

STATE OF MAINE  
DEPARTMENT OF MARINE RESOURCES  
Emergency aquaculture lease application  
Suspended culture of shellfish  
Bagaduce River, Brooksville

Jesse S. Leach  
Lease BAG UP  
Docket 2011-16 EM  
June 7, 2011

## FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION

On May 26, 2011, the Department of Marine Resources (“DMR”) received an application from Jesse Leach for an emergency aquaculture lease on 3.3 acres located in the coastal waters of the State of Maine, south of Bear Head in the upper Bagaduce River in the Town of Brooksville in Hancock County, for the purpose of cultivating American oysters (*Crassostrea virginica*), using suspended culture techniques. DMR accepted the application as complete on June 1, 2011.

### 1. THE PROCEEDINGS

Emergency aquaculture leases are authorized by 12 MRSA § 6072-B and regulated by DMR Rule Chapter 2.65. As described in Chapter 2.65 (1), the purpose is to “allow for the quick relocation of shellfish as the result of an unanticipated, natural phenomenon that is beyond the control of the lease holder.” In this case, an infestation of *Polydora websteri* (mud blister worms) threatens the health of oysters located on the applicant’s lease site, BAG SB. That situation is the basis for the application for this emergency aquaculture lease.

The statute and rule prescribe no public process for the review of an emergency lease application, except for notice to the municipality and various public agencies and public newspaper notice in the area after an emergency lease is granted (Ch. 2.65 (7)). An emergency lease is issued for six months or less, but if the applicant applies for a standard lease or an experimental lease, the emergency lease continues in effect until a decision is made on the new application (12 MRSA §6072 (7)).

The rule lists the information required in the application. The Department may inspect the site and surrounding area in the course of reviewing the application, but a site visit is not required. The application must include a statement regarding the fishing activity, moorings, and navigational channels in the area and the use of the area by riparian owners for ingress and egress; this statement must be signed by either the local harbormaster, a DMR biologist, a Marine Warden, or the DMR Aquaculture Environmental Coordinator (Ch.2.65 (2) (D) (8)). The evidence the Commissioner reviews in making a decision consists of the application and “any information obtained by the Department” (Ch. 2.65 (4)). The criteria for the decision are described in both statute and rule (see section 3 below).

References below refer to the emergency lease application.

## **2. DESCRIPTION OF THE PROJECT**

### **A. Proposed Operations**

The applicant proposes to move oysters from his lease site, BAG SB, to two tracts in the upper Bagaduce River, to avoid infestation by the mud blister worm, *Polydora websteri*, which attacked his 2009 crop of oysters in their second year, in the fall of 2010 (p. 4, items 3-7; Attachment 1). The oysters will be contained in industry-standard ADPI oyster bags made of black plastic mesh, approximately 18" wide x 32" long x 3" deep. This gear is authorized for use on the applicant's existing lease site (p. 9, items 3 and 4).

Approximately 3 million American oysters (*Crassostrea virginica*) are proposed to be moved to Tract 1 of the emergency lease. These oysters are approximately 12 months old and comprise the applicant's 2010 year class (p. 3, items 5, 6). Later in the season, the applicant will also move this year's seed oysters (2011 class) from the upwellers at his lease site to Tract 2 of the emergency lease. The applicant plans to leave the oysters to grow on the emergency lease until winter, when he will remove them and all the gear from the water. Both year classes of oysters are still too small at this time to be infested by the worm, but they will become susceptible as they grow larger. The applicant expects that by removing them from the lease site with its older, infested oysters, he can break the cycle of infestation and maintain the younger oysters free of the worm. There is no evidence of disease, pests, or parasites associated with the shellfish to be moved (p. 3). Mr. Leach plans to apply for a standard lease to provide additional long-term growing space to separate his oysters by year classes in worm-free areas.

The oyster bags will be arrayed in parallel lines of 166 bags each, oriented vertically on their 3" x 32" edges. The lines of bags will be approximately 186 ft. long, grouped in sets of five or six lines set 10 ft. apart. Tract 1, the northerly tract, will contain 3 sets of 6 lines of bags. Tract 2, the southerly tract, will contain 3 sets of 5 lines of bags. Each set of lines will be spaced 20 ft. from the adjacent sets (Attachments 5 & 6). The bags will be deployed in single file along one side of their connecting lines.

The lines of bags will be oriented in a north-south direction to facilitate navigation with the current by the small kayaks and canoes that typically use this remote portion of the Bagaduce River. No lights or power equipment will be used at the sites. The applicant will not use private land for access to the proposed site (p. 8, item 22).

Moorings will consist of 24" steel fluke anchors with 4-ft. 1" rebar shafts and stainless steel ganyon clips attached to 3/8" polypropylene line. Each line of bags will be moored with three such anchors, one at each end and one in the center of each line. Because of the relatively shallow water depth, the small 2-ft. tidal range, and the slow current at the tracts, the applicant expects the mooring lines to remain nearly vertical in the water, with little scope required. All mooring gear will be contained within the lease boundaries on each tract (p. 10, item 6).

**B. Site Characteristics**

The proposed emergency lease includes two tracts located in the upper Bagaduce River (Attachments 2, 3, & 4), a minimum of 980 feet from shore (p. 5, item 6; Attachment 7). Both tracts are subtidal, with water depths of 15 ft. at mean low water and 17 ft. at mean high water (p. 5, item 5; Attachment 7). The bottom is composed of mud, with eelgrass growing between the edges of the channel and the shore (p. 6, items 12, 12, & 14).

The tracts are located in two wide, relatively shallow bays near the headwaters of the Bagaduce. The river channel is approximately 400 ft. wide and runs through the middle of each bay. The two proposed tracts are sited along the western edge of the channel, one in each bay, to avoid shading or disturbing the eel grass (p. 5, item 3). The shore is over 1,000 feet distant from the lease tracts, for the most part (p. 6, item 14). It is wooded and relatively undeveloped.

Tract 1 is located west of Bluff Head in the more northerly of the two wide bays. South of this bay, the river narrows and then widens into the second bay, where Tract 2 is located west of Snow Cove. South of this southerly bay, the river narrows again and "leads into several other salt marsh openings until you reach a dam that comes from Walkers Pond" (p. 6, item 11).

The compass coordinates for the four corners of the two tracts of the proposed site are:

Tract 1 (106' x 600')	North corner:	44° 23.170' N, 068° 40.634' W
	Southeast corner:	44° 23.096' N, 068° 40.542' W
	South corner:	44° 23.080' N, 068° 40.570' W
	Northwest corner:	44° 23.154' N, 068° 40.663' W
Tract 2 (100' x 300')	North corner:	44° 22.239' N, 068° 40.532' W
	Southeast corner:	44° 22.195' N, 068° 40.502' W
	South corner:	44° 22.188' N, 068° 40.521' W
	Northwest corner:	44° 22.232' N, 068° 40.550' W

The waters of the Bagaduce River in this area (DMR Pollution Area 36-B) are classified "Restricted" by DMR. Harvest of shellfish at the proposed emergency lease site will require a permit from DMR. The existing lease site BAG SB, from which the oyster seed proposed to be placed on the proposed emergency lease site comes, is classified as "Approved" for shellfish harvest.

**3. STATUTORY CRITERIA**

Approval of emergency aquaculture leases is governed by 12 M.R.S.A. §6072-B and Chapter 2.65. The statutory requirements in 12 MRSA § 6072-B (2) for granting an emergency lease are:

- 2. Limitation. The commissioner may not issue a lease under this section unless:
  - A. The applicant holds a lease pursuant to section 6072 or 6072-A;

B. The applicant demonstrates to the commissioner that the health and safety of shellfish at the leased area are threatened; and

C. The Commissioner determines the relocation of those shellfish to an emergency site would not threaten either the water quality of the receiving waters or the health of marine organisms in those waters.

DMR Rule Chapter 2.65 (4) (A) repeats these requirements. It then adds “standards” which the Commissioner must consider in making the decision. Two of these “standards” are in addition to those set out in the statute: the requirement to consider “the need for an emergency lease and whether the cause of the emergency was an unanticipated, natural phenomenon that was beyond the control of the leaseholder” (2.65 (4) (A) (3)) and the requirement to consider “[a]ll applicable criteria as established in Chapter 2.37” (2.65 (4) (A) (4)). Chapter 2.37 lists the criteria for granting standard (10-year) aquaculture leases.

Reconciling the standards for decision as described in the statute and the rule results in the following as criteria for granting an emergency lease.

1. The applicant holds an aquaculture lease.
2. The applicant has demonstrated that the health and safety of shellfish at the applicant’s lease site are threatened by an unanticipated natural phenomenon beyond the control of the leaseholder.
3. Relocating the shellfish to the emergency lease site would not threaten either the water quality at the site or the health of other marine organisms on or around the site.
4. The proposed emergency lease meets the criteria for granting a standard aquaculture lease as described in chapter 2.37, considering the nature of the emergency and the fact that the lease, if granted, will be temporary in nature.

According to C. 2.65 (1), the burden of proof is on the applicant to demonstrate that: (1) “the organisms to be relocated will not transmit pests, disease or parasites to the new location,” and (2) “the proposed lease meets all the standards set forth in these regulations.”

#### **4. FINDINGS OF FACT**

##### **A. Applicant as leaseholder**

Jesse Leach holds aquaculture lease BAG SB for the culture of shellfish, including American oysters, in the Bagaduce River.

**Therefore, I find** that the applicant holds an aquaculture lease.

### **B. Threat to health and safety of shellfish**

According to the applicant, the threat to the oysters' health and safety is the threat of infestation by mud blister worms (*Polydora websteri*), which affected the 2009 class of oysters at his lease site, BAG SB, in the fall of 2010. Mr. Leach tried various methods to eradicate the worms, including air-drying the oysters and placing them in a salt bath, but these techniques did not succeed. Should they become infested at the emergency site, he plans to place them in refrigerated storage this winter, a process which has produced good results in experiments to date.<sup>1</sup>

Older (2009 class) oysters now on his lease site remain infested with the worms. The applicant believes that the best chance to avoid infestation in the 2010 and 2011 year classes is to move them off the lease site as soon as possible and culture them for this season on separate sites upriver. By not leaving these younger classes of oysters on his current lease site, he is attempting to break the cycle of infestation.

The worms impair the health of the oysters by burrowing into their shells and creating tubes filled with mud. The oyster shells are damaged, and the oysters are weakened, increasing their susceptibility to predators and disease. The oysters also develop a muddy taste and their appearance is compromised, impairing their marketability.<sup>2</sup> The larger the oysters grow, the more susceptible they will become to infestation by the worms. The 2010 year class is now in the same position as the 2009 class was one year ago, when they became infested. Moving these younger, uninfested oysters to a separate site as soon as possible is the only action now available to Mr. Leach to try to prevent them from becoming infested.

This situation is clearly beyond the applicant's control and threatens the health and safety of the young oysters on his existing lease site. He has worked hard to control and eliminate the worms, without success to date. Other than an emergency lease, no legal mechanism remains available to him that will permit him to move his young oysters off his lease site to another growing site in time for this growing season.

**Therefore, I find** that the applicant has demonstrated that the health and safety of shellfish at his lease site are threatened by an unanticipated natural phenomenon beyond the control of the leaseholder.

### **C. Threat to water quality or other marine organisms**

According to DMR Rule Chap. 2.65 (1), the burden of proof is on the applicant to demonstrate that the organisms to be relocated will not transmit pests, disease or parasites to the

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<sup>1</sup> Jesse Leach, personal communication to Diantha Robinson, DMR Aquaculture Hearing Officer; Application p. 4, items 3-7.

<sup>2</sup> "The Blister Worm Problem: Methods for Reducing or Eliminating Polychaete Infestations in American Oysters" by Michael Devin, Dana Morse, Jesse Leach, Eric Moran, Shannon Brown, Colin Kelsey, Todd Mihal, Brittney Wolfe, and Paul Rawson. Presentation to Northeast Aquaculture Conference and Exposition, December, 2010.

new location. Mr. Leach provided a Histopathology Report from the Haskin Shellfish Research laboratory of Rutgers University attesting that the oysters from his 2010 class contain no pathogens or pathogenic conditions (Attachment 14). In communications with the Department, Mr. Leach explained that the worms will not burrow into the shells of the 2010 and 2011 oysters at this time, because their shells are too thin. Department biologists sampled oysters from Mr. Leach's lease site in the fall of 2010 for testing as part of a survey related to the outbreak of the oyster disease MSX in the Damariscotta River. Testing showed the oysters to be free of disease.

Department biologists suspect that there is a chance that the mud blister worm is present in the upper Bagaduce River, given that water flows downstream from the river's headwaters toward Mr. Leach's existing lease site, BAG SB. Another oyster aquaculture lease site (BAG BH) located upriver of BAG SB, but downstream of the proposed emergency sites, shows some evidence of the worm, but not to the extent that Mr. Leach's 2009 crop does. Only experience will demonstrate the presence or absence of the worm, but since the young oysters show no evidence of infestation, it does not appear that they would carry it to the emergency sites.

The water quality at Mr. Leach's existing lease site, BAG SB, is classified as "Approved" for shellfish harvesting, so oysters moved from his lease site will not carry bacterial pollution to the emergency lease sites. The water at the proposed emergency sites was recently downgraded from "Approved" to "Restricted"; the applicant is working with DMR Water Quality staff to locate and eliminate the source of the bacterial pollution that caused this downgrade. The presence of the filter-feeding oysters in this area of the river can only serve to improve the quality of the water. Relocating the shellfish to the upper Bagaduce River would not expose those waters or any marine organisms there to anything to which they are not already exposed.

Mr. Leach will be required to monitor the oysters at the emergency lease sites for the presence of *Polydora websteri* and to notify the DMR Aquaculture Environmental Coordinator, Jon Lewis, at regular intervals to be agreed upon by him and Mr. Lewis, of his findings.

**Therefore, I find** that relocating the shellfish to the emergency lease sites would not threaten either the water quality at the site or the health of other marine organisms on or around the site. A condition requiring the applicant to monitor the emergency site for the presence of *Polydora websteri* and report his findings to DMR will be included in the emergency lease.

#### **D. Criteria in Chapter 2.37 for granting standard lease**

**1. Riparian Access.** According to the site evaluation form signed by the Brooksville Harbormaster (p. 14, item 9), the shorefront owners within 1,000 ft. of the proposed emergency lease site do not use their shore for access to and from their property by water. They may use canoes or kayaks for recreation, but the proposed lease tracts are at least 980 ft. or more from shore and will not affect this activity. In addition, the only riparian owners with property within 1,000 ft. of the proposed emergency lease sites have sent Mr. Leach an e-mail message stating

that they do not object to him raising oysters in the waters off their shorefront (Attachment 13). The lease operations as proposed will not unreasonably interfere with the ingress and egress of any riparian owner.

**2. Navigation.** According to the site evaluation form (pp. 13 & 14, items 6 & 7), the navigation channel in the vicinity of the proposed emergency lease site is approximately 400 ft. wide. The proposed lease tracts would lie along the western edge of the channel and project approximately 160 ft. into the channel. The lines of bags would be positioned to run north-south, the same as the direction of the river current, with 10 ft. of water between each line and the next. An east-west corridor 20 ft. wide will also be maintained at the north and south ends of each of the three sets of parallel lines on each tract (Attachments 5 & 6).

Navigation in this part of the river is primarily by kayaks and canoes, often hugging the shore instead of the channel, according to the Harbormaster (p. 14, item 7). Such craft should easily be able to navigate between the lines of bags, if necessary. Moreover, the bays where the proposed lease tracts are located are very wide, the distance between the tracts and the shore is approximately 1,000 ft., for the most part, and the open portion of the channel would be approximately 240 ft. wide. There is ample room for kayaks and canoes, as well as other small vessels, to navigate around the oyster bags. The presence of the two lease tracts would interfere only marginally, if at all, with navigation in the upper Bagaduce River.

There are no moorings, anchorages, or structures within 1,000 feet of the proposed site (p. 13, item 3). The two tracts of the site are marked at the corners with dark buoys inscribed "Emergency Lease" (p. 8, item 24).

The lease operations as proposed will not unreasonably interfere with navigation.

**3. Fishing & Other Uses.** According to the site evaluation, the aquaculture activity on the proposed emergency lease site would not interfere with fishing activity in the vicinity (page 13, item 1). This area of the Bagaduce River was classified "Restricted" for the harvest of shellfish at the time the emergency lease application was submitted. No natural shellfish beds are located there (p. 7, item 15). The proposed emergency lease tracts are subtidal. Fishing activity in the area consists of an "occasional angler", according to the applicant (p. 7, item 16). This upper portion of the river is shallow and remote and not used for commercial fishing activity.

In answer to the question on the application form, "What other uses of the site must be restricted or prohibited in order for you to use it as an emergency lease site?" the applicant answered, "None" (p. 10, item 10).

Aquaculture sites located in the vicinity include the applicant's lease site, BAG SB; another oyster lease site, BAG BH, located just west of Bear Head; and three LPA sites next to BAG SB that are part of the applicant's operations (LEA-1-09, DLEA-1-11, DLEA-2-11). There are no aquaculture sites in the river south of Bear Head at this time. The proposed emergency lease

tracts are distant enough from the existing sites downriver that they will not interfere with them. Considering the number and density of aquaculture leases in the area, it appears that the aquaculture activities proposed for this site will not unreasonably interfere with fishing or other uses of the area.

**4. Flora & Fauna.** There is eel grass near the proposed emergency lease sites, but both tracts have been situated so as to avoid it (p. 5, item 3). According to the site evaluation form (p. 15, item 12), the project will have “very minimal impact”. Other than the eelgrass, which is not located on either lease tract, there are “occasional seal and variety of small fish” in the area, and a bald eagle nest is approximately 1100 ft. northwest of the northerly tract, on a small island.

The proposed emergency lease operations are solely for floating oyster bags; no gear is proposed to be placed on the bottom, other than anchors to hold the lines of bags. Activity at the tracts will be minimal once the bags are deployed. There do not appear to be any ecologically significant flora and fauna or significant wildlife or marine habitats in the vicinity. There are no natural shellfish beds on the site. The lease operations as proposed will not unreasonably interfere with the ability of the lease site and surrounding areas to support existing ecologically significant flora and fauna.

**5. Public Use & Enjoyment.** According to the application, there are no public beaches, docks, parks, or conserved lands within 1,000 ft. of the proposed lease site (p. 13, item 3). The lease operations as proposed will not unreasonably interfere with the public use or enjoyment within 1,000 feet of beaches, parks, or docking facilities or certain conserved lands owned by municipal, state, or federal governments.

**6. Source of Organisms.** The application indicates that the source of stock for this proposed lease site is the applicant’s existing lease site, BAG SB. The applicant has demonstrated that there is an available source of organisms to be cultured for the lease site.

**7. Light.** The application indicates that no lights will be used at the proposed emergency lease site (p. 10, item 7). The lease operations as proposed will meet the requirements of DMR Rule 2.37 (1) (A) (8), which requires applicants to demonstrate that all reasonable measures will be taken to mitigate light impacts from the lease activities.

**8. Noise.** The application indicates that no power equipment will be used at the proposed emergency lease site, and the applicant will not create any significant level of noise at the site (p. 10, item 8). The lease operations as proposed will meet the requirements of DMR Rule 2.37 (1) (A) (9), which requires applicants to “demonstrate that all reasonable measures will be taken to mitigate noise impacts from the lease activities.”

**9. Visual Impact.** The black mesh ADPI bags will be relatively inconspicuous in the water. DMR Rule 2.37 (1) (A) (10) requires that equipment colors blend in with the surrounding area and that buoy colors do not compromise safe navigation or conflict with U.S. Coast Guard requirements. The lease operations as proposed will meet the requirements of the visual impact criteria in DMR Rule 2.37 (1) (A) (10).

**Therefore, I find** that the proposed emergency lease meets the applicable criteria for granting a standard aquaculture lease as described in chapter 2.37, considering the nature of the emergency and the fact that the lease, if granted, will be temporary in nature.

#### **5. CONCLUSIONS OF LAW**

Based on the above findings, I conclude that:

1. The requirement that the applicant hold an aquaculture lease has been met.
2. The requirement that the applicant demonstrate that the health and safety of shellfish at his lease site are threatened by an unanticipated natural phenomenon beyond his control has been met.
3. The requirement that relocating the shellfish to the emergency lease site would not threaten either the water quality at the site or the health of other marine organisms on or around the site has been met. A condition requiring the applicant to monitor the emergency site for the presence of *Polydora websteri* and report his findings to DMR will be included in the emergency lease.
4. The requirement that the proposed emergency lease meet the applicable criteria for granting a standard aquaculture lease as described in chapter 2.37, considering the nature of the emergency and the fact that the lease, if granted, will be temporary in nature has been met.
5. The applicant has met his burden of proof under Chap. 2.65 (1) to demonstrate that the organisms to be relocated will not transmit pests, disease, or parasites to the new location and that the proposed lease meets all the standards set forth in DMR regulations.

Accordingly, I conclude that the proposed aquaculture activities meet the requirements for granting an emergency aquaculture lease set forth in 12 M.R.S.A. §6072-B.

**6. DECISION**

Based on the foregoing, the Commissioner grants the requested emergency lease of approximately 3.3 acres to Jesse Leach for the purpose of cultivating American oysters (*Crassostrea virginica*) using suspended culture techniques. The applicant shall pay the State of Maine rent in the amount of \$100.00 per acre per year. After the lease is executed, in accordance with DMR Rule 2.65 (8) (B), the applicant shall post a bond or establish an escrow account pursuant to DMR Rule 2.40 (2) (A), conditioned upon his performance of the obligations contained in the aquaculture lease documents and all applicable statutes and regulations.

**7. CONDITIONS TO BE IMPOSED ON LEASE**

The Commissioner may establish conditions that govern the use of the leased area and impose limitations on aquaculture activities, pursuant to 12 MRSA §6072-B (10)<sup>3</sup>. 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.

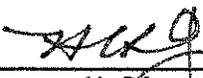
The following conditions shall be incorporated into the lease:

1. The lease site must be marked in accordance with both U. S. Coast Guard requirements and DMR Rule 2.80.
2. Navigation is permitted in the open areas of the lease tracts.
3. The leaseholder is required to monitor the emergency site for the presence of *Polydora websteri* and to report his findings to the DMR Aquaculture Environmental Coordinator on a mutually agreeable schedule.

**8. REVOCATION OF LEASE**

The Commissioner may revoke the lease if s/he determines that the aquaculture project fails to meet the criteria contained in DMR Rule Chapter 2.65 (4) (see Section 3 above). The revocation of an emergency aquaculture lease is not an adjudicatory proceeding as established in 5 MRSA §8002 (1).

Dated: June 7, 2011

  
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 Norman H. Olsen  
 Commissioner  
 Department of Marine Resources

<sup>3</sup> 12 MRSA §6072 -B(10)states: "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."