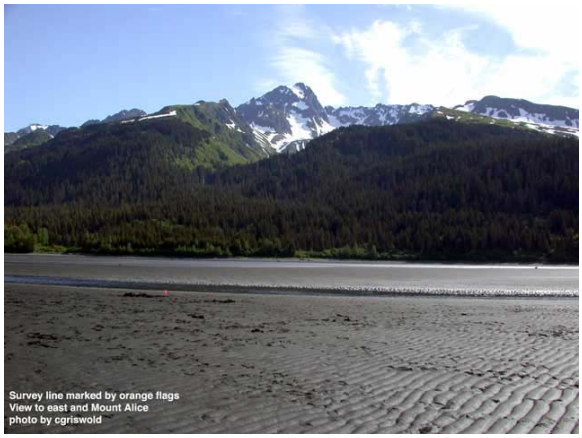
Tatitlek (FRP CF-02-004)
Pacific littleneck clam seed was planted at Tatitlek in 2000 and 2001. The seed clams were planted under predator control netting on this beach because of high current flows and significant starfish predation. Planting did not take place on this beach in 2002 because the Qutekcak Hatchery had dedicated all available littleneck clam seed to other Chugach Regional Resource Commission projects. Surveys at the site indicate it will take five growing seasons for littleneck clams to reach harvestable size.


Seeding beach through predator netting on incoming tide at Port Graham.


Beach near the village of Tatitlek.

Koyuktolik Bay (FRP CF-02-028)
Koyuktolik Bay is south of the village of Nanwalek and was surveyed on March 29, 2002 to assess local bivalve populations, analyze beach substrate composition and water characteristics, and review the potential for bivalve shellfish enhancement. Based on survey data, the department concluded that this beach was suitable bivalve habitat. On October 8, 2002, approximately 30,000 three to five mm littleneck clam seed were planted in a 4 x 12 m area under negatively buoyant protective netting.


Beach surveys in Koyuktolik Bay.



Low tide at Resurrection Bay.

Resurrection Bay (FRP CF-02-028)
Three surveys were conducted at Resurrection Bay during the late spring and through the summer of 2002. Pacific littleneck clam seed has not been planted at this location. Bivalves were found in low abundance and were primarily soft-shell clams and basket cockles. Enhancement of the basket cockle population is under investigation.

Hartney Bay (FRP CF-02-028)
Baseline beach habitat surveys were conducted near Cordova on February 25, 2002. The principle investigator determined that the area below the 0′ tide line offered the best opportunity for enhancement. Littleneck clam seed was not available for planting this site in 2002 but is planned for the spring of 2003.


Hartney Bay enhancement site.


Enhancement site at Shoup Bay on inside of spit in foreground.

Shoup Bay (FRP CF-02-028)
A baseline shellfish survey was conducted on April 27, 2002 at Shoup Bay in Port Valdez in Prince William Sound. The beach area surveyed was on the lee side of a spit separating the Valdez Arm and Shoup Bay, but outside of the state park. Limited numbers of littleneck clams were found but the potential for the beach to support bivalves appeared to be good. On November 6, 2002, approximately 50,000 three to five mm littleneck clam seed were transported from the Qutekcak Hatchery in Seward and planted at the enhancement site in a 3 x 15 m plot under negatively buoyant netting.

Site of 1996 Chenega survey; enhancement site will be moved further away from stream.

Chenega (FRP CF-02-028)
An initial site survey at Chenega took place on June 29, 1996. The proposed site is located in Crab Bay of Evans Island in Prince William Sound. The enhancement plan calls for a 200′ x 200′ site located between +1.0 and –1.5 tidal levels at the head of Crab Bay, at least 300′ away from O'Brian Creek, anadromous stream number 226-40-16665. ADF&G has determined that a new site survey is necessary to determine current bivalve standing populations. The Chugach Regional Resource Commission did not have funding to re-survey the area in 2002.

Seldovia Bay (FRP CF-02-075)
Baseline shellfish surveys were conducted on September 6, 2002, on Hoens Spit and Powder Island in Seldovia Bay. Both sites appeared to be productive habitat for littleneck clams. A final survey report for this area is pending at this time.

Shellfish survey site at Hoens Spit in Seldovia Bay.