STATE OF MAINE **Cooke Aquaculture USA, Inc.**

DEPARTMENT OF MARINE RESOURCES

Aquaculture Lease Renewal Application **SWAN BIS**

Suspended culture of finfish and blue mussels June 28, 2022

Black Island, Frenchboro

FINDINGS OF FACT, CONCLUSIONS OF LAW, & DECISION

In 2021, Cooke Aquaculture USA, Inc. applied to the Department of Marine Resources (DMR) to renew the aquaculture lease SWAN BIS for a period of 20 years. The 38.5-acre site is issued for the culture of Atlantic salmon (*Salmo salar*), halibut (*Hippoglossus hippoglossus*), Arctic char (*Salvelinus alpinus*), Atlantic cod (*Gadus morhua*), and blue mussels (*Mytilus edulis*) using net pen culture techniques. The site is located to the west of Black Island in the Town of Frenchboro in Hancock County. The lease was initially granted on March 21, 2011.

In 2019, Cooke Aquaculture USA, Inc. applied to the Department of Marine Resources (DMR) to renew the aquaculture lease SWAN BI for a period of 20 years. The 15-acre lease is issued for the culture of Atlantic salmon, Atlantic cod, haddock (*Melanogrammus aeglefinus*), Atlantic halibut, and blue mussels using net pen culture techniques. The site is located to the west of Black Island in the Town of Frenchboro in Hancock County. This lease was initially issued on March 15, 1999 and subsequently renewed on May 27, 2009.

Both sites are in the same municipality, are ~1,000 feet apart, and are authorized for similar operations. In addition, each site received the requisite number of requests for a public hearing during the respective comment period for each proposal. Therefore, DMR held one renewal hearing to take evidence and testimony on each application.[1] The following decision is specific to SWAN BIS, but references may be made to SWAN BI as necessary.[2]

I. PROCEDURE

Notice of the completed renewal application and the 30-day public comment period and opportunity to request a public hearing was published in the *Ellsworth American* on May 13, 2021. Notice was also provided to riparian landowners within

[1] A hearing for SWAN BI was not held until 2021 due to the pandemic, which impacted DMR's ability to hold lease proceedings. There were also several proposals ahead of SWAN BI that needed to have hearings scheduled. By the time a hearing could be scheduled for SWAN BI, DMR had processed SWAN BIS, which also needed a hearing, so it made sense to schedule a single hearing on both renewal requests.

[2] A separate decision for the SWAN BI renewal was processed at the same time as the SWAN BIS decision.

1,000 feet of the site, the municipality and other state agencies. Notice was sent to subscribers of DMR's aquaculture email list-serve. During the comment period, DMR received more than five requests to hold a public hearing on the renewal request.

In accordance with 5 M.R.S.A. § 9052-A, state agencies must strive to hold a hearing in the area or areas of the State which are significantly affected by the application or which are concerned about the issue. In general, DMR tries to hold hearings in the municipality where the proposal or site is located. The Town of Frenchboro can only be accessed by ferry, which operates on a limited schedule. Given the logistical challenges associated with holding the hearing on the island, an in-person public hearing was scheduled for November 8, 2021 at the Southwest Harbor Fire Station with a remote option available for residents of Frenchboro.

Notice of the public hearing was published in the October 8 and 23, 2021 editions of the *Bangor Daily News.* Notice was also provided to the municipality, riparian landowners within 1,000 feet of the site and other state agencies. Notice was provided to subscribers of DMR's aquaculture email list-serve and published in the Maine Lobstermen's Association's event calendar. The hearing notice required persons who wanted to provide testimony or ask questions of the applicant to register to participate in the proceeding by 5:00 p.m. on October 24, 2021. Several individuals registered to participate in the proceeding by the specified deadline.

The notices also indicated that applications to intervene needed to be received by 5:00 p.m. on October 24, 2021. Crystal Canney with Protect Maine's Fishing Heritage Foundation (PMFHF) emailed DMR on October 24, 2021 requesting that her organization be registered for intervenor status. On October 25, 2021, DMR clarified that applications for intervenor status needed to be received by the specified deadline, not requested. However, DMR allowed PMFHF to apply for intervenor status, but specified that the application needed be received no later than 5:00 p.m. on October 25, 2021. PMFHF applied for intervenor status in accordance with the extended deadline.

On October 26, 2021, DMR issued a letter to PMFHF denying their request for intervenor status in the proceeding. The intervenor application did not include any specific details about how lobstermen and women who fish within the area would be substantially and directly affected by the leases if they were renewed. The other interests raised in the application, including protecting the environment and salmon, were not particularized to PMFHF.

October 27, 2021, DMR issued a Procedural Order and letter to individuals who had registered to participate by the specified deadline. The Procedural Order contained the names of persons who had registered to participate in the proceeding. On October 28, 2021, DMR received an email from Crystal Canney indicating that two individuals were not listed as participants and that the individuals were persons she had attempted to register. The following day, DMR responded to Ms. Canney and clarified that any person who needed assistance with the registration form should have contacted DMR as instructed in the applicable notice.

DMR cannot guarantee that a person is registered if they do not contact the agency and instead rely on an outside organization to register them, as what appeared to happen in this case. DMR allowed the two persons to participate in the proceeding because they both assumed that they had been successfully registered.

The Procedural Order issued on October 27, 2021, required Cooke Aquaculture USA, Inc., and registered participants, to prefile proposed exhibits by 12:00 p.m. on November 3, 2021. The applicant, PMFHF and registered attendee Kathleen Rybarz submitted pre-filings. DMR reviewed the pre-filings and noted that three of Ms. Rybarz's proposed exhibits, labeled #3-5, were hyperlinks to articles or documents.

On November 4, 2021, DMR notified Ms. Rybarz that hyperlinks to websites are not evidence because DMR could not discern what specific materials the hyperlinks were referencing. DMR gave Ms. Rybarz until 12:00 p.m. on November 5, 2021 to provide copies of the relevant documents or materials from those hyperlinks for admission into the administrative record. DMR further specified that if materials were not received by the deadline, the agency would only consider proposed exhibits 1 and 2. Ms. Rybarz responded to DMR's clarification and indicated that she would submit the materials by the extended deadline. However, Ms. Rybarz did not submit materials by the deadline. Therefore, DMR only considered Rybarz pre-filings 1 and 2. Rybarz prefiling 2 was an image titled 'Protect Maine Photo 2021-8-28' and appeared to the same image that PMFHF had pre-filed with the label "Gott's Pitt, Tremont." Given the similarity between images, DMR only accepted Rybarz pre-filing 1 as an exhibit, which was a screen shot from Facebook.

The hearing was held as scheduled on November 8, 2021 at the Southwest Harbor Fire Station. The following persons provided testimony:

Name	**Affiliation**
Jennifer Robinson, Frank Lank, and Russell Sprague	Cooke Aquaculture USA
Marcy Nelson	Director, Aquaculture Division
Crystal Canney (PMFHF), Jerilyn Bowers, Jim Hanscom, Hannah Whalen, James West, Zach Piper (PMFHF), Don Eley, and Tom Adamo	Members of the Public[3]

Ms. Robinson and Messrs. Lank and Sprague described the aquaculture activities conducted over the previous lease terms and operations at the sites. Mrs. Nelson described DMR's site visit on November 3, 2021 and played a video of the bottom of each site, taken on that date. Mrs. Nelson also explained some of the permitting and reporting requirements for finfish aquaculture sites. Members of the public raised concerns about the possible renewal of the lease sites and asked

[3] Members of the public who registered to testify by the deadline were given five minutes to present testimony. Messrs. Eley and Adamo (along with several other persons) did not register by the specified deadline and, before the hearing, indicated that they were unaware of the registration requirement or took exception to the requirement even though the requirement and the justification for registration were included in the notice. The Hearings Officer allowed them to testify and allotted them three minutes to provide their remarks. DMR extended that opportunity to the other persons who contacted DMR before the hearing, but Messrs. Eley and Adamo were the only ones who elected to provide testimony.

several questions of Cooke representatives and Mrs. Nelson. The Hearings Officer for the proceeding was Amanda Ellis.

The evidentiary record before DMR includes the following exhibits:

Number:	Description:	Submitted by:
1	PowerPoint Presentation	Cooke Aquaculture, USA
2	Image labeled "Gott's Pitt, Tremont" dated August 28, 2021	PMFHF
3	MEDEP email from August 31, 2021	PMFHF
4	Screen shot from Facebook	Kathleen Rybarz
5	Case file for SWAN BI	DMR
6	Case file for SWAN BIS	DMR

II. STATUTORY CRITERIA

Aquaculture lease renewals are governed by 12 M.R.S.A. §6072(12) and by Chapter 2.45 of DMR's rules, which provide that an aquaculture lease shall be renewed if: the renewal will not the cause the lessee to be a tenant of any kind in leases covering an aggregate of more than 1,000 acres, the lease is not being held for speculative purposes; the Commissioner determines that renewal of the lease is in the best interest of the state; and the lease holder has compiled with the lease agreement.

A. Aggregate lease holdings[4]

Cooke Aquaculture USA, Inc holds the lease sites listed below. Including SWAN BIS, the total acreage of these sites is 634.23 acres.

DMR LEASE SITE ID	ACREAGE
COB BC	44.95
COB BP	33.03
COB CC	15.42
COB DC	25.14
COB HP	9.97
COB JK	22.02
COB LU2	32.13

[4] DMR now calculates acreage using mapping software and is in the process of updating lease documents to reflect this new, highly accurate method. As a result of this new calculation method, the acreage listed in Section 2.A may be slightly different than the acreage listed in the respective lease documents. The acreage listed in each executed lease document are as follows: COB BC: 45, COB BP: 33, COB CC: 15, COB DC: 25, COB HP: 10, COB JK: 22, COB LU2: 32.14, COB MI2: 30, COB PC: 26.5, COB RN2: 32.14, COB SB: 31.88, COB TE: 15, COB TW: 15, EASTW CALF: 28, EASTW SCN: 10, EASTW SI: 10, MACH CI2: 44.7, MACH CIN: 35, MACH CW2: 35 MACH II: 40, MACH LI: 20, MACH ST: 10, SWAN BI: 15, SWAN BIS: 38.5, SWAN HS: 18.83.

COB MI2	29.95
COB PC	26.49
COB RN2	32
COB SB	31.78
COB TE	15.19
COB TW	14.98
EASTW CALF	28.02
EASTW SCN	9.99
EASTW SI	9.92
MACH CI2	44.68
MACH CIN	34.88
MACH CW2	34.48
MACH II	39.96
MACH LI	20.09
MACH ST	10.04
SWAN BI	14.97
SWAN BIS	38.54
SWAN HS	15.61
TOTAL ACREAGE:	**634.23 Acres**

No evidence or testimony was provided at the public hearing to indicate that the renewal of this lease would cause Cooke Aquaculture USA, Inc to hold more than 1,000 acres.
Therefore, I find that the renewal of this lease will not cause Cooke Aquaculture USA, Inc to hold more than 1,000 acres.

B. <u>Speculative purposes</u>

Chapter 2.45(2)(A) of DMR's regulations provides that in determining whether a renewal is being conducted for speculative purposes, DMR must consider "whether the current lessee has conducted substantially no research or aquaculture in the lease areas during the previous lease term." The renewal application indicates that aquaculture activities occurred on the site during the previous lease term, which is consistent with the testimony Cooke representatives provided at the public hearing. It is also consistent with a review of Department records, which indicate aquaculture activities occurred on the site during the previous lease term. No evidence or testimony was presented at the public hearing that alleged the renewal was being conducted for speculative purposes.
Therefore, I find that the lease is not being held for speculative purposes.

C. <u>Best interest of the State of Maine</u>

In determining whether it is in the best interest of the state to renew a lease, DMR takes into consideration, 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. At the public hearing, much of the testimony focused on this criterion. Some persons referenced commercial fishing, but most of the proceeding focused on a dissolved-oxygen event that resulted in a salmon mortalities. The sections that follow include relevant testimony specific to those issues.

1. Commercial Fishing:

During the public hearing, Ms. Robinson, Compliance Officer for Cooke Aquaculture, testified that lobster fishing is permitted within the boundaries of the lease site. Russell Sprague, Site Manager for SWAN BI and BIS, Cooke Aquaculture, testified that the frequency of lobster fishing activity on the sites is heaviest from June to August. During this period there are 30 to 50 lobster traps deployed within the boundaries of each site.

Jim Hanscom, a fisherman, testified that 30 to 50 traps was not a significant number and speculated that there are no lobsters within the boundaries of the lease sites. Mr. Hanscom generally felt that environmental conditions around net pen sites do not support aquatic life. Zach Piper[5], a fisherman, testified that he fishes for scallops in the general area. Mr. Piper dove for scallops near the site during fall 2020 and testified that he did not see a significant number of scallops. Mr. Piper testified that it was the first year he had dived in that area.

2. Dissolved Oxygen Event:

In August 2021, a low oxygen event at the sites resulted in the mortality of 115,819[6] near market sized or market sized salmon.[7] During the public hearing, Ms. Robinson described what occurred at the sites in August. Ms. Robinson testified that personnel are on each of the sites seven days a week unless a storm prevents them from accessing the area. Mr. Sprague first recorded low oxygen levels at the sites on or around August 10, 2021. On August 10, 2021 the oxygen reading within a sampled pen was 6.2 mg/L.[8] On Saturday, August 14, 2021 and Sunday, August 15, 2021 some of the crew began observing what Ms. Robinson characterized as abnormal fish behavior. The oxygen reading within that pen on August 14, 2021 was 5.2 mg/L and on August 15, 2021 the level had dropped to 4.9 mg/L.

Abnormal fish behavior observations were reported, on August 16, 2021, to Mr. Sprague, who, that same day, dived a few of the pens and observed some mortalities. Mr. Sprague conducted another dive on August 17, 2021 to ascertain the full extent of the mortalities. Beginning August 18, 2021 through August 27, 2021, Cooke Aquaculture removed the mortalities and then focused on harvesting the

[5] Mr. Piper is also the President of PMFHF's executive board.
[6] CF: Memorandum from MEDEP dated September 23, 2021. Mortalities at Black Island (SWAN BI) totaled 28,212 and mortalities at Black Island south (SWAN BIS) totaled 87,607.
[7] Although the leases authorize the culture of other species, only salmon were being cultivated on the sites.
[8] Cooke is not required to take oxygen readings within the pens. However, Cooke submitted readings within the pens to DMR. The readings are part of the case file.

remaining fish from the sites.[9] Ms. Robinson noted that the mortalities represented approximately 12% of the salmon that were being raised on SWAN BI and BIS.

Ms. Robinson testified that there are no legal requirements to report a mortality event.[10] However, she contacted DMR on August 23, 2021 to report the event, because she felt that low oxygen is related to fish health. DMR monitors fish health and implements regulations intended to protect aquatic animal health. On August 25, 2021, Ms. Robinson notified other agencies about the event including the U.S. Department of Agriculture and U.S. Department of Fish and Wildlife. She contacted these agencies as they also manage fish health. Ms. Robinson also notified the Maine Department of Environmental Protection (MEDEP) on August 27, 2021.

Ms. Robinson testified that, based on Cooke's analysis, it is likely that the low oxygen event was attributable to environmental conditions not management practices at the sites (Bowers/Robinson). Ms. Robinson indicated that water temperatures were much higher than normal, which can reduce the level of dissolved oxygen in the water. In consideration of the low oxygen event, Ms. Robinson testified that Cooke Aquaculture is exploring aeration or providing supplemental oxygen, so that mortalities may be avoided should a similar event occur in the future.

Following the mortality event, Marcy Nelson, Aquaculture Division Director and Marine Scientist visited each site. During the site visits, which occurred on November 3, 2021, DMR took nine videos of each of the sites, which recorded bottom conditions.[11] The videos were taken to determine if there had been any substantial benthic impacts associated with the mortalities and to gauge the condition of the sites after a production cycle. Visiting a site after a full production cycle can help assess the degree of nutrient enrichment within the area.

Mrs. Nelson noted that too much nutrient enrichment can lead to anoxic sediment, which can be detrimental to marine life. Mrs. Nelson played the videos and testified that she did not observe any anoxic sediments or gassing. As the videos showed and Mrs. Nelson described, a variety of marine organisms were observed on the bottom of the sites and beneath the net pens. Documented and observed organisms included crabs (*Cancer borealis*), burrowing anemones, and sea stars.

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[9] During cross-examination, Frank Lank clarified that a small harvest (~10,000 to 12,000) of some market sized salmon occurred the second week of August, prior to the die off event.

[10] During cross-examination, Ms. Robinson clarified that there is no requirement to report mortalities unless they are confirmed as being disease related. Ms. Robinson noted that fish health testing occurred at the sites on July 29, August 25, and August 30. A veterinarian visited the site during the mortality event.

[11] Mrs. Nelson testified that DMR tried to visit the sites earlier, but a significant storm precluded staff from visiting the area before November 3, 2021. Mrs. Nelson also clarified if the site visit occurred in August 2021 (during or shortly after the die-off), it would not have provided an indication of how that event may have impacted the bottom conditions, because the die-off would not have had an immediately noticeable impact on the area. Waiting a few months until after the event provides a better opportunity to visually assess how the area responded to the event. The videos were taken in locations up to 30 meters north and south of the cages to reflect the MEDEP permit sampling locations and directly underneath a sample of pens to visually assess the condition of the bottom and marine organisms under the pens. Marine Patrol visited the site on August 25, 2021 to observe the harvesting of mortalities. This occurred the day after DMR was notified of the event.

Mrs. Nelson testified that she also observed a pollock (*Theragra chalcogramma*) swimming through the south end of the one of the sites. Visual observations of the sites did not show signs of substantial benthic impacts or nutrient enrichment.[12]

Mrs. Nelson was asked to clarify the difference between a disease related event and what happened in August 2021 (Ellis/Nelson). Mrs. Nelson explained that a disease related event on a salmon farm will usually not result in abrupt mortalities over a very short period of time like those that occurred in August 2021. Disease related mortalities would likely be more gradual and prolonged as the disease moved through the population. In this case, the mortality event was sudden and limited to 12% of the total population.

Mrs. Nelson noted that what happened in August 2021 was similar to a "super chill" event that occurred in Maine, in either 2003 or 2004. During the super chill event water temperatures plummeted to levels that were lethal for salmon, resulting in an abrupt mortality event like what occurred in August 2021.[13] Mrs. Nelson noted that these types of events are rare and reiterated that Cooke Aquaculture, in accordance with current rules, did not have to report to DMR the August 2021 event as it was not disease related.

Mrs. Nelson also described some of the permitting requirements for net pen sites such as SWAN BI and BIS. To culture salmon or other finfish using net-pens Cooke Aquaculture USA must obtain a lease from DMR, along with other associated permits, including stocking and vessel permits. Cooke Aquaculture USA is also subject to regular biosecurity audits and monthly screening for Infectious Salmon Anemia Virus (ISAv). Many of the permits and protocols under DMR's jurisdiction are intended to protect aquatic animal health and the environment, among other requirements and considerations as specified in DMR's rules and laws.

Mrs. Nelson clarified that permits are also required from other state and federal agencies, including MEDEP, which conducts all benthic monitoring for net pen finfish leases through delegated authority under the Clean Water Act.[14] A permit is also required from the U.S. Army Corps of Engineers, whose permitting process includes but is not limited to consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service.

Members of the public who offered testimony cited the die-off as the reason why the leases should be not be renewed. Some members of the public felt that the die-off event violated Chapter 2.75(2) of DMR's regulations, which specifies that a lease holder must maintain the site in a manner that avoids the creation of a public or private nuisance and substantial injury to marine organisms. Some persons who offered testimony also suggested that the die-off event was evidence of Cooke Aquaculture's inability to maintain the sites and comply with applicable regulations.

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[12] Mrs. Nelson did note that MEDEP also collects benthic samples as part of their permit monitoring, which are less subjective than video.

[13] Super chill occurs when water temperatures drop below a level that salmon can survive. The comparison was meant to demonstrate that environmental conditions can lead to a sudden mortality event.

[14] Prior to 2001, DMR conducted this monitoring, but authority shifted to MEDEP.

Citing emails exchanged between DMR staff on August 23 and 24, 2021[15], and MEDEP staff on August 31, 2021, Ms. Canney implied that Cooke's management practices either caused or contributed to the mortality event. These emails, which Ms. Canney obtained through a Freedom of Access Act request, note that the mortalities were the result of a lack of oxygen. The emails speculate that the low oxygen levels may have been caused by fouling on the net pens. The emails indicate that nets are typically cleaned every six weeks but suggest that cleanings may have been occurring every two weeks.[16] The emails indicated that fouling had been heavier than normal, and with limited staffing available crews were diverted from cleaning pens to harvesting fish.[17] MEDEP noted that several inspections of the sites have occurred in the past and nothing out of the ordinary was observed (Exhibit 3).

On September 29, 2021, DMR received a memorandum (memo) from MEDEP outlining their enforcement summary.[18] According to MEDEP's memo, Cooke Aquaculture submitted daily dissolved oxygen readings, which were collected between July 1, 2021 and August 31, 2021. The readings were taken in the 30-meter mixing zone outside of the net pens at each site.[19] Cooke Aquaculture is not required to take or track measurements inside the pens. Per the MEDEP permit, minimum required dissolved oxygen levels within the mixing or sampling area are 6.0 mg/L.

Between July 1, 2021 and August 31, 2021, the lowest level of dissolved oxygen was recorded on August 10, 2021. The reading for that day was 6.5 mg/L, which was within permit limits. A subsequent reading conducted on August 13, 2021 indicated levels were at 6.9 mg/L. Readings taken that weekend (August 14-15, 2021) indicated levels at 9.0 and 8.4 mg/L. When mortalities were discovered on August 16, 2021, the readings within the mixing zone at both sites were 8.1 mg/L.

Pen densities reported to MEDEP from June 2021 through August 2021 were within permitted limits. MEDEP also conducted an inspection of the site on August 31, 2021 and did not find evidence to suggest excessive fouling of the net pens.[20] MEDEP concluded that there were no violations of the Clean Water Act or violations of permits under their jurisdiction.

3. Discussion:

a. Conflict with New or Existing Uses

The Commissioner must consider the potential for conflict with 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. No evidence was presented to

[15] The emails were screen shared during the public hearing, so persons participating remotely, and in-person could see them.
[16] CF: email from M. Nelson to M. Mendelson and P. Keliher indicate that net cleaning typically occurs every 6 weeks, but fouling had been heavier than normal. Exhibit 3, which is an email exchanged between MEDEP staff suggest that net pen cleaning was occurring every two weeks.
[17] CF: email from M. Nelson to M. Mendelson and P. Keliher dated August 24, 2021.
[18] The memo is part of the case file for both sites and is dated September 23, 2021. This is the only memo referenced in the decision.
[19] This is a summary of DEP's memo. The oxygen levels in the mixing zone, where Cooke is required to take readings, differ from oxygen levels in the pens where the fish are kept.
[20] The memo indicates that net pens were cleaned on August 27, 2021.

suggest that new uses of the area had emerged over the previous term, or that any possible new use of the area would conflict with existing operations. Therefore, conflict with new uses is not contemplated as part of this decision. However, commercial fishing is an existing use of the area that was also contemplated in the decision that initially granted SWAN BIS. During the renewal proceeding, some individuals also testified about fishing in the area.

SWAN BIS is conditioned so that lobster and crab fishing are permitted within the open areas of the sites, outside the shadow of the mooring grid. Cooke Aquaculture testified that lobster fishing occurs within the boundaries of the site and some fishermen testified that they have fished within the general area. The fishermen who offered testimony felt that the proposed operations had a detrimental impact on lobster populations and other marine organisms. Mr. Hanscom speculated that lobsters are not being caught within the boundaries of the lease site due to poor environmental conditions.

The lease decision that initially granted SWAN BIS found that the site would not unreasonably interfere with commercial fishing activities. The record in the renewal proceeding, demonstrates that commercial fishing activities have continued to occur both around and within the lease area. While some participants speculated that operations at SWAN BIS were having adverse impacts on marine organisms there was no evidence presented to suggest that is the case. Video analysis conducted by DMR indicated that there were no signs of substantial benthic impacts or nutrient enrichment. Greater impacts were observed directly under the pens versus within the mixing zone. MEDEP's permit allows for some level of impact, which would be expected with any operation of this type. These types of impacts are generally localized and temporary. DMR documented several marine organisms within the boundaries of the lease site and underneath the pens.

b. Dissolved Oxygen Event:

The Commissioner may consider other factors in determining whether renewing the lease site is within the best interest of the state. Most of the testimony at the public hearing was specific to the August 2021 dissolved oxygen event.

DMR science staff noted that these types of events are rare and very abrupt. In the cases that DMR staff could recall, they have been caused by higher or lower than normal water temperatures, which often persist for a short length of time. In this case, it is likely that a combination of factors, including higher than normal water temperatures[21], decreased the amount of dissolved oxygen in the water, which led to the mortality of 87,607 market-sized salmon cultured on SWAN BIS.

Natural occurrences like an increase in water temperature may impact site operations. The record indicates that the frequency of net pen cleaning may have increased as equipment fouled more quickly. Crews were diverted from cleaning to harvesting finfish. Shortly after receiving reports of the mortality event, it was speculated that fouling may have also contributed to the mortalities. While it is possible that fouling increased during this period, MEDEP did not find evidence of excessive fouling or that there were any violations of their permit.

[21] Cooke testified that the water temperatures were higher than normal.

Cooke representatives testified that the same day the site manager received reports of abnormal fish behavior, he dived the pens. During that dive and a subsequent dive, he observed increased mortalities. Once the scale of the mortalities had been determined, the lease holder took immediate action to address the issue. This included diverting staff from cleaning pens to removing mortalities and then harvesting fish from the sites. The lease holder also arranged to have the mortalities taken to a composting facility and elected to report the mortalities to state and federal officials.

In summary, testimony indicated that these types of events are rare and typically the result of natural occurrences, which may cause temporary changes to how sites are managed as lease holders respond to the issue. Cooke Aquaculture took measures to mitigate the mortality event, which MEDEP investigated as part of ensuring compliance with their permit. MEDEP did not find any violations of the permit or Clean Water Act. As DMR staff noted, the event was not disease related, Cooke's reporting to DMR was voluntary and there were no signs of resultant substantial benthic impacts or nutrient enrichment. This lease was initially issued on March 21, 2011. The site has been operated for more than 10 years and based on DMR's records this is the first time such a mortality event has occurred on the site. **Therefore, I find** that it is in the best interests of the State of Maine to renew this lease.

D. Compliance with DMR's lease agreement

Some members of the public testified that SWAN BIS should not be renewed because Cooke Aquaculture has not complied with DMR's lease agreement. For example, Don Eley, President, Friends of Blue Hill Bay, testified that MEDEP has cited Cooke Aquaculture on numerous occasions for violations at both SWAN BI and SWAN BIS. Mr. Eley did not specify what provisions of DMR's lease agreement that Cooke Aquaculture had allegedly violated or what nexus the MEDEP violations had with DMR's lease agreement.

In accordance with Chapter 2.75(2) of DMR's regulations, lease holders must maintain the site in a manner that avoids the creation of a public or private nuisance and to avoid substantial injury to marine organisms. Some of the individuals who offered testimony felt that the lease should not be renewed because it violated Chapter 2.75(2). There is no evidence to indicate that the lease has been regularly operated in a manner that created a public or private nuisance or that it resulted in substantial injury to marine organisms.

The dissolved oxygen event described in Section II (C) was likely the result of a natural occurrence. The lease holder took reasonable measures to try to mitigate and address the mortalities. The lease holder arranged to have the mortalities taken to a composting facility. Video analysis conducted by DMR indicated that there were no signs of substantial benthic impacts or nutrient enrichment as a result of this event.

Based on a review of the record, DMR has determined that Cooke Aquaculture has complied with the lease agreement for SWAN BIS. Furthermore, the site has not been operated in a manner that created a public or private nuisance or substantial injury to marine organisms.

Therefore, I find that the applicant has complied with the lease agreement during its term.

III. LEASE CONDITIONS

The following conditions were applied to the lease by the original decision:

a) The lease site must be marked in accordance with both U.S. Coast Guard requirements and DMR Rule 2.80.

b) Dragging is prohibited on the lease site. Lobstering and crabbing are permitted on the lease site, outside the shadow of the mooring grid.

c) The applicant must consult with DEP before planting mussels on the bottom. Mussels grown on this lease site, whether by bottom or suspended culture, may be harvested only with six months' notice to, and a harvest permit from, the DMR Public Health Division.

If the lease is renewed, condition "a" will be removed from the lease agreement. Chapter 2.80 of DMR's regulations specify how a lease site must be marked. In addition, lease agreements require compliance with DMR's marking requirements. Part of condition "b" will be modified as dragging would be enforceable under other provisions of law (see 12 M.R.S.A. §6073(2)), so it does not need to be expressly prohibited in a lease condition.

Condition "c" was initially placed on the lease in response to a concern raised at the October 15, 2010 public hearing for the site. Specifically, DMR was concerned that the possible bottom culture of mussels may trap organic debris from the salmon pens contributing to bottom conditions that would violate the discharge permit issued by DEP.[22] According to the record, there were no representatives from DEP in attendance at the October 15, 2010 hearing. The original decision does not indicate that DEP had any concerns about the bottom planting of mussels.[23] The original decision also notes that DMR's Bureau of Public Health recommended that mussels grown on the site, by bottom or suspended culture, may only be harvested with six months' notice to and the issuance of a harvest permit from the Bureau of Public Health.[24] Therefore, when the lease was granted on March 21, 2011 it included condition "c" while also authorizing the suspended and bottom culture of mussels.

Based on a review of the record, during the previous lease term, Cooke Aquaculture did not exercise the option to culture mussels on this site but indicated in the renewal application that it may do so in the future. In this case, part of the

[22] SWAN BIS, original decision, pg. 15

[23] DEP would have been notified of the original completed application and lease hearing. DEP was also notified of the completed renewal application and associated hearing.

[24] SWAN BIS, original decision, pg. 16. At the time the decision was issued, Public Health was a division within DMR. Since the decision was issued, Public Health is now a bureau within DMR.

original condition requires consultation with DEP, because DMR initially felt it was possible that bottom culture may impact compliance with a permit issued by DEP.

Lease holders are responsible for ensuring that their operations comply with permits that fall under the jurisdiction of other agencies. If the lease holder decided to bottom plant mussels, it would be advisable for the holder to consult with DEP before undertaking that activity. However, because the lease holder is responsible for complying with any permits issued by other agencies the existing requirement to conduct a consult with DEP will be removed.

In preparing this decision, the Aquaculture Division consulted with the Bureau of Public Health about the remainder of the condition. This requires the lease holder to provide the Bureau of Public Health with six months' notice prior to harvest and requires them to issue a harvest permit. The harvest of shellfish from any lease site needs to comply with the National Shellfish Sanitation Program (NSSP), which is a federal/state partnership recognized by the U.S. Food and Drug Administration and Interstate Shellfish Sanitation Conference. The NSSP provides for the sanitary control of shellfish produced and sold for human consumption.

It is possible that mussels could be cultured simultaneously with finfish or before or after finfish culture and harvest cycles. Finfish operations may include the use of certain therapeutants, which may have implications for shellfish and persons consuming associated shellfish. Finfish sites are also operated differently from shellfish only sites, so there may be other considerations in addition to the possible use of therapeutants.

If the lease is renewed, the condition will be modified so the lease holder will need to obtain written authorization from the Bureau of Public Health prior to harvesting any mussels for human consumption. This would allow the Bureau of Public Health to ensure that the harvest of mussels for human consumption complies with the provisions of the NSSP. It is recommended that the lease holder discuss their plans to culture mussels for human consumption, with DMR's Bureau of Public Health, prior to undertaking those activities. This would allow the lease holder and Bureau of Public Health to discuss any concerns in advance of mussels being deployed and cultured on the site, including establishing testing protocols if applicable.

If mussel culture occurs on the lease site and subsequent harvest is for human consumption, it is recommended that the holder contact the Bureau of Public Health about their harvest plans several months in advance. This would give the Bureau an opportunity to review the use of any therapeutants, if applicable, in the months prior to a possible harvest. It would also allow for any follow-up and the submission of any additional information requested by the Bureau, including possible testing. Since the condition would require written authorization prior to harvest, these recommendations do not need to be included as part of the condition but are described here for reference.

If the lease is granted the conditions will be as follows:

a) Lobstering and crabbing are permitted on the lease site, outside the shadow of the mooring grid.

b) The lease holder must obtain written authorization from DMR's Bureau of Public Health prior to harvesting mussels for human consumption.

IV. DECISION

The Commissioner grants the application of Cooke Aquaculture USA, Inc. to renew the aquaculture lease SWAN BIS for a period of twenty years. The renewed lease is subject to the same terms, conditions, and obligations as set forth in the original lease, except as modified by this decision.

V. REVOCATION OF LEASE

The Commissioner may commence revocation procedures upon determining pursuant to 12 M.R.S. §6072 (11) that no substantial aquaculture has been conducted within the preceding year, that the lease activities are substantially injurious to marine organisms, or that any of the conditions of the lease or any applicable laws or regulations have been violated.

VI. DATE AND SIGNATURE

Dated: 6/21/22

Patrick C. Keliher, Commissioner,
Department of Marine Resources

STATE OF MAINE **Phoenix Salmon US, Inc.**
DEPARTMENT OF MARINE RESOURCES **Lease SWAN BIS**
Standard Aquaculture Lease Application **Docket #2010-09**
Black Island South site, Frenchboro
Net pen culture of finfish;
Suspended and bottom culture of shellfish March 21, 2011

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION

On February 23, 2010, the Department of Marine Resources ("DMR") received an application from Phoenix Salmon US, Inc., a Maine corporation, for a standard aquaculture lease on 38.5 acres located in the coastal waters of the State of Maine, in the Atlantic Ocean off the west side of Black Island in the Town of Frenchboro in Hancock County, for net pen culture of Atlantic salmon (*Salmo salar*), halibut (*Hippoglossus hippoglossus*), arctic char (*Salvelinus alpinus*), and Atlantic cod (*Gadus morhua*) and suspended and bottom culture of blue mussels (*Mytilus edulis*).

The application was accepted as complete on April 27, 2010. DMR biologists conducted the site visit on July 7, 2010. A public hearing on this application was scheduled for Frenchboro on October 15, 2010. The organization Friends of Blue Hill Bay intervened. Public access to Frenchboro is available only by limited ferry service; owing to a severe storm, the hearing was cancelled. The Department attempted to reschedule the hearing on Frenchboro, but the transportation logistics proved impossible to resolve, so the hearing was held on December 20, 2010, in the Town of Mount Desert with a videoconferencing link to Frenchboro, allowing for real-time attendance and participation by the island's residents.

1. THE PROCEEDINGS

Notices of the hearing and copies of the application and DMR site report were sent to numerous state and federal agencies for their review, as well as to a number of educational institutions, aquaculture and environmental organizations, the Town of Frenchboro and the Frenchboro Harbormaster, members of the Legislature, representatives of the press, riparian landowners, and other private individuals. Public notice of the hearing was advertised in the *Mount Desert Islander*, first on Sept. 9 and Sept. 30, and again on Nov. 18 and Dec. 9, 2010 and in the October and December issues of *Commercial Fisheries News*. One written comment was received from a summer resident of Gott's Island, approximately 9,000 ft. to the northeast of the proposed lease site, opposing the proposed lease because of concerns that it would degrade the water quality in the area.

Testimony was given at the hearing by Cooke Aquaculture staff members David Miller, Marine Production Manager; Nell Halse, Communications Director; and Jennifer Robinson,

Compliance Officer (Cooke Aquaculture is the parent company of Phoenix Salmon). Christopher Heinig, President of MER Assessment Corporation, which performs environmental monitoring for Cooke Aquaculture, also testified on behalf of the applicant. Jon Lewis, DMR's Aquaculture Environmental Coordinator, testified on behalf of the Department and showed the videotape of the sea bottom made at the time of the site visit. Each witness was sworn and was available for questioning by the Department, the applicant, other local, state, and federal agencies, the intervenor, and members of the public.[1] The applicant was represented by attorney Andrew Hamilton. The intervenor was represented by attorney Sally Mills. The hearing was recorded by both DMR and the applicant. The Hearing Officer was Diantha Robinson.

The evidentiary record before the Department regarding this lease application includes twelve exhibits admitted at the hearing (see exhibit list below) and the testimony at the hearing itself. The record was held open until January 7, 2011, to receive the written closing arguments of counsel for the applicant and the intervenor and copies of the applicant's Power Point slides presented as part of the testimony of its witnesses.

The closing arguments of the parties are contained in the case file (Exhibit 1). The "Written Closing Argument of Applicant" is cited as "Applicant's Argument"; the "Closing Statement of Friends of Blue Hill Bay, Intervenor" is cited as "Intervenor's Argument". The evidence from all of these sources is summarized below.[2]

LIST OF EXHIBITS

1. Case file, Docket # 2010-09 (cited below as "CF").

2. Application signed by Jennifer Robinson and dated Feb. 22, 2010 (cited below as "A" with page number).

3. DMR site report dated August 10, 2010 (cited below as "SR" with page number).

4. Letter from True North Salmon US, signed Jennifer Robinson, to Steve Timpano of Maine Dept. of Inland Fisheries & Wildlife, dated 6-18-09, one page letter and attached one-page chart.

5. Chain of 6 emails titled "Letters Regarding Leases" sent between June 22, 2009 and Oct. 18, 2010 between Jennifer Robinson, Steve Timpano of Maine Dept. of Inland Fisheries & Wildlife, and Kelly Disley; 2 pages.

6. Document titled "MER Assessment Corporation, Black Island (South) proposed salmon aquaculture site/Baseline summary and adjacent Black Island (North) site history", 2 pages of text and 6 pages of graphics.

7. Resume of Christopher S. Heinig, 4 pages.

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[1] Three Frenchboro residents spoke via the video link to the island: Arthur Fernald (a Frenchboro selectman), Ann Fernald, and Jessica Bellah.

[2] Testimony cited as (Smith/Jones) means testimony of Smith, being questioned by Jones.

8. Letter from Matthew Young of Maine Dept. of Environmental Protection to Atlantic Salmon of Maine, Attn: Jennifer Robinson dated 3-30-09, one page.

9. Letter from Jennifer Robinson of Cooke Aquaculture to Matthew Young of Maine Dept. of Environmental Protection dated 4-27-09, 2 pages with a one-page attachment titled "Environmental management plan for Black Island".

10. Document of two pages titled "Environmental Monitoring Plan for Black Island, 19 March 2010; Revised April 2010". [3]

11. Letter from Matthew Young of Maine Dept. of Environmental Protection to Cooke Aquaculture dated 5-18-10, one page (two sides).

12. Letter from Matthew Young of Maine Dept. of Environmental Protection to Cooke Aquaculture dated 6-14-10, one page.

NOTE: Paper copies of the applicant's Power Point slides are not marked as a separate exhibit but are included in the record of the case. The slides supporting the primary direct testimony of the applicant's four witnesses are cited below as "PS" with page number. The slides supporting the testimony of Jennifer Robinson about a different lease site, SWAN BI, are cited below as "PSB" with page number.

2. DESCRIPTION OF THE PROJECT

A. Site History

The proposed lease site (the "south site") lies in the waters of the Atlantic Ocean south of Mt. Desert Island on the west side of Black Island, northeast of Swan's Island.

David Miller, Marine Production Manager for the applicant, testified that Phoenix's parent, Cooke Aquaculture, USA, operates salmon aquaculture sites in three general areas of the Maine coast: Cobscook Bay, Machias Bay, and the areas around Jonesport and Mt. Desert Island. Cooke also operates three fish hatcheries in Maine and a fish processing plant in Machiasport. Cooke's goal is to establish three separate growing areas, each with a level of production that is sufficient both to use the output of the hatcheries efficiently and to maintain an adequate supply of fish to the processing plant. Cooke has reached this level in Cobscook Bay, Mr. Miller testified, and it is approaching this level with its Machias Bay lease sites. Now the company is trying to secure additional lease sites in the area it calls "points south", i.e., between Jonesport and Swan's Island (Miller, testimony; PS3-7). The proposed lease for the south site is part of that plan.

An existing 15-acre net-pen lease site, SWAN BI, lies 1,000 feet to the north of the proposed lease site (SR Figures 1 and 2). This lease (the "north site") is held by Island Aquaculture Corp., a subsidiary of Atlantic Salmon of Maine, which, like Phoenix Salmon, is a

[3] According to the applicant, this plan was not ultimately accepted by the DEP. The applicant objected to its admission.

subsidiary of Cooke Aquaculture USA.[4] The north site lease was originally granted in 1999 and renewed in 2009; it is used to raise Atlantic salmon and is also authorized for halibut, cod, haddock, and mussels. Although the leaseholder is a different corporation from Phoenix, the north site lease is managed as part of Cooke Aquaculture's Maine operations, just as the proposed south site would be.

Information about the north site is included here because the proximity of the two sites and the environmental problems experienced at the north site prompted questions about whether and how operations at each site might affect the other. Those issues were addressed in the Department's site report, in testimony and exhibits presented at the hearing, and in the parties' written arguments. They underlie the intervenor's argument against granting the lease for the south site, which is addressed in section 3 (D), below.

B. Proposed Operations[5]

The applicant plans to raise Atlantic salmon at the proposed lease site using net pen culture. It is seeking permission also to cultivate halibut, arctic char, and Atlantic cod as alternate species for net pen culture, and blue mussels, using suspended and bottom culture (A1).

Mr. Miller testified that the applicant will install 20 floating net pens 100 feet in diameter at the lease site, set in a mooring grid system of 4 spaces by 5 spaces (PS10). "The floating area of the grid system will measure 600' x 750' or approximately 10.4 acres"; the cages themselves occupy approximately 3.9 acres of surface area (PS9). The remainder of the 38.5 acres contains the mooring gear. The cages are served by a "centralized feeding system housed in a floating barge" (PS9).

Phoenix plans to raise a maximum of approximately 800,000 harvest-sized fish (6 kg.), with a target maximum density of 25 kg/m3 and single year class stocking at this site, i.e., all fish on the site will be the same age (PS12). Fish will be raised from hatchery smolts to market size over 18 to 36 months (A4). Underwater cameras or other technology will be used to monitor feeding. Underwater lights will be used to prevent maturation of fish (PS12).

According to the application, Phoenix and its affiliates "have been raising fish in the Mount Desert Island area for more than 15 years". The 100 meter – circumference cages "have been used throughout the industry", and "All gear and equipment is at or above industry standard and will undergo routine maintenance" (A5).

According to the application and Mr. Miller's testimony, the work crew will travel daily to the site from a pier in Bernard, on Mt. Desert Island. Fish will be fed two to three times daily as weather permits, using automatic feeders monitored by cameras. Divers will maintain the lease area, collecting mortalities, repairing gear, and monitoring the site. Nets will be changed two to

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[4] Island Aquaculture Corp. and Atlantic Salmon of Maine were acquired by Cooke Aquaculture in 2005.

[5] This description of the proposed operations summarizes information contained in the application and presented at the hearing. DMR relies on this information as indicative of how the applicant intends to operate the project on the lease site.

three times during the production cycle. Market-size fish will be harvested by boat at the site and taken to shore for processing (A5). Vessels serving the site include a 40-ft. lobster-style dive boat, a 50-ft. barge-style feeding boat, and a 60-ft. barge-style feed delivery boat (A4).

In addition to the aquaculture lease, the applicant must obtain permits from DMR to transfer fish to the site and from the U.S. Army Corps of Engineers to install structures at the site (Lewis, testimony). A Maine Pollutant Discharge Elimination System (MEPDES) waste discharge permit from the Maine Department of Environmental Protection (DEP) is required to discharge substances such as fish feed into the water; this permit will require Phoenix to conduct extensive environmental monitoring of the site (A4).

Other finfish species will be cultured with techniques similar to those for salmon. Mussels will be cultivated either on the bottom or on ropes suspended from finfish cages or floats. Harvested mussels will be taken to shore for processing (A11A).

Further details of the proposed operation are contained in the application.

C. Site Characteristics

Although the Department sent a Harbormaster Questionnaire to the Town of Frenchboro, it was not returned, so there is no information available in this record from the local harbormaster. The proposed lease is in an area currently classified by the Department of Marine Resources Water Quality Classification program as "open/approved for the harvest of shellfish" (SR7).

The proposed south site lies approximately 340 ft. off the west side of Black Island in water ranging from approximately 50 to 120 feet deep. According to the site report, the pens will be moored in water approximately 100 ft. deep, "more than adequate for fish pens that will be constructed with nets falling 12.8 meters (approximately 42 feet) into the water column" (SR3). According to Mr. Miller, this site would be the deepest salmon farming site in Maine (PS30).

More than 1800 ft. of open water lie between the western side of the site and Placentia Island to the west (SR3-4). The shore of Black Island to the east is steep and rocky with "mature forested uplands with no residential development observed from the proposed lease area" (SR2).

The site report describes the sea bottom at the proposed lease site as follows:

> The topography of the proposed lease consists of soft mud graduating to scoured bottom with a mixture of sand, gravel and cobble on approach to the shoreline of Black Island. Currents run primarily in a northeast/southwest direction depending upon tidal stage. Page 6 of 22 in the Baseline Site Survey Report submitted by the applicant as part of the lease application, indicates mean currents of approximately 8 cm/sec or approximately 945 feet per hour. The bottom topography of the site generally follows the upland characteristics, with water depths decreasing toward the northeast (SR3).

Tidal flow at the proposed site is northerly on the flood tide and south-southeasterly on the ebb tide. According to both Mr. Heinig and Mr. Lewis, there do not appear to be any bathymetric features at the proposed south lease site that would alter this "bi-directional" tidal flow (PS40; Lewis, testimony).

Mr. Heinig testified that the proposed south site is substantially deeper than the existing north site. Sediments at the northern end are coarser than those in the southern part of the north site, which has experienced problems with accumulation of organic matter, "suggesting less of a predisposition to deposition" at the south site. In addition, the cages on the south site would be located farther from shore, beyond the shallow area around the bar to the north (PS46).

Other aspects of the site are discussed below.

3. STATUTORY CRITERIA & FINDINGS OF FACT

Approval of standard aquaculture leases is governed by 12 M.R.S.A. §6072. This statute provides that a lease may be granted by the Commissioner of DMR if s/he determines that the project will not unreasonably interfere with the ingress and egress of riparian owners; with navigation; with fishing or other uses of the area, taking into consideration the number and density of aquaculture leases in an area; with the ability of the lease site and surrounding areas to support existing ecologically significant flora and fauna; or with the public use or enjoyment within 1,000 feet of beaches, parks, docking facilities, or conserved lands owned by municipal, state, or federal governments. The Commissioner must also determine that the applicant has demonstrated that there is an available source of organisms to be cultured for the lease site; that the lease will not result in an unreasonable impact from noise or lights at the boundaries of the lease site; and that the lease will be in compliance with visual impact criteria adopted by the Commissioner relating to color, height, shape and mass.

A. Riparian Access

Black Island is a largely undeveloped, wooded island with few landowners, no year-round residences, and minimal development. All owners of property interests on Black Island, not solely those shorefront landowners within 1,000 ft. of the proposed lease site, were provided with personal notice of the application and the public hearing; none of them submitted comments or participated in the hearing.

Mr. Miller testified that he and Ms Robinson met with representatives of the National Park Service (holder of conservation easements on most or all of Black Island) and the Maine Coast Heritage Trust (owner of much, but not all, of the shoreline within 1,000 ft of the proposed lease site). They discussed minimizing the impact of the aquaculture operations on the riparian land. According to Mr. Miller, "Phoenix remains open to further dialogue with MPA and MCHT" (PS13). No comments or testimony on the proposed lease site were provided by either the National Park Service or the Maine Coast Heritage Trust.

At the time of the site visit on July 7, 2010, DMR biologists observed a single dock, with no ramp or float installed, on the western shore of Black Island. The site report notes that:

> A distance of approximately 340 feet separates the proposed eastern boundary and the Black Island shoreline. If the dock were installed there would be a minimum of 250 feet of navigable water between the dock and the eastern boundary of the lease site.

From this evidence, it appears that the shore and neighboring waters in the area of the proposed lease are not used to any significant degree for access to and from the island. Even if the single dock were in use, there would be ample room for access to and from it in the waters between the dock and the nearest lease boundary. It does not appear that the proposed lease site will interfere with riparian access.

Therefore, I find that the aquaculture activities proposed for this site will not unreasonably interfere with the ingress and egress of any riparian owner.

B. Navigation

According to the site report, the navigational channel on the west side of Black Island between the Black Island Bar and the eastern side of Placentia Island is 2,400 ft. wide. The propose lease site would extend approximately 600 ft. into the channel from the eastern side, leaving 1,800 ft. of open water available for navigation (SR4). During the site visit, DMR biologists observed six vessels navigating through this area, one of which was hauling lobster traps within the proposed lease boundaries, and two of which transited across the proposed lease site. The other three traveled "within the main channel and outside the western boundary of the proposed lease" (SR5).

The site report concludes:

> Vessels would be required to travel in a more westerly channel between Black and Placentia Islands. Only small vessels or those with local knowledge and experience around salmon farms and fish pens would be expected to transit east of the farm and west of Black Island (SR5).

Mr. Miller testified that the State-run ferry "runs within 300 to 500 yards of the lease site" and that there is "ample navigable water" to the west of the site (Miller, testimony; PS18-19).

It is clear from this evidence that there is more than adequate room for all types of navigation to occur between Black Island and Placentia Island and that the presence of the proposed lease site will not interfere significantly with navigation in the vicinity. The mandatory application for marking requirements will ensure that the site is marked as the Coast Guard sees fit to warn mariners of its location.

Therefore, I find that the aquaculture activities proposed for this site will not unreasonably interfere with navigation. The applicant is required to consult the U.S. Coast Guard, Boston, Office of Private Aids to Navigation, for marking requirements.

C. Fishing & Other Uses

No report was submitted by the Frenchboro Harbormaster. No fishermen testified at the public hearing. Department biologists noted in the site report that:

> On July 7, 2010 a great deal of lobster fishing was observed throughout the area. We estimated approximately 50 buoys observed within the proposed lease site boundaries. One vessel was noted hauling traps within the proposed boundaries during the Departmental site visit. The highest density of buoys appeared to be in shallower water (~50-60 depth contour) nearer the Black Island and Placentia Island shoreline. Lobster fishing was occurring throughout the Placentia I. / Black I. passage however.
>
> Some scallop dragging may occur in the area during winter months although no scallops were observed in the area (SR5).

Mr. Miller noted that, were the lease granted, the area within which lobster fishing could not be conducted (within the shadow of the mooring grid) would amount to 10.3 acres, or 0.016% of the total area of Blue Hill Bay. He said there was "limited seasonal lobstering" at the site, with lobster buoy counts made by the applicant in August, 2008 and October 2010 of 22-23 buoys within the 38.5-acre site. Phoenix has coexisted with lobstermen for years, according to Mr. Miller. He also noted that, based on the observations listed in the site report, "no commercially exploitable quantities of marine organisms (i.e., scallops, mussels, and urchins) were observed" within the proposed lease site (Miller, testimony; PS23-25).

It is apparent that lobster fishing is actively conducted within the lease boundaries of the south site and in the surrounding waters. Local fishermen have had ample notice of the proposed lease, and neither they nor the Frenchboro Harbormaster have expressed concerns that the lease would interfere with lobstering or other fishing in the area. Lobster and crab fishing can continue in the 28 acres of the lease site that lies outside of the shadow of the mooring grid. Based on this evidence, the proposed lease would not unduly hamper fishing in the area.

Exclusivity. The applicant has requested that dragging be prohibited on the site, to avoid entanglement with the moorings. Lobstering can continue within the lease boundaries but outside of the shadow of the mooring grid, according to Mr. Miller (Miller, testimony; PS24).

These restrictions are clearly necessary "to carry out the lease purpose", in the words of 12 MRSA §6072 (7-B); they will be included as conditions on the lease.

Other aquaculture leases. The nearest aquaculture lease is the north site at Black Island, lease SWAN BI, also held by a Cooke subsidiary. The site report states:

> The nearest aquaculture activity is the existing 15 acre Black Island lease (SWAN BI) operated by the applicants. This farm is located ~1,000 feet to the north and is used for raising Atlantic salmon although other species such as Atlantic halibut, Atlantic cod, haddock and blue mussels are permitted. As stated under "Bottom Topography and Currents", hydrologic interaction between these two farms would be anticipated and issues surrounding the stocking and management of the two farms would be addressed by the Fish Health Technical Committee under the Department's Fish Stocking and Transfer Permit program.

The relationship of these two sites is discussed in detail below in section 3 (D). The evidence as described there indicates in part that the proposed south site will not interfere with operations at the north site, particularly since the two sites will be under common ownership and management.

The evidence in the record supports the conclusion that the proposed aquaculture lease will not interfere unreasonably with fishing and other activities in the area.

The lease must be marked in accordance with DMR Rule 2.80.[6]

Therefore, considering the number and density of aquaculture leases in the area, I find that the aquaculture activities proposed for this site will not unreasonably interfere with fishing or other uses of the area. Dragging will be prohibited on the site. Lobster and crab fishing can continue within the open areas inside the lease boundaries but outside of the shadow of the mooring grid.

D. Flora & Fauna

The site report states that "The greatest diversity of epibenthic fauna was observed around sporadically occurring rocks; particularly toward the near shore, northeastern portion of the proposed lease" (SR6). Species observed included shrimp, sponges, lobsters, anemones, sea cucumbers red fish, sculpin, sea stars, and harbor porpoises.

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[6] **2.80 Marking Procedures for Aquaculture Leases**

1. When required by the Commissioner in the lease, aquaculture leases shall be marked with a floating device, such as a buoy, which displays the lease identifier assigned by the Department and the words SEA FARM in letters of at least 2 inches in height in colors contrasting to the background color of the device. The marked floating device shall be readily distinguishable from interior buoys and aquaculture gear.

2. The marked floating devices shall be displayed at each corner of the lease area that is occupied or at the outermost corners. In cases where the boundary line exceeds 100 yards, additional devices shall be displayed so as to clearly show the boundary line of the lease. In situations where the topography or distance of the lease boundary interrupts the line of sight from one marker to the next, additional marked floating devices shall be displayed so as to maintain a continuous line of sight.

3. When such marking requirements are unnecessary or impractical in certain lease locations, such as upwellers located within marina slips, the Commissioner may set forth alternative marking requirements in an individual lease.

4. Lease sites must be marked in accordance with the United State's Coast Guard's Aids to Private Navigation standards and requirements.

While both the applicant and the Department asked the Maine Department of Inland Fisheries and Wildlife (MDIF&W) to review and comment on the proposal, no response was received (Exhibits 1, 4, 5). The site report notes that according to MDIF&W maps, "there are no Essential or Significant Wildlife Habitats surrounding the proposal (i.e. seabird nesting islands) (SR6).

Bathymetry of the north site. The existing north lease site has experienced problems with a buildup of organic matter (uneaten fish feed and feces from the pens) on the sea floor, particularly in the southern part of the site, when fish are being raised on the site (Exhibits 6, 8, 9, 10, 11, 12; PS 37-45). According to both Mr. Heinig and Mr. Lewis, this is likely attributable to the bathymetry of the north site, which includes deeper water and faster currents at the north end, an undersea mound just west of the site rising approximately 40 ft. above the bottom, a slightly depressed area south of the fish pens that may trap organic material, and a shallower area south of the site where a bar projects westward from the shore of Black Island.

The northerly flow of the incoming tide is diverted by the mound, causing part of it to veer east and then south over the southern part of the site, even while the remainder of the incoming tide is flowing north. On the ebb tide, the flow is southerly over the entire north site. The direction of the currents on the southern part of the site is therefore predominantly southerly, regardless of the stage of the tide, while the northern part of the site experiences northerly currents on an incoming tide and southerly currents when the tide ebbs. These southerly currents sweep any organic debris farther south, and as the currents slow in the shallows around the bar, the debris falls to the bottom and accumulates, even in the area beyond the pens to the south (Heinig, testimony; PS38-39; Exhibit 6; Lewis, testimony).

Organic loading at the north site. Organic loading (organic matter from the fish pens accumulating on the bottom) at the north site eventually resulted in levels of sulfides and *Beggiatoa* bacteria on the sea bottom that exceeded the "impact limits" specified in the leaseholder's MEPDES permit. This led the DEP to issue a letter of warning dated March 30, 2009, based on sampling and monitoring results at the site in the fall of 2008 (Exhibit 8). Mr. Heinig characterized the *Beggiatoa* at the south end of the north site as "occurring at various densities from a light covering to dense mats" (Exhibit 6, p. 1).

The *Beggiatoa* bacterium is naturally present on the sea bottom in Maine and world-wide. It forms mats on sulfide-rich marine sediments. When organic material accumulates on the bottom faster than natural processes can decompose it, oxygen in the marine sediments is depleted and relative sulfur levels rise, encouraging the growth of *Beggiatoa*.[7] If the bacterium is extensive enough, other forms of oxygen-dependent marine life, unable to survive the anoxic conditions, die or move away. Thus, the presence of *Beggiatoa* above certain levels is used as an indicator of environmental imbalance in the MEPDES permits issued to salmon farms.

[7] See http://www.csc.noaa.gov/benthic/resources/species/species6.htm

Anoxic conditions on finfish sites can be remedied by removing or reducing the number of fish, altering feeding practices, or taking other steps to decrease the amount of organic material reaching the sea floor. Natural processes eventually decompose the accumulated material, causing oxygen levels in the sediments to rise. Eventually, other marine species that died or left the area in response to the anoxic conditions return, and monitoring and sampling results will reflect a more balanced, healthy environment on the sea floor. Mr. Lewis noted that in all cases, monitoring is the key to determining the balance between what a site can handle biologically and what can be done successfully in terms of raising fish there (Lewis/Ann Fernald).

Over the 15 months following the DEP letter of warning, the leaseholder worked with the DEP to alter its operations at the north site in order to reverse the effects of organic loading. Although other operational changes proposed by the leaseholder were implemented by agreement with the DEP, the DEP ultimately required a one-third reduction in the number of fish re-stocked on the north site in the summer of 2010 and ordered the leaseholder not to place fish in the four southern-most pens (Exhibit 12). The leaseholder had apparently proposed a much smaller reduction in stocking and had not offered to discontinue use of the four southern pens.

By the fall of 2010, following a 7-week fallow period (no fish in any of the pens) and 13 weeks with fish restocked at lower levels and no fish in the 4 south pens, monitoring at the north site indicated that sulfides had fallen below the warning level at all measuring stations. In addition, *Beggiatoa* was "substantially improved", according to Mr. Heinig, compared to levels shown in monitoring in September 2009 and April 2010 (Heinig/Mills).

Phoenix describes these improvements as a "reasonably prompt recovery" (Applicant's Argument, p. 14). The Intervenor characterizes the outcome as an "unacceptable two-year time lag in reaching, what is hoped to be, a reasonable solution" (Intervenor's Argument, p. 4).

No organic loading between sites. Addressing the possibility that organic matter from the north site might be washed onto the proposed south site, Mr. Heinig testified that given the 1,000 foot distance between the sites, it is "extremely improbable that additive negative effects will occur" (PS41). In his experience, Mr. Heinig said, "negative benthic effects have never been detected more than 100 meters (approximately 300 ft.) from a cage system and are usually confined to less than 30 meters" (PS41). Mr. Lewis also testified that the majority of such buildup is normally found within 30 meters of a pen (Lewis, testimony).

The site report concludes that the water depths and currents at the proposed south site

> would likely make the area toward the northeast of the proposed boundaries and toward the bar to the north the most vulnerable location for organic loading [*referring to loading coming from the south site itself*]. Uneaten feed that falls to the bottom generally falls almost directly under the salmon pens and is not carried long distances from pen footprints. At the proposed location, there would likely be some transport of uneaten feed toward the northeast; however it is very unlikely that it would be transported beyond the lease boundaries (SR3).

Thus, any organic material from the south site likewise would not be carried onto the north site. Mr. Lewis testified that there will be no overlap or interaction of benthic impact or organic loading between the two sites; they will be separate entities in that respect (Lewis, testimony).

Water exchange between sites. The site report also addresses the potential for mixing of the sea water between the two sites:

> Considering proximity to the existing lease at Black Island, water exchange between the two sites would be expected. Any dissolved organics or potential pathogens should be anticipated to be shared between the two farm locations, if granted. Potential disease issues and management and stocking schedules would be addressed by the Department's Fish Health Technical Committee; a group of fish health experts from state and federal agencies, academia and industry formulated to advise the Department on matters such as these (SR3).

Thus, while the two sites will not share the undissolved organic matter that causes organic buildup on the bottom, they are certain to share sea water that could transport disease organisms between the two sites. Mr. Lewis testified that this is not an ecological or environmental concern; it is a potential fish health issue.

Mr. Miller testified that the applicant's long-term goal is to operate both the north and south sites separately but with the same year-class of fish stocked at both sites. Before this can happen, however, the rotation of production at all of Cooke's Maine sites needs to be coordinated in a 3-year cycle, he said, and in the short term each of the two sites could be stocked with fish of a different year class (Miller/Lewis).

Mr. Lewis testified that, while an argument could be made that the two sites should operate as a single entity (raising fish of similar ages on a similar schedule and allowing the sites to lie fallow simultaneously between crops to break any disease cycle), the risk of disease is ultimately borne by Phoenix and its parent, since both sites are owned by Cooke Aquaculture (Lewis/Mills). That risk will be considered by DMR, however, when Phoenix applies for a permit to transfer fish from hatcheries onto either lease site. Mr. Lewis noted that the Fish Health Technical Committee will advise the Department, and a transfer permit could be denied or delayed, or the level of stocking could be reduced, depending on site conditions at the time (Lewis/Mills).

Differences between the north and south sites. In his summary of the baseline survey for the south site and history of the adjacent north site (Exhibit 6), Mr. Heinig states the following conclusion:

> Given the rather unique combination of conditions that may have led to the far-field impacts observed at the south end of the existing Black Island site, combined with the greater depth and distance from shore and higher current velocity of the proposed Black Island south site, it seems reasonable to conclude that environmental effects will be less at the proposed site than observed at the existing site. Indeed, cage systems are currently located at sites with much shallower depths, slower current

> velocities, and with substantially softer sediments than found at the proposed site, yet environmental impacts remain manageable (Exhibit 6, p. 2).

Mr. Heinig explained that where ocean currents are slower, as at the south end of the north site, discharges of organic matter from the fish pens "are concentrated and confined to the immediate area of the cages; under faster current conditions discharges from the cages are dispersed and distributed over a wide area." When discharges are dispersed over a wide area, he said, "the effects are generally indiscernible but where discernable often result in 'benthic enhancement' or 'bio-stimulation'" (Heinig, testimony; PS41).

Mr. Lewis testified that he agreed completely with Mr. Heinig's characterization of the south site and the likelihood that it would not experience the problems faced at the north site. He testified that the key to the MEPDES permit is monitoring in spring and fall for sediment chemistry and *Beggiatoa*. DEP prescribes and oversees this monitoring, but Mr. Lewis collaborates with DEP in reviewing monitoring results and determining whether remedial action is needed (Lewis, testimony).

Mr. Lewis explained that greater water depth at the south site means a greater likelihood that uneaten feed falling from the pens will either be eaten by another creature or will dissolve and be dispersed in the water column before it can reach the bottom. In addition, the coarseness of the cobble bottom means that currents are scouring the bottom, carrying away the small particles of organic matter that might otherwise accumulate between the larger rocks. Mr. Lewis noted that coarseness of particles on the bottom is clear evidence of scouring and a very good measure of what kind of deposition is likely there (Lewis, testimony).

Mr. Lewis noted that while these two sites would be relatively close to one another, salmon farms in many places in Canada and Europe are closer together. In Maine, he said, there are multiple fish farms in proximity to one another both in Machias Bay and in Cobscook Bay; some "have problems" and some do not, but monitoring will show which operating methods work and which do not. Mr. Lewis said that more experience at the north site (only two batches of fish have been stocked by Cooke on the site to date) will tell Phoenix what level of stocking will allow the site to operate successfully (Lewis/Ann Fernald).

Arguments of the parties. The intervenor contends that the system whereby DMR, DEP, and DMR's Fish Health Technical Committee "fix problems as and when the problems arise" is "not working". Under these circumstances, "it is unreasonable to further add to the density of aquaculture leases in the area, adding to the intensity and frequency of use, without a careful, incremental approach...It is unacceptable to allow a project to go forward on the understanding that someone else will sort out the mess when the time comes."

The intervenor also complains that the applicant did not amend its application to DMR for a lease on the south site to reflect the warning letter from DEP regarding the north site (Intervenor's Argument, pp. 4- 5).

The intervenor argues that the Commissioner should deny the lease proposed for the south site because environmental problems at the north site have not been completely corrected, and more time is needed to see if the revised operating plan at the north site succeeds in alleviating the organic loading before salmon aquaculture operations are allowed at the south site. Alternatively, the intervenor argues that if the south site lease is granted, the two sites should not be allowed to operate at the same time (Intervenor's Argument, p. 6).

The applicant argues that the south site lease application satisfies all the legal criteria and therefore should be granted (Applicant's Argument, pp. 1, 19).

Relationship of the two sites. The intervenor argues that because the conditions at the north site have not been completely corrected, the south site lease should be denied. The evidence shows, however, that conditions at the two sites differ with respect to bathymetry, currents, water depth, and the coarseness of the sea bottom. Fish pens on the south site would be located farther offshore than those on the north site, where currents are faster. Both Mr. Lewis and Mr. Heinig, who have investigated the two sites extensively, agree that there is no reason to expect the deposition problems experienced at the north site to be replicated at the proposed south site.

Both witnesses testified that some amount of deposition can be expected to occur under fish pens; the issue is whether it reaches a level that overwhelms the natural processes before they can decompose it. As Mr. Lewis noted, monitoring is the key to catching problems before they seriously degrade a site. But even when degradation occurs, it can be remedied, as the ongoing experience at the north site demonstrates.

While the intervenor argues that the length of time it has taken to improve conditions at the north site shows that this particular regulatory system is not working, the fact is that the lessee monitored the site in accordance with the MEPDES permit, the monitoring showed elevated levels of sulfides and *Beggiatoa*, DEP and the lessee took remedial action, and site conditions have improved as a result. It is reasonable to conclude from the evidence that the environmental conditions at the north site will continue to be addressed by the enforcement of the MEPDES permit by DEP and by additional oversight by DMR in connection with the issuance of fish transfer permits.

As Mr. Lewis testified, salmon farming in Maine is not a new or unfamiliar activity (Lewis/Ann Fernald). It is an ongoing process. Each site is unique, although experience has identified certain physical characteristics that can be key to success or to problems. DMR and DEP together have many years' experience in overseeing farm operations and responding to issues including both disease outbreaks and environmental degradation.

The north and south sites are separate, with separate characteristics, as Mr. Lewis noted, and in terms of deposition, events at one site will not affect the other. If significant environmental problems are unlikely at the south site, then denying the lease would not serve either to protect the south site's environment or to improve the north site, but would only penalize the applicant.

Amending the application. The applicant was not remiss in not describing the letter of warning for the north site in its application for the south site, as the intervenor asserts. The application does not ask for such information. DMR is informed of monitoring results at all aquaculture sites operating under MEPDES permits.

Site operations. While it is clear from the evidence that undissolved organic matter will not be transported between the sites, it is equally clear that sea water will be shared between them. As Mr. Lewis explained, the potential exists for disease to spread from fish at one site to fish at the other. The intervenor contends that if DMR grants the lease for the south site, it should require that only one site can be operated at a time. This is the opposite of what Mr. Lewis described when he mentioned the possibility of requiring the sites to be operated as a single entity as a precaution against disease.

Mr. Lewis noted that he does not have concerns about the sea water exchange between the sites that single-site management would mitigate at this time. Fallowing both sites simultaneously and requiring them to be stocked with same-aged fish on the same growing cycle are techniques for eradicating disease, should disease occur. Mr. Lewis noted that the risk of disease falls entirely on Cooke, since they control both sites. Surveillance would be required, he said, and the Fish Health Technical Committee would advise the Department on these issues.

It is worth noting that Maine experienced a significant salmon disease outbreak in 2001. The Department's fish health rules and its approach to siting aquaculture lease operations are informed by that experience. It is possible that circumstances could develop at Black Island that the Department could conclude would justify requiring the two lease sites to be managed as one. In this case, given the absence of evidence that significant environmental problems are likely to occur during operations, tailoring fish stocking and management requirements to ongoing experience at the sites is preferable to restricting operations from the start.

Mussel culture. Mr. Lewis noted his concern that if mussels were grown on the bottom, a matrix of shells could develop that might trap organic debris from the salmon pens, potentially leading to bottom conditions that could jeopardize compliance with Phoenix's MEPDES permit. He also noted the difficulty of harvesting mussels from the bottom under the pens, considering the presence of mooring equipment there (Miller/Lewis; Lewis, testimony). He asked Mr. Miller whether, in light of these issues, bottom mussel culture was a good idea.

Mr. Miller responded that Phoenix would evaluate harvest techniques and DEP compliance issues before undertaking bottom seeding. He noted that suspended mussel culture "has good potential" (Miller/Lewis). Mr. Lewis agreed that suspended culture of mussels is "fine" at salmon aquaculture sites (Lewis, testimony). The Intervenor argues that if the Department grants the lease, it should be limited to salmon only, contending that the application fails to "provide sufficient detail as to how [culture of alternate species] is to be addressed", and stating that "At the very least, we agree with Mr. Lewis's suggestion that bottom mussel culture is inappropriate" (Intervenor's Argument, p. 5).

The Department recently denied Phoenix permission for bottom mussel culture on an expanded existing lease site in Machias Bay (Lease MACH CI2) where site conditions appeared likely to combine with mussel buildup to create anoxic conditions. Conditions at the proposed site here, however, are substantially different from those at the Machias Bay site; in particular, water depths are greater, currents are faster, and the bottom composition is firmer and more scoured. Degradation of the bottom at the proposed site caused by bottom mussel culture appears less likely than at the Machias Bay site. In addition, it is possible that mussels could be grown in areas of the lease where organic loading is not likely to occur in any event, such as on bottom well beyond the fish pens.

According to the testimony, the applicant is aware of the potential problems and will evaluate DEP compliance issues before engaging in bottom mussel culture. There appears to be no reason to prohibit bottom mussel culture from the outset at this proposed site, provided the applicant consults with DEP on the advisability of such operations before planting mussels on the bottom. The lease will contain a condition to this effect.

The Department's Public Health Division recommends that mussels grown on this lease site, whether by bottom or suspended culture, be harvested only with six months' notice to, and a harvest permit from, the Public Health Division. The notice requirement is intended to allow the Division time to review the public health implications of growing mussels on a finfish site and to develop appropriate safeguards. This recommendation will be included as a condition on the lease.

Culture of other alternate species. As to the Intervenor's concerns about alternate finfish species, the Department declared the application to be complete after an initial review that included a determination that adequate information had been presented about culture techniques for the species other than salmon (i.e., halibut (*Hippoglossus hippoglossus*), arctic char (*Salvelinus alpinus*), and Atlantic cod (*Gadus morhua*). These species are obviously not the primary focus of aquaculture at the proposed south site, and Mr. Miller testified that the likelihood that Phoenix would stock cod at the site was "low" (Miller/Hamilton).

All of these species can be legally cultivated in Maine; except for Arctic char, they all are authorized to be cultivated at the north site. Department biologists did not recommend denying permission to culture these species, and no evidence was presented to support denying such permission. Culture of these species will therefore be granted. Permits from the Department are required before any species of fish can be stocked at the site.

Summary. The evidence supports a finding that the marine life on the site or in its vicinity will not be adversely affected to any significant degree by the proposed aquaculture operation. Deposition problems at the north site will not affect the south site. Deposition problems are unlikely to develop at the south site, but if they do, they will not affect the north site. The monitoring required by the MEPDES permit will disclose any problems that may develop on the south site, and these can be addressed by DEP and DMR and remedied by the leaseholder.

DMR and the Fish Health Technical Committee will address fish health issues in the course of issuing transfer permits.

Therefore, I find that the aquaculture activities proposed for this site will not unreasonably interfere with the ability of the lease site and surrounding areas to support existing ecologically significant flora and fauna, provided that the applicant consults with DEP before planting mussels on the bottom and that mussels grown on this lease site, whether by bottom or suspended culture, be harvested only with six months' notice to, and a harvest permit from, the DMR Public Health Division.

E. Public Use & Enjoyment

According to both Mr. Miller and the site report (Miller, testimony; SR6), there are no government-owned beaches, parks, or docking facilities within 1,000 feet of the proposed lease site. According to information provided by the State Planning Office, there are no government-owned conserved lands located within 1,000 feet of the proposed lease site (see maps in case file, Exhibit 1).

Therefore, I find that the aquaculture activities proposed for this site 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.

F. Source of Organisms

The application indicates that the sources of stock for this proposed lease site are as follows: Atlantic salmon (*Salmo salar*) stock will come from company-owned hatcheries. Halibut (*Hippoglossus hippoglossus*) and Atlantic cod (*Gadus morhua*) will come from DMR certified sources such as the University of Maine or GreatBay Aquaculture. Arctic char eggs *(Salvelinus alpinus*) "would be obtained from an approved source (such as Pisciculture Des Alleguanys of Quebec)." Mussel spat (*Mytilus edulis*) will be collected locally from the wild (A1).

Therefore, I find that the applicant has demonstrated that there is an available source of stock to be cultured for the lease site.

G. Light

The application states that "100, 400 watt submerged lights might be used to control maturation" and that lights would otherwise not be used at the site except in "unusual circumstances such as storm events and possible harvesting" (A6). Mr. Miller testified that underwater lights will be used to prevent early maturation of the salmon (Miller, testimony; PS 12).

The site report notes that any lights used to control maturation would be used between November and May and would be under water. It is also possible that the U.S. Coast Guard Office of Private Aids to Navigation might require lights to mark the site (SR7).

DMR Rule 2.37 (1) (A) (8) requires applicant to demonstrate that all reasonable measures will be taken to mitigate light impacts from the lease activities. Any lighting required for navigation by the U.S. Coast Guard will clearly be a reasonable use of light. Underwater husbandry lights, if used at this site, would have minimal impact on the surrounding area, particularly considering that they would be operated at a time of year when use of Black Island is likely to be minimal.

Therefore, I find that the aquaculture activities proposed for these sites will not result in an unreasonable impact from light at the boundaries of the lease site.

H. Noise

The site report states:

> The applicant has proposed using diesel powered feed barges and work barges, a net roller, outboard and inboard powered boats, a portable welder/generator and a pressure washer. The applicant states that each of these is equipped with a muffler. Each of these pieces of equipment generates noise levels similar to those currently occurring from fishing and other vessel activity in the area. Noise levels would be similar to those produced at the existing Black Island lease site.

DMR Rule 2.37 (1) (A) (9) requires applicant to "demonstrate that all reasonable measures will be taken to mitigate noise impacts from the lease activities." It provides that "All motorized equipment used during routine operation at an aquaculture facility must be designed or mitigated to reduce the sound level produced to the maximum extent practical."

The equipment will be muffled and will be used during daylight hours only. The nearest land, Black Island, is mainly undeveloped. A salmon farm has operated at this location using similar equipment since 1999. Noise generated by operations on the site is unlikely to have a significant effect at the boundaries of the lease.

Therefore, I find that the aquaculture activities proposed for this site will not result in an unreasonable impact from noise at the boundaries of the lease.

I. Visual Impact

The application states that, while "colors are subject to change", the gear colors are: cages are black, nets are red, bird cover is black, and the feeding system barge is almond or gray. The low profile of the pens, as well as their dark color, reduces their visual impact. The barge used for storing feed and feeding the fish measures 23 ft. long by 33 ft. wide by 14 ft. high. The application shows the feed barge as having 2.5 m of freeboard (8.2 ft.) when loaded, and 4.24 m. of freeboard (13.9 ft.) when empty (A29); this is the effective height of the top of the barge above the waterline, which is well below the 20-ft. limitation in the visual impact rule.

The site report notes that "No building is planned as part of this proposal" (SR7).

The visual impact rule 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. A salmon farm has operated near this location using similar equipment since 1999. The black pens and nets will blend with the surroundings. Navigation markings will be reviewed by the Coast Guard. The lease operations as proposed will meet the requirements of the visual impact criteria in DMR Rule 2.37 (1) (A) (10), provided the colors of the equipment continue to blend with the surroundings. Marking buoys required by DMR and any navigation lighting required by the U.S. Coast Guard should be visible by their nature.

Therefore, I find that the proposed lease will comply with the visual impact criteria contained in DMR Regulation 2.37 (1) (A) (10).

4. CONCLUSIONS OF LAW

Based on the above findings, I conclude that:

1. The aquaculture activities proposed for this site will not unreasonably interfere with the ingress and egress of any riparian owner.

2. The aquaculture activities proposed for this site will not unreasonably interfere with navigation. The lease site shall be marked in accordance with U. S. Coast Guard requirements.

3. The aquaculture activities proposed for this site will not unreasonably interfere with fishing or other uses of the area, taking into consideration the number and density of aquaculture leases in the area. The lease boundaries must be marked in accordance with the requirements of DMR Rule 2.80. Dragging will be prohibited on the lease site. Lobstering will be permitted on the site outside the shadow of the mooring grid.

4. The aquaculture activities proposed for this site will not unreasonably interfere with the ability of the lease site and surrounding areas to support existing ecologically significant flora and fauna. The applicant must consult with DEP before planting mussels on the bottom. Mussels grown on this lease site, whether by bottom or suspended culture, may be harvested only with six months' notice to, and a harvest permit from, the DMR Public Health Division.

5. The aquaculture activities proposed for this site will not unreasonably interfere with the public use or enjoyment within 1,000 feet of beaches, parks, docking facilities, or conserved lands owned by municipal, state, or federal governments.

6. The applicant has demonstrated that there is an available source of Atlantic salmon (*Salmo salar*), halibut (*Hippoglossus hippoglossus*), arctic char (*Salvelinus alpinus*), Atlantic cod (*Gadus morhua*), and blue mussels (*Mytilus edulis*) to be cultured for the lease site.

7. The aquaculture activities proposed for this site will not result in an unreasonable impact from light at the boundaries of the lease site.

8. The aquaculture activities proposed for this site will not result in an unreasonable impact from noise at the boundaries of the lease site.

9. The aquaculture activities proposed for this site will comply with the visual impact criteria contained in DMR Regulation 2.37(1)(A)(10).

Accordingly, the evidence in the record supports the conclusion that the proposed aquaculture activities meet the requirements for the granting of an aquaculture lease set forth in 12 M.R.S.A. §6072.

5. DECISION

Based on the foregoing, the Commissioner grants the requested lease of 38.5 acres to Phoenix Salmon US Inc. for ten years for the purpose of cultivating Atlantic salmon (*Salmo salar*), halibut (*Hippoglossus hippoglossus*), arctic char (*Salvelinus alpinus*), Atlantic cod (*Gadus morhua*), and blue mussels (*Mytilus edulis*), using net pen and suspended culture techniques. The applicant shall pay the State of Maine rent in the amount of $100.00 per acre per year. The applicant shall post a bond or establish an escrow account pursuant to DMR Rule 2.40 (2) (A) in the amount of $ 25,000.00, conditioned upon its performance of the obligations contained in the aquaculture lease documents and all applicable statutes and regulations.

6. 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 (7-B)[8] 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.

[8] 12 MRSA §6072 (7-B) 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."

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. Dragging is prohibited on the lease site. Lobstering and crabbing are permitted on the lease site, outside the shadow of the mooring grid.

3. The applicant must consult with DEP before planting mussels on the bottom. Mussels grown on this lease site, whether by bottom or suspended culture, may be harvested only with six months' notice to, and a harvest permit from, the DMR Public Health Division.

7. REVOCATION OF LEASE

The Commissioner may commence revocation procedures if s/he determines that substantial aquaculture has not been conducted within the preceding year or that the lease activities are substantially injurious to marine organisms. 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.

Dated: 3/21/11

/s/ Norman H. Olsen
Norman H. Olsen
Commissioner
Department of Marine Resources