

Draft Fact Sheet

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Fact Sheet – AquaCon Maryland, LLC
Application Number: 21DP3867
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MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER AND SCIENCE ADMINISTRATION
INDUSTRIAL AND GENERAL PERMITS DIVISION

SUMMARY REPORT AND FACT SHEET

The Region III EPA Permit Checklist has been used as a guide to the permit review process. The results of the review and supporting rationale for the draft permit are summarized below. Supporting documents are attached including the application status memo, draft permit, application, and copies of the previous fact sheet and previous permit's cover page and special conditions.

Permit Type:	WMA1	Project Type:	Industrial/Surface/New
State Application No.:	21DP3867	EPA No.:	MD0072184
Application Received:	9/22/2020	Permit Expiration:	N/A – New Permit
Basin Code:	02130306	Basin Name:	Nanticoke River Watershed
Legal Name of Applicant:	AquaCon Maryland, LLC		
Mailing Address:	100 N W St. Easton, MD 21601		
Facility Name:	AquaCon - Federalsburg		
Location:	Frank Adams Industrial Park Between Frank Adams Industrial Way and Wright Road, Federalsburg, MD 21632		
County:	Caroline County		
Contact (Name, Title):	Ryan Showalter, Legal Representative		
Contact Address:	100 N W St., Easton, MD 21601		
Contact Phone:	410-820-0222	FAX:	
Contact Email:	rshowalter@mdswlaw.com		
SIC Code(s):	0273 Aquaculture and 2092 Prepared Fresh Seafoods		
Applicant discharges from:	A Norwegian Salmon rearing facility and Seafood Processing Operation		
Via Outfall:	001		

RECEIVING WATER INFORMATION

Name of Receiving Water Body (& any Comments):	Designated USE Class	Salinity	Tidal	Discharge to Tier II Waters
Marshyhope Creek	I	No	Yes	No
MD Coordinates of Facility:	East:	1670.1	North:	374.98
Project Mgr.:	Lillian Myers	Subject to EPA Review:	Yes	
Phone:	410-537-3323	Assigned:	9/22/2020	
Site Visit(s) Dates:	2/20/2020 (IMET)			
Date Completed:	2/24/2022	Revision Dates:	3/25/22	6/1/22
			4/04/22	
Reviewed by:	Jonathan Rice	(Initial) JR	Date: 3/25/22	
Accepted by:	Paul Hlavinka	(Initial) PSH	Date: 4/4/22	

I. Summary of Changes from the Previous Permit

N/A – New permit.

II. Description of Facility and Activities Generating Discharge

AquaCon is a Norwegian company with plans to build a facility in Maryland to rear Salmon for processing and consumption. At the time of permit issuance, the facility is not yet built but will be located in the Frank Adams Industrial Park in Federalsburg, MD. Once at full production capacity, it will produce up to 15,000 metric tons of salmon annually.

The facility, which will be about 25-acres, will include 19 RAS systems to process the fish waste and clean the system water allowing for 99% water recirculation. This will result in the production of methane gas, which will be burned to act as a power source for the facility, and a nutrient rich solid that will be dried and sent off site as a fertilizer for the agriculture industry.

The remaining 1% of their water will be a combination of sanitary wastewater, seafood processing wastewater, and what they call “Purge water”. All sanitary and seafood processing wastewater will be directed to the Town of Federalsburg Wastewater Treatment Plant, which has capacity to handle the roughly 50,000 gallons per day (gpd).

Purge water is generated just prior to harvesting. As a result of the water re-use, bacteria which build up in the system generate a hydrocarbon molecule called Geosmin, which builds up in the fish and produces a muddy smell and taste. To remove the Geosmin, feed will stop for 3 days and then fish will get moved to 15 “purge” tanks where food is withheld for an additional 6 days. This purge process will require a continuous discharge of about 2.3 million gallons per day (MGD).

Prior to discharge, all water will be treated with UV, filtered through microscreen to remove any remaining suspended solids, and then discharged to surface water through a 10 inch PVC pipe onto a rip rap that is roughly 41’ long x 11’ wide x 19” deep and then into the Marshyhope Creek, a Use I water.

III. Review of Stormwater Pollution Prevention Plan (SWPPP)

There will be industrial stormwater coverage required for this facility as a seafood processor, and any SWPPP requirements will be confirmed under that permit authorization.

IV. Results of File Review

February 20, 2020, we toured the Institute of Marine and Environmental Technology (IMET), University of Maryland, Baltimore County (UMBC), Columbus Center. The UMBC has been working with AquaCon for best practices to use at the proposed facility and to develop their RAS system.

We met with Maine authorities who were involved with the permits for two RAS systems in that State. We were provided with permits and studies to review in developing the limits for this permit. The most notable difference between these two operations and the one proposed in Maryland is that the Maine RAS systems have much larger discharge volumes, and also include wastewater, whereas the system in Maryland is just discharging the purge water. It should also be noted that when we discussed the topic of Geosmin with Maine, they stated that they had no concerns about it because of how quickly it is broken down in the environment by naturally occurring bacteria.

Our permit addresses the concern through the implementation of a Geosmin study. Should it prove to have a negative effect on the fishing industry, there are options available such as biofiltration, the addition of sand filters seeded with

Geosmin degrading bacteria, and the addition of oxidation processes, which could be used to reduce the Geosmin concentration.

ME DEP Whole Oceans Permit (ME003748 2018)

Permit for

- Discharge of treated sewage water 18.6 mill gallons per day (AquaCon: 2.3 million gallons per day)
- Initial 11 million pounds production, final: 44 million pounds of 11-12 lb salmon (AquaCon: 35 million pounds)
- Receiving water standards – ME’s 3rd highest classification
- Limits for flow, BOD, TSS, TN, pH, TP, ammonia, toxicity, escapement

Requirements

- Monitoring¹
- Dye study
- O&M plans for production and wastewater facility
- limits and reporting on antibiotics, biocides, and other chemical compounds²
- containment system to prevent escaped fish
- reporting of fish food composition

¹Many surveillance and reporting requirements on discharge and changes to discharge resulting from changed rearing practices

²FDA-approved drugs allowed including Formalin, tetracycline, and others – these biocides must be monitored on a daily basis. Any other drugs must be approved by the state prior to use

Conclusions

- Discharges will not lower quality of any classified body of water (lower Penobscot River and P. Bay)
- Recognized risks (“Upsets”) include power failure, spills, municipal sewer failure

Normandeau Biological Assessment on ESA species effects for Nordic Aquafarms (Belfast Aquafarms BA...),

Planned Project

- Belfast ME on Penobscot Bay (Belfast Bay)
- 66 million pound production
- Discharge 7.7 million gallons per day, 55 ft depth, pipes raised 8 ft about seabed

Key Effects in Assessment

- Construction and permanent siting of intake and discharge structures through upland, wetland, and seabed habitats
- Impingement and escapement related to intake
- Impacts on ESA species: Atlantic, shortnose sturgeon; Atlantic salmon, sea turtles

Findings

- Affected areas not designated as critical habitat for Atlantic or shortnose sturgeon, or any other ESA species
- Some effects possible on juvenile (sub-adult) Atlantic sturgeon, but these fish are strong swimmers and likely evade harm

V. Results of Studies

Since this is a new permit, there were no studies required as part of a previous permit.

VI. Results of a Review of the Compliance History -

N/A – New Permit. There is no compliance history for this facility.

VII. Description of Receiving Stream(s)

The Marshyhope Creek is approximately 38 miles long and is tidal from the mouth of the creek for approximately 10 miles upstream to a point about 1.4 miles north of the Town of Federalsburg. The proposed location of the discharge from the purge tanks to the Marshyhope Creek is located on the east side of the Marshyhope Creek just north of the MD Route 313 Bridge over the Marshyhope Creek. The discharge point will be just outside of the federally designated critical habitat for the State and Federally listed Atlantic sturgeon in the Marshyhope Creek which ends at the Rt. 313 bridge. However, monitoring of radio-tagged Atlantic sturgeon shows that sturgeon do swim up the Marshyhope beyond the Rt. 313 bridge. Marshyhope Creek is the only know current spawning area for Atlantic sturgeon in Maryland.

The use of groundwater to supply 2.3 million gallons of water/day to the purge tanks will mean a continuous discharge of cool, freshwater into the brackish, tidal waters of the Marshyhope Creek. The applicant has stated previously that the discharge would represent 8-15% of the flow of the Marshyhope Creek. The Marshyhope Creek at the proposed point of discharge is a narrow waterbody being approximately 225 feet in width at mean high water. The width and volume of the creek would be less during low tide and especially under any periodic extreme low tides.

VIII. Outfall Details

Table 1: Outfall Characteristics

Outfall or Monitoring Point #	Discharge Monitoring Location	Waste Streams Contributing to the Discharge	Average Flow (MGD)	Comments	Outfall Coordinates (in 1000 ft)	
					Northing	Easting
001	End of Pipe	Salmon Raceway Purge Water	2.3	Discharge leaves pipe and passes through a rip-rap channel to disperse flow and through a wetland.	374.09	1663.5
Total			2.3			

IX. Detailed Assessment of Liquid Waste - Outfall 001

Table 2: Outfall 001 Waste Stream Characteristics

Type of Wastewater Discharged:	Salmon raceway purge water		
Treatment Unit:	UV treatment, rip-rap channel, and man-made wetland.		
Discharge Type:	Continuous	Period:	24x7x365
Potential Basis for Whole Effluent Toxicity Testing(Biomonitoring):	COMAR 26.08.03.07D(1)(b) requires biomonitoring for all industrial dischargers with a wastewater flow greater than or equal to 1 MGD. However, COMAR 26.08.03.07D(2)(b)(i) allows the Department to modify such requirements on a case-by-case basis based on specific conditions of the discharge. Given the nature of this wastestream as water in which salmon are grown, the Department has determined it would not be appropriate to require biomonitoring.		

Assessment of Nutrients (Total Nitrogen (TN) & Phosphorus (TP) and Total Suspended Solids (TSS) in the Discharge

The applicant has provided us with expected effluent concentrations of various constituents of concern, as found in Table 5 below. Based on these values, the estimated annual loading for total nitrogen, total phosphorus, and total suspended solids are as follows:

$$\text{Average Annual Flow (in MGD)} \times \text{Concentration (in mg/l)} \times 8.34 = \text{Annual Load (in pounds/day)}$$

$$\text{Annual Load (in pounds/day)} \times 365 \text{ days/year} = \text{Annual Load (in pounds/year)}$$

$$2.3 \text{ MGD} \times 0.77 \text{ mg/L TN} \times 8.34 = 14.77 \text{ lbs/day TN}$$

$$14.77 \text{ lbs/day} \times 365 = \mathbf{5,391 \text{ lbs/year TN}}$$

$$2.3 \text{ MGD} \times 0.176 \text{ mg/L TP} \times 8.34 = 3.37 \text{ lbs/day TP}$$

$$3.37 \text{ lbs/day} \times 365 = \mathbf{1,230 \text{ lbs/year TP}}$$

$$2.3 \text{ MGD} \times 1.38 \text{ mg/L TSS} \times 8.34 = 26.47 \text{ lbs/day TSS}$$

$$26.47 \text{ lbs/day} \times 365 = 9,661 \text{ lbs/year or } \mathbf{4.83 \text{ tons/year TSS}}$$

This facility will be using intake from a groundwater well within the watershed and therefore it is relevant to consider background levels of both the intake water and the receiving water to determine the net discharge. Tables 3 and 4 provide the average background levels acquired by sampling done by AquaCon.

Table 3: Marshyhope Creek Background Levels

Pollutant	Average Result	Unit
Turbidity	4.9	NTU
Salinity	ND	
Total Suspended Solids	1.76	mg/L
pH	6.8	S.U.
Ammonia	ND	

Table 4: Outfall 001 Process Water Characteristics

Pollutant	Maximum Value		Average Value		Units		Source of Data
	Conc.	Other	Conc.	Other	Conc.	Other	
Biochemical Oxygen Demand (BOD)	5.55				mg/L		Applicant
Total Suspended Solids (TSS)	1.38				mg/L		Applicant
Ammonia (as N)	0.67				mg/L		Applicant
Flow		2.3		2.3		MGD	Applicant
Temperature				56		°F	Applicant
Total Nitrogen (TN)	0.770	5,391			mg/L	Lbs/year	Applicant
Total Phosphorus (TP)	0.176	1,230			mg/L	Lbs/year	Applicant

Note: Applicant isn't expecting any salinity in the effluent.

X. Total Maximum Daily Load (TMDL) Status of the Receiving Waters from Outfall 001

1. **TMDLs REQUIRED (Listing Category 5)**

Marshyhope Creek was listed as impaired for total suspended solids in 2012.

2. **TMDLs COMPLETED (Listing Category 4a)**

The Marshyhope Creek TMDL¹ for phosphorus was approved by EPA on February 13, 2001.

The Chesapeake Bay TMDL² which applies to this facility was issued on December 29, 2010. The Bay TMDL has been reviewed and the Total Nitrogen available for AquaCon is limited to 4,700 lbs/year, therefore limits are appropriate.

3. **DELISTED PARAMETERS – WQA_s**

None

4. **PARAMETERS THAT MIGHT BE AFFECTED BY APPROVAL OF A NEW TMDL**

This facility may be affected by the promulgation of a TMDL for total suspended solids based on the nature of the discharge.

XI. Antidegradation Review of the Receiving Stream for Outfall 001

This discharge does not go (directly or downstream) to Tier II waters. Consequently this permit has been constructed to protect and maintain the receiving streams' existing uses and the basic uses associated with its designated Use.

¹ Total Maximum Daily Loads (TMDLs) of Phosphorus for the Marshyhope Creek, Dorchester and Caroline Counties, Maryland, February 13, 2001.

² Chesapeake Bay Total Maximum Daily Load for Sediments, Nitrogen and Phosphorus, December 29, 2010 (76 Fed. Reg. 549).

XII. Standards

Table 5: Technology Standards

#	Pollutant	Maximum Value		Average Value		Units		Regulatory Basis
		Conc.	Other	Conc.	Other	Conc.	Other	
1	pH				6.0-9.0		S.U.	BPJ ³ for treatment systems.
2	Biochemical Oxygen Demand (BOD5)	45		30	mg/l			BPJ ³ – based on secondary treatment standards for POTWs
3	Total Suspended Solids (TSS)	45		30	mg/l			BPJ ³ – based on secondary treatment standards for POTWs

Table 6: Water Quality Criteria

#	Pollutant	Maximum Value		Average Value		Units		Regulatory Basis
		Conc.	Other	Conc.	Other	Conc.	Other	
4	Dissolved Oxygen (DO)	5.0 (min)				mg/L		COMAR 26.08.02.03-3D
5	pH				6.5-8.5		S.U.	COMAR 26.08.02.03-3E and 26.08.02.03-3A
6	Ammonia	2.8 – 6.67		4.79		mg N/L		COMAR 26.08.02.03-2I
7	Temperature	90						COMAR 26.08.02.03-3D
8	Turbidity		150		50		NTU	COMAR 26.08.02.03-3D

XIII. Overall Rationale for Effluent Limitations and Monitoring in the Draft Permit

On June 30, 2004, EPA's Acting Deputy Administrator signed a final rule to establish wastewater controls and associated effluent limitation guidelines for concentrated aquatic animal production (CAAP) facilities (40 CFR 451; 69 FR 51892). The rule establishes best management practices (BMPs) that must be followed by CAAP facilities (which are included in Special Condition Q) but does not specify any numeric limits or monitoring guidelines, instead suggesting limits be applied via BPJ on a site-specific basis. Process water from the processing of the salmon is not directed to surface water, but rather to the POTW, so the limits are not included in this permit. Therefore, the data submitted for the facility was considered in conjunction with technology and water quality standards to develop parameters for the permit, as detailed below.

³ Best professional judgment

XIV. Outfall 001 Rationale for Effluent Limitations and Monitoring

The following explanations of the rationale for including the parameters in the permit are provided below.

Geosmin – No specific limit based on toxicity, however we are requiring study below under Special Condition T to address concerns that it can impact the taste of other fish in the receiving water.

Flow – Monitoring and reporting flow is standard in all individual permits.

Biological Oxygen Demand (BOD) – BOD was identified in other RAS permits as a parameter of concern, thus limits are appropriate here.

This permit doesn't include any waste streams that would be require advanced treatment, such as seafood processing wastewater or sanitary sewage. This is a significant difference from the other state issued permits referenced. The intended discharge is only purge water. Out of abundance of caution, we are including similar best professional judgement (BPJ) technology based limits of 30 mg/L average and 45 mg/L maximum, to ensure the discharge would never exceed the pretreatment standards required for waste water treatment.

Total Suspended Solids (TSS) - TSS was identified in other RAS permits as a parameter of concern, thus limits are appropriate here. This permit doesn't include any waste streams that would be require advanced treatment, such as seafood processing wastewater or sanitary sewage. This is a significant difference from the other state issued permits referenced. The intended discharge is only purge water. Out of abundance of caution, we are including similar best professional judgement (BPJ) technology based limit of 30 mg/L average and 45 mg/L maximum.

Dissolved Oxygen (DO) – DO was identified in other RAS permits as a parameter of concern, thus limits are appropriate here. We are applying a water quality-based limit of 5.0 mg/L minimum.

Nutrients – This permit solely limits tank purge water. All other process wastewater streams, from the sanitary and RAS systems, are being directed to the Federalsburg WWTP for treatment and discharge subject to the NPDES permit limitations for that facility. The Federalsburg WWTP has its own allocations in the Chesapeake Bay TMDL and in the Marshyhope Creek TMDL and AquaCon will follow any pretreatment protocols required by the WWTP to stay within their limits. Discharges under this permit will be independent of those which will be sent to Federalsburg.

The discharges regulated by this permit will also contain some level of nitrogen and phosphorus. For total phosphorus, the discharges must comply with both the Chesapeake Bay TMDL and the local Marshyhope Creek TMDL. The facility currently has no load assigned to it in the Marshyhope Creek TMDL. Therefore, in order to comply with that TMDL, the permittee must offset any gross load which they discharge. The most common means for this offset would be obtaining loads which are currently assigned to other facilities. In order to provide an absolute maximum that may be discharged from this facility directly, the Department has determined it is appropriate to apply a load calculated based on the effluent data and projected flow provided in the permit application. Thus, the gross load from the facility will be limited to 105 lbs/month and 1,260 lbs/year. The permittee will be required by Special Condition X to obtain offsets for the actual gross loading each year and report those to the Department. Achieving the offset requirements within the local TMDL will also ensure compliance with the Chesapeake Bay TMDL with regards to TP.

For total nitrogen, the water quality limitations are driven solely by the Chesapeake Bay TMDL. According to data provided by the permittee, the loading from the facility is anticipated to be approximately 5,400 lbs/year. However, only 4,700 lbs/year is currently available in the Bay TMDL to comply with the insignificant loading target for the applicable subwatershed. This is notably less than the estimated 5,400 lbs projected for discharge from the facility. The permit contains an annual loading limit of 4,700 lbs/year to comply with the TMDL as needed to meet this limitation. Special Condition X of the permit includes a reference to these options.

At the time when this factsheet is being drafted, the permittee’s plan is to coordinate compliance efforts with Federalsburg WWTP and the Town of Federalsburg to generate such offsets for both TN and TP.

The target for insignificant industrial facilities in Maryland’s Phase III Watershed Implementation Plan (WIP) for the Chesapeake Bay TMDL is to reduce loads of total nitrogen by 33% as an aggregate⁴. As a result, the Department is including a goal for the permittee to discharge 33% less than the nitrogen load they have been allocated (the goal would be 3,149 lbs/year or lower). Status towards achieving the goal shall be updated in an annual report. This nutrient goal is not an effluent limitation, but the permittee will be required to provide justification for any years when they are unable to achieve the goal.

pH – The pH was identified in other RAS permits as a parameter of concern, thus limits are appropriate here. Limits of 6.5 to 8.5 are selected based on water quality criteria due the volume of the discharge. We can’t assume enough buffering capacity of the receiving waters for the less stringent pH of 6-9.

Fish Processed – Since the Department anticipates similar operations in the state, having data on Fish Processed will allow the Department to compare size of operations and support future permit decisions. Thus no limit is proposed here, only reporting.

Salinity – The Department does not anticipate that salinity will be a significant concern, but in order to verify, it is appropriate to include monitoring in the permit.

Conductivity – This parameter was included for record keeping purposes.

Conductivity Difference – This condition only goes into effect if salt has to be added for the maintenance of the salmon to make sure that the discharge remains in range safe for native fish species.

Temperature – This is included to ensure that the temperature of the discharge is monitored and reported independently of the temperature difference for tracking purposes.

Temperature Difference – For Use I waters, the water quality standard for temperature is 90°F. Typically, discharges with reasonable potential to affect temperature would be limited to 90°F a maximum at either the end-of-pipe or the edge of an allowable mixing zone. However, the Department has determined that additional limitations are necessary because of the sensitive nature of the receiving water with regards to supporting spawning and nursery habitat in the region. Temperature both initiates spawning in some fish and, for migratory fish, can determine where they spawn. The limit for the permit has been established as a temperature difference of 2°C over a 24-hour average based on the thermal mixing zone criteria defined at 26.08.03.03-D(2)(b). Per COMAR, the applicable mixing criteria requires the temperature difference be met at the edge of a 120 ft mixing zone (50% of the accessible width of the stream at point of discharge) and based on rate of flow of the stream extends to how far it travels 6 hours downstream. The limit in the permit will be 120 ft from point of discharge.

Arsenic - Arsenic is a naturally occurring element in certain aquifers on Maryland’s Eastern Shore, and since the source water will be either solely groundwater, or a mixture of ground and stormwater, this had been included as a report only limit with the potential to expand should the levels in the discharge be unsafe.

⁴ Maryland’s Phase III Watershed Implementation Plan to Restore Chesapeake Bay by 2025. August 23, 2019. Appendix B.p.B-49.

XV. Rationale for Special Conditions in the Draft Permit

- B. **DEFINITIONS** - Definitions were selected from a standard list so that only the definitions relevant to this permit are included.
- C. **TOXIC POLLUTANT REPORTING** - This condition is to address the release of any toxic pollutants not anticipated in the permit review process (standard inclusion).
- D. **REMOVED SUBSTANCES** – This condition is to assure pollutants do not reach State waters by some other route (standard inclusion, activated only if the Department determines a potential need for this information).
- E. **ANALYTICAL LABORATORY** - This condition is included in the event the Department needs to know who is conducting testing (standard inclusion).
- F. **WASTEWATER OPERATOR CERTIFICATION** - Required under COMAR 26.06.01. The certification requirement assures that only a properly trained person is operating the wastewater treatment system.
- G. **FLOW MONITORING** - This requirement attempts to assure that flow is monitored competently (standard inclusion).
- H. **FLOW BASIS FOR ANNUAL DISCHARGE PERMIT FEE** – This condition is marked [Reserved] because there is no fee for aquaculture discharge permits.
- I. **REAPPLICATION FOR A PERMIT** - This condition was added to all new/renewal permits to comply with current watershed permitting requirements, and to assure the Department receives applications in time to reissue permits in accordance with the new watershed-based schedule.
- J. **PERMIT REOPENER FOR TOTAL MAXIMUM DAILY LOAD (TMDL)** - This condition allows the permit to be reopened if a TMDL is issued for the watershed in which the facility resides, and alerts the permittee that finalization of a TMDL is cause to reopen the permit.
- K. **BIOMONITORING PROGRAM** – This condition is marked [Reserved] because Biomonitoring is not required for this facility.
- L. **TOXICITY REDUCTION EVALUATION** - This condition is marked [Reserved] because there will be no toxicity data to review.
- M. **MIXING ZONES AND POLLUTION PREVENTION** - This condition was added to all new/renewal permits to encourage permittees to implement measures toward the elimination of mixing zones for toxics pursuant to the goals established in the “Chesapeake 2000 Agreement” - a comprehensive agreement among Maryland and other states, the U.S. Environmental Protection Agency, and the Chesapeake Bay Commission for the restoration of the Chesapeake Bay. The goal of eliminating toxic pollutants in discharges generally and eliminating the use of mixing zones in particular will not be attainable by wastewater treatment alone. Therefore, the Department is encouraging permittees to establish a pollution prevention program that will contribute to the attainment of this goal. The condition is marked [Reserved] in this permit since there are no toxic discharges from the facility that require a mixing zone to meet water quality standards.

- N. **PROTECTION OF WATER QUALITY** – This condition puts the permittee on notice that there are occasions when they may be held accountable for failure to comply with state water quality standards regardless of whether there is a specific limit in the permit.
- O. **USE OF SUFFICIENTLY SENSITIVE TEST METHODS** – This condition assures that the permittee analyzes samples with test methods sensitive enough to detect pollutants at or below their permit limits. While its terms have always been required, the addition of this condition is new to this renewal, per the Department's recent decision to include it in all NPDES permits.
- P. **ADDITIONAL MONITORING** - Because critical effluent monitoring data cannot be obtained prior to issuance of a permit, this requirement enables the Department to obtain data after a permit is issued. It requires the permittee to complete sampling for all parameters in Table A, Table B Section 1, and Table C (except radioactivity parameters) of EPA Form 3510-2C and submit results within 6 months of commencing discharge.
- Q. **AQUACULTURE CONSIDERATIONS** – This condition (as referenced in Section XIII of this fact sheet: “Overall Rationale for Effluent Limitations”) is standard in all recent aquaculture permits and contains text from 40 CFR §451.11-13. It is required based on established ELGs corresponding to this facility.
- R. **THERMAL MIXING ZONE** – This condition requires the permittee to ensure compliance with the temperature conditions of the permit. This will ensure protection of important fish species and their habitat in this established nursery.
- S. **FLOODING ASSESSMENT** – This condition addresses the potential for flooding impacts both upstream and downstream based on the new flows to the Marshyhope based on this operation. The Marshyhope Creek at Federalsburg is tidal. Therefore, the water being discharged under this permit will be moving in both directions from the discharge point depending on the tide, which is why it includes both up and down stream. It also requires the regular maintenance of any onsite SWM, which must meet the state standards for stormwater management.
- T. **GEOSMIN STUDY PLAN** – Due to concerns about potential unfavorable taste in fish in this important waterway used for subsistence fishing, a baseline and future impact of geosmin in fish is required. Based on the results, additional controls may be required in the future. For clarity, specific fish species of concern have been listed, through consultation with DNR, that must be included in the study.
- U. **CHEMICALS AND ADDITIVES** – This condition is fairly standard for individual permits. The facility does not plan on using chlorine for sanitation of the purge tanks or antibiotics. However other RAS permits allow use for the use of these as part of standard operation. The condition requires that any such chemical or additives get prior approval from the Department. It marks the approved additives now as [Reserved].
- V. **OUTFALL IDENTIFICATION** – This is a new discharge and since the discharge is separate from the facility, it is important for those interested parties to understand there is a permit and how to access information on the permit. This condition has requirements to maintain signage. This is also important for inspectors to understand where monitoring occurs.
- W. **NOTIFICATION OF START OF DISCHARGE** – This is a new discharge, and notification is important so that the Department is aware of when the facility is in operation and when discharge monitoring reporting will begin.

- X. **NUTRIENT OFFSET PLAN** – The TP limits are based on the specific allocation available in the TMDL. The TN loads are goals established based on the estimates. The permittee will be required to report the actual discharge concentrations using NetDMR, however for the reduction goals, an annual report will be required to quantify the actual load and their ability to achieve the goals. After actual effluent data is received, the Department can review and determine if reduced load limits are appropriate. For any exceedance of nutrients, trading consistent with the states trading program would be required.

- Y. **STORMWATER ASSOCIATED WITH INDUSTRIAL ACTIVITIES** – This condition is included since NPDES permit coverage for stormwater associated with industrial activity is required for seafood processing operations. Application is required prior to operation.

Appendix: References

Maine (MEPDES) Permit #ME0037478 for Whole Oceans, LLC for Land Based Aquaculture in Bucksport, Hancock County, Maine.

Maine (MEPDES) Permit #ME0002771 for Nordic Aquafarms Inc, for Land Based Aquaculture in Belfast, Waldo County, Maine.

Biological Assessment for the Nordic Aquafarms Belfast, Maine Facility, Nordic Aquafarms (Nordic) is proposing the construction and operation of a land-based Atlantic salmon aquaculture facility in Belfast, Maine. Prepared for Ransom Consulting, LLC On behalf of Nordic Aquafarms, March 11, 2020

Nordic Aquafarms, Inc, Biosecurity Memo, 5/6/2020

Nordic Aquafarms, Inc., Biological Assessment Supplement, File No. NAE-2019-0148, June 4, 2020 Responses to Question on Phosphorus

NIRAS, Press Release, March 23, 2021. Award-winning biogas plant brings the Faroe Islands closer to climate goals

Industry body expels Shetland salmon producer Hjaltland, BBC, 30 April 2014

RAS company Mowi Scotland plans smolt facility, RAS Tech Magazine, March 23 2021

McDowall, Bridget, et al. "Enhancing the biofiltration of geosmin by seeding sand filter columns with a consortium of geosmin-degrading bacteria." *Water Research* 43.2 (2009): 433-440.