

STATE OF MAINE
DEPARTMENT OF MARINE RESOURCES
 Renewal of Experimental Leases PEN JI and PEN SI
 Penobscot Bay, near Job Island & Sloop Island

Friendship International Inc.
 and the **Center for Cooperative**
Aquaculture Research of the
University of Maine
 Docket #2009-09E-R, 2009-10E-R

PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW, & DECISION

Experimental aquaculture leases PEN JI (Docket #2009-09E-R) and PEN SI (Docket #2009-10E-R) were initially issued on March 31, 2006 to Friendship International and Brad and Adam Scott as co-lessees for the suspended culture of sea urchins (*Strongylocentrotus droebachiensis*), each lease covering two acres of coastal waters and sea bottom in Penobscot Bay. These two leases expired on March 30, 2009. On March 8, 2009, Friendship International, Inc. applied to renew the leases for another three years, to March 30, 2012. According to the application, the Center for Cooperative Aquaculture Research of the University of Maine (CCAR) will become a co-lessee, and Brad and Adam Scott will cease to be lessees. Because the application was submitted before the leases expired, they continue in effect pending renewal, according to statute (12 MRSA 6072-A (20)).

These two leases are being addressed together in this renewal decision because they are proposed to be used as part of a single research project, they have the same leaseholders, and they were created at the same time and share the same expiration date, species, and conditions. Other than their physical locations, everything about these two leases is identical. Separate public hearings were held on the renewal applications for these leases, because they are located in different towns. PEN JI is located between Lime and Job Islands in the Town of Islesboro in Waldo County. PEN SI is located north of Sloop Island in the Town of Deer Isle in Hancock County.

1. PROCEDURE

According to 12 MRSA §6072-A (18), only experimental leases issued for scientific research are renewable. Experimental leases for commercial research are not renewable. The statute requires that a public hearing be held before a scientific experimental lease can be renewed, although a hearing is not automatically required when such a lease is issued for the first time. No hearings were held when these leases were originally issued in 2006, because none was requested and DMR was satisfied that the legal criteria for issuing the leases were met and that no hearing was needed. DMR biologists visited the sites at the time and prepared site reports.

When the renewal applications were received, DMR determined that the leases qualified as scientific, rather than commercial experimental leases, and that they were therefore eligible for renewal.

This determination was based on the report of research conducted during the first term and on the plan for research during the second term of the leases, both of which were submitted along with the renewal applications. Copies of both documents are contained in the case files marked “Exhibit 1” for each lease. Testimony at the hearings by James Wadsworth of Friendship International and Dr. Nick Brown of the Center for Cooperative Aquaculture Research (see discussion below) supported this determination.

Notice of the public hearings on the renewal of these leases was duly given.¹

James Wadsworth and Nick Brown testified at both hearings in support of the renewal applications. At the Islesboro hearing on lease PEN JI, two members of the public and a representative of the U.S. Army Corps of Engineers asked questions of the two witnesses. At the Deer Isle hearing on lease PEN SI, one member of the public asked questions. The Hearings Officer was Diantha Robinson.

LIST OF EXHIBITS

PEN JI, Docket # 2009-09E-R: Exhibit #1 - DMR Case File

PEN SI, Docket # 2009-10E-R: Exhibit #1 - DMR Case File

2. PROPOSED RESEARCH

At both hearings, James Wadsworth testified that he had started the experiment in 2006 out of concern for the continued viability of the sea urchin fishery in Maine. Mr. Wadsworth is a dealer in sea urchins through his company, Friendship International. He testified that approximately twenty years ago, the sea urchin population in Maine’s coastal waters was so abundant that it became a nuisance to lobster fishermen, as urchins crowded into lobster traps. A market existed for urchins in Japan, and as there were no restrictions on harvesting urchins, over a number of years the harvest rose to unsustainable levels that dramatically reduced the population. In 2002, a warmer-than-normal summer caused urchins to die off in shallow-water areas as water temperatures rose. Mr. Wadsworth described his twenty years in the sea urchin business as having gone from “the Gold Rush to the valley”.

Looking for a way to enhance the depleted urchin population, Mr. Wadsworth obtained a Small Business Innovation Research grant from the U. S. Small Business Administration. Phase 1 of the grant was funded at \$90,000 in 2006 and supported the creation of a sea urchin hatchery operation at the University of Maine’s Center for Cooperative Aquaculture Research (CCAR) in Franklin, Maine, as well as the research conducted on the two experimental aquaculture lease sites. Phase 2 of the grant was not funded, however, so the research was temporarily halted. Funding has now been obtained by CCAR in

¹ Hearing notices were published as follows: the PEN JI hearing on August 18, 2009 in Islesboro was advertised in the *Belfast Republican Journal* on July 16 and August 6, 2009; the PEN SI hearing on August 25, 2009 in Deer Isle was advertised in the *Penobscot Bay Press* on July 16 and August 13, 2009; both hearings were advertised in the August, 2009 issue of *Commercial Fisheries News*.

Personal notice of the hearings was sent to the riparian landowners within 1,000 feet of each lease site, as well as to the various state and federal agencies, the two municipalities, and other interested organizations and individuals on the Department’s mailing list.

conjunction with the University of New Hampshire, and Mr. Wadsworth and Dr. Brown of CCAR plan to resume the experiment on the two lease sites (Wadsworth & Brown, testimony at both hearings).

The new phase of the experiment will study the feasibility of sea urchin aquaculture through both land- and sea-based trials, according to Dr. Brown. A cohort of 60,000 sea urchins raised in the CCAR hatchery will be split into groups and placed on four ocean sites, as well as in land-based cages. These urchins will be dye-tagged before release with dyes that will be absorbed into their skeletal parts and be detectable under ultra-violet light. Twenty thousand urchins will be released on each of the two lease sites; they will be checked every four months to assess the sizes and numbers present in the sampling transects. Samples will be taken over the three years to compare the survival and growth of hatchery-raised urchins on lease sites with those kept in land-based tanks (Brown, testimony at both hearings; *see also* the attached research plan titled “Proposed activities for Penobscot Bay lease sites”, a copy of which is also contained in each case file (Exhibit 1)).

According to Mr. Wadsworth, each site still has ten oyster cages on the bottom, left from the Phase 1 experiment. These cages will remain on the sites at least initially and may be used in the continuing experiments. The only additional gear to be used will be approximately seven painted concrete blocks to be placed on each site to mark the sampling transects, as described in the research plan referred to above (Wadsworth, testimony at both hearings).

Mr. Wadsworth and Dr. Brown hope that at the end of three years some of the hatchery-raised sea urchins on the ocean sites will have grown to market size and that the sea urchins in the land-based tanks will also survive. Mr. Wadsworth stated that to date, most sea urchin aquaculture has been too labor-intensive to be profitable. Dr. Brown noted that economic viability will depend on rearing costs and market price; this experiment will help to determine the feasibility of different rearing methods.

3. STATUTORY CRITERIA & FINDINGS OF FACT

The standards for renewing a scientific experimental lease are set forth in DMR Rule 2.64(12), as follows:

12. Renewal. Only experimental leases for scientific research may be renewed. Commercial research and development experimental leases may not be renewed. Before deciding on a request for a renewal, the Commissioner must hold a public hearing. The Commissioner shall renew an experimental lease for scientific research unless the Commissioner finds that:

- A. the lease holder has not complied with the terms of the lease;
- B. research has not been conducted during the term of the lease;
- C. the research is being conducted in such a manner that is injurious to the marine organisms;
or
- D. it is not in the best interest of the State to renew the lease.

The language of this DMR rule is virtually identical to that in the statute (12 MRSA § 6072-A (18)), except that item “C” has been added; this criterion does not appear in the statute.

A. Compliance with lease

My review of the records of these leases discloses that all annual reports have been filed, rent has been paid in a timely manner, the bonds have been kept current, and the sites have passed inspection by DMR Marine Patrol.

Therefore, I find that the applicant has complied with the lease agreements during their terms.

B. Research has been conducted

The lessees have submitted a copy of their Phase 1 Final Report to the U.S. Department of Agriculture for the research conducted during the first phase of their original grant; it clearly shows that research has been conducted pursuant to these leases. Copies of the report are contained in the case files (Exhibit 1).

Therefore, I find that the applicant has conducted research during the term of the leases.

C. Research is not injurious to the marine organisms

According to the research plan, all marine life on both sites will be surveyed before juvenile hatchery-raised urchins are released. No life forms will be intentionally destroyed in this process. Once the urchins are placed on the site, the sites will be surveyed and sampled periodically, and some urchins will be killed in this process in order to dissect them and check for the presence of dye-treated skeletal parts in order to identify the hatchery-raised, dye-tagged urchins. According to DMR’s sea urchin specialist, this dye-tagging process is commonly used in studies of sea urchins.²

The issue here is whether the research is “injurious to the marine organisms” within the meaning of the rule. While some urchins will be sacrificed for the sake of the study, this is consistent with the nature of many responsible scientific experiments. The statute permits scientific research to be conducted on experimental aquaculture leases, but this portion of the DMR rule provides that such leases may not be renewed if the Commissioner finds that “the research is being conducted in such a manner that is injurious to the marine organisms”. To deny such a lease because the experiment involves killing a certain number of specimens for study would be to forbid using standard scientific research techniques. This would vitiate the law allowing scientific research to be conducted on leases in the first place.

It is apparent from Dr. Brown’s testimony, from the research report and proposal he submitted, and from his work as Director of the Center for Cooperative Aquaculture Research that he is an experienced, capable scientist who will deal responsibly with the life forms under his care, within the parameters of standard scientific methodology. Thus, DMR will interpret the term “injurious to marine

² Margaret Hunter, DMR Marine Resource Scientist, Sea Urchin and Northern Shrimp programs, e-mail to Jon Lewis, et al., Feb. 12, 2009 (copies in case files, Exhibit 1).

organisms” in Chapter 2.64 (12) broadly enough to permit this research program to be conducted on these experimental lease sites.

One further issue to consider is that the dye-treated urchins will be released into the wild and could well move off the lease site and eventually be harvested. Since they would then likely be sold for human consumption, it is important to consider whether the dye residues could be harmful to consumers. According to the DMR’s sea urchin specialist:

A 15mm urchin won't reach legal size for at least a couple of years. A 15mm urchin also won't have any roe (the only edible part) to take up the tetracycline, but a 20mm one might. Approximate size at first reproduction (defined as a Gonad Index of at least 10%) is about 30mm. Since the urchins will have spawned at least once before reaching legal size (53mm), it is unlikely that there would be any tetracycline in the roe of a legal urchin from the site harvested at least a couple of years after injection or immersion in tetracycline. That's assuming that roe could take it up.³

Based on this reasoning, it appears that the dye-tagged urchins will not pose a threat to human health, should they enter the stream of commerce.

Therefore, I find that the research is not being conducted in a manner that is injurious to the marine organisms.

D. Best interest of the State of Maine

In determining whether it is in the best interest of state to renew the leases, the Department considers, among other things, the potential for conflict with other new or existing uses of the area which the Commissioner determines to be a higher use of the area from the perspective of the public interest.

There is no evidence of conflicts with other new or existing uses of the area. There is no other evidence to suggest that renewal would not be in the best interest of the state.

Therefore, I find that it is in the best interest of the State of Maine to renew both of these leases.

4. CONCLUSIONS OF LAW

Based on the above findings, I conclude that:

- A. The lease holder has complied with the terms of the lease;
- B. Research has been conducted during the term of the lease;
- C. The research is not being conducted in such a manner that is injurious to the marine organisms; or
- D. It is in the best interest of the State to renew the lease.

Accordingly, the evidence in the record supports the conclusion that the proposed aquaculture activities meet the requirements for the renewal of an experimental aquaculture lease for scientific research set forth in 12 M.R.S.A. §6072-A (18).

³ Ibid.

5. LEASE CHANGES AND CONDITIONS

The size, location, authorized species, and boundaries of the two lease sites will not change. There will be no discharge. Gear will consist of the oyster cages permitted under the original leases, plus seven concrete blocks placed on the bottom of each site to mark sampling transects. These blocks will not impede navigation or otherwise violate any of the granting criteria applicable to experimental aquaculture leases.

Mr. Wadsworth testified that Brad and Adam Scott, who are co-lessees on the original leases, do not wish to continue as lessees on the renewed leases, although they will continue to work on the project as urchin harvesters. He and Dr. Brown requested that the Center for Cooperative Aquaculture Research, which is a grantee of the research funding, be added as a lessee on both leases.

Dr. Brown testified that the leases, which were originally issued by DMR as suspended leases because of the use of the cages, should also be bottom leases, to protect the urchins from poaching and other disturbance. He requested that dragging on the lease sites be prohibited in order to protect the urchins but stated that lobstering and other forms of fishing and recreational boating would not interfere with the project. In response to a question from a member of the public in Islesboro, Mr. Wadsworth noted that anchoring on the lease sites would not be advisable, but that passage of vessels over the sites would not be impeded by the experiment.

All of these requests are reasonable and in accord with DMR's authority to grant experimental leases, and they are hereby granted. The original leases contain conditions allowing navigation, lobster fishing, and recreational boating and fishing on each lease site, as well as requiring compliance with marking requirements of the Coast Guard and DMR. Those conditions will continue to apply to the renewed leases.

6. DECISION

The Commissioner of Marine Resources grants the application of Friendship International, Inc. and The Center for Cooperative Aquaculture Research of the University of Maine for renewal of the 2-acre aquaculture lease PEN JI, located between Lime and Job Islands in the Town of Islesboro in Waldo County, and the 2-acre aquaculture lease PEN SI, located north of Sloop Island in the Town of Deer Isle in Hancock County, Maine, for the suspended and bottom culture of sea urchins (*Strongylocentrotus droebachiensis*), for a period of three years, to March 30, 2012.

The renewed leases are subject to the same terms, conditions, and obligations set forth in the original leases, as well as the additional conditions noted above. The leaseholders will be required to submit annual reports of research results to DMR, pursuant to 12 MRSA § 6072-A (17-A (C) and DMR Rule Chapter 2.64 (10) (C), and those reports will be public documents. As long as the leases continue to be for scientific research, they may be renewed every three years, provided they meet the criteria for renewal.

7. CONDITIONS TO BE IMPOSED ON LEASE

The Commissioner may establish conditions that govern the use of the lease area and impose limitations on aquaculture activities, pursuant to 12 MRSA §6072-A (15).⁴ Conditions are designed to encourage the greatest multiple, compatible uses of the lease area, while preserving the exclusive rights of the lessee to the extent necessary to carry out the purposes of the lease.

The following conditions shall be incorporated into each lease:

1. Navigation, lobster fishing, and recreational boating and fishing are permitted on the lease site, but vessels shall not be anchored on the site by anyone other than the lessees.
2. The lease site shall be marked in accordance with the requirements of the U.S. Coast Guard and DMR rule 2.80.
3. Dragging is prohibited on the lease site.

8. REVOCATION OF LEASE

The Commissioner may commence revocation procedures if s/he determines that there has been no substantial research conducted on the site within the preceding year; or if research has been conducted in a manner injurious to the environment or marine organisms; or if any other lease condition or terms of DMR regulations or any applicable law has been violated (DMR Rule C. 2.64 (13)). If any of the conditions or requirements imposed in this decision, in the lease, or in the law is not being observed, the Commissioner may revoke the aquaculture lease.

ATTACHMENT: Research proposal for 2009-2012

Dated: 10/15/09

s/s George Lapointe
George D. Lapointe (Commissioner)
Department of Marine Resources

⁴ 12 MRSA § 6072-A (15) states: "Conditions. The commissioner may establish conditions that govern the use of the leased area and limitations on the aquaculture activities. These conditions must encourage the greatest multiple, compatible uses of the leased area, but must also address the ability of the lease site and surrounding area to support ecologically significant flora and fauna and preserve the exclusive rights of the lessee to the extent necessary to carry out the lease purpose. The commissioner may grant the lease on a conditional basis until the lessee has acquired all the necessary federal, state and local permits."

Proposed activities for Penobscot Bay lease sites

20,000 urchins (15+mm TD) reared in the CCAR land-based nursery will be released at each of the Penobscot Bay lease sites in January of 2010. One month prior to stocking each lease site we will conduct a survey of the existing urchin population. This survey and all subsequent surveys will be based on modifications of the Maine DMR urchin stock assessment program. A set of linear transects will be established for each of the two acre sites. The start of each transect will be marked on bottom (with a concrete block or some other recognizable feature), and each transect will follow an established compass direction. There will be seven transects per site spaced at 15 to 20 meters and running the entire length of the site. The divers will swim along the length of each transect and sample at 5 to 7 meter intervals by dropping a 1m² ring on the bottom and counting every urchin larger than 15mm (the release size). In addition, every Jonah crab and green crab within the ring will be counted and the area within the ring will be assessed for percentage and type of seaweed coverage. Contained within the sample ring will be twenty quadrats delineated by mesh or wire (25cm²). All urchins within each quadrat will be removed and brought to the surface, where they will be measured (weight and diameter), and released back onto the bottom.

After the initial survey, hatchery urchins will be stocked at each site. The urchins will have been previously tagged in the hatchery via immersion in either tetracycline or calcein based dyes, which are incorporated into the skeletal parts and are only visible under UV light. At each site, the urchins will be released along two transects located at equal distances from each other and from the lease site side boundaries. The urchins will be released in equal numbers at 5 to 7 meter intervals along each transect.

Sampling will be done one-month post-release and then at four month intervals for the duration of the project (July 2012). Every transect will be sampled as was done for the preliminary survey, except that the urchins removed from the internal sampling quadrats will be assessed for presence of the fluorescent dye tag as well as for size. This will require removal to the laboratory for dissection and subsequent examination under UV light. The use of two cohorts of uniquely tagged urchins will potentially allow us to observe dispersal patterns at each site. It will also be possible to compare the growth of recovered tagged urchins with growth of the corresponding cohort on land.

The lease site operators (Scott brothers) will continue to harvest from the lease sites on a yearly basis in accordance with DMR regulations regarding season length and minimum size limits. It is anticipated that this project will not require any bottom or surface gear, other than seven concrete blocks per site to mark the beginning of the sampling transects. In years two and three of the project (2011 and 2012) some of the harvested urchins may be sub-sampled for the presence of the marker dyes in order to determine the incidence of hatchery released urchins in the catch.