
North Coast Regional Water Quality Control Board

Response to Written Comments Draft Waste Discharge Requirements Order No. R1-2023-0019 National Pollutant Discharge Elimination System (NPDES) For Nordic Aquafarms California, LLC and Humboldt Bay Harbor, Recreation and Conservation District Regional Water Quality Control Board, North Coast Region October 5, 2023

Comments Received

The deadline for submittal of public comments regarding draft Waste Discharge Requirements for Order No. R1-2023-0019, National Pollutant Discharge Elimination System Permit (Draft Permit) for Nordic Aquafarms California, LLC and Humboldt Bay Harbor, Recreation and Conservation District (Permittees) Aquaculture and Processing Facility (Facility) was August 23, 2023. Regional Water Board staff (Staff) received written comments from the Permittees, California Department of Fish and Wildlife (CDFW), the Humboldt Baykeeper, and the California Coastal Commission (CCC). Staff also received 25 letters of support for the project that are discussed at the end of this document.

This Response to Comments document includes the comments received from each of these commenters, followed by Regional Water Board staff response to each comment. Additionally, this Response to Comments document includes a summary of staff-initiated changes made to the Permit. Text added to the Proposed Permit is identified by underline and text to be deleted from the Proposed Permit is identified by strike-through in this document. The term “Draft Permit” refers to the version of the permit that was sent out for public comment. The term “Proposed Permit” refers to the version of the permit that has been modified in response to comments received and is being presented to the North Coast Regional Water Quality Control Board (Regional Water Board) for consideration.

A. Nordic Aquafarms California, LLC, comments

Comment No. A1: Section 1 permit information, table F-1, Discharger and Facility Information: The Humboldt Bay Harbor, Recreation and Conservation District (“HBHRCD”) must be added as a Discharger and its Intake and Outfall added under Name of Facility as this permit directly addresses the intake and outfall, and the Fact Sheet states “Upon permit issuance, Nordic Aquafarms California and HBHRCD will

become co-permittees. Specific requirements apply to each permittee as outlined in the Order.” See Proposed Permit Fact Sheet at p.4. The two parties are referred to as “Permittees” thereafter.

Response to Comment No. A1: Regional Water Board staff agree with the proposed changes. Please see the updated Table F-1 in the Fact Sheet below.

ATTACHMENT A - Table F-1. Facility Information

WDID	1B20161NHUM
Discharger	Nordic Aquafarms California, LLC
Name of Facility	Nordic Aquafarms California, LLC
<u>Discharger</u>	<u>Humboldt Bay Harbor, Recreation and Conservation District</u>
<u>Name of Facility</u>	<u>Ocean Outfall and Sea Chest Intake Structure</u>
Facility Address	1 TCF Drive Samoa, CA 95501 Humboldt County
Facility Contact, Title and Phone	David Noyes, <u>Nordic</u> Vice President of Technology, 1 207-505-5728
Authorized Person to Sign and Submit Reports	David Noyes, <u>Nordic</u> Vice President of Technology, 1 207-323-6733
Mailing Address	P.O. Box 1477 514 H ST, Eureka, CA 95501
Billing Address	Same as Mailing Address
Type of Facility	Aquaculture Facility, SIC Code 0273 Animal Aquaculture

Major or Minor Facility	Major
Threat to Water Quality	2
Complexity	B
Pretreatment Program	Not Applicable
Recycling Requirements	Not Applicable
Facility Permitted Flow	10.3 MGD
Facility Design Flow	10.3 MGD
Watershed	Eureka Plain
Receiving Water	Pacific Ocean
Receiving Water Type	Ocean Waters

Comment No. A2: Section 2, Facility description: The facility lease area has been reduced from 36 acres to 32 acres.

Response to Comment No. A2: The second paragraph under Section 2 of the Fact Sheet has been modified as requested.

“The Permittees have redeveloped the site of the decommissioned Freshwater Tissue Samoa Pulp Mill facility to construct a land-based finfish recirculating aquaculture system (RAS) facility and install a three to five-megawatt photovoltaic solar panel array covering approximately 690,000 square feet of the facility roofs. The Facility consists of ~~36~~ 32 acres that will be used for the land-based finfish aquaculture facility and associated infrastructure.”

Comment No. A3: 3) Section 2 Facility description: Describes the facility as having “...an annual production capacity of approximately 33,000 metric tons of whole fish.” Nordic Aquafarms has reduced our total targeted volume to 15,000 metric tons annually. We are providing Humboldt County’s July 27, 2023, Substantial Conformance Review letter, provided as attachment 1, which states “This letter is to affirm the proposed changes to the Nordic Aquafarms project substantially conform to the Coastal

Development Permit and Special Permit approved for the project and are adequately addressed by the Environmental Impact Report prepared for the project.”

Response to Comment No. A3: The fifth paragraph under Section 2 of the Fact Sheet has been modified as requested.

“The Facility will be developed in two phases and will have an annual production capacity of approximately ~~33~~15,000 metric tons of whole fish. The Facility will include a complete process, from egg to harvestable fish in a single indoor location, and contains the following elements:...”

Comment No. A4: Section 2 Facility description: Describes construction work anticipated to begin in 2025. We anticipate this is when we would be able to start demolition and site remediation, and construction would follow roughly a year later in 2026. You will note several suggestions where we recommend changing several hard dates to instead action or event tied conditions. By tying conditions to actions, they are better synced with the progress of the project moving forward. This project seeks to remediate a large brownfield site. Delays in cleanup are not only possible, but expected, as we work to properly remediate the site.

Response to Comment No. A4: The sixth paragraph under Section 2 of the Fact Sheet has been modified as requested.

“The aquaculture Facility will be built in two phases. ~~Construction~~ Demolition work associated with Phase 1 is anticipated to begin in 2025. Phase 1 will include construction of the Phase 1 hatchery and production modules and the central utility structures, including connection to the intake and discharge infrastructure needed to bring water to the facility and discharge treated process wastewater.”

Comment No. A5: Section 2 Facility description: The footprint for full build out of the facility has been reduced by approximately 75,000 square feet to ~691,530 Sq. Ft. This reduction will be primarily seen in Production module 1 which will be reduced to ~209,332 square feet from the originally proposed 284,332 square feet.

Response to Comment No. A5: The ninth paragraph under Section 2 of the Fact Sheet has been modified as requested.

“The largest buildings at the proposed aquaculture facility contain the grow-out modules. Maximum building height within the facility is expected to be approximately 60 feet. The footprint of the Phase 1 production modules is approximately ~~209~~84,332 square feet, and the Phase 2 production module footprint is approximately 295,733 square feet.”

Comment No. A6: Section 2.2 Description of Wastewater and Solids Treatment and Controls: We suggest using the more recognizable technology name of membrane bioreactors vs ultrafiltration membrane systems.

Response to Comment No. A6: The second paragraph under Section 2.2 of the Fact Sheet has been modified as requested.

“The Facility will include biological anoxic denitrification of nitrate with an external carbon source, biological aerobic biochemical oxygen demand and ammonia removal, ferric coagulation for phosphorus removal, ~~ultra-filtration~~ membrane bioreactors systems with 0.04 um pore openings and UV-C disinfection using a dose of 300 mJ/cm² designed for 99.9 percent virus removal. This level of treatment is highly sophisticated and provides a high level of treatment before discharge.”

Comment No. A7: Section 2.2 Description of Wastewater and Solids Treatment and Controls: The emergency backup generators will be reduced in size from 30 MW to 12 MW due to the reduced facility size. This will be sufficient to provide all facilities emergency backup power needs to include the wastewater treatment plant while providing a reduction in potential GHG emissions from the use of the emergency generators.

Response to Comment No. A7: The third paragraph under Section 2.2 of the Fact Sheet has been modified as requested.

“If electrical power supply is shut down to the aquaculture facility, an onsite emergency backup power system would activate to maintain all critical functions for the fish and wastewater treatment. Nordic Aquafarms, LLC will be constructing several natural gas turbines with a maximum capacity of up to ~~30~~ 12 MW to supply emergency power to the fully developed facility. The fuel source will be natural gas from the existing 4-inch main on site. The backup generation system will be designed to rapidly respond to interruptions in the power supply to the facility and maintain critical equipment and infrastructure. Additional onsite power will be generated by the rooftop solar installation.”

Comment No. A8: Section 2.6 Planned Changes: We suggest changing “Once” to “After,” as construction will not take place immediately following adoption of the Proposed Permit. There are still several other agencies’ permits we must obtain before we can move forward. Furthermore, we must conduct site demolition and remediation before we begin construction efforts.

Response to Comment No. A8: Section 2.6 of the Fact Sheet has been modified as requested.

“Nordic Aquafarms California, LLC will be constructing Phase 1 of the Facility ~~once~~ after the permit is adopted. Nordic Aquafarms California, LLC is planning to construct Phase 2 of the Facility toward the end of this permit term.”

Comment No. A9: Section 4.2.2.1. Best Management Practices (BMP) Plan: The harvest and processing volumes have been significantly reduced. Phase 1 is anticipated to harvest and process approximately 45,000 pounds of *Seriola lalandi* daily. And phase 2 will harvest and process approximately 220,000 pounds of *Seriola lalandi* daily.

Response to Comment No. A9: The fifth paragraph under Section 4.2.2.1 of the Fact Sheet has been modified as requested.

“The ELGs at 40 C.F.R. part 408, subpart S require NSPS facilities to meet mass loading effluent limitations for BOD₅, TSS, oil and grease and pH. Phase 1 will process approximately ~~165~~45,000 lbs of Kingfish daily while Phase 2 will process approximately ~~330~~220,000 lbs of Kingfish daily. Consistent with 40 C.F.R. part 408, subpart S, mass-based effluent limitations for oil and grease have been established per 1,000 lbs of fish processed daily in Table 2 of this Order for both Phase 1 and Phase 2 of build-out. Mass based effluent limitations for BOD and TSS have been established based on design criteria submitted by Nordic Aquafarms as they are more protective of beneficial uses.”

Comment No. A10: Section 4.3.2.3. Minimum Initial Dilution: The Proposed Permit’s Fact Sheet cites “This Order utilizes a minimum initial dilution of 115:1.” based on previous WDRs Order Nos. R1-2010-0033, R1-2018- 0013 and R1-2020-0005 for the Freshwater Tissue Company’s Samoa Pulp Mill, DG Fairhaven Power, LLC, and the Samoa Community Services District and Samoa Pacific Group, respectively. We believe holding the NAFC facility to the same dilution as these facilities is unnecessary for the following reasons stated in the Draft Environmental Impact Report. Samoa Peninsula Land-based Aquaculture Project. County of Humboldt, Planning Department. 17 December 2021. Appendix E. Instead, we request 180:1 dilution. “The Nordic facility discharge will comprise 95-97% of the comingled discharge through the RMIT II diffuser with the Samoa Wastewater Treatment Plant (<1%) and DG Fairhaven Power Plant (~3-5%) comprising a much smaller proportion. Because of the larger proportion of comingled discharge associated with the Nordic facility, it will provide an environmental benefit in terms of the comingled stream water quality:

- Large reductions in the elevated ammonia (NH₃) and orthophosphate (PO₄) concentrations from the Samoa Wastewater Treatment Plant.
- A large increase in the low salinity (S) of the Samoa Wastewater Treatment Plant.
- Large reductions in the elevated settleable suspended solids (SS) concentrations from both the Samoa Wastewater Treatment Plant and DG Fairhaven Power Plant.”

Response to Comment No. A10: Nordic Aquafarms California, LLC, submitted a Numerical Modelling Report, Rev. 2, in July 2021. Page 17 and 18 includes analysis of near-field dilution capacity. The dilution capacity calculations indicate sufficient ambient flow occurs past the diffuser to achieve a 200-fold dilution target for the zone of water quality degradation for the future comingled discharge if current speeds >0.04 m/s for the 64 open port case, and >0.16 m/s for the 16 open ports case.

Nordic also submitted a report that “Estimates of Changes to the Predicted Zone of Water Quality Degradation from the Updated Project Design” (Dilution Report) on August 21, 2023, that included revised oxidized inorganic nitrogen (NOX) loads, discharge volume, temperature and salinity numbers based on the change from Atlantic Salmon to Yellowtail Kingfish. The Report also included updated dilution calculations for the comingled discharge from the Ocean Outfall. The Dilution Report includes a new zone of initial dilution, as defined in the Ocean Plan, of 173.9.

Section 5 (Surface Water Limitations) of the Proposed Order has been modified as follows.

“Discharges from the Facility shall not cause the following in the receiving water upon completion of initial dilution (415 173.9:1)”

Section 4.3.2.3 of the Fact Sheet has been modified as follows.

~~“A February 2016 Diffuser Performance Assessment Report for the Redwood Marine Terminal II Ocean Outfall prepared for the County of Humboldt and the Harbor District conducted on this outfall and diffuser suggest that a minimum initial dilution of 115:1 is appropriate for the discharge. The 2016 report indicated that greater than 100:1 dilution could be achieved for flows ranging up to 40 MGD, except where the effluent salinity is greater than 30 practical salinity units (similar to seawater) and effluent temperature is similar to the receiving water temperature. These high salinity/low temperature conditions are not anticipated from the combined discharge from the existing dischargers and the Facility; therefore, this Order utilizes a minimum initial dilution of 115:1.~~

The 2020 Marine Resources Biological Evaluation Report showed that dilution of 200:1 was possible 90 percent of the time in the Summer Scenario and 99 percent of the time in the Winter Scenario. The 2023 Dilution Report updated the discharge characterization for the change in species to Yellowtail Kingfish. The Dilution Report concluded, “On the basis of the GHD (2021) simulations, a small decrease in the zone of potential WQ degradation is predicted for representative summer and winter scenarios for the reduced required dilution, approximately 180, of the updated project. A further reduction in the areal extent of the zone of potential WQ degradation is estimated accounting for the approximately 20% reduction in the NOX load of the comingled discharge of the updated project.” Therefore, this Order utilizes a minimum initial dilution of 173.9:1.”

Section 4.4.2.2.1 of the Fact Sheet has been modified as follows.

“The Facility is proposed to discharge 1,224 lbs/day of nitrogen at full build-out with a maximum flow of 10.3 mgd, as updated in new information submitted by Nordic Aquafarms on June 6, 2023. The Ocean Plan does not have a numeric effluent limitation for nitrogen. However, it does include a narrative objective that states, “nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.”

This Order includes a dilution ratio of ~~445~~ 173.9:1. Using the proposed 1,224 lbs/day, a maximum flow of 10.3 mgd and the dilution ratio of ~~445~~ 173.9:1 results in a concentration of ~~0.42~~ 0.08 mg/L of nitrate at the edge of the mixing zone.”

Section 7.2 of the Fact Sheet has been modified as follows.

“WET monitoring requirements are established for discharges to the Pacific Ocean from Discharge Point 001 at Monitoring Location EFF-001 and are included in the Order to protect the receiving water quality from the aggregate effect of a mixture of pollutants in the effluent. Acute toxicity testing measures mortality in 100 percent effluent over a short test period and chronic toxicity testing is conducted over a longer time period and may measure mortality, reproduction, and/or growth. The Ocean Plan (section III.C.4.c.(3)) requires chronic toxicity testing where the minimum initial dilution of the effluent is between 100:1 and 350:1 and allows for the Regional Water Board to require acute toxicity testing as necessary to protect beneficial uses of ocean waters. This Order allows for a Dm of ~~445~~ 173.9 for the acute and chronic conditions.”

Comment No. A11: 4.4.2.5. Justification for allowing degradation: As we have reduced the facility size, we also anticipate the number of full-time employees will be reduced from 150 to approximately 100.

Response to Comment No. A11: Section 4.4.2.5 of the Fact Sheet has been modified as requested.

“The Regional Water Board finds that the proposed discharge and associated degradation is appropriate, as follows:

- The proposed discharge will accommodate important economic and social development in the area and provide maximum benefit to the people of the state. Specifically, the proposed discharge will provide ~~130 to 150~~ approximately 100 full-time jobs and increased tax revenue for Humboldt County, which supports multiple disadvantaged communities.”

Comment No. A12: There are several sections with Nordic Aquafarms California LLC noted in red, which should be converted to black text: 6.2.3.1, 6.2.4.2, 6.2.6.2, 7.2.

Response to Comment No. A12: The red text identified in the sections above have been changed to black.

Comment No. A13: Section 8.2 Written comments: The written comments deadline lists June 4, 2021. This should be modified to August 23, 2023.

Response to Comment No. A13: The second paragraph in Section 8.2 of the Fact Sheet has been modified as requested.

“To be fully responded to by staff and considered by the Regional Water Board, the written comments were due at the Regional Water Board office by 5:00 p.m. on ~~June 4, 2021~~ **August 23, 2023.**”

Comment No. A14: 8.3 Public Hearing: The location of the hearing is listed as Santa Rosa. We believe the location of the hearing will be Eureka for the October 2023 Water Board hearing.

Response to Comment No. A14: Section 8.3 of the Fact Sheet has been modified as requested.

“The Regional Water Board held a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: **October 5, 2023**
Time: 8:30 a.m. or as announced in the Regional Water Board’s agenda
Location: ~~Regional Water Quality Control Board~~ Eureka City Hall Council Chambers

—————~~5550 Skylane Blvd. Suite A 531 K Street~~
—————~~Santa Rosa, California Eureka, CA 95501~~”

Comment No. A15: Title page: The HBHRCD must be added as a Discharger and the Intake and Outfall structure added to the facilities regulated as the permit imposes regulatory restrictions upon the HBHRCD and their infrastructure that Nordic Aquafarms California, LLC has no authority or ability to implement.

Response to Comment No. A15: The Title Page has been modified as follows.

“Name of Facility **Nordic Aquafarms California, LLC and Humboldt Bay Harbor, Recreation and Conservation District Ocean Outfall and Sea Chest Intake Structures**”

Comment No. A16: Page 3: Align the discharge classification with the Proposed Fact Sheet.

Response to Comment No. A16: Table F-1 of the Fact Sheet has been modified to be consistent with the discharge classification on page 2 of the Proposed Permit.

Major or Minor Facility	Minor <u>Major</u>
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Comment No. A17: Section 2.6 Anticipated Water Quality Impacts in Disadvantaged or Tribal Communities: The Lot size has been reduced from 36 acres to ~32 acres.

Response to Comment No. A17: The first paragraph of Section 2.6 of the Draft Order has been modified as requested.

“The Permittees have redeveloped the site of the decommissioned Freshwater Tissue Samoa Pulp Mill facility to construct a land-based finfish recirculating aquaculture system (RAS) facility and install a three to five-megawatt photovoltaic solar panel array covering approximately 690,000 square feet of the facility roofs. The Facility consists of 36 acres that will be used for the land-based finfish aquaculture facility and associated infrastructure.”

Comment No. A18: Section 3.9 Discharge Prohibition 3.9: “The discharge of waste resulting from cleaning activities is prohibited.” Nordic Aquafarms California LLC will operate a seafood processing facility onsite in addition to our farm. The entire facility will undergo regular cleaning for sanitary reasons. All floor drains will run to the wastewater treatment facility as the means for treatment prior to discharge. As such, please modify this discharge prohibition to state, “The discharge of untreated waste resulting from cleaning activities is prohibited.”

Response to Comment No. A18: Staff agrees that the micro-filtration through the use of a membrane bioreactor will be able to treat waste from resulting from cleaning activities to below detectable levels.

Discharge Prohibition 3.9 has been modified as requested.

“The discharge of untreated waste resulting from cleaning activities is prohibited.”

Comment No. A19: Section 3.10 Discharge Prohibition 3.10: “The discharge of detectable levels of chemicals used for the treatment and control of disease, other than salt (NaCl), is prohibited.” Nordic Aquafarms California LLC is concerned this discharge prohibition is too ambiguous and seeks additional guidance. Please cite specific testing methodologies or levels against which to assess compliance.

Response to Comment No. A19: Section 4.1.10 of the Fact Sheet has been updated as follows.

“The discharge of detectable levels of chemicals used for the treatment and control of disease, other than salt (NaCl), is prohibited.”

“This prohibition is based on the Basin Plan’s Policy on the Regulation of Fish Hatcheries, Fish Rearing Facilities, and Aquaculture Operations. When chemicals and aquaculture drugs used for the treatment and control of disease are used, Nordic Aquafarms California, LLC is required to submit a chemical use report documenting the method used to determine compliance with this prohibition. This provision on treatment waste, is intended to prevent discharge of chemicals at levels that would cause toxicity, exceed water quality objectives, or otherwise impair beneficial uses.”

In lieu of establishing numeric effluent limitations or detection levels, to ensure compliance with the effluent limit guidelines (ELGs) and demonstrate that discharges are protective of aquatic life and other beneficial uses, section 6.3.2.2 of the Proposed Permit requires chronic toxicity test information and calculation of effluent concentrations for all chemicals and drugs applied in solution for immersive treatment. These requirements are consistent with the Hatchery Policy, Final ELGs, and ongoing practices at existing North Coast CAAP facilities. At this time, Staff is not considering establishing effluent limitations for the Permittees under the Proposed Permit.

Section 9-2 of the MRP has been modified to require calculations of effluent concentrations for all chemicals and drugs applied in solution for immersive treatment so the result is non-detect on discharge as follows.

“All monitoring results reported shall be supported by the inclusion of the complete analytical report from the laboratory that conducted the analyses and calculation of effluent concentrations for all chemicals and drugs applied in solution for immersive treatment showing that the result is non-detect at the point of discharge.”

During the term of the Proposed Permit, Regional Water Board staff will review the Permittee’s Drug and Chemical Use Reports, Effluent Concentration Calculations and Whole Effluent Toxicity Testing to confirm the discharge does not cause toxicity, exceed water quality objectives, or otherwise impair beneficial uses.

Comment No. A20: Table 2. Effluent Limitations, Table notes. Note 2: Phase 1 will process 45,000 pounds of fish per day. This consists of ~3,000 metric tons of HOG fish produced annually and ~150 processing days per year.

Response to Comment No. A20: Table note 1 in Table 2 of the Proposed Permit has been updated to reflect the reduction in fish processed per day for Phase 1 of the project.

1. Effluent Limit Guidelines established in 40 C.F.R. section 408 subpart S establishes mass-loading technology-based effluent limitations (TBELs) for west coast salmon processing facilities. TBELs for Phase 1 are based on ~~465~~45,000 lbs of fish processed per day.

Comment No. A21: Table 2. Effluent Limitations, Table notes. Note 3: Phase 2 will process approximately 220,000 pounds of fish per day. This consists of ~15,000 metric tons of HOG fish produced annually and 150 processing days per year.

Response to Comment No. A21: Table note 2 in Table 2 of the Proposed Permit has been updated to reflect the reduction in fish processed per day Phase 2 of the project.

2. Effluent Limit Guidelines established in 40 C.F.R. section 408 subpart S establishes mass-loading technology-based effluent limitations (TBELs) for west coast salmon processing facilities. TBELs for Phase 2 are based on ~~330,693~~220,000 lbs of fish processed per day.

Comment No. A22: 4.4.1. Disinfection Process Requirements for Ultraviolet Light (UV) Disinfection System: We suggest changing this language from pathogens to pathogenic material as UV disinfects by destroying nucleic acids needed for reproduction, rendering the pathogen inert. This does not, however, physically remove the pathogen from the water.

Response to Comment No. A22: Section 4.4.1 of the Proposed Permit has been modified as follows.

“Nordic Aquafarms, LLC, shall operate the UV disinfection system to ensure that the UV design dose is met, and pathogenics material are is not discharged to the receiving water.”

Comment No. A23: 5.1.3.2. Surface Water Limitations: This provision states, “The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.” Please confirm that compliance with the effluent limitations, discharge specifications, and the biological survey requirements of the Proposed Permit constitute compliance with this surface water limitation.

Response to Comment No. A23: Staff concurs that the Biological Survey will be used to determine compliance with Surface Water Limitation 5.1.3.2. However, if other evidence becomes available that this narrative water quality objective is not being met in the vicinity of the outfall, the Permittees may be required to participate in an investigation to determine the cause.

Comment No. A24: 5.1.3.3. Surface Water Limitations: This provision states, “The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human

health.” Please confirm that compliance with the effluent limitations and discharge specifications constitute compliance with this surface water limitation.

Response to Comment No. A24: The Biological Survey has been modified as follows:

“The Humboldt Bay Harbor District is pursuing a plan that would combine three separately permitted NPDES waste streams through the outfall at Discharge Point 001. Currently, the DG Fairhaven Power Facility and the Samoa Wastewater Treatment Plant are permitted to discharge wastewater through the same ocean outfall at Discharge Point 001.”

“Nordic Aquafarms, LLC, either separately or in coordination with the Humboldt Bay Harbor District, DG Fairhaven Power, LLC, Samoa Wastewater Treatment Plant and any additional dischargers that utilize the ocean outfall at Discharge Point 001, shall conduct a comparative evaluation of indigenous biota in the vicinity of the outfall using a qualified aquatic biologist, at least once every 5 years. The biologist shall prepare a report of observations, including objectionable aquatic growths, floating particulates or grease and oil, aesthetically undesirable discoloration of the ocean surface, color of fish or shellfish, and any evidence, or lack of evidence, of degradation of indigenous biota attributable to the rate of deposition of inert solids, settleable material, nutrient materials, increased concentrations of organic materials, or increased concentrations of Ocean Plan Table 1 substances. The Nordic Aquafarms, LLC shall submit to the Regional Water Board Executive Officer for approval a Biological Survey Work Plan no later than **December 1, 2026**, in order to complete the survey and prepare a final report by the due date for receipt of an application for permit renewal. The final report shall be submitted no later than **December 1, 2027**.”

The Biological Survey will determine compliance with Surface Water Limitation 5.1.3.3. However, if other evidence becomes available that this narrative water quality objective is not being met in the vicinity of the outfall, the Permittees may be required to participate in an investigation to determine the cause. No changes have been made to the Proposed Order in response to this comment.

Comment No. A25: 6.3.2.1. Disaster Preparedness Assessment Report and Action Plan: We changed this date to tie it to an action with language of 90 days prior to first discharge.

Response to Comment No. A25: The first paragraph in Section 6.3.2.1 of the Proposed Permit has been modified as requested.

“Natural disasters, extreme weather events, sea level rise, and shifting precipitation patterns, some of which are projected to intensify due to climate change, have significant implications for industrial wastewater treatment and operations. Some natural disasters are expected to become more frequent and extreme according to the current science on climate change. In order to ensure that Facility operations are not disrupted, compliance with conditions of this Order are achieved, and receiving waters are not adversely impacted by permitted and unpermitted discharges, the Permittees shall

submit a Disaster Preparedness Assessment Report and Action Plan to the Regional Water Board no later than **90 days prior to first discharge** by ~~August 1, 2024~~ for Executive Officer review and approval.”

Comment No. A26: 6.3.3.2.2.1 “An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;” Please clarify if you intend to require the sampling of the fish in the farm as a potential source of pollutants, or if this is meant to reference the sampling of fish in the receiving water should the approved method for the constituent require that measure.

Response to Comment No. A26: Fish tissue monitoring and other bio-uptake sampling may be required for the PMP when health advisories for fish consumption are issued or benthic or aquatic organism tissue sampling show bioaccumulation of priority pollutants that have been detected in the Permittees effluent. The PMP is not intended to require the Permittees to sample fish tissue from fish raised at the Facility.

No changes were made to the Proposed Permit in response to this comment.

Comment No. A27: 6.3.3.2.2.2: “Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system;”. Please clarify the basis and need to monitor and report the levels of various constituents in the untreated wastewater prior to their removal.

Response to Comment No. A27: The Ocean Plan gives the Regional Water Board discretion in what is included in the PMP when a water quality exceedance has occurred. If influent monitoring does not make sense for the exceedance, then the Permittee may not be required to perform quarterly monitoring. The Regional Water Board will make that determination once the PMP has been reviewed and will include specific requirements to minimize the pollutants discharged.

The Proposed Permit does not currently include priority pollutant effluent limitations and a reasonable potential analysis for these pollutants will be determined after the Permittees have sampled for priority pollutants during the development of the next permit.

No changes were made to the Proposed Permit in response to this comment.

Comment No. A28: 6.3.7.1.2. Sludge Disposal and Handling requirements: We have changed this date from within 90 days of the issuance of the Notice of Adoption to 180 days prior to first discharge. This facility has not been built. It will be several years before solid waste will be produced at this facility.

Response to Comment No. A28: Section 6.3.7.1.2 has been modified as requested.

“A report describing solids handling, disposal method, and final disposition of solids and/or fish carcasses shall be submitted to the Regional Water Board no later than 180 days prior to first discharge ~~within 90 days of the issuance of the NOA authorizing~~

~~coverage under this Order.~~ The report may be submitted in conjunction with Nordic Aquafarms, LLC, BMP Plan.”

Comment No. A29: 7.2.2 Multiple Sample Data: This section ends with an incomplete sentence. “... Using a value of zero for DNQ or ND samples does not apply when performing”.

Response to Comment No. A29: Section 7.2.2 has been updated to include the complete sentence.

“The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two middle values unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ and a value of zero shall be used for the ND or DNQ value in the median calculation for compliance purposes only. Using a value of zero for DNQ or ND samples does not apply when performing reasonable potential or antidegradation analysis.”

Comment No. A30: Section 8.1.3. of the MRP states: Reporting Nordic Aquafarms, LLC, shall report daily average and lowest daily transmittance and operational UV dose on its monthly monitoring reports. Nordic Aquafarms, LLC, shall report daily average and minimum flow through the UV disinfection system. If the UV transmittance falls below 250 mJ/cm², the event shall be reported to the Regional Water Board by telephone within 24 hours. MJ/CM² is not the unit for UVT. UVT is measured as a percentage.

Response to Comment No. A30: Section 8.1.3 of Attachment E Monitoring and Reporting Plan (MRP) has been modified to correct transmittance to dose.

“Nordic Aquafarms, LLC, shall report daily average and lowest daily transmittance and operational UV dose on its monthly monitoring reports. Nordic Aquafarms, LLC, shall report daily average and minimum flow through the UV disinfection system. If the UV dose transmittance falls below 250 mJ/cm², the event shall be reported to the Regional Water Board by telephone within 24 hours.”

Comment No. A31: 4.2.1 TRE work plan: We suggest changing the date from October 1, 2023, to 90 days prior to first discharge.

Response to Comment No. A31: The first paragraph in Section 4.2.1 of the MRP has been modified as requested.

“Nordic Aquafarms, LLC, shall prepare and submit to the Regional Water Board Executive Officer a TRE Work Plan no later than 90 days prior to first discharge ~~by October 1, 2023~~. Nordic Aquafarms, LLC’s TRE Work Plan shall be reviewed and updated as necessary to remain current and applicable to the discharge and discharge facilities.”

Comment No. A32: Table E-4: Reporting Requirements for Special Provisions Reports: We have made several changes to reflect the previously suggested date changes and to maintain consistency.

Response to Comment No. A32: Table E-4 also included incorrect due dates for the Biological Survey Workplan and Report that are correctly stated in MRP Section 8.2. Table E-4 of the MRP has been modified as requested.

Table E-4: Reporting Requirements for Special Provisions Reports

Order Section	Special Provision Requirement	Reporting Requirements
Special Provision 6.3.2.1	Disaster Preparedness Assessment Report and Action Plan	<u>No later than 90 days prior to first discharge August 1, 2024</u>
Special Provision 6.3.3.2	Pollutant Minimization Program	March 1 , annually, following development of Pollutant Minimization Program
Special Provision 6.3.4.2	Operation and Maintenance Manual	No later than 30 days prior to first discharge
Special Provision 6.3.4.3	New Facility Certification Report	Once construction is complete and prior to first discharge
MRP WET Testing Requirement 5.2.1	TRE Work Plan	<u>No later than 90 days prior to first discharge October 1, 2023</u>
MRP Other Monitoring Requirement 9.2	Biological Survey Workplan	<u>October 1, 2023 December 1, 2026</u>
MRP Other Monitoring Requirement 9.2	Biological Survey Report	<u>October 1, 2024 December 1, 2027</u>

Comment No. A33: Nordic Aquafarms California, LLC’s preferred species is female Yellowtail Kingfish.” Nordic Aquafarms produces mixed sex Yellowtail Kingfish; our farms and will pursue this same strategy at the Samoa, California facility. We have included the California Department of Fish and Wildlife Facility Aquaculture Registration as attachment 2 for your review.

Response to Comment No. A33: Comment noted. No changes made to the Proposed Permit in response to this comment.

Comment No. A34: “The Facility’s effluent is projected to have a salinity of 26.8 Practical Salinity Units (PSU).” The Facility’s effluent is projected to have a salinity of 31 PSU. Attachment 3 NAFC updated nutrient table 6JUNE2023, describes the constituents of our effluent. We are also providing recently performed analysis for your review. Attachment 4, 11205607-SREP_Nordic, provides estimates of the spatial changes to the Samoa Peninsula Land-Based Aquaculture Project: Numerical Modelling

Report representative summer and winter predicted zones of water quality (WQ) degradation from the updated project design. This memo describes how *“the updated project specifications are predicted to decrease the spatial extent of the zone of potential water quality degradation relative to the original project.”*

Response to Comment No. A34: The third paragraph in Fact Sheet section 2.1.1.7 has been modified as follows.

“The Facility’s effluent is projected to have a salinity of ~~26.8~~ 31 Practical Salinity Units (PSU). The receiving water has a median value of 33.5 PSU with a 20th percentile value of 32.3 PSU.”

Comment No. A35: Attachment C depicts a flow diagram that was previously accurate for originally contemplated species (Atlantic salmon). We are providing you with Attachment 5 Temperature Control memo, which has both an updated diagram as well as useful information regarding technology and operating strategies for the facility.

Response to Comment No. A35: Attachment C has been updated with the new flow diagram submitted by Nordic Aquafarms.

B. Humboldt Bay Harbor Recreation and Conservation District (HBHRCD) Comments

Comment No. B1: 6.3.7.3.1 – We recommend changing the condition to read as follows:

HBHRCD shall submit a mitigation plan by ~~July 1, 2024~~ twelve (12) months prior to intake withdrawal. The Mitigation Plan shall include: project objectives, site selection, site protection instrument (the legal arrangement or instrument that will be used to ensure the long-term protection of the compensatory mitigation project site), baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards and success criteria, monitoring requirements, and financial assurances for all the required mitigation as determined by the final Intake Assessment of the Potential Effects on Ichthyoplankton and other Meroplankton Due to Entrainment at Proposed Samoa Peninsula Water Intakes May 1, 2023; Tenera Environmental and Incidental Take Permit for Long Fin Smelt.

Response to Comment No. B1: Section 6.3.7.3.1 of the Proposed Permit has been modified as requested.

“HBHRCD shall submit an initial mitigation plan by ~~July 1, 2024~~ twelve (12) months prior to intake withdrawal. The initial Mitigation Plan shall include: project objectives, site selection, site protection instrument (the legal arrangement or instrument that will be used to ensure the long-term protection of the compensatory mitigation project site), baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards and success criteria, monitoring requirements, and financial assurances for all the required mitigation

as determined by the final Intake Assessment of the Potential Effects on Ichthyoplankton and other Meroplankton Due to Entrainment at Proposed Samoa Peninsula Water Intakes dated May 1, 2023; Tenera Environmental and Incidental Take Permit for Long Fin Smelt. If any agency with authority to require additional mitigation determines further mitigation is required, then a new mitigation plan will be required to be submitted to the Regional Water Board.

Comment No. B2: 6.3.7.3.2.3 – We recommend changing the condition to read as follows: HBHRCD shall demonstrate that the project also fully mitigates the discharge-related marine life mortality as projected in the Marine Life Mortality Report entitled final Intake Assessment of the Potential Effects on Ichthyoplankton and other Meroplankton Due to Entrainment at Proposed Samoa Peninsula Water Intakes May 1, 2023.

Response to Comment No. B2: Section 6.3.7.3.2.3 of the Proposed Permit has been modified as requested.

“HBHRCD shall demonstrate that the project also fully mitigates the discharge-related marine life mortality as projected in the Marine Life Mortality Report entitled final Intake Assessment of the Potential Effects on Ichthyoplankton and other Meroplankton Due to Entrainment at Proposed Samoa Peninsula Water Intakes dated May 1, 2023. If any agency with authority to require additional mitigation determines further mitigation is required, then a new mitigation plan will be required to be submitted to the Regional Water Board.”

Comment No. B3: 6.3.7.3.2.4 – We recommend changing the condition to read as follows: HBHRCD shall demonstrate that the project also fully mitigates the construction-related marine life mortality as identified in the Marine Life Mortality Report final Intake Assessment of the Potential Effects on Ichthyoplankton and other Meroplankton Due to Entrainment at Proposed Samoa Peninsula Water Intakes May 1, 2023; Tenera Environmental.

Response to Comment No. B3: Section 6.3.7.3.2.4 of the Proposed Permit has been modified as requested.

“We recommend changing the condition to read as follows: HBHRCD shall demonstrate that the project also fully mitigates the construction-related marine life mortality as identified in the Marine Life Mortality Report final Intake Assessment of the Potential Effects on Ichthyoplankton and other Meroplankton Due to Entrainment at Proposed Samoa Peninsula Water Intakes dated May 1, 2023; Tenera Environmental. If any agency with authority to require additional mitigation determines further mitigation is required, then a new mitigation plan will be required to be submitted to the Regional Water Board.”

Comment No. B4: 6.3.7.3.2.5 – We recommend changing the condition to read as follows:

For in-kind mitigation, the mitigation ratio shall not be less than one acre of mitigation habitat for every one acre of impacted habitat. Consistent with Section III.M2.e(3)(b) vi

of the Ocean Plan, for out-of-kind mitigation the biological productivity of the impacted open water or softbottom habitat calculated in the Marine Life Mortality Report, the proposed mitigation habitat ratio shall not be less than one acre of mitigation habitat for every ten acres of impacted open water or soft-bottom habitat if the mitigation habitat is a more biologically productive habitat (e.g. wetlands, estuaries, *rocky reefs, kelp beds, *eelgrass beds, * surfgrass beds*). The mitigation ratio shall be based on the relative biological productivity of the impacted open water or softbottom habitat and the mitigation habitat.

Response to Comment No. B4: Section 6.3.7.3.2.5 of the Proposed Permit has been modified as requested.

“For in-kind mitigation, the mitigation ratio shall not be less than one acre of mitigation habitat for every one acre of impacted habitat. Consistent with Section III.M2.e(3)(b) vi of the Ocean Plan, for out-of-kind mitigation, the biological productivity of the impacted open water or softbottom habitat calculated in the Marine Life Mortality Report, the proposed mitigation habitat ratio shall not be less than one acre of mitigation habitat for every ten acres of impacted open water or soft-bottom habitat if the mitigation habitat is a more biologically productive habitat (e.g. wetlands, estuaries, *rocky reefs, kelp beds, *eelgrass beds, * surfgrass beds*). The mitigation ratio shall be based on the relative biological productivity of the impacted open water or softbottom habitat and the mitigation habitat.”

Comment No. B5: Section 2.2.2.2 on Page F-51, third paragraph: Replace “...Preliminary Intake Assessment report dated May 12, 2021” with “Intake Assessment of the Potential Effects on Ichthyoplankton and other Meroplankton Due to Entrainment at Proposed Samoa Peninsula Water Intakes May 1, 2023; Tenera Environmental.” The Harbor District also recommends that the Water Board revise the numbers in Section 2.2.2.2 of the Fact Sheet to those in the final May 1, 2023 Teneral Environmental Report. The reason is that the 2021 report was preliminary and the 2023 report is the finalized.

Response to Comment No. B5: Section 2.2.2.2 of the Fact Sheet in the Proposed Permit has been modified as follows:

“The estimated loss of productivity will result from the final calculations of the Empirical Transport Model (ETM) estimates of Area of Production Foregone (APF) resulting from the results of the study. In the Preliminary Intake Assessment report dated May 13, 2024 Intake Assessment of the Potential Effects on Ichthyoplankton and other Meroplankton Due to Entrainment at Proposed Samoa Peninsula Water Intakes dated May 1, 2023, Tenera Environmental analyzed potential entrainment losses for larval populations in Humboldt Bay potentially affected by entrainment.”

In addition, Section 2.1.3.2.2. of the Fact Sheet has been modified as follows to include the up to date mitigation requirements from the August 18, 2023 addendum on the APF Estimates to Humboldt Bay Intake Assessment (Tenera Memo).

“Therefore, the corrected APF from the Initial ETM Assessment would be 15.7 acres (6.3 hectares), which is mitigation ~~close to~~ less than half the APF estimate of ~~47.9~~ 34.6 acres (~~7.2~~ 14 hectares) in this report. Using the same 4:1 ratio proposed in 2023 Tenera Report, an area of piling removal equivalent to ~~4.5~~ 8.65 acres (~~4.8~~ 3.5 hectares) would fully compensate for the losses to marine resources resulting from entrainment at the two intakes.”

Comment No. B6: Section 2.2.2.2 on Page 52 consistent with Section III.M2.e(3)(b) vi of the Ocean Plan, please clarify that the 4:1 ratio is one acre of mitigation habitat for every four acres of impacted open water or soft-bottom habitat.

Response to Comment No. B6: As stated in Response to Comment No. B5 above, using a 4:1 ratio, the Mitigation Project is required to mitigate 8.65 acres to compensate for the losses to marine resources resulting from entrainment at the two intakes. No changes made in response to this comment.

C. California Department of Fish and Wildlife Comments

Comment No. C1: Entrainment from the Seawater Intakes & Compensatory Mitigation

The Department is concerned with intake-related entrainment of longfin smelt (*Spirinchus elongatus*), which are listed as threatened under the California Endangered Species Act (CESA). The Draft NPDES Fact Sheet states that up to 200 longfin smelt larvae could be taken annually through entrainment from the seawater intakes (and equates that to one adult female). However, the Intake Assessment of the Potential Effects on Ichthyoplankton and other Meroplankton Due to Entrainment at Proposed Samoa Peninsula Water Intakes Report (2023 Tenera Report) concludes 28,013 larvae would be entrained annually at an intake rate of 12 mgd (and equates that to 73 adult longfin smelt females). Since the intake rate has been reduced to 10.3 mgd, it is assumed there will be a proportional reduction in longfin smelt larvae entrained. Regardless, the annual removal of approximately 28,000 longfin smelt larvae from Humboldt Bay is potentially significant and will require a CESA 2081(b) Incidental Take Permit (ITP) issued from the Department.

The Draft NPDES Fact Sheet also includes removal of four piles at the Kramer Dock in Humboldt Bay (total of 43.1 square feet of benthic habitat) for mitigation to offset impacts to longfin smelt from entrainment. However, removal of four piles is not sufficient to offset impacts to approximately 28,000 longfin smelt larvae per year. The 2023 Tenera Report instead proposes mitigation of 0.07 acres (3,139 square feet) of longfin smelt spawning, rearing, or nursery habitat. The proposed mitigation area of 0.07 acres has not been approved by the Department and still requires further consultation between the Department and the Harbor District to ensure intake-related marine life mortality to longfin smelt is fully mitigated.

Additionally, the NPDES Order includes expansion, restoration, or creation of Marine Protected Areas (MPAs) as a mitigation option for the seawater intakes (Section

6.3.7.3.2.1). However, mitigation is not an allowable activity within an MPA. The Water Board does have authority to designate Marine Managed Areas (MMAs) under the Marine Managed Areas Improvement Act, but if the MMA overlaps with an MPA, the Water Board would need to coordinate with the Fish and Game Commission (Pub. Resources Code §§36700-36900).

Recommendations:

- The Draft NPDES Fact Sheet should be revised to include the updated modeling results from the 2023 Tenera Report, which concludes 28,013 longfin smelt larvae would be entrained annually if the intakes withdraw 12 mgd.
- The Draft NPDES Fact Sheet should be revised to state that mitigation options to offset impacts to longfin smelt larvae are still being discussed between the Harbor District and the Department and will be determined through the Department's CESA 2081(b) ITP process.
- The Draft NPDES Order should be revised to remove MPAs as an option for mitigation. Should the Water Board wish to have this as an option, it should be changed to an MMA.

Response to Comment No. C1: Section 2.1.1.4.11 of the Fact Sheet in the Proposed Permit has been modified as follows to incorporate the correct numbers for the loss of Longfin Smelt.

~~“In order to determine the potential take of Longfin Smelt and develop an appropriate mitigation package, the Permittees drafted the Tenera Environmental was engaged and prepared The Use of Piling Removal as Method for Mitigating Effects of Entrainment Losses to Longfin Smelt and Other Fishes Resulting from Operation of the Proposed Samoa Peninsula Intakes in Humboldt Bay, Tenera December 13, 2021 Intake Assessment of the Potential Effects on Ichthyoplankton and other Meroplankton Due to Entrainment at Proposed Samoa Peninsula Water Intakes May 1, 2023 (2023 Tenera Report)”. The 2023 Tenera Report concludes 28,013 longfin smelt larvae would be entrained annually if the intakes withdraw 12 mgd. Based on the conservative estimate of the required spawning area for a female LFS of 43 square feet (4 square meters) used in the Project FEIR, a mitigation area of 3,139 square feet (292 square meters) of LFS spawning, rearing, and nursery habitat would compensate for the entrainment losses from the intake when operated at full capacity. This study finds that habitat restoration is the most common approach to mitigation used for Longfin Smelt. The study evaluates whether removal of creosote coated pilings are an effective mitigation to provide Longfin Smelt habitat. The removal of pilings does not directly recreate habitat for the life stage of the larvae, but improving habitat, will increase the number of Longfin Smelt resulting in an increased number of larvae. Effective mitigation for the small amount of larvae impact could be mitigated by compensating for the loss of less than one female. The entrainment of 295 Longfin Smelt larvae would represent the annual production of one female. It is estimated that up to 200 larvae could be taken through entrainment, which is slightly less than the production of a single female’s~~

~~production. Assuming that the area of the bottom affected by each piling represents an area of approximately one square meter (10.8 square feet), the removal of four pilings would provide restoration of four square meters (43.1 square feet) of habitat, an estimate that likely exceeds the habitat required for spawning of a single female Longfin Smelt and would fully compensate for the annual take of 200 larval Longfin Smelt.”~~

As mentioned in Response B5 and B6, the total mitigation required for the operation of the intake structures is 8.65 acres. This is above the required 3,139 square feet of restoration for Longfin Smelt. In addition, Section 2.1.3.2.2 of the Fact Sheet states that, “Using the same 4:1 ratio proposed in 2023 Tenera Report, an area of piling removal equivalent to 8.65 acres (3.5 hectares) would fully compensate for the losses to marine resources resulting from entrainment at the two intakes.”

Section 6.3.7.3.2.1 of the Proposed Permit has been modified to remove MPAs as follows:

“Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following: kelp beds, estuaries, coastal wetlands, natural reefs, MPAs, or other projects approved by the Regional Water Board that will mitigate for intake and mortality of all forms of marine life associated with the facility.”

Section 6.3.7.3.3 of the Proposed Order has been modified as follows:

“The Mitigation Plan is subject to approval by the Regional Water Board or its Executive Officer¹ in consultation with State Water Board staff and with other agencies having authority to condition approval of the project and require mitigation. Mitigation options to offset impacts to longfin smelt larvae are still being discussed between HBHRCD and CDFW and will be determined through CDFW’s CESA 2081(b) ITP process.”

Additionally, the last paragraph of Section 2.1.3.2.2 of the Fact Sheet has been modified as follows:

“An initial estimate of APF was provided for the Harbor District in Appendix N of the Draft EIR for the project that was based on the results of the Initial ETM Assessment prepared by Tenera (2021) (Appendix P of the Draft EIR). The APF estimate of 10.4 acres (4.2 hectares) in Appendix N was based on a source water area of 10,000 acres (4,047 hectares) and was intended to be used as an example of how APF was calculated. The source water area based on the data in Swanson (2015) that was used in the APF calculations in the Initial ETM Assessment and in this report was 15,104 acres (6,112 hectares). Therefore, the corrected APF from the Initial ETM Assessment would be 15.7 acres (6.3 hectares), which is mitigation close to the APF estimate of 34.6 acres (14 hectares) in this report. Using the same 4:1 ratio proposed in 2023 Tenera Report, an area of piling removal equivalent to 8.65 acres (3.5 hectares) would

¹ The Executive Officer is delegated the authority to take actions on behalf of the Regional Water Board.

fully compensate for the losses to marine resources resulting from entrainment at the two intakes. Mitigation options to offset impacts to longfin smelt larvae are still being discussed between the Harbor District and the Department and will be determined through the Department's CESA 2081(b) ITP process."

Comment No. C2: Water Quality Objectives & Monitoring

The near and far field modeling performed to ensure numeric water quality objectives in the Ocean Plan and the Thermal Plan will be met within five feet of the diffuser were based on water quality metrics for farming Atlantic Salmon. However, Nordic has changed species to Yellowtail Kingfish, which will result in different discharge water quality metrics, including discharge with a higher salinity. The near and far field modeling should be reanalyzed using Yellowtail Kingfish discharge metrics to ensure water quality objectives are met. Additionally, the Draft NPDES includes a condition that the concentration of organic materials from the wastewater discharge in marine sediments shall not be increased to levels that would degrade marine life (Sections 5.1.1.2.4 & 5.1.1.2.5). However, there is no required monitoring to ensure this condition is met.

Recommendations:

- The near and far field models should be reanalyzed using water quality metrics for Yellowtail Kingfish discharge to ensure all water quality objectives will be met.
- The NPDES should require monitoring of marine sediments to ensure concentrations of organic materials within sediments does not degrade marine life.
- Baseline monitoring should commence at least two years prior to the discharge from the facility, rather than a minimum of one year, to capture interannual variability in baseline conditions.

Response to Comment No. C2: The near and far field models have been reanalyzed using water quality metrics for Yellowtail Kingfish discharge and show that all water quality objectives will be met.

Nordic Aquafarms submitted the Dilution Report with the submittal of their public comments that reanalyzed the modeling performed to estimate the special changes to the original modeling effort of representative summer and winter predicted zones of water quality degradation from the updated project design. The analysis used updated values for Yellowtail Kingfish which result in a reduction of discharge volume (10.3 mgd from 12.5 mgd resulting in a reduction of 17.6 percent), oxidized inorganic nitrogen loading (1224 lbs/day from 1607 lbs/day resulting in a reduction of 23.9 percent) and temperature (68 degrees Fahrenheit from 71.4 degrees Fahrenheit resulting in a reduction of 5 percent). There will be an increase in salinity from an original 26.8 practical salinity units (PSU) to 31 PSU which results in a 16 percent increase.

According to the Dilution Report, the diffuser will require a reduction in the number of open ports of the existing multi-port diffuser from 64 to 56 to maintain a similar near-field mixing performance as the original project assessment.

The near-field region is the localized region immediately in the vicinity of the diffuser where energetic mixing of the plume with the ambient waters occurs because of its high exit velocity from the port (jet-induced mixing) and its lower density than the surrounding waters (because of lower salinity) that causes it to rise (and mix) through the water column (buoyancy-driven mixing). After these short-term (seconds for jet-induced, minutes for buoyancy-driven) processes deplete, only natural turbulent mixing further mixes the comingled discharge waters with the ambient marine waters, albeit at a much slower rate than the near-field mixing mechanisms. This latter natural mixing regime zone is referred to as the far-field.

A reduction in the number of open diffuser ports, that were recommended by GHD in the original dilution analysis, will be needed for the updated project to maintain a similar mixing performance to the original project. Assuming the recommended length of the active portion of the multi-port diffuser with open ports is maintained, then the far-field simulations of the original project can be used to estimate the spatial extent of the zone of potential WQ degradation for the updated project.

Because of the increased salinity of the comingled discharge for the updated project (31 PSU) relative to the original project (26.8 PSU), a slightly higher exit velocity than the original recommendation may be needed to balance buoyancy-driven mixing losses to maintain near-field mixing performance. A reduction in the number of ports from 64 (original project) to 56 (updated project) will likely achieve similar near-field mixing performance. It follows that the far-field modelling can be utilized to estimate the change in the areal extent of the zone of potential WQ degradation as the near-field plume dynamics will be similar.

Per the Report submitted by Nordic Aquafarms, “The GHD (2021) winter and summer simulations were re-analyzed to define the spatial extent of the zone of potential WQ degradation accounting for the lower dilution requirement and NOX load reduction of the updated project whereby:”

- “A small decrease in the areal extent of the zone of potential WQ degradation is predicted solely on the basis of the lower required dilution of 180 relative to the original project’s required dilution of 200.”
- “An even greater decrease in the areal extent of the zone of potential WQ degradation is predicted accounting for the approximately 20% decrease in the NOx load of the updated project.”

“In short, the areal extent of the predicted zone of potential WQ degradation is predicted to be smaller for the updated project design relative to the original project.”

Compliance with Surface Water Limitation 5.1.3.3. will be determined based on the submittal of Biological Surveys required in section 8.2 of the MRP and section 6.3.2.3 of the Proposed Order.

Section 6.3.2.3 states, “In addition to the sampling required in Attachment E of this Order, supplemental biological surveys shall be conducted to determine if effluent discharge is having a significant effect on biota in the Ocean Discharge Study Area, defined as the proximal marine waters. Supplemental biological surveys shall occur concurrently with water quality monitoring.”

Section 6.3.2.3 has been modified as follows.

“This additional monitoring program shall be carried out to understand interannual variability (e.g., cool vs warm years) and shall commence with pre-discharge baseline monitoring. Baseline monitoring shall commence one to two years prior to the discharge from the facility. Post-discharge receiving water monitoring ~~would~~ shall commence following completion of Phase 2₁ operations (~~full facility discharge~~) following the same methodology as the baseline monitoring. The post-discharge monitoring shall continue for three years to provide “before-after-control impact” or “before-after-gradient” design for the biological monitoring program. The monitoring program shall be conducted during the summer/fall period of upwelling “relaxation,” when conditions are least energetic, and dilution of the discharge would thus be lowest. Two annual surveys shall occur during the summer/fall period, ideally in August or September, separated by at least two weeks.”

D. Humboldt Baykeeper Comments

Comment No. D1: New Project Description Requires Revisions to the Numeric Modeling Report (Dilution Study).

Since the draft Permit was circulated in 2021, the applicant has changed the Project considerably as a result of changing the species they plan to raise from Atlantic Salmon to Yellowtail Kingfish (*Seriola lalandii*), a warm-water species. The applicant has stated that this species will require primarily saltwater, reducing the need for freshwater, and that the Project footprint has been adjusted to accommodate the need for a brood facility, although no new Project Description has been made available to the public. While we understand that the aquaculture permit from the CA Department of Fish & Wildlife is pending, these changes to the proposed Project may significantly affect the conclusions of the Numeric Modelling Report that was included in the Environmental Impact Report for the Project.² This model should be revised to accurately reflect higher salinity levels, which could result in significant differences in the predicted zone of water quality degradation than were originally calculated.

² Nordic Aquafarms California LLC, Samoa Peninsula Land-based Aquaculture Project Numerical Modelling Report, Rev. 2. July 2021

Response to Comment No. D1: See Response to Comment No. C2.

Comment No. D2: Anti-Degradation Policy

The Draft Permit states that a complete antidegradation analysis is not required, due to a perceived low impact on water quality. However, the state's Antidegradation Policy is clear that, in high-quality waters, baseline water quality must be maintained unless it is demonstrated that any change in quality will (1) be consistent with the maximum benefit to the people of the state ("maximum benefit"); (2) not unreasonably affect present or probable future beneficial uses; and (3) not result in water quality less than that prescribed by state policies (40 C.F.R. § 131.12.).

Failing to complete a full antidegradation analysis falls short of state policies to preserve water quality and associated beneficial uses – such as the preservation of ecosystems for marine life – and a full antidegradation analysis must be completed in order to appropriately assign mitigation requirements for any harm to water quality or marine life caused by the project.

The Draft Permit relies in part on the evaluation of the construction of the facility (Draft Environmental Impact Report, State Clearinghouse No. 2021040532) to justify the sufficiency of a simple antidegradation analysis; however, the use of this documentation in lieu of a complete antidegradation analysis is flawed. In addition, the modeling used to support this finding is flawed due to its reliance on nutrient data from inside the Humboldt Bay entrance, rather than on data from closer to the discharge point.

Updating the model to include the current proposal to raise Yellowtail Kingfish is especially important because the original model developed for Atlantic Salmon was used to conclude that a simple antidegradation analysis is sufficient. According to the Fact Sheet (page 73), "Based on the level of treatment provided, the use of an approved BMP Plan and modeling performed that shows the Ocean plan constituents of concern are below the water quality objectives within five feet of the diffuser, the Regional Water Board finds that the proposed discharge will produce minor effects which will not result in a significant reduction in water quality." [emphasis added]

Response to Comment No. D2: The Regional Water Board applies Resolution 68-16 and guidance contained in APU 90-004 when considering the necessary antidegradation analysis to comply with 40 C.F.R. section 131.12. The second paragraph in Section 4.4.2 of the Fact Sheet states, "APU 90-004 specifies that an antidegradation analysis is required and a complete antidegradation analysis is not required under certain conditions, including where a Regional Board determines that the proposed action will produce minor effects which will not result in a significant reduction in water quality and where the Regional Board determines that the reduction of water quality will be spatially localized or limited with respect to the waterbody; e.g., confined to the mixing zone. Based on the level of treatment provided, the use of an approved BMP Plan and modeling performed that shows the Ocean Plan constituents of concern are below the water quality objectives within five feet of the diffuser, the Regional Water Board finds that the proposed discharge will produce minor effects which will not result

in a significant reduction in water quality.” The consideration of alternatives to the permitted discharge are discussed below.

In addition, Section 4.4.2.2 of the Fact Sheet describes Nitrogen, Ammonia and Temperature impacts from the discharge.

4.4.2.2.1. Nitrogen

The Facility is proposed to discharge 1,224 lbs/day of nitrogen at full build-out with a maximum flow of 10.3 mgd, as updated in new information submitted by Nordic Aquafarms on June 6, 2023. The Ocean Plan does not have a numeric effluent limitation for nitrogen. However, it does include a narrative objective that states, “nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.”

4.4.2.2.2. Ammonia

This Order includes a dilution ratio of 173.9:1. Using the proposed 1,224 lbs/day, a maximum flow of 10.3 mgd and the dilution ratio of 173.9:1 results in a concentration of 0.08 mg/L of nitrate at the edge of the mixing zone.

The Facility will be designed to discharge ammonia at 0.004 mg/L. The Ocean Plan includes numeric water quality objectives for ammonia. The instantaneous maximum is 6 mg/L, the daily maximum is 2.4 mg/L and the six-month median is 0.6 mg/L.

4.4.2.2.3. Temperature

In the June 6, 2023, characterization update, the Facility is proposed to discharge effluent with a temperature of 68 degrees Fahrenheit. Hourly temperature data collected at the North Spit Tide Gage was analyzed from April 2020 to April 2021 to determine background temperature of the discharge location. Of the 8,784 data points, 1.8 percent of the hourly values were 20 degrees less than the proposed 68 degrees in the effluent. The data had an average of 52 degrees Fahrenheit, a 20th percentile of 50 degrees Fahrenheit and a 10th percentile of 49.5 degrees Fahrenheit. Section 4.3.3.1 of the Fact Sheet further discusses temperature objectives.

Additional modeling results were submitted for the change from Atlantic Salmon to Yellowtail Salmon as mentioned in Response to Comment A10. The results from the updated modeling show that the discharge will result in a reduction of discharge volume from 12.5 mgd to 10.3 mgd (17.6 percent reduction), a reduction of NO_x from 1607 lbs/day to 1224 lbs per day (23.9 percent reduction), a reduction in temperature from 71.4 degrees Fahrenheit to 68 degrees Fahrenheit (5 percent reduction) and an increase in salinity from 26.8 PSU to 31 PSU (approximately a 16 percent increase).

Per the requirements of APU-90-004 and the WQBELs discussed above, Regional Water Board staff believe that a simple antidegradation analysis is acceptable.

No changes have been made to the Proposed Permit in response to this comment.

Comment No. D3: Impacts to Sensitive Species.

The Fact Sheet claims that several sensitive species' "exposure to the diffuser effluent prior to dilution to background ocean levels is unlikely. Any unlikely exposure prior to dilution to background ocean levels will be short term. Any potential impact would be less than significant." There is no discussion about what chemical or biological pollutants were considered, what the pollutant concentrations would be at the discharge location, whether a mixing zone is appropriate and if so the size of the mixing zone, and no discussion about localized impacts to benthic communities and potential food sources.

Response to Comment No. D3: The sensitive species cited; California Sea Lion, Stellar Sea Lion, Harbor Seals, Gray Whales, Harbor Porpoises, Green Sturgeon (Southern DPS), California Coast Chinook Salmon ESU, and Northern California Steelhead DPS (Fact Sheet pages 19-23), are not anticipated to have "exposure to the diffuser effluent prior to dilution to background ocean levels". The rationale included in these sections state that these species are highly mobile along the coast, breeding colonies are far from the diffuser, forage in Humboldt Bay, highly migratory, or are unlikely to remain in coastal waters.

The chemical and biological pollutants considered are all Ocean Plan Table III pollutants and the pollutants included in Response D2 above. A mixing zone has been established as outlined in the Ocean Plan and established in the 2020 Dilution Report and its subsequent amendments.

No changes were made to the Proposed Permit in response to this comment.

Comment No. D4: Discharge Volume

According to the Fact Sheet, the proposed total water volume of effluent discharge is 10.3 million gallons per day (MGD), which would be comprised of 10 MGD seawater legally sourced from Humboldt Bay and 2.5 MGD of freshwater sourced from the Humboldt Bay Municipal Water District via the Mad River pumping station (page 5). It is unclear how the combined volume from the bay intakes and the freshwater from Mad River would result in a maximum discharge of 10.3 MGD.

Response to Comment No. D4: The third paragraph in Section 2 of the Fact Sheet has been updated as follows.

"The proposed total water volume of effluent discharge is 10.3 million gallons per day (MGD), which would be comprised of 10 MGD seawater legally sourced from Humboldt Bay (salinity 30.0 to 33.5 parts per thousand (PPT)) and ~~2.5~~ 0.3 MGD of freshwater sourced from the Humboldt Bay Municipal Water District (HBMWD) via the Mad River pumping station (salinity 0 PPT)."

Comment No. D5: Effluent Limitations

The Permit contains a maximum daily effluent limitation for Biological Oxygen Demand (BOD) of 295 lbs/day, which is very high. A monthly average BOD effluent limitation should be adopted as well.

Response to Comment No. D5: The concentration of BOD based on 10.3 mgd discharge volume and mass loading of 295 lbs/day results in a concentration of 3.4 mg/L, which is significantly lower than Technology Based Effluent Limitations (TBELs) for municipal wastewater treatment plants. The 295 lbs per day effluent limitation is based on the design criteria submitted by the Permittee and lower than the BOD effluent limitations required by federal-promulgated Seafood Processing Effluent Guidelines and Standards (a.k.a. Canned and Preserved Seafood Category; [40 CFR Part 408](#)). BOD effluent limitations under 40 Code of Federal Regulations (CFR) Part 408 would require BOD effluent limitations of 13,640 lbs per day for the maximum daily effluent limitation and 254,283 lbs per day for the average monthly effluent limitation at full buildout. The design criteria effluent limitations for BOD and TSS is protective of water quality.

No changes were made to the Proposed Permit in response to this comment.

Comment No. D6: Biocides, Disinfectants, Pharmaceuticals, and Other Potentially Harmful Substances

The Fact Sheet identifies an advanced wastewater treatment plant that will treat the discharge water, including a Moving Bed Biofilm Reactor (MBBR), a membrane bioreactor (MBR) and UV-C disinfection (page 6). It is unclear whether this wastewater treatment plant will filter out any biocides or pharmaceuticals used to control diseases, maintain the aquaculture tanks, or preserve water quality. The Fact Sheet lacks an analysis of the potential impacts to aquatic life near the discharge point.

The Discharge Prohibition included in the Permit at 3.10 states that “The discharge of detectable levels of chemicals used for the treatment and control of disease, other than salt (NaCl), is prohibited.” But the Permit doesn’t require any monitoring of the various detergents, disinfectants, sanitizers, and aquaculture drugs that have been approved for use, which include chlorine, copper, potassium monopersulfate, formaldehyde, tricaine methanesulfonate, iodine, and pharmaceuticals. How will the Discharge Prohibition be enforced without monitoring the effluent?

Response to Comment No. D6: Based off of the approximate annual use, treatment capabilities of the membrane bioreactor, calculation of drug concentrations used and dilution from internal recirculation and the diffuser at the discharge location, Regional Water Board staff have concluded that drugs and chemicals will be discharged at concentrations that will not cause toxicity or have negative impacts on water quality.

The Permittee is authorized to use the following chemical and drugs identified in Section 6.3.2.2. of the Proposed Order as follows.

Aqualife® Multipurpose Cleaner, Gil Save®, Gil Super CIP®, Gil Hydrox®, Bleach, Ozone, Virkon® Aquatic, Zep FS Formula 12167® Chlorinated Disinfectant and

Germicide, Parasite-S, Formalin-F, and Formacide-B. (Formalin), Finquel® or Tricane-S (Tricaine methanesulfonate), Ovadine® (PVP Iodine),

Also see Response to Comment No. A19. No changes have been made in response to this comment.

Comment No. D7: Monitoring

We support the inclusion of the Monitoring of Coastal Oceanography and Water Quality section (page 22). Both baseline monitoring and post-discharge monitoring are necessary to evaluate and respond to impacts resulting from the Project. However, delaying post-discharge receiving water monitoring until completion of Phase 2 (full facility discharge) is wholly inadequate. It is critical that post-discharge monitoring commence when the facility begins to discharge to ensure that the discharge meets the requirements of the Ocean Plan and Thermal Plan and to document changes to water quality and biota in the Ocean Discharge Study Area so that well-informed modifications can be made to protect beneficial uses of the receiving waters.

Response to Comment No. D7: Monitoring of Coastal Oceanography and Water Quality was revised to require baseline monitoring during Phase 1. See Response to Comment No. C2.

Comment No. D8: Socioeconomic Evaluation

The analysis of socioeconomic factors is vague and merely presents a list of factors considered, rather than presenting any meaningful or substantive analysis of impacts to beneficial uses related to socioeconomic features of the region, such as surfing and commercial, recreational, and tribal fisheries, all of which are important features of the region's economy and cultural identity. One of the documents considered is the Humboldt County Master Plan, which is not cited but appears to be a document relevant to Humboldt County, Nevada. (Humboldt County Master Plan. Humboldt County, Nevada. <https://www.humboldtcountynev.gov/192/Master-Plan>) (Fact Sheet, page 76)

The socioeconomic analysis must consider potential impacts from nutrient levels in the discharge to the region's commercial, recreational, and tribal fisheries, including Dungeness Crab, Chinook Salmon, Razor Clams, and many others. In 2018, the gross revenue of Eureka and Trinidad area commercial fishing fleets was nearly \$23 million, with Dungeness Crab the top species by value (California Fisheries Data Explorer. California Ocean Science Trust. <https://mpahumanuses.com/data-viewer.html>). And yet the Fact Sheet states that "[i]t is uncertain whether the discharge from the Facility will exhibit reasonable potential to cause or contribute to an exceedance of the water quality objectives in the Ocean Plan for ammonia. Therefore, this Order requires Nordic Aquafarms California, LLC to conduct monthly effluent monitoring for total ammonia nitrogen (as N) to collect sufficient data for conducting an RPA prior to the next permit renewal." (pages 68-69). As noted above, post-discharge monitoring would not occur until full-build at Phase 2, by which point impacts will likely have occurred for years without remedy.

Given that the anti-degradation analysis fails to include an evaluation of nutrient concentrations of reduced inorganic nitrogen (NHX) or oxidized inorganic nitrogen (NOX), there appears to be a reasonable potential for exacerbating harmful algal blooms that have significant impacts on the Dungeness Crab fishery, as well as seabirds, marine mammals, and other marine life in the region.

The ocean outfall pipe is in the vicinity of some of the most popular surfing areas in Humboldt County, and is the same pipe the former pulp mill that occupied the project site used to discharge wastewater into the ocean. The mills discharged approximately 40 million gallons per day of untreated wastewater into the near-shore surf zone, which resulted in litigation under the Clean Water Act citizen enforcement brought by Surfrider Foundation in 1989. The resulting 1991 settlement required the pulp mill to construct wastewater treatment facilities to reduce toxic discharges to the ocean and extend the ocean outfall pipe. Due to this historic use of the outfall and the resulting water quality impacts, surfers and beachgoers are naturally concerned about potential impacts of the proposed discharge of 10.3 million gallons per day.

The socioeconomic analysis provides weak justification for allowing degradation, and must be further examined in light of a complete antidegradation analysis and the socioeconomic factors described above.

Response to Comment No. D8: The post-discharge monitoring has been updated to begin at the completion of Phase 1, as discussed in Response to Comment No. C2. Ammonia and Nitrate concentrations are discussed in 4.4.2.2 of the Fact Sheet and Response to Comment No. D2 above.

Nitrate concentrations will be reduced below 1 mg/L after the zone of initial dilution. According to from the NOAA **Coastal Upwelling Transport Index (CUTI**, pronounced “cutie”) and the **Biologically Effective Upwelling Transport Index (BEUTI**; pronounced “beauty”), nitrate concentrations in the area of the outfall have an average of 1.15 mg/L and a median of 1.18 mg/L out of 416 monthly data points from 1988 through 2022. The dilution in the open ocean is significant so as to result in a mass discharge of nutrients to a level that is less than significant.

Staff understands the concerns of surfers and beachgoers related to the former Pulp Mill discharge. However, the Proposed Facility will be treating their effluent to a much higher level than the former Pulp Mill through the use of biological anoxic denitrification of nitrate with an external carbon source, biological aerobic biochemical oxygen demand and ammonia removal, ferric coagulation for phosphorus removal, membrane bioreactors with 0.04 um pore openings and UV-C disinfection unit using a 300 mJ/cm² lamp designed for 99.9 percent virus inactivation. In addition, the Facility will be discharging to an ocean outfall with a 64 port diffuser. Historically, the Pulp Mill did not have a diffuser and the terminal point of the original pipe, which created the conditions that prompted the Surfrider lawsuit, was about a mile shorter than the current outfall.

The [Humboldt County Master Plan](https://humboldt.gov.org/205/General-Plan) (https://humboldt.gov.org/205/General-Plan) was cited and not the above referenced Humboldt County Nevada plan.

Comment No. D9: Bay Intakes

According to the Fact Sheet, “The maximum underwater noise that could be produced is estimated to be 145 dB within a distance of 1 m from the pumps, a level that may result in temporary threshold shifts for some species of marine mammals, however, the pumps will be encased within other structures that will not allow marine mammals to come within a meter of the pumps. The estimated noise is below levels that could result in injury to Marbled Murrelet and special status fish. The estimated distance for 120 dB harassment levels of noise from the pumps may extend to 45 m from the intakes but is likely to be masked by other noise sources including vessel traffic. A less than significant impact will occur.” (pages 31-32). This response lacks analysis. The intake noise is constant, unlike occasional vessel traffic. The Board is admitting that a “take” (harassment) will occur for listed marine mammals up to 45 meters from the intakes. No discussion of which marine mammals would be impacted, how they would be impacted, or any avoidance, minimization, or mitigation measures that were considered. The only species mentioned is Marbled Murrelet (not a mammal).

The Fact Sheet’s analysis of impacts to commercial and recreational fish species from the Humboldt Bay intakes appears to be based on an outdated (2021) report that was written prior to the 12-month survey that was conducted in 2022. On page 39, the Fact Sheet states that “The volume of water moving through the main channel, where the Humboldt Bay Intakes are located, can be compared to the Humboldt Bay Intake volume to understand the relative volumes removed by the intakes (Tenera Environmental 2021a). The volume of water moving through the main channel is dependent on the tidal cycle, but for the purposes of this simple comparison the volume of water exchanged between a mean high and mean low tide is approximately 279 million cubic feet per tide cycle (2,090 million gallons/tide cycle). The intakes would only remove 0.14 percent of the volume moving through the main channel over a 6 hour tidal cycle, an extremely small proportion of water compared to that exchanged in the bay over a tidal cycle. Effects of the intakes on commercial and recreational species would also be less than significant.” The impacts to commercial and recreational fish species cannot be based on the generalized percentage of water exchange in the main channel, in the absence of an analysis of which species are present near the intake structures. Humboldt Bay provides important habitat for juvenile Dungeness crab, and yet the Fact Sheet lacks an analysis of impacts to crab zoeae.

The Regional Board cannot rely on the outdated Tenera Environmental report that was included as Appendix P of the Draft EIR,³ which was developed prior to the site-specific sampling and modeling study that was conducted to assess the potential for impacts to marine organisms that could occur due to the operation of two seawater intakes. The 2021 report states that “The only currently available reference on larval fishes in

³ Tenera Environmental. May 2021. Empirical Transport Modeling of Potential Effects on Ichthyoplankton Due to Entrainment at the Proposed Samoa Peninsula Master Bay Water Intakes.

<https://humboldt.gov/DocumentCenter/View/102330/Appendix-P---Tenera-Final-Report-PDF>

Humboldt Bay is a study by Eldridge and Bryan (1972) that is based on a year-long study conducted in 1969.” (page 2-5).

The mitigation project for intake structures described in the Fact Sheet incorrectly states that approximately 200 Longfin Smelt larvae are likely to be entrained (page 35). According to Tenera Environmental’s May 2023 Intake Assessment Report, an estimated total of 28,013 larvae would be entrained annually at the intakes when operated at full capacity. The incorrect number appears to have been taken from Humboldt County’s Final Environmental Impact Report, which also proposed a mitigation measure that is no longer under consideration because it does not restore or create habitat for Longfin Smelt (Mitigation Measure BIO-6a, removal of four creosote pilings near Fields Landing). Appropriate mitigation measures must be developed that fully mitigate impacts to aquatic life from the intakes (Water Code Section 13142.5(b) requires that “For each new or expanded coastal powerplant or other industrial installation using seawater for cooling, heating, or industrial processing, the best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life”). Such mitigation measures must be available for public review and comment, rather than deferred to a future mitigation plan that would be developed after permit approval.

Response Comment No. D9: Regional Water Board Staff believes that the 2023 Tenera Report analysis using the Empirical Transport Model (ETM) and the Area of Production Foregone (APF), as outlined in the California Ocean Plan, is adequate for determining the mitigation required.

Per Response to Comment No. B6, the updated 2023 Tenera Memo states that “the APF estimate of 34.6 acres (14 hectares) mitigation. Using the same 4:1 ratio proposed in 2023 Tenera Report, an area of piling removal equivalent to 8.65 acres (3.5 hectares) would fully compensate for the losses to marine resources resulting from entrainment at the two intakes.”

In addition, the Proposed Permit includes a re-opener provision for the Mitigation Project in the event that the Regional Water Board or other agencies (e.g., California Coastal Commission, CDFW, NMFS and/or Army Corp of Engineers) requires additional mitigation for the loss of aquatic productivity from the operation of the intake system. If the permit is reopened to require an updated mitigation plan, the plan would be subject to additional public review and comment. Response to Comment No. C1 also updated the language to correct the loss of estimated total of 28,013 larvae.

Regional Water Board staff and sister agencies are continuing to review mitigation site characteristics to determine whether contaminants that could affect mitigation success are present at the site, which could result in a change to the proposed mitigation, a different mitigation ratio, or other modifications

E. California Coastal Commission Comments

Comment No. E1: Intake effects and required mitigation.

The draft permit identifies several expected adverse effects associated with the project's intakes and describes mitigation required to address those effects. As you know, several of the agencies reviewing the proposed project – including the Regional Board, Coastal Commission, California Department of Fish and Wildlife, and National Marine Fisheries Service – are continuing to coordinate their evaluations of the intake-related impacts and the type and amount of mitigation needed to compensate for those impacts. Although each agency has independent review authority, we are working towards developing a single, comprehensive mitigation plan that would be acceptable to each.

In recognition of this continuing review and coordination, we recommend that the draft permit's re-opener clause be modified to acknowledge this ongoing interagency review and to specify that the Regional Board may re-open the permit specifically to incorporate additional or different mitigation requirements that result from that review if needed to provide conformity to relevant water code and Ocean Plan provisions. For example, we are continuing to review mitigation site characteristics to determine whether contaminants that could affect mitigation success are present at the site, which could result in a change to the proposed mitigation, a different mitigation ratio, or other modifications. As part of this recognition of ongoing review, we also recommend that the plan currently described in the permit be referred to throughout as a "preliminary" or "initial" plan.

Response to Comment No. E1: Regional Water Board staff appreciate that the California Coastal Commission, along with other sister agencies, is continuing to review and coordinate evaluations of the intake-related impacts and the type and amount of mitigation needed to compensate for those impacts. As such, Regional Water Board staff have included the word "initial" in all citations of the Mitigation Plan required in the Proposed Permit. Staff understand that the initial Mitigation Plan can change based on the review of other regulatory agencies and that the initial Mitigation Plan may need to expand.

Comment No. E2: Biochemical Oxygen Demand 5-day @20°C (BOD5) – Section 4.1.1. & 3.1.1.

We have several recommended modifications regarding BOD5. First, the draft permit expresses BOD5 in load over time (lbs. per day) instead of the typical expression in milligrams per liter (mg/L). We recommend the permit be modified to express BOD5 in mg/L, which would better allow for comparison to ambient conditions and effluent allowance (i.e., depressed more than 10% from that which occurs naturally) and for comparison to typical treated wastewater standards.

It also appears that the proposed monitoring meant to ensure conformity with the draft permit's allowable BOD5 daily limit of 295 pounds per day cannot be determined by the proposed composite sampling being collected once weekly during one 24-hour period per week and expressed in mg/L. The above-referenced change to mg/L would provide more effective monitoring.

Finally, we would also appreciate additional description of how the 295 lbs./day was determined, as we recommend the permit ensure this level is as low as possible.

Response to Comment No. E2: Mass based effluent limitations were retained in the Proposed Permit because the federal promulgated limitations for west coast salmon processing facilities is based on mass based limitations per 1,000 lbs of fish processed per day. A limit of 295 lbs/day would result in a concentration based effluent limitation of 3.4 mg/L at a discharge volume of 10.3 mgd. Compliance with the Proposed Permit's BOD effluent limitation of 295 lbs/day will be determined by multiplying the sampled nitrate concentration (mg/L) by the daily flow (mgd) and 8.34 (constant for unit transformation). The 295 lbs/day is the design criteria as submitted in the NPDES application and is more conservative than the BOD Effluent Limitation Guidelines promulgated by US EPA.

The discharge will have a low variability in effluent BOD and flow, so a composite sample should be representative of a daily discharge.

No changes were made to the Proposed Permit in response to this comment.

Comment No. E3: Biological Survey – Section 8.2

The draft permit currently proposes that the Discharger conduct surveys of indigenous biota near the outfall once every five years. Given the above-referenced importance of the area, we recommend the surveys be conducted two times per year in August and September, no less than three weeks apart to coincide with the cumulative seasonal effects of increased water temperature and nutrients that favor algal growth during the initial years of operations and again during subsequent phases of the project when discharge volumes are increased.

Response to Comment No. E3: Section 6.3.2.3 states, “In addition to the sampling required in Attachment E of this Order, supplemental biological surveys shall be conducted to determine if effluent discharge is having a significant effect on biota in the Ocean Discharge Study Area, defined as the proximal marine waters. Supplemental biological surveys shall occur concurrently with water quality monitoring.”

As stated in Response to Comment No. C2, “This additional monitoring program shall be carried out to understand interannual variability (e.g., cool vs warm years) and shall commence with pre-discharge baseline monitoring. Baseline monitoring shall commence one to two years prior to the discharge from the facility. Post-discharge receiving water monitoring shall commence following completion of Phase 1 operations following the same methodology as the baseline monitoring. The post-discharge monitoring shall continue for three years to provide “before-after-control impact” or “before-after-gradient” design for the biological monitoring program. The monitoring program shall be conducted during the summer/fall period of upwelling “relaxation,” when conditions are least energetic, and dilution of the discharge would thus be lowest. Two annual surveys shall occur during the summer/fall period, ideally in August or September, separated by at least two weeks.

No changes made in response to this comment.

Comment No. E4: Monitoring of Coastal Oceanography and Water Quality – Section 6.3.2.3.

This proposed monitoring program will provide important baseline water quality and biota information as well as aid in the detection of effluent discharge impacts. We recommend that pre-discharge monitoring commence as soon as possible to capture baseline interannual variability and continue into post-discharge during Phase 1 and Phase 2.

Response to Comment No. E4: See Response to Comment No. C2.

Comment No. E5: Nitrogen – Section 3.1.1.

The Fact Sheet Section 4.3.3.2. notes that the Dischargers design specifications propose treating total ammonia nitrogen (as N) to concentrations of 0.004 mg/L in the effluent, which would be below the Ocean Plan's 6-month median, daily maximum, and instantaneous maximum effluent limitations of 0.6 mg/L, 2.4 mg/L and 6.0 mg/L, respectively. Because nitrogen pollution is known to disrupt ecological balance and productivity in nearshore systems, we recommend that the permit be modified to require the concentrations to match the design specifications, because the design specifications provide a more protective limit. We also recommend that monitoring for nitrogen be increased from monthly to daily to allow quantification of daily fluctuations in N concentrations that may affect biotic imbalances.

Response to Comment No. E5: The Water Quality Based Effluent Limitations (WQBELs) for ammonia cited in the comment above are established in the Ocean Plan. The treatment system at the Facility will be able to treat well below these established WQBELs. Regional Water Board staff have determined that the WQBELs for ammonia established in the Draft Permit are protective of water quality and reducing the ammonia effluent limitations in the Proposed Permit to the design specification will not result in a significant water quality benefit.

Monitoring for nitrogen compounds in Table E-2 of the MRP in the Proposed Permit has been modified as follows.

Ammonia Nitrogen, Total (as N)	mg/L	Grab	Monthly <u>Weekly</u>	Part 136
Unionized Ammonia (as N)	mg/L	Grab	Monthly <u>Weekly</u>	Calculation

Organic Nitrogen, Total (as N)	mg/L	Grab	Monthly <u>Weekly</u>	Part 136
Nitrate Nitrogen, Total (as N)	mg/L	Grab	Monthly <u>Weekly</u>	Part 136

Comment No. E6: Ocean Outfall Area – Section 6.3.5.1.

Please define and limit the full size of the area surrounding the outfall expected to be affected by the effluent discharge.

Response to Comment No. E6: The Proposed Permit includes a dilution credit of 173.9 parts of seawater per one part of effluent. Using the dilution credit, max flow discharged (10.3 mgd) and area of a gallon of water (0.133681 cubic feet per gallon of water), the resulting area of the mixing zone is approximately 240 million cubic feet or 0.0016 cubic miles around the diffuser. This area is also dependent on temperature, salinity and ocean currents which can change the size of the plume (mixing zone).

Comment No. E7: Oil and Grease – Section 4.1.1.

The proposed permit would allow the discharge of oil and grease at up to 248 lbs./day (monthly average) and 693 lbs./day (maximum daily) when 165,000 lbs. of fish are produced per day, and more when more fish are produced. It is not clear that these amounts would allow conformity to the permit's surface water limitations (at Section 5.1.1.1) requiring that "floating particulates and oil and grease shall not be visible" and the requirements in Section 5.1.4.3 that discharges be "essentially free of material that is floatable or will become floatable upon discharge." We recommend these lbs./day limits be reduced to levels that would ensure conformity with the above-referenced sections. The permit would additionally allow oil and grease concentrations at up to 25 mg/L (average daily) and 40 mg/L (average weekly); however, it is not clear how these concentrations relate to the above lbs./day limits. The relatively wide range between the allowable averages and allowable and instantaneous maximums suggests that the discharge volumes/concentrations of oil and grease are expected to vary significantly, which again points to the need to reduce the instantaneous maximum limit to ensure ongoing conformity to the sections referenced above.

Response to Comment No. E7: The concentration-based oil and grease effluent limitations come from the Ocean Plan and are considered protective of water quality. However, the mass-based effluent limitations are more conservative because the concentration of oil and grease at full discharge of 10.3 mgd results in a max daily limit of 10.8 mg/L and an average monthly limit of 3.8 mg/L. Water quality based effluent limitations may be required in the next Draft Permit once monitoring for priority pollutants and nitrogen compounds have been completed during this permit term.

Table 2 of the Proposed Permit has been modified as follows to include the updated mass loading effluent limitations for oil and grease. Effluent Limit Guidelines set forth in 40 C.F.R. section 408 subpart S establish mass-loading technology-based effluent limitations (TBELs) for west coast salmon processing facilities. TBELs for Phase 1 are based on 45,000 lbs of fish processed per day and Phase 2 are based on 220,000 lbs of fish processed per day.

Parameter (Table Note 1)	Units	Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum
Oil and Grease	mg/L	25	40	---	75
Oil and Grease	lbs/day	248 <u>68</u> (Table Note 2)		693 <u>189</u> (Table Note 2)	
Oil and Grease	lbs/day	496 <u>330</u> (Table Note 3)		1,389 <u>924</u> (Table Note 3)	

Comment No. E8: pH – Section 4.1.1.

The permit includes monitoring of pH values to ensure conformity with requirements that the discharge pH not be more than 0.2 units from ambient pH in the receiving waters and at no time be below pH 6.0 or greater than pH 9.0. To allow a conformity with the limit of 0.2 units change from ambient pH, it is recommended that ambient pH be defined and used as a numeric range guideline.

Response to Comment No. E8: Compliance with the 0.2 SU surface water limitation will be based on the pre-discharge additional monitoring and the weekly pH sampling of the effluent. No changes have been made to the Proposed Permit in response to this comment.

Comment Letters Received in Support of the Permit

Staff received a total of 25 letters of support for the Permit from Humboldt Community Services District, County of Humboldt Economic Development Division, Operating Engineers Local #3 Eureka, the Greater Eureka Chamber of Commerce, Wells Commercial Real Estate and Investment, Cal Poly Humboldt, Cargill Aqua and Nutrition, Les Charter, Teresa Davis, Jim McBeth, Rob McBeth, Judy Rice, Tom Benzinger,

Rafael Cuevas, BT Metals, Greg Williston, Rick Littlefield, Jennifer Budwig, Tammy M. Brown and Michael Warner.

Staff Initiated Changes:

The following sections describe changes made to the Draft Order, initiated by Regional Water Board staff to update and provide clarification to the Proposed Order. The modified sections are identified by their section numbers as indicated in the Proposed Order.

1. Regional Water Board staff added Sections 3.5.2 and 3.5.3 to the Fact Sheet in the Proposed Permit to include additional information on the Policy on the Regulation of Fish Hatcheries, Fish Rearing Facilities, and Aquaculture Operations and the Regulation for Use of Aquaculture Drugs. As such, Sections 3.5.2 and 3.5.3, and their corresponding subsections, of the Proposed Order have been updated as follows:

3.5.2 Policy on the Regulation of Fish Hatcheries, Fish Rearing Facilities, and Aquaculture Operations

The Basin Plan includes the Policy on the Regulation of Fish Hatcheries, Fish Rearing Facilities, and Aquaculture Operations, which establishes the following criteria applicable to discharges from fish hatcheries, rearing facilities, and aquaculture operations:

- The discharge shall not adversely impact the recognized existing and potential beneficial uses of the receiving waters.
- The discharge of waste resulting from cleaning activities shall be prohibited.
- The discharge of detectable levels of chemicals used for the treatment and control of disease, other than salt (NaCl) shall be prohibited.
- The discharge will be subject to review by the Regional Water Board for possible issuance of Waste Discharge Requirements/NPDES permit.
- The Regional Water Board may waive WDRs for fish hatcheries, fish rearing, and aquaculture facilities, provided that the discharge complies with applicable sections of the Basin Plan and satisfies the conditions for Order No. R1-2017-0039 the Conditional Waiver of Waste Discharge Requirements for Specific Categories of Low Threat Discharge in the North Coast Region.
- The public interest is served by the fish hatchery, rearing facility, or aquaculture operation.

Requirements of this Order implement the Policy on the Regulation of Fish Hatcheries, Fish Rearing Facilities, and Aquaculture Operations. In lieu of establishing numeric effluent limitations or detection levels for aquaculture drugs and chemicals and to ensure compliance with the Policy on the Regulation of Fish Hatcheries, Fish Rearing Facilities, and Aquaculture Operations and demonstrate that discharges are protective of aquatic life and other beneficial uses, section 6.3.2.2 require chronic toxicity test information and calculation of effluent concentrations for all chemicals and drugs applied in solution for immersive treatment so the result is non-detect on discharge.

3.5.3 **Regulation for Use of Aquaculture Drugs**

The following discussion is provided for reference and the review and authorization of the drugs described below are under FDA authority. CAAP facilities produce fish and other aquatic animals in greater numbers than natural stream conditions would allow; therefore, system management is important to ensure that fish do not become overly stressed, making them more susceptible to disease outbreaks. The periodic use of various aquaculture drugs and chemicals is needed to ensure the health and productivity of cultured aquatic stocks and to maintain production efficiency. It is the responsibility of those using, prescribing, or recommending the use of these products to know which aquaculture drugs and chemicals may be used in CAAP facilities under all applicable federal, State, and local regulations and which aquaculture drugs and chemicals may be discharged to waters of the United States and waters of the State in accordance with this Order.

Drugs and chemicals used in aquaculture are strictly regulated by the U.S. Food and Drug Administration (FDA) through the Federal Food, Drug, and Cosmetic Act (FFDCA; 21 U.S.C 301 - 392). FFDCA, the basic food and drug law of the United States, includes provisions for regulating the manufacture, distribution, and the use of, among other things, new animal drugs and animal feed. FDA's Center for Veterinary Medicine (CVM) regulates the manufacture, distribution, and use of animal drugs. CVM is responsible for ensuring that drugs used in food-producing animals are safe and effective and that food products derived from treated animals are free from potentially harmful residues. CVM approves the use of new animal drugs based on data provided by a sponsor (usually a drug company). To be approved by CVM, an animal drug must be effective for the claim on the label, and safe when used as directed for 1) treated animals; 2) persons administering the treatment; 3) the environment, including non-target organisms; and 4) consumers. CVM establishes tolerances and animal withdrawal periods as needed for all drugs approved for use in food producing animals. CVM has the authority to grant investigational new animal drug (INAD) exemptions so that data can be generated to support the approval of a new animal drug.

CAAP facilities may legally obtain and use aquaculture drugs in one of several ways. Some aquaculture drugs and chemicals used at CAAP facilities in the

North Coast Region are approved by the FDA for certain aquaculture uses on certain aquatic species. Others have an exemption from this approval process when used under certain specified conditions. Others are not specifically approved for use in aquaculture but are of “low regulatory priority” by FDA (hereafter “LRP drug”). FDA is unlikely to take regulatory action related to the use of a LRP drug if an appropriate grade of the chemical or drug is used, good management practices are followed, and local environmental requirements are met (including NPDES permit requirements). Finally, some drugs and chemicals may be used for purposes, or in a manner not listed on their label (i.e., “extralabel” use), under the direction of licensed veterinarians for the treatment of specific fish diseases diagnosed by fish pathologists. It is assumed that veterinarian-prescribed aquaculture drugs are used only for short periods of duration during acute disease outbreaks. Each of these methods of obtaining and using aquaculture drugs is discussed in further detail below.

3.5.3.1 **FDA-approved Animal Drugs**

Approved animal drugs have been screened by the FDA to determine whether they cause significant adverse public health or environmental impacts when used in accordance with label instructions. Currently, there are eight animal drugs approved by FDA for use in food-producing aquatic species. These ten FDA-approved animal drugs include the following:

- Chorionic gonadotropin (Chlorulun®), used for spawning;
- Oxytetracycline hydrochloride (Terramycin®), an antibiotic;
- Oxytetracycline dihydride (Terramycin® 200 for fish), an antibiotic
- Sulfadimethoxine - ormetoprim (Romet - 30®), an antibiotic;
- Tricaine methanesulfonate (MS-222, Finquel® and Tricaine-S), an anesthetic;
- Formalin (Formalin-F®, Paracide F® and PARASITE-S®), used as a fungus and parasite treatment;
- Sulfamerazine, an antibiotic;
- Chloramine-T (HALAMID® Aqua), a disinfectant;
- Florfenicol (Aquaflor), an antibiotic; and
- Hydrogen peroxide, used to control fungal and bacterial infections.

Each aquaculture drug in this category is approved by the FDA for use on specific fish species, for specific disease conditions, at specific dosages, and with specific withdrawal times. Product withdrawal times must be observed to

ensure that any product used on aquatic animals at a CAAP facility does not exceed legal tolerance levels in the animal tissue. Observance of the proper withdrawal time helps ensure that products reaching consumers are safe.

FDA-approved animal drugs that are added to aquaculture feed must be specifically approved for use in aquaculture feed. Drugs approved by FDA for use in feed must be found safe and effective. Approved animal drugs may be mixed in feed for uses and at levels that are specified in FDA medicated - feed regulations only. It is unlawful to add drugs to feed unless the drugs are approved for such feed use. For example, producers may not top-dress feed with water-soluble, over-the-counter antibiotic product. Some medicated feeds, such as Romet-30®, may be manufactured only after the FDA has approved a medicated-feed application (FDA Form 1900) submitted by the feed manufacturer.

3.5.3.2 **FDA Investigational New Animal Drugs (INAD)**

Aquaculture drugs in this category can only be used under an investigational new animal drug or “INAD” exemption. INAD exemptions are granted by CVM to permit the purchase, shipment and use of an unapproved new animal drug for investigational purposes. INAD exemptions are granted by CVM with the expectation that meaningful data will be generated to support the approval of a new animal drug by FDA in the future. Numerous FDA requirements must be met for the establishment and maintenance of aquaculture INADs.

There are two types of INADs: standard and compassionate. Aquaculture INADs, most of which are compassionate, consist of two types: routine and emergency. A compassionate INAD exemption is used in cases in which the aquatic animal's health is of primary concern. In certain situations, producers can use unapproved drugs for clinical investigations (under a compassionate INAD exemption) subject to FDA approval. In these cases, CAAP facilities are used to conduct closely monitored clinical field trials. FDA reviews test protocols, authorizes specific conditions of use, and closely monitors any drug use under an INAD exemption. An application to renew an INAD exemption is required each year. Data recording and reporting are required under the INAD exemption in order to support the approval of a new animal drug or an extension of approval for new uses of the drug.

3.5.3.3 **FDA Unapproved New Animal Drugs of Low Regulatory Priority (LRP Drugs)**

LRP drugs do not require a new animal drug application (NADA) or INAD exemptions from FDA. Further regulatory action is unlikely to be taken by FDA on LRP drugs as long as an appropriate grade of the drug or chemical is used, good management practices are followed, and local environmental requirements are met (such as NPDES permit requirements contained in this

General Order). LRP drugs commonly used at CAAP facilities in the North Coast Region include the following:

- Acetic acid, used as a dip at a concentration of 1,000-2,000 mg/L for one to ten minutes as a parasiticide;
- Carbon dioxide gas, used for anesthetic purposes;
- Povidone iodine (PVP) compounds, used as a fish egg disinfectant at rates of 100 mg/L for 30 minutes during egg hardening and 100 mg/L solution for ten minutes after water hardening, a fish egg disinfectant; Sodium bicarbonate (baking soda), used at 142-642 mg/L for five minutes as a means of introducing carbon dioxide into the water to anesthetize fish, an anesthetic;
- Sodium chloride (salt), used at 0.5-1% solution for an indefinite period as an osmoregulatory aid for the relief of stress and prevention of shock. Used as 3% solution for ten to thirty minutes as a parasiticide, an osmoregulatory aid for the relief of stress and prevention of shock; and
- Potassium permanganate is an LRP drug, but regulatory action has been deferred pending further study.

FDA is unlikely to object at present to the use of these LRP drugs if the following conditions are met:

- The aquaculture drugs are used for the prescribed indications, including species and life stages where specified.
- The aquaculture drugs are used at the prescribed dosages.
- The aquaculture drugs are used according to good management practices.
- The product is of an appropriate grade for use in food animals.
- An adverse effect on the environment is unlikely.

FDA's enforcement position on the use of these substances should be considered neither an approval nor an affirmation of their safety and effectiveness. Based on information available in the future, FDA may take a different position on their use. In addition, FDA notes that classification of substances as new animal drugs of LRP does not exempt CAAP facilities from complying with all other federal, state and local environmental requirements, including compliance with this Order.

3.5.3.4 Extra-Label Use of an Approved New Animal Drug

Extra-label drug use is the actual or intended use of an approved new animal drug in a manner that is not in accordance with the approved label directions. This includes, but is not limited to, use on species or for indications not listed on the label. Only a licensed veterinarian may prescribe extra-label drugs under CVM's extra-label drug use policy. CVM's extra-label use drug policy (CVM Compliance Policy Guide 7125.06) states that licensed veterinarians may consider extra-label drug use in treating food-producing animals if the health of the animals is immediately threatened and if further suffering or death would result from failure to treat the affected animals. CVM's extra-label drug use policy does not allow the use of drugs to prevent diseases (prophylactic use), improve growth rates, or enhance reproduction or fertility. Spawning hormones cannot be used under the extra-label policy. In addition, the veterinarian assumes the responsibility for drug safety and efficacy and for potential residues in the aquatic animals.