

Introduction

The August 17, 2022, Appeal Letter filed by Redwood Region Audubon Society, Humboldt Fishermen’s Marketing Association, Inc., and 350 Humboldt (collectively, “Appellants”) makes a variety of technical arguments regarding the adequacy of the Environmental Impact Report (EIR) prepared by the County of Humboldt for the Samoa Peninsula Land-based Aquaculture Project (“Project”), pursuant to the California Environmental Quality Act (CEQA). Although the Appeal Letter raises 15 issues, it does not provide any new information nor offer substantial evidence in support of its assertions. All of these issues were adequately addressed in the EIR, which provides a comprehensive analysis of all environmental impacts associated with the Project.

Because the Project will have no significant, unmitigated environmental effects, the County identified a Mitigated Negative Declaration (MND) to be the most appropriate process for the project. In order to ensure full disclosure and opportunity for public engagement, the County—with the support of Nordic Aquafarms California, LLC. (NAFC) and the Humboldt Bay Harbor Recreation and Conservation District (Harbor District) retracted the MND and prepared an EIR, consisting of a Draft EIR (DEIR) and a Final EIR (FEIR), even though it was not legally required.

Throughout the Project application and environmental Review process, NAFC and the Harbor District have engaged with the community, stakeholder groups, and all relevant agencies. NAFC has made changes to the Project in response to community input by voluntarily offering multiple conditions of approval (COA), including voluntary additional monitoring at the Pacific Ocean outfall, purchasing 100% renewable and/or non-carbon energy, and a multifaceted traffic management program to reduce the number of single-occupancy vehicles driving to and from the Project Site each day.

Pursuant to CEQA Guidelines Section 15064, it is the responsibility of the Lead Agency—here, the County—to make a determination as to whether the Project will result in significant impacts to the environment, based upon substantial evidence in the record of proceedings. Substantial evidence is defined as enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. An effect on the environment shall not be considered significant in the absence of substantial evidence (CEQA Statute Section 21082.2(c), Guidelines Section 15384(b) and 15604 (f)(5)). Argument, speculation, unsubstantiated opinion or narrative, or evidence that is clearly inaccurate or erroneous, or evidence that is not credible, shall not constitute substantial evidence (CEQA Statute Section 21082.2(c), Guidelines Section 15384(a) and 15604 (f)(5)).

Here, with the support of NAFC and the Harbor District, the County prepared a detailed, robust EIR comprehensively addressing all environmental impacts of the Project. Based upon that analysis, the Planning Commission approved the Project, and the Appellants here have not offered new information or otherwise demonstrated that the Planning Commission erred or abused its discretion. The Planning Commission’s approval is supported by substantial evidence in the record and should be upheld.

Response to Appeal Letter

As stated above, all of the issues raised in the Appeal Letter were already addressed in the EIR and associated technical studies. For the convenience of the Humboldt County Board of Supervisors, NAFC and the Harbor District have prepared a point-by-point response to each of the issues raised in the Appeal Letter, including both a substantive response to each claim and citations to where that issue is addressed in the EIR. These responses were prepared by subject

matter experts in each relevant discipline, including experts in air quality and climate change, traffic and transportation, biological resources, and water quality.

Issue 1 – Greenhouse Gas Emissions Associated with Third-Party Fish Feed Production

Claim: The FEIR erroneously states emissions from the fish feed do not need to be counted under CEQA

Fish feed is the major source of greenhouse gases of land-based aquaculture. The Aquaculture Stewardship Council, which NAFC stated in the FEIR they would seek certification from, will require NAFC to calculate and report the greenhouse gases emitted by its aquafarm which are due to fish feed. Based on publicly available emissions data from fish feed manufacturers and NAFC's projection of 36,000 metric tons of fish feed to be used annually, the emissions NAFC is required to report will be between 80,000 and 190,000 metric tons of CO₂ a year.

Response:

Greenhouse gas (GHG) emissions from the production of fish feed at a yet-to-be determined non-Project facility are beyond the scope of the required analysis under CEQA.

CEQA requires an agency to analyze the direct and reasonably foreseeable indirect impacts of a Project. (CEQA Guidelines Section 15064.) Where an impact is speculative, it is not reasonably foreseeable and should not be considered as part of the Project analysis. (Id. At subs. (d)(3).) In determining the scope of impact analysis, the lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the Project's impacts, and that analysis will be upheld if it is supported by substantial evidence.

There are multiple approaches to developing an emissions inventory. Approaches vary in the breadth of their scope in terms of what processes and inputs are included and excluded in the inventory. Emissions from the production of feed were not included in the estimate used in the EIR because:

- In 2017 The Association of Environmental Professionals (AEP) California Chapter Climate Change Committee identified the methodology that was appropriate for evaluating industrial projects (such as NAFC's) under CEQA. The methodology identified does not include embedded or lifecycle emissions in goods and services consumed by the Project (such as feed in the case of NAFC). AEP's conclusions were published in a white paper in 2017 (AEP 2017).
- California Natural Resources Agency (CNRA) indicated in 2009 that requiring a lifecycle analysis may not be consistent with CEQA, stating: As a general matter, the term could refer to emissions beyond those that could be considered "indirect effects" of a project as that term is defined in section 15358 of the State CEQA Guidelines (CNRA 2009).
- The State inventory does not include lifecycle emission from goods and services from outside the state that are used or consumed within the state. The production of feed would take place outside of California; therefore, emissions associated with feed production are not included in the State inventory. In order to compare a project-level GHG inventory (i.e., that of NAFC) to a threshold derived from a reduction target based on the statewide

inventory, the GHG emissions included in the Project inventory must be accounted for in a similar manner to the way the state accounts for GHG emissions. If a project-level emissions inventory included emission sources that are not included in the state inventory, then the Project's inventory would not be comparable to thresholds derived from statewide reduction targets.

This issue was addressed in section 2-16 of the FEIR:

Lifecycle Analysis/Fish Food Comments suggested that assessment of the Project's emissions should include lifecycle analysis and emissions embedded in feed. Lifecycle analysis and emissions embedded in feed would fall outside of the approach commonly used to analyze GHG inventories of projects under CEQA, as detailed below. The Project's GHG impacts were analyzed pursuant to the California Environmental Quality Act (CEQA), subject to CEQA Statute, CEQA Guidelines, and case law.

There are multiple different approaches to developing an emissions inventory for projects, industries, products, or other sector of GHG generation; the different emissions methodology approaches have differing uses, applications, limitations, and benefits. The various emissions inventory approaches were thoroughly evaluated against the framework of CEQA in the Association of Environmental Professionals (AEP) California Chapter Climate Change Committee in the Production, Consumption and Lifecycle Greenhouse Gas Inventories: Implications for CEQA and Climate Action Plans Whitepaper (AEP 2017). The emissions inventory approach utilized for the Project regarding lifecycle analysis (or "embedded emissions") is consistent with the methodology identified by AEP as the current, most commonly used, and most suitable CEQA approach for industrial projects which is to include the production emissions associated with the productions of goods and services, but not include embedded or lifecycle emissions in goods and services consumed by the Project (AEP 2017). Additionally, the California Natural Resources Agency (CNRA) has identified that requiring a lifecycle analysis may not be consistent with CEQA, stating: As a general matter, the term could refer to emissions beyond those that could be considered "indirect effects" of a project as that term is defined in section 15358 of the State CEQA Guidelines (CNRA 2009). And ... a full "lifecycle" analysis that would account for energy used in building materials and consumer products will generally not be required (CNRA 2018).

As identified in DEIR Section 3.7 (Greenhouse Gas Emissions) starting on page 3.7-1, the DEIR's regulatory context for GHG is the State of California. The quantitative numeric thresholds of significance, qualitative plan-consistency threshold of significance applied, and evaluation of the Project's potential to conflict with the State's adopted Scoping Plan are all derived from or relate to California's statewide emission reduction goals and planning activities. The inventory methodology for the Project's analysis should be consistent with the inventory methodology used by State emission reduction plans (Scoping Plan). As stated in the AEP Whitepaper (AEP 2017): ... in order to compare a project-level GHG inventory to a threshold derived from a statewide reduction target based on the statewide inventory, the GHG emissions included in the Project inventory must be accounted for in a similar manner to the way the state accounts for GHG emissions. If a project-level emissions inventory included emission sources or approaches that are not included in the state inventory, then the Project's inventory would no longer be comparable to thresholds derived from statewide reduction targets.

The State inventory does not include lifecycle emission from goods and services from outside the state that are used or consumed within the state. Similarly, the State inventory does not include downstream emissions (emissions produced by processes associated with the use of products

after they leave the facility) for goods and services that are transported outside of the state. The production of feed would take place outside of California; therefore, emissions associated with feed production is not included in the State inventory. Therefore, it would be inappropriate to include lifecycle emissions and emissions embedded in feed.

Nordic has plainly stated that it has achieved ASC certification at Sashimi Royal its commercial Yellowtail Kingfish farm in Denmark, and has achieved both ASC and global gap certification at Fredrikstad Seafoods its commercial Atlantic salmon farm in Norway. Nordic anticipates it will join one or more third party certification program for the Samoa farm once operations begin but has not committed to a specific certification program to date.

In summary, the scope of the EIR's analysis of GHG impacts is consistent with the industry standard and is supported by substantial evidence.

Issue 2 – Project Commitment to 100% Renewable Energy

Claim: The FEIR erroneously says the project will emit “zero” emissions from its electricity consumption.

NAFC has agreed to buy renewable energy for the 195-gigawatt hours it will use annually - as much as Eureka and Fortuna combined. However, the way such purchases are calculated (annually rather than 24/7) means that approximately half of the electricity actually used on an hourly basis will be generated by natural gas. NAFC will emit at least 40,000 metric tons of CO2 annually due to its electricity use.

Response:

NAFC has voluntarily agreed to purchase 100% renewable and or carbon free energy for this project. This was made enforceable through the Conditions of Approval voted upon at the Planning Commission on 4 August 2022.

RCEA has further committed to achieving a 100% renewable and net-zero carbon emissions sources by 2025. NAFC will be required to meet RCEA and the State of California's goals of utilizing non-carbon-based energy sources by Greenhouse Gas Emissions 2025, implemented in the following ways:

- Purchase renewable and/or non-carbon energy through RCEA, relying on its available portfolio; or
- Purchase a 100% non-carbon and/or renewable portfolio from one of the other Energy Service Providers (ESPs) in California.
- Baseline would be the ESP's component of non-carbon/renewable + purchase of credits to ensure a 100% non-carbon and/or renewable portfolio.
- In addition, as technically and commercially feasible, NAFC would enter into Power Purchase Agreements (PPAs) with the proposed offshore wind project and /or other non-carbon, renewable electricity sources located in Humboldt County.

Therefore, not only is NAFC's commitment to 100% renewable and/or non-carbon energy described within the DEIR and enforceable through permitting conditions, but both potential energy providers have demonstrated ability to deliver 100% renewable and/or non-carbon energy.

Furthermore, as discussed in the FEIR on page 2-14 through 2-15:

The Project is committed to purchasing grid electricity that is 100% renewable and/or non-carbon energy at the first year of operations. As identified in the DEIR and enforced through the Terrestrial Coastal Development Permit (CDP) Conditions of Approval, the appropriate carbon intensity factor for electricity use would be zero (0). As described in the DEIR, Humboldt County applied a non-zero carbon intensity factor for energy consumption for the purposes of a conservative analysis (DEIR Section 3.7 [Greenhouse Gas Emissions] pages 3.7-7 and 3.7-13). Therefore, the emissions estimate is overly conservative (i.e., shows emissions greater than would be anticipated).

The non-zero carbon intensity factor applied was the most current third party-verified carbon intensity factor for Pacific Gas & Electric Company (PG&E) available at the time of analysis – the 2019 PG&E carbon intensity factor of 2.68 pounds per megawatt hour (lbs./MWh). For 2019 emissions reporting, PG&E used the California Energy Commission's (CEC) Power Source Disclosure program methodology to calculate the carbon dioxide (CO₂) emission rate associated with the electricity delivered to retail customers. As required by AB 1110, the CEC modified the Power Source Disclosure (PSD) program methodology, effective starting with the 2019 reporting year. This methodology differed from prior reporting years and results in a carbon intensity factor of 2.68 pounds per megawatt hour (lbs./MWh).

As a result of AB 1110, Power Content Labels prepared under the CEC's PSD program identify carbon intensity factors for each energy provider's electricity portfolio starting with year 2020. The CEC specifies that the regulatory updates are substantial and represent a significantly modified methodology. Consequently, program data for years prior to 2019 may not be comparable to data under the updated program. As shown in the PG&E's Power Content Labels starting in year 2020. PG&E provides the following two non-carbon, 100% renewable electricity portfolios:

- 100% Solar Choice portfolio
- Greensaver Portfolio

Therefore, not only is NAFC's commitment to 100% renewable and/or non-carbon energy described within the DEIR and enforceable through permitting conditions, but both potential energy providers have demonstrated ability to deliver 100% renewable and/or non-carbon energy.

Comments concerning PG&E as an 'over-procured' utility cite studies reviewing the CEC's PSD methodology, and the current and projected energy procurement versus delivery (sales) of utilities within California. Specifically, the study by Gregory Von Wald identifies Load Serving Entities (LSEs) as "under procured" if its retail sales exceed total net specified purchases and "over-procured" if it has net specified purchases that exceed its retail sales. Essentially, if an energy provider such as PG&E has purchased more energy than it has sold, it is considered 'over-procured'. If an LSE is over-procured, the CEC's methodology allows the LSE to revise its calculations such that the purchases are reduced to equal the total retail sales and allows the LSE to deduct natural gas specified purchases first. Therefore, it is possible for an over procured LSE to deduct natural gas from their carbon intensity calculation, while selling their surplus zero carbon resources to other LSEs (Von Wald 2020). As a result, there is a concern by the comment and study authors that the system-wide carbon intensity factors reported by over-procured LSE's may be artificially reduced, as the LSE is allowed to 'deduct' natural gas purchases to balance procurement with sales. The study found this effect would likely be transient and affect

only near-term reporting. As concluded in the study: “We find that the PSD program’s methods are likely to produce a clear and reasonable basis for evaluating the emissions associated with physical deliveries of retail power over the long run.” Although the County understands the concern related to over-procurement, PG&E’s system-wide carbon intensity factor (i.e., the carbon intensity factor for their ‘base’ plan) is not relevant in determining the appropriate carbon intensity factor to apply to the Project based on the Project’s commitment to 100% renewable and/or non-carbon energy. It would be inappropriate to apply an LSE’s system-wide or ‘base plan’ carbon intensity to the Project. A more appropriate carbon intensity factor would be zero pounds of carbon dioxide equivalent per megawatt hour (0 lbs. CO₂e/MWh).

As stated above, the DEIR’s emissions estimate of GHG associated with energy consumption were overly conservative (in other words, if anything the emissions were overstated) by applying a non-zero carbon intensity factor. Applying a zero carbon intensity factor (0 lbs. CO₂e/MWh) reduces the Project’s anticipated operational emissions to 4,024.32 MTCO₂e/year and 3,757.75 MTCO₂e/year for years 2025 and 2029, respectively.

The EIR’s conclusions regarding energy consumption are accurate and supported by substantial evidence in the record.

Issue 3 – GHG Emissions from Fully Contained Refrigerants

Claim: The FEIR says that greenhouse gas emissions from refrigerants do not need to be analyzed in the EIR because NAFC will not violate laws or regulations

NAFC has refused to supply information about the refrigerants it will use in its massive chillers (25% of the energy goes to cooling). The fact that NAFC will follow applicable laws and regulations is (if true) irrelevant to reporting the greenhouse gases the Project will emit. Unknown but potentially very large as HFC refrigerants commonly used in chillers and for making ice can have a global warming potential of up to 4,000 times that of CO₂ itself. The threshold of CEQA significance in this project for all operational emissions combined is 10,000 metric tons of CO₂eq. Since the EPA calculates that the average supermarket emits 1,556 metric tons of CO₂eq per year, it is likely that chillers powered by 48 gigawatt hours a year of electricity (the amount of power NAFC estimates will be used for cooling) will emit far more.

Response:

Refrigerants will be contained within closed cooling systems at this state-of-the-art facility. Additionally, a full-time maintenance staff will monitor the systems, repairing and reporting any issues with the systems including leaks. Accordingly, refrigerants will not be a significant independent source of GHG emissions.

The chiller systems have not been designed and, therefore, specifics regarding sizing, outgoing fluid temperatures, and other parameters are not currently known. In finalizing this design, NAFC will take measures to minimize the emission of GHG’s associated with the refrigerants. As described on page 2-17 of the FEIR:

The GHGs normally associated with the Project are listed on DEIR page 3.7-2 through 3.7-3 and includes a list of potential refrigerants. DEIR Subsection 3.7.3 (Regulatory Framework) discusses in detail all applicable GHG regulations. The Project would utilize multiple systems, including icemaking and two different chiller systems. The Project will be subject to regulations and programs within the California Significant New Alternatives

Policy (SNAP), founded on SB 1013 and the California Air Resources Board (CARB) Hydrofluorocarbon (HFC) regulations. Specifically, the chillers will be subject to CARB's HFC Regulation and refrigerators will be subject to CARB's Refrigerant Management Program (RMP). Under the RMP, leak detection and monitoring requirements are based on system sizing.

Regulations specific to refrigerants are specifically addressed on DEIR page 3.7-6, including the requirements for leak detection maintenance programs and maximum global warming potential of refrigerants:

- Starting in 2022, the Refrigerant Management Program (RMP) requires facilities with refrigeration systems containing more than 50 pounds of high-GWP refrigerant to conduct and report periodic leak inspections, promptly repair leaks; and keep service records on site.
- Additionally, newly adopted regulations by CARB require new stationary refrigeration installations to use refrigerants with a global warming potential of 150 or less.

The Project will be a new facility and will employ a full-time maintenance team as listed in DEIR Table 2-7 (NAFC Employment Overview) on page 2-29. Preventative maintenance checks, service, and inspections are effective means of preventing leaks from occurring in these systems and would be conducted as a component of regulatory compliance. As chillers are an essential part of the Project's daily operations, they will receive regular attention to ensure they are functioning optimally. Estimates of leakage rates for older systems in previous years (before 2022) are not accurate indications of potential leaks in the future. New requirements for leak inspection, prompt repair and reporting were implemented in 2022. These new requirements are drafted specifically to prevent and quickly repair future leaks.

The regular inspection for and immediate repair of leaks will ensure that any potential impacts associated with these systems would be minimized. Refrigerants leaks would be anomalies, not normal operating status. It would be inappropriate to assume that refrigeration and chilling systems would be operating outside of the parameters of regulatory requirements (i.e., assume 'leaky' or neglected systems).

Additionally, the DEIR describes how NAFC has committed "to seek the most responsible use of refrigerants in its facility" (see DEIR page 2-28).

The chiller systems have not been designed and, therefore, specifics regarding sizing, outgoing fluid temperatures, and other parameters are not currently known. In finalizing this design, NAFC will take measures to minimize the emission of GHG's associated with the refrigerants. Additionally, regulations and programs that may be implemented in the future to regulate equipment such as chillers would be applicable to the Project as they come into effect and NAFC would be required to adhere to them.

Regarding the appellant's citation of an EPA study of average supermarket emissions, the study cited is from 2011 and assumes use of R-404A refrigerant (global warming potential of 3,921.6) with an annual leak rate of 25% per year (EPA 2011). Under the CARB's SNAP and RMP, use of high global warming potential (GWP) refrigerants, including R-404A, is prohibited for new refrigeration systems. The GWP cap for new refrigeration systems is 150 (which is less than 5% the GWP of R-404a). Additionally, EPA study's assumed leak rate of 25% is not representative of the monitoring, reporting, and repair requirements of CARB's RMP, and would not be a reasonably foreseeable leak rate for the Project. Therefore, the estimated GHG impacts from the

'profile of an average supermarket' citation would not apply to or represent the Project's potential impacts.

Accordingly, the EIR's conclusion that refrigerants will therefore not be a source of GHG emissions, is supported by substantial evidence in the record.

Issue 4 – Software Used by Traffic Engineers to Analyze Transportation Impacts

Claim: The FEIR used inappropriate methods to calculate the GHG impacts of vehicle miles traveled by trucks.

The data used to calculate greenhouse gas emissions from the trucks delivering 36,000 metric tons of fish feed and transport to distant markets of 25,000 metric tons of head off gutted fish are inaccurate. The FEIR used inappropriate software to calculate emissions from vehicle miles traveled out of the county. It did not use ton-miles in its calculations, which is required when calculating emissions for loaded trucks. Preparers of the FEIR admit they did not even have the actual destinations in order to calculate VMT accurately. The federal EPA SmartWay Program encourages haulers to reduce emissions and has software to provide accurate greenhouse gas emissions calculations for trucking firms; the FEIR should be based on this or comparably accurate software. It is likely that the greenhouse gas emissions for transportation in the EIR are only a third or less of actual emissions.

Response:

The County appropriately relied on the selection of software and methodologies by its team of traffic engineers for purposes of analyzing transportation impacts and associated GHG emissions.

The on-road mobile activity, including truck activity, in the CalEEMod analysis were appropriately assessed and used within the framework of annual emissions estimation and annual activity. Additionally, the on-road mobile activity emissions were estimated using CalEEMod version 2020.4.0. Therefore, the DEIR's air quality and GHG emissions analysis appropriately assesses the Project's estimated mobile activity using the appropriate emissions model.

As described on pages 2-18 through 2-20 of the FEIR:

The Project's emissions generated by on-road mobile activity were estimated using CalEEMod v. 2020.4.0, as described in DEIR Section 3.2 (Air Quality) on page 3.2-6 and Section 3.7 (Greenhouse Gas Emissions) on page 3.7-10. The criteria pollutant and GHG estimates for mobile activity are based on annual mobile activity and compared against annual thresholds of significance. For the purposes of modeling, inputs were adjusted in order to achieve the Project's estimated annual vehicle miles travelled (VMT) for each of the following mobile sources:

- *Employee Activity*
- *Hauling within the NCUACMD's Jurisdiction (short-hauling)*
- *Hauling outside of the NCUAQMD's Jurisdiction (long-hauling)*

Please note, emissions for mobile activity were estimated separately from other sources of operational GHG emissions (such as energy consumption or emergency backup generator use). For clarity, and because of how CalEEMod utilizes fleet mix, trip type, trip purpose, and other parameters of mobile activity, separate CalEEMod runs were prepared for each of the mobile sources listed above. As an example, the CalEEMod run for operational employee trips contains the parameters necessary to appropriately assess

annual emissions from employee trips alone and includes parameters to estimate emissions from energy consumption, backup generator use, hauling, or other sources of operational GHGs. Emissions from nonmobile emissions sources were estimated in separate CalEEMod modeling scenarios, which are provided in DEIR Appendix B (CalEEMod Modeling Results).

For both GHG emissions and criteria pollutant emissions, annual emissions threshold of significance is applied to the Project; therefore, the purpose of the modeling inputs was solely to generate the correct annual activity for the purposes of annual emissions estimates. Assuming or applying the modeling inputs as a Project-specific daily activity, or as parameters for other operational emissions sources, would be a gross mischaracterization of the purposes and use of the inputs. Additional details on the inputs are discussed below.

CalEEMod contains assumptions for trip length based on the type of trip (trip type), distribution of trip types, and trip purpose. Each of these components is used to generate total VMT estimates, which then feed into the GHG emission calculations. The trip types, trip lengths, distribution and trip purpose distribution are detailed below and in the CalEEMod output, which is included in Appendix B of the DEIR.

The annual VMT for short-hauling and long-hauling were provided by the applicant and developed using the Humboldt County Travel Demand Model (the model adopted by the Humboldt County Association of Governments and Caltrans to forecast vehicle travel), and the data entry for daily trip rates and lengths were modified to support the Project-specific annual VMT.

The Project-specific annual VMT, and associated CalEEMod data entry values are provided in Table 2.6 below.

Table 2.6 Project Mobile Activity Modeling Parameters

Mobile Activity Type	CalEEMod Facility Size* (ksf)	Daily Activity Inputs*		Project-Specific Vehicle Miles Traveled	
		Trip Rate (trips/ksf)	Trip Length (miles)	Daily	Annual
Employee	1	205	7.71	1,577	575,839
Short-Hauling	1	100	18.5	1,850	673,314
Long-Hauling	1	100	28	2,800	1,019,754

Notes: ksf = 1,000 square feet

* Inputs for annual modeling purposes only. These inputs should not be misconstrued as actual Project footprint or daily mobile activity.

As noted above, the mobile emissions modeling runs do not include emissions estimates from non-mobile sources. A facility size of 1,000 sf was used for the purposes of calculating the Project-specific annual VMT. This input should not be construed to indicate that the facility building is only 1,000 sf. The input was utilized to simplify the remaining inputs utilized to generate the Project-specific annual VMT. Similarly, the daily activity inputs were used for the purposes of calculating the Project-specific annual VMT.

Annual VMT data was provided for short-hauling and long-hauling trips for GHG emissions analysis; detailed hauling data, such as specific destinations or trip routes was not provided. Specific trip lengths (such as minimum, maximum, average, or distribution) for short-hauling and long-hauling were not known. For the purposes of annual GHG emissions analysis, there is no substantive difference between a project that generates 10 daily trips of 10 miles each (100 daily VMT), or one that generates five daily trips of 20

miles each (100 daily VMT). The driver of the emissions generation, and, therefore, critical Project-specific information, is the annual VMT.

As provided above, the annual Project-specific VMT is the informative input, and the daily activity inputs in CalEEMod should not be construed to mean that the Project is generating 100 short-hauling trips per day of 18.5 miles, or 100 long-haul trips per day of 28 miles. The vehicle fleet mix is defined as the mix of motor vehicle classes active during the operation of the Project. Emission factors are assigned to the expected vehicle mix as a function of vehicle class, speed, and fuel use (gasoline and diesel-powered vehicles). The Project employee analysis assumes a passenger vehicle fleet mix. The Project hauling analyses assumes use of heavy-heavy duty trucks.

The Project-specific vehicle fleet mix used in the analysis is summarized below in Table 2.7 below.

Table 2.7 Fleet Mix

Type of Vehicle	Project Fleet (%)		
	Employee	Short-Hauling	Long-Hauling
Light-duty automobile (LDA)	50	0	0
Light-duty truck (LDT1)	50	0	0
Light-duty truck (LDT2)	0	0	0
Medium duty vehicle (MDV)	0	0	0
Light-heavy duty truck (LHDT1)	0	0	0
Light-heavy duty truck (LHDT2)	0	0	0
Medium-heavy duty truck (MHDT)	0	0	0
Heavy-heavy duty truck (HHDT)	0	100	100
Other bus (OBUS)	0	0	0
Urban bus (UBUS)	0	0	0
Motorcycle (MCY)	0	0	0
School bus (SBUS)	0	0	0
Motor home (MH)	0	0	0
Total	100	100	100

As described above, the on-road mobile activity, including truck activity, in the CalEEMod analysis were appropriately assessed and used within the framework of annual emissions estimation and annual activity. Therefore, the DEIR's air quality and GHG emissions analysis appropriately assesses the Project's estimated mobile activity.

Regarding the software used to estimate emissions, CalEEMod is the emissions estimation model recommended by BAAQMD and other air districts throughout California. CalEEMod was prepared for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the South Coast Air Quality Management District and other California Air Districts. CalEEMod uses the EMFAC2017 emission factors for vehicles, which is CARB-developed and EPA-approved for use in estimating on-road mobile emissions in California. The appellant's statement that use of 'ton-miles' is required to estimate emissions is not only unsupported by any evidence by the appellant but is also contrary to recommendations by California Air Districts and common CEQA practice. The appellant's assertion that the Project should use the EPA's SmartWay modeling is unsupported by evidence. The EPA's SmartWay Program is a voluntary public-private program

to assist companies in making freight movement decisions; it is a program that companies may choose to join. SmartWay is not the EPA-recommended model for assessing on-road mobile emissions – the Motor Vehicle Emissions Simulator (MOVES) is EPA’s emission modeling system for mobile sources. However, MOVES is not appropriate emissions model to use for projects located in California – CARB’s EMFAC is the appropriate emissions model, as demonstrated through EPA MOVES documentation:

While MOVES models onroad and nonroad emissions in California, the MOVES defaults do not capture all the details of California emission standards and control programs. Instead, California uses California-specific models for modeling mobile sources. (EPA 2021)

As described above, the on-road mobile activity, including truck activity, in the CalEEMod analysis were appropriately assessed and used within the framework of annual emissions estimation and annual activity. Therefore, the DEIR’s air quality and GHG emissions analysis appropriately assesses the Project’s estimated mobile activity.

Issue 5 – The No-Project Alternative

Claim: The FEIR erroneously concluded that the no-project alternative would not result in any significant unmitigable impacts or eliminate any significant unmitigable impacts.

Alternatives and additional impacts

The FEIR failed to document multiple significant impacts biasing the Planning Commission’s decision. The No Project Alternative analysis was biased beyond redemption by the substantive errors in the EIR. Given the failure of the FEIR to document the multiple significant impacts of the Project, the no-project analysis did not include many significant environmental impacts that might lead to a no-project decision. This is particularly true in the domain of greenhouse gas emissions and energy, where impacts may not be mitigatable. Through the EIR, and derivatively through the staff report, decisionmakers were not presented with realistic cost-benefit choices for the Project.

Response:

The appellants list greenhouse gas and energy as the multiple significant impacts that biased the planning commissions decision. GHG and energy are two of the strongest aspects of this project thanks the voluntary condition of approval offered by Nordic to employ 100% renewable and or non carbon energy for the project, build a 15 acre rooftop solar array on the facility, and a detailed voluntary traffic management program to reduce single occupancy vehicle trips to the farm. As detailed under the response to issue 2 above the DEIR’s emissions estimate of GHG associated with energy consumption were overly conservative (in other words, if anything the emissions were overstated) by applying a non-zero carbon intensity factor. Applying a zero carbon intensity factor (0 lbs. CO₂e/MWh) reduces the Project’s anticipated operational emissions to 4,024.32 MTCO₂e/year and 3,757.75 MTCO₂e/year for years 2025 and 2029, respectively.

The EIR concluded, based on substantial evidence and exhaustive technical analysis, that the Project will have no significant and unavoidable impacts. The DEIR incorporated extensive environmental impact analysis including detailed technical evaluations of the Project and the alternatives to support decision makers in assessing the environmental consequences of the Project. The County has provided substantive analysis to both disclose potential environmental effects resulting from the whole of the Project to the public and to inform the Planning Commission as to the potential environmental consequences of the Project.

As Described on pages 2-54 through 2-55 of the FEIR:

Section 15151 of the CEQA Guidelines states:

An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at disclosure.

Furthermore, CEQA Guidelines Section 15088 (Evaluation of and Response to Comments) states,

“The level of detail contained in the response, however, may correspond to the level of detail provided in the comment (i.e., responses to general comments may be general). A general response may be appropriate when a comment does not contain or specifically refer to readily available information or does not explain the relevance of evidence submitted with the comment.”

The DEIR incorporated considerable analyses that include detailed technical evaluation of environmental resources. These technical evaluations were designed to be sufficient to support decision makers in evaluating the environmental consequences of the Project. While additional investigation is always possible, the technical evaluations assessed the Project as a whole and were comprehensive in scope and scale sufficient to support decision makers absent continued evaluation in greater detail. Where necessary and appropriate, the DEIR relied on Project-specific technical evaluations. Technical evaluations were independently peer reviewed by qualified, independent third party-consultants. Technical evaluations prepared for the Project were appended to the DEIR. As an exception, the confidential cultural resources investigation was not appended to the DEIR but was completed for the Project.

As a result of these technical evaluations and associated impact analyses, the County has provided substantive analysis to both disclose potential environmental effects resulting from the whole of the Project to the public and to inform the Planning Commission as to the potential environmental consequences of the Project. Substantial evidence supports this analysis, including the analysis of the No Project Alternative.

Issue 6 – Scope of Alternatives Analysis

Claim: The FEIR did not consider as alternatives a small project, or multi-phase modular build-out.

Neither of the alternative ways of structuring the Project considered by the FEIR actually deal with the many environmental impacts the FEIR failed to document. The Project NAFC proposes is, according to company representatives, entirely modular, with multiple self-contained units. Thus, the obvious alternative, which was proposed by environmental groups multiple times, was to either make the Project much smaller or add the modules sequentially over time as the many potential problems were worked out. Although the Project is designed in two phases, it is missing a small-project alternative or an adaptive management plan that provides for a phased implementation of the modular units with permission to continue adding modules based on successful performance. This project is a massive experiment by a

company whose pilot program has only harvested two cohorts and is now no longer going to farm Atlantic Salmon. The Humboldt project is 17 times bigger (in terms of output) than the pilot. The largest land-based Atlantic Salmon farm in the world is only two-thirds the size of this proposal. It has had multiple fish die-offs, cooling failures, and lost \$121 million in 2021. Trade journal articles make it clear that attempting an aquafarm of this size is highly risky as problems increase with scale. Because the EIR did not consider the small project or multiple-phase modular development these risks were not brought to the attention of decision-makers.

Response:

CEQA requires that an EIR “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.” (CEQA Guidelines 15126.6.) An EIR need not consider every conceivable alternative. (As described in section 4. Alternatives Description and Analysis.) The Project EIR complied with this requirement.

The EIR analyzed the environmental impacts of the Project, and there were no significant and unavoidable impacts identified. In other words, there are no alternatives that would “substantially lessen any of the significant effects of the project,” because no significant effects remain after mitigation. It is not entirely clear how Appellants would propose to “phase” in a way that greatly differs from the current phasing of the Project, but impacts of the Project would be no different if it were constructed in smaller pieces.

The Project will consist of three phases. The first phase of the Project will consist of demolition and remediation activities. The Conditions of Approval require this phase to be completed and documented to the satisfaction of the County before the next phase is allowed to commence. This will be the first performance gate where NAFC must demonstrate it successfully performed the work under permit conditions.

The second phase of the Project will build out half of the Projects total production capacity. It is expected that demolition and remediation activities will take between 1 to 1.5 years. Construction activity for the first half of production capacity will take up to 3 years to complete. The Project is required to obtain a NPDES permit from the NCRWQB to discharge effluent via the existing outfall. The NPDES permit is for 5 years. To receive a permit renewal an applicant must demonstrate they have complied with all aspects of their permit. This will be the second performance gate via a regulatory body the Project must comply with. If the project does not meet the conditions of its permit it would be required to fix any issues or face fines or a cease-and-desist order.

As proposed, there are various checkpoints during Project implementation to address potential concerns or unanticipated issues. Furthermore, a project that is substantially smaller than the proposed Project could result in a less favorable environmental outcome. The methodology for the facilities demolition, construction and operation would remain unchanged save for the footprint of the facility and its final output, however, a significant portion of the site would remain in its current state an EPA superfund site. Significant portions of the site would no longer require excavation and screening of material down to the water table potentially leaving in place contaminants that could impact groundwater and the overall health of the local ecosystem for decades to come. A substantially smaller project would in short be the worst of both scenarios per the Appellants’ concerns.

A smaller project would result in reduced environmental cleanup. The current Condition of Approval mandates successful remediation of the Brownfield before any construction begins. Thus, allowing the community to reap the full benefits of the remediation and cleanup of the site at the very outset of the Project.

Issue 7 – Analysis of Biological Resources

Claim: The FEIR makes conclusions regarding threatened species prior to completing formal consultation on Project effects to those species

No aspect of the Project has undergone formal Endangered Species Act (ESA) consultation. The Project is likely to result in take of eulachon, coho salmon, Chinook salmon, steelhead, green sturgeon that are listed as threatened under the federal ESA. The Project will result in adverse effects to green sturgeon, coho salmon, and eulachon critical habitat as this habitat is listed under the ESA. The Project is likely to result in take of longfin smelt, which is listed as threatened under the California Endangered Species Act (CESA). Of all of these listed entities, only take of longfin smelt is under consultation and that consultation is not likely to be completed until on or after February 2023. It is premature to make final effect determinations and to permit the Project without completion of the ESA and CESA consultations. When the National Marine Fisheries Service (NMFS) completes formal ESA consultation on federally listed species and critical habitat, their biological opinion will include reasonable and prudent alternatives or reasonable and prudent measures. It is premature for the Project to be permitted without inclusion of these alternatives or measures.

Response:

There is no requirement or reasonable expectation that the County, or any CEQA lead agency, “certify” that an Applicant receive all required federal and state permits and approvals. The CEQA lead agency is not required to wait until all other agencies have issued their respective approvals before issuing its own approvals. In fact, CEQA Guidelines section 15050 states that “the agency which will act first on the project in question will normally be the lead agency.” Here the County is the lead agency for CEQA review since the County has the principal responsibility for approving the Project (CEQA Guidelines §15367). Accordingly, it is inherent in the definition of these roles that other permits will be issued later; and if the Applicant does not receive all required permits and approvals, then the Project implementation will not be able to legally proceed. The EIR includes a detailed analysis of all anticipated impacts on biological resources, and the applicants have been coordinating with the species agencies throughout this process.

The longfin smelt analysis was performed as detailed in DEIR Section 3.3.6 Impacts and Mitigation Measures starting on page 3.3-9, and under Impact BIO-a. Effects of the Humboldt Bay Water Intakes on Special Status Fish begins on page 3.3-46. As described below, all relevant agencies were consulted and asked to review and provide comments on the DEIR. The result of this consultation was an alternative to Mitigation Measure BIO-6A for longfin smelt.

A series of Agency coordination meetings were conducted throughout development of the Project and throughout the CEQA process. Several consultation meetings were conducted specifically regarding potential water quality, biological, and ESA impacts. For example, on page 10 of the Marine Resources Biological Evaluation, Appendix D, agency coordination included pre-project meetings held with the U.S. Army Corps of Engineers, North Coast Regional Board Water Quality Control Board, Humboldt Bay Harbor, Recreation, and Conservation District, California Coastal Commission (Coastal Commission), Humboldt County Planning Department, National Marine Fisheries Service (NMFS), State Lands Commission, and California Department of Fish and Wildlife. Additional outreach to the commercial and recreational fishing community resulted in a list of non-special status species of interest. While not state or federally listed, these commercial

and recreational species were also considered with respect to an evaluation of potential Project related impacts.

The DEIR examines impacts to other listed marine life as well. The Appendix D Marine Resources Biological Evaluation provides a comprehensive list of fish that may be impacted by the Project and what those impacts may be. Table 5.1 - Marine Species Potential to Occur in the Project Area lists green sturgeon on page 19, Coho salmon on page 21, and Chinook salmon, steelhead and eulachon on page 22. Further, starting on page 29 analysis of Special Status Fish begins with green sturgeon, followed by Coho salmon, then Chinook salmon and steelhead on the following page. On page 38, effects to designated critical habitat of green sturgeon is analyzed. Less than significant impacts to marine resources are expected as a result of the Project's discharge via the RMT II ocean outfall, as modeled by GHD (2020), no avoidance or minimization measures for marine resources are proposed.

Five special status or protected mammal species, one special status bird species, five special status fish, and Essential Fish Habitat may occur in the Project Study Boundary. Due to the small spatial scale and likely short-term exposure of these marine species to the effluent plume, impacts are considered to be less than significant. In addition, impacts to commercial and recreational species, as well as invertebrate communities that support commercial and recreational species, are also considered to be less than significant. The Project will implement monitoring as required in NPDES permit and any potential future deviations from water quality thresholds established in the permit will require reconciliation with the North Coast Regional Water Quality Control Board (NCRWQCB) and regulatory provisions of other resource agencies.

In early consultation with the Coastal Commission (July 2020), senior staff of the California Coastal Commission recommended that, although the proposed intake project was not a desalination facility, the project should utilize the State Water Board provisions for Desalination Facilities that are included in Section M of the Ocean Plan as guidance. In July 2020, a Memorandum of Agreement was executed regarding regulating desalination facilities. The Agreement purpose was as follows:

The purpose of this Agreement is to facilitate timely and effective coordination among the State Water Resources Control Board (State Water Board), the California Coastal Commission (Coastal Commission), the California State Lands Commission (State Lands), the California Department of Fish and Wildlife (Fish and Wildlife), the North Coast Regional Water Quality Control Board, the San Francisco Bay Regional Water Quality Control Board, the Central Coast Regional Water Quality Control Board, the Los Angeles Regional Water Quality Control Board, the Santa Ana Regional Water Quality Control Board, the San Diego Regional Water Quality Control Board, Monterey Bay National Marine Sanctuary (MBNMS), and the National Marine Fisheries Service's (NMFS) West Coast Region (referred to individually as "Agency" and collectively as "Agencies") during review of environmental documents and permits or lease applications for proposed seawater desalination facilities. This Agreement recognizes the shared and separate authorities of the Agencies and describes the manner in which the Agencies and their staffs will coordinate their respective environmental and permitting or leasing review obligations.

As part of this new (July 2020) coordination regulatory and environmental review process, the Agencies agreed upon a unified process for implementing collection of data and review standards that the multiple agencies would follow as they implement their individual statutory

requirements. The State Water Board's Ocean Plan established the "Empirical Transport Models" (ETM)/Area of Production Forgone (APF) as the methodology which would be utilized to estimate entrainment.

On January 3, 2022, the State Department of Fish and Wildlife issued a Memorandum of Understanding (MOU) Regarding Take of Longfin Smelt and Coho Salmon under the California Endangered Species Act associated with the ETM sampling for the project. The MOU states: "The purpose of this MOU is to lawfully authorize incidental take (as defined by Fish & Game Code, §86) of Longfin Smelt (*Spirinchus thaleichthys*) and Coho Salmon (*Oncorhynchus kisutch*), for scientific purposes pursuant to the California Endangered Species Act (CESA; Fish & Game Code, §2050 et. Seq.; Calif. Code Regs. tit. 14, §28.06). As part of this approval from CA Fish and Wildlife, a sampling plan was prepared and approved which outlined location, methods, and species which would be collected as part of the sampling."

Regarding potential take of federally listed species, the statement that the formal Endangered Species Act (ESA) consultation will include reasonable and prudent alternatives or reasonable and prudent measures is incorrect. If the NMFS determines in their ESA Section 7 consultation Biological Opinion that the action is likely to jeopardize the continued existence of any listed species or destroy or adversely modify critical habitat, the Project may not go forward unless NMFS provides a "reasonable and prudent alternative" that would avoid jeopardy and destruction or adverse modification. However, if NMFS concludes, in their opinion, that the Project is not likely to jeopardize the continued existence of any listed species or destroy or adversely modify critical habitat, they will include terms and conditions to minimize and monitor impacts to listed species and exclude a reasonable and prudent alternative.

The EIR's analysis of impacts to biological resources is exhaustive and supported by substantial evidence. The EIR acknowledges that additional permits will be required from other agencies and acknowledges the performance standards that will govern consideration of those permits.

Issue 8 – Adequacy of analysis of impacts of water intake

Claim: Removal of phytoplankton and zooplankton biomass from Humboldt Bay is likely to disrupt the food web and result in fisheries and ecosystem changes.

There is no certainty that such a diversion of saltwater will be allowed by regulatory authorities. The use of this source of saltwater from the shallow waters of Humboldt Bay will have significant impacts on many marine species during their larval stage including long fin, surf, and night smelt (osmeridae) various flat fish and sole, Pacific herring, sand lance, Jacksmelt (Atherinopsidae), Rock and Dungeness Crab (Zoea and megalops stages), zooplankton, phytoplankton and other essential links in the marine food chain. The economic and environmental impacts of "take" of these marine life forms has not been fully analyzed. Humboldt Bay is an economically important nursery for common, and rare marine resources.

Response:

The Water Board's Ocean Plan establishes the procedures for analyzing the ETM / APF for Phytoplankton and zooplankton biomass. The DEIR analyzes the effects of seawater intake entrainment on essential fish habitat and specific fish species, including Pacific herring and northern anchovy starting on page 3.3-50. The DEIR analyzes the Project's effect on other commercial and recreational fish species on page 3.3-53. As part of the Coastal Commission's CDP, the Area of Production Forgone calculation is used to determine appropriate compensation

for impacts to organisms such as phytoplankton and zooplankton potentially subject to entrainment, even though they may not have been included in the sampling.

The Harbor District will be required to obtain a CDP from the Coastal Commission for the seawater intakes. A component of this will be to evaluate any loss in biological productivity within the bay and provide compensation for this. Sampling is ongoing to precisely define the extent to which productivity will be affected.

As described in the FEIR on page 2-49 through 2-51:

The effects on smaller phytoplankton and zooplankton are typically not studied because their large abundances, wide distributions, and short generation times make them less susceptible to the effects of entrainment, especially at an intake with a volume that represents only 0.0304% of the Bay volume at mean sea level. On top of the volume of water that is in the Bay at mean sea level, nearly 68 billion gallons of water is exchanged in Humboldt Bay in each 24-hour period through tidal flow. In other words, 17 billion gallons of water enters the Bay in the transition from low tide to high tide and then 17 billion gallons of water leaves the Bay in the transition from high tide to low tide. This cycle repeats twice each day. Accordingly, the proposed amount of water to be withdrawn is a minor fraction of the volume of water in the dynamic Humboldt Bay system (SHN 2022).

The smaller phytoplankton and zooplankton also require additional sampling using smaller mesh nets than the 335-micron-mesh (0.0013 in.) being used in the sampling as mandated by the Ocean Plan Desalination policy and Power Plant Intake Policy of the State Water Resources Control Board.

Finally, concerns regarding the absence of any sampling of other planktonic organisms in the study can be addressed during the analysis. For example, fish eggs are also part of the plankton and would be subject to entrainment. It is very difficult to identify most fish eggs to the same taxonomic level that the larvae can be identified. However, as part of the ETM analysis, the estimated planktonic duration of the egg stage for species with planktonic eggs is included in the calculations so that the potential entrainment of eggs is accounted for in the final assessment for each organism with planktonic eggs.

The results of the ETM analyses of the organisms selected for study are used to calculate an estimate of the habitat area necessary to compensate for the entrainment losses or the Area of Production Foregone (APF). The estimates of APF for the various organisms are typically averaged to provide an integrated estimate of the habitat area required to compensate for the losses to both the organisms analyzed and other organisms potentially subject to entrainment. Therefore, one of the goals of the final estimate of APF is to determine appropriate compensation for impacts to organisms such as phytoplankton and zooplankton potentially subject to entrainment even though they may not have been included in the sampling.

The EIR's analysis of environmental impacts associated with the intake structures is supported by substantial evidence.

Issue 9 – Scope of the Project Analyzed in the EIR

Claim: The FEIR uses a "piecemeal" approach to permitting the saltwater intake, which is not allowed by CEQA

For the purpose of CEQA, this should be a single project. The permitting has been segregated into three distinct parts: (1) the onshore part of the Project and its effluent; (2) the saltwater intakes; and (3) the freshwater intakes. The saltwater intake of 10 million gallons per day (MGD), and the freshwater intake of 2.5 MGD would not occur but for the Project. Leaving the analysis of impacts to third parties, such as the Humboldt Bay Harbor, Recreation, and Conservation District (HBHRCD) and the Humboldt Bay Municipal Water District (HBMWD) does not allow the CEQA decision maker to be provided with the full extent of Project impacts prior to Project certification. The HBHRCD may at some future date obtain a permit to allow the saltwater intakes; however, Project use of that water on the adjacent land-based Project should be analyzed for the impingement and entrainment of larval life forms that will pass through the screened intakes during diversions and for habitat and biomass reduction in Humboldt Bay. Additionally, the HBMWD Habitat Conservation Plan (HCP), which has provisions for take of ESA-listed species in the Mad River, does not address the eulachon, green sturgeon, and coho salmon critical habitat that was listed after the HCP was finalized.

Response:

The EIR analyzed the intake, the land-based facilities, and the outfall as one Project, consistent with the requirement under CEQA that an EIR look at the “whole of an action.” (Pub. Res. Code 21065.) The fact that additional permits will be required in the future for components of the Project has no bearing on compliance with CEQA, and is typical of a multi-faceted project like this one.

In almost all projects that occur on land and in the waters of Humboldt Bay/Pacific Ocean, the standard practice that has been utilized for decades is that the local jurisdiction (e.g., Humboldt County and Harbor District) approves their portion of the project first, followed by the Water Board, Coastal Commission and then USACOE permits. This is not segmentation; this is the standard practice. At the very beginning of the pre-application consultation process with the County, Harbor District, Coastal Commission, Water Quality Control Board and USACOE, the agencies met and agreed on what permits would be required, who would take the CEQA lead, and the order the that permits would be issued.

As discussed in Issue NO.7 above, the relevant regulatory agencies executed a MOU in July 2020 for Desalination Facilities that was specifically intended to address the multitude of regulatory agencies and conflicting statutory requirements that are required and that govern the review and permitting of these complex projects. In addition, this project is following a similar process that was implemented during the 1992 evaluation of CDP-1-92-106 by the Coastal Commission and County Planning Department for the extension of the ocean outfall pipe from approximately 0.5 miles to 1.5 miles offshore and the installation of large land-based pollution control systems which among other items utilized the existing facility Baywater intake Sea Chests. The CDP 1-92-106 Coastal Commission Staff Report states:

Of the three major project components, only the outfall extension is within the Commission's retained jurisdiction (see Exhibit 3). Although the entire project and pulp mill site is within the coastal zone, the new structures, tanks, and other physical development necessary to implement the new steam stripping process and the substitution of bleaching compounds is located within coastal development permit jurisdiction of Humboldt County (see Exhibits 3 and 5). In addition, a portion of the staging and construction work on the outfall extension is also within the County's jurisdiction. The Commission's retained permit jurisdiction on the Ocean side of the Samoa Peninsula in this area covers only those open water and beach areas extending seaward from the mean high tide line, which lies west of both New Navy Base Road and the extensive dune system at the site. The County granted Coastal Development Permit CDP 20-92 for all of the proposed development within its coastal permit jurisdiction as part of a set of local permits granted by the County for the project on May 27, 1993. The County's coastal development permit was not appealed to the Commission.

All aspects of the Project are described and analyzed in the EIR. The various agencies that are responsible for permitting different aspects of the Project are described in Table 2-2 Anticipated Regulatory Permits and Approvals on page 2-7 of the Project Description. The Project will not require the building of any new freshwater or saltwater intakes and will be served by existing infrastructure that is currently underutilized since the shuttering of the two pulp mills on the Samoa peninsula.

The saltwater intake system is fully described and analyzed in the EIR. See the following:

- Project Description (Section 2)
 - o Section 2.4 Humboldt Bay Water Intakes (pages 2-47 through 2-58)
 - o Section 2.2.4 Project Operations: Saltwater (page 2-23)
 - o Section 2.2.4 Project Operations: Utility Improvements and Services: Intake and Discharge Water (page 2-31)
 - o Figures 2-2, 2-5, and 2-13 through 2-16
- Biological Resources (Section 3), various sub-sections

As described in section 3.13 Utilities and Service Systems on page 3.13-1:

Water

The HBMWD provides industrial untreated and potable water services to the Samoa Peninsula. HBMWD maintains two separate pipeline systems delivering treated drinking water (potable) and untreated raw (non-potable) industrial water to its customers in the area. HBMWD maintains a Capital Improvement Plan (CIP) to ensure that facilities and infrastructure are maintained and improved over time. These efforts have included projects on the Samoa Peninsula. The domestic system is served by a 12-inch diameter, concrete-lined transmission pipe that is routed down the peninsula, and then looped through a 27-inch diameter, steel pipeline under Humboldt Bay. The source of the industrial and potable water is the Mad River.

The HBMWD supplies industrial water to some industrial properties on the peninsula, including currently supplying fire water to the proposed Project Site and other neighboring Harbor District properties. A one million-gallon (1-MG) industrial water storage tank, owned and operated by HBMWD, is located southwest of the Project Site, approximately 600 feet west of the Project Site between Vance Avenue and New Navy Base Road. The raw water transmission line is a 42-inch diameter, concrete-lined corrugated pipeline that ends approximately due east of the DG Fairhaven power plant. Lateral from the main water transmission line already exist onto the Project Site. Historically, this line served

pulp mills on the peninsula; however, the vast majority of the industrial demand has since subsided leaving substantial capacity in the system available for use.

Further details describing the HBMWD, its infrastructure and capacity to serve the Project, and context around water rights are described in the will serve letter provided by the HBMWD on August 14, 2021 regarding this project. However, regardless of what future permits may be required, the EIR analyzes the “whole of the action” as required by CEQA, and Appellants’ allegation of piecemealing/segmentation is meritless.

Issue 10 – Analysis of Alternatives to Using Existing Seawater Intake Structure

Claim: The FEIR fails to conduct a serious, and rigorous alternatives analysis for the seawater intake

Alternative 3 in the FEIR combined ""Fish Selection"" with Saltwater intake, and the intakes were given little consideration. Appendix R in the NAFC DEIR clearly informed the HBHRCD that the 1997 guidelines produced by National Oceanic and Atmospheric Administration (NOAA) recommend that intakes should be located offshore, when possible, to minimize fish contact. Locating the intakes offshore would minimize the potential adverse environmental impacts of impingement and entrainment of marine life and produce an environmentally superior project. No calculation of cost, or distance offshore was provided in presumptions made indicating that onshore intakes were the only viable alternative. Impacts to green sturgeon critical habitat, as well as breeding, feeding, sheltering, and migration habitat for green sturgeon, Chinook salmon, coho salmon, steelhead, eulachon, and longfin smelt could have been minimized by including a Project alternative that followed NOAA guidelines.

Response:

The purpose of the EIR is to quantify and describe the potential environmental impacts of the proposed Project in accordance with CEQA. The EIR analyzed multiple alternatives for the seawater intakes, including the relative environmental impacts.

The various seawater intake alternatives were available for the review by the Planning Commission during its review and subsequent unanimous approval of the EIR. The EIR Appendix R presents a summation of the 12-page NMFS guidance. “The guidelines and criteria are general in nature. There may be cases where site constraints or extenuating circumstances dictate a waiver or modification of one or more of these criteria. Conversely, where there is an opportunity to protect fish, site-specific criteria may be added. Variances from established criteria will be considered on a project-by-project basis” (NMFS 1997). It should further be understood that the criteria listed in the NMFS guidance is for the siting of new intakes. The intakes under consideration for use by the Project have been in-place and generally in-use for approximately 50 years.

The seawater intakes are existing intakes and the Harbor District is not proposing to locate a new intake system as stated by the Appellant. The Intakes were constructed in the 1960s. As discussed in Issue NO. 7 above, the Agencies entered into a Memorandum of Agreement for Desalination Plants and the Water Board’s Ocean Plan establishes the Standards for the placement of intake structures. Ocean Plan Section M.1.b. defines expanded facilities and establishes standards and additional protection measures for withdrawals above authorized withdrawals.

The Harbor District's project description included the original "as built" engineering plans for the sea chest dated August 1966. The sea chest at RMT II was utilized by the pulp mill as part of its pulp processing operations continuously until the pulp mill closed. The Harbor District, through Coastal Commission CDP 1-19-0407, is authorized to operate a Dredge Material Dewatering site on the tarmac of Redwood Marine Terminal II. The Harbor District utilized this dewatering site as part of the 2020 Woodley Island Marina beneficial reuse of dredge material project. As part of the dewatering permits, the Harbor District is authorized to utilize the sea water intake at RMT II from July 15 to October 15 for dredge re-slurry activities. Special Condition NO 3. Of CDP 1-19-0407 establishes the Screened Intake System Design Standards and Procedures for the seawater intake and authorizes a maximum draw of 1,500 gallons per minute (GPM) [2,160,000 gallons per day GPD].

As described on page 3.3-47 of the DEIR:

General intake screen design criteria are outlined in the NMFS document: Fish Screening Criteria for Anadromous Salmonids (NMFS 1997). Through consultation between the Harbor District and CDFW, it has been determined that intake screens must meet the design criteria assuming the presence of anadromous salmonid fry and juvenile longfin smelt. Applicable design criteria for fish screens from NMFS (1997) are summarized below.

- *316 stainless steel profile bar screen material; 1.00mm spacing between bars (screen size)*
- *0.2-feet per second (fps) maximum approach velocity at maximum intake flow rate*
- *Compressed air automatic self-cleaning system*
- *Flow modifier to evenly distribute intake flow rates and velocities over the entire screen face*

What is relevant is the screen mesh opening size, velocity, self-cleaning and considerations relative to operation and maintenance. "For projects where NMFS has jurisdiction, such as FERC license applications and ESA consultations, a functional design must be developed as part of the application or consultation. These designs must reflect NMFS design criteria and be acceptable to NMFS." (NMFS 1997). NMFS was consulted and found the intake design to be acceptable. The entirety of the NMFS fish screen criteria was considered in the context of this project. The appellant is attempting to supplant the guidance of another agency through a partial reading of a singular sentence within a 12 page document that was written as general guidance for new installations instead of weighing the applicable design criteria for this existing infrastructure as NMFS chose to do.

The complete general criteria and subsection 3a criteria:

III. Screen Criteria for Juvenile Salmonids

A. Structure Placement

1. General:

The screened intake shall be designed to withdraw water from the most appropriate elevation, considering juvenile fish attraction, appropriate water temperature control downstream or a combination thereof. The design must accommodate the expected range of water surface elevations.

For on-river screens, it is preferable to keep the fish in the main channel rather than put them through intermediate screen bypasses. NMFS decides whether to require intermediate bypasses for on-river, straight profile screens by considering the biological and hydraulic conditions existing at each individual project site.

3. Lakes, Reservoirs, and Tidal Areas:

a. Where possible, intakes should be located offshore to minimize fish contact with the facility. Water velocity from any direction toward the screen shall not exceed the allowable approach velocity. Where possible, locate intakes where sufficient sweeping velocity exists. This minimizes sediment accumulation in and around the screen, facilitates debris removal, and encourages fish movement away from the screen face.

Appellants did not provide any evidence upon which to base their concern or conclusions that differed from impact analysis within the DEIR and appended technical evaluations. Pursuant to CEQA Guidelines Section 15064, the decision as to whether a project may have one or more significant effects shall be based on substantial evidence in the record of the lead agency. Substantial evidence is defined as enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Whether a fair argument can be made that the Project may have a significant effect on the environment is to be determined by examining the whole record before the lead agency. An effect on the environment shall not be considered significant in the absence of substantial evidence. (CEQA Statute Section 21082.2(c), Guidelines Section 15384(b) and 15604 (f)(5)). Argument, speculation, unsubstantiated opinion or narrative, or evidence that is clearly inaccurate or erroneous, or evidence that is not credible, shall not constitute substantial evidence (CEQA Statute Section 21082.2(c), Guidelines Section 15384(a) and 15604 (f)(5)).

Section 15151 of the CEQA Guidelines addresses the degree of analysis required for decision:

An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at disclosure.

The DEIR incorporated considerable analyses that include detailed technical evaluation of environmental resources. These technical evaluations were designed to be sufficient to support decision makers in evaluating the environmental consequences of the Project. While additional investigation is always possible, the technical evaluations assessed the Project as a whole and were comprehensive in scope and scale sufficient to support decision makers absent continued evaluation in greater detail. Where necessary and appropriate, the DEIR relied on Project-specific technical evaluations. Technical evaluations were independently peer reviewed by qualified, independent third party-consultants.

Pages 4-16 through 4-17 present alternatives to the intakes. These alternatives are listed separately in the document, and are listed below for complete context:

Water Source Alternative 1 – Slant Well

A slant well (or number of slant wells) could be drilled to withdraw brackish or saltwater from beneath the ground surface. The saltwater is extracted from the ground via pumping.

The Harbor District previously installed a test well at the Project Site to evaluate the potential water yield. The test well used a five-inch saltwater well and encountered saline water at 320 feet below the ground surface (Harbor District 2018). Although volume tests were not conducted, the goal was to withdraw up to 200 gallons per minute (288,000 gallons per day). The combined capacity of the RMT II and Red Tank dock water intakes would be 8,250 gallons per minute. Approximately 40 slant wells would be required to achieve an equivalent volume of water. Its unlikely 40 slant wells could be spatially situated on the Project Site, given the large size of the facility; there is likely not enough room for such a substantial field of wells. Given the historic soil and potential for groundwater contamination on the site any risk associated with a large-scale ground filtered water production system would be deemed too great for a food production system.

Water Source Alternative 2 – Oceanic Seawater Intake

Oceanic seawater intake pipes could be directionally drilled under adjacent properties, New Navy Base Road, and the surf zone, “daylighting” in the Pacific on the ocean floor. An oceanic seawater intake would require substantial in-water construction. The location of the oceanic seawater intake would need to be sufficiently offshore to avoid the wave energy and shifting sands associated with the surf zone. The pipes would need to be attached to a screened intake system installed from the ocean surface, connected to the directionally drilled pipes, and sufficiently anchored to the seafloor. The screens would require intermittent cleaning to maintain intake screen approach velocities and functionality. A compressed air line would need to be similarly installed parallel to the intake pipes. The compressed air would be used intermittently to clear the screen. The screens would need to be lifted to the surface periodically to be inspected and clean.

Water Source Alternative 3 – Humboldt Bay Seawater Wells

Humboldt Bay seawater intake pipe wells would be drilled beneath the seafloor of Humboldt Bay to extract salt water. Salt water would be brought to the Project Site via piping. The pipe would need to be attached to a screened intake system installed on the Humboldt Bay seafloor, connected to the directionally drilled pipe, and sufficiently anchored to the Humboldt Bay seafloor. The screens would require intermittent cleaning to maintain intake screen approach velocities and functionality. A compressed air line would need to be similarly installed parallel to the intake pipe. The compressed air would be used intermittently to clear the screen. The screens would also need to be lifted to the surface periodically to inspect and clean. More than one Humboldt Bay seawater well would be required to meet the water requirements of the Project. This alternative water source would require substantial in-water construction.

Construction and operation of a new oceanic water intake would require extensive in-water construction and thus potential environmental impacts. The oceanic water intake would result in its own biological and water quality impacts, resulting from both construction and operations. Pumping would require significant operational energy resources. Up to 40 slant wells would be required to achieve equivalent water withdrawals, compared to the existing Humboldt Bay seawater intakes at the RMT II and Red Tank docks. Assuming there is enough room for 40 slant wells on the Project Site, which is unlikely, the slant wells would increase potential impacts to groundwater resources and would require substantial operational energy requirements, resulting in an increased to climate related resources. Even if NAFC elected not to utilize the Humboldt Bay seawater intakes, the Harbor District would continue to independently pursue upgrades to the two intakes for their existing and future lessees and other coastal industrial uses. Thus, impacts related to the oceanic seawater intake and up to 40 slant wells would be in addition to

the water intakes from Humboldt Bay, not instead of such impacts. A potential cumulative impact would thus result. Potential impacts and benefits associated with the off-site compensatory restoration would be equivalent between the Fish Species and Water Source Alternative and the proposed Project.

With the incorporation of mitigation measures, the proposed Project would not result in any significant environmental impacts. Additionally, the proposed Project achieves all the goals and objectives of the Project. Of the three alternatives considered, the Off-Site Location Alternative (Alternative 2) and the Fish Species and Water Source Alternative (Alternative 3) would not be less environmentally impactful than the proposed Project. Only the No Project Alternative (Alternative 1) would be less impactful to the environment; however, the goals and objectives of the Project would not be achieved, and the current degraded brownfield site would remain as is with its current negative impacts and hazards.

Issue 11: Analysis of Not-Yet-Identified Future Sources of Fish Food

Claim: The FEIR fails to identify or quantify the amount of ocean sources of fish food that will be utilized in the production of 25,000 metric tons of Atlantic salmon

Failure to specifically identify the fish food sources makes meaningful analysis of adverse environmental impacts impossible. During hearings before the Humboldt Planning Commission, a NAFC representative dismissed the use of soy-based plant foods for fish production. This leaves the stark reality that the majority of protein fed to NAFC's Atlantic salmon will be derived from ocean harvest, most likely coastal pelagic species which are the foundation forage fish for marine ecosystems. Any fish food removed from the northern Pacific Ocean is therefore unavailable to native salmon or any other marine predators in the ecosystem. Fish food derived from Atlantic fisheries disrupts indigenous communities and global food supply. To claim that use of "certified sustainable" fish food sources mitigates to below the level of significance is unfounded when the fish meal source has not been identified.

Response:

The NAFC Samoa facility will not produce fish feed. NAFC will purchase fish feed from fully permitted and licensed companies with likeminded sustainability goals, just as we do now for other Nordic commercial operations. Given that the Project will not be fully operational for several years, to identify the specific ingredient sources or formulation of that feed would be speculative.

Fish feed formulations change on a regular basis with the intention of improving fish health and improving the sustainability of the feed itself. While NAFC can speak to current formulations in use at our commercial facilities in Europe, those ingredient sources would not be identical to that employed in North America, nor would they be identical to the formulations and ingredients sourced next year, five years from now or twenty years from now.

As discussed in the FEIR on pages 2-57 through 59:

As stated on page 2-38 of the DEIR, NAFC has not yet made a final decision on a feed supplier for the Project. It is too early in the process to do so because the sources of ingredients making up these diets are changing as the aquaculture industry continuously strives for improvement in the sustainability ranking of those ingredients. A feed formulation that may be the best available today may not be the best four to five years in the future when operations are planned to commence. For instance, there is increasing production of new raw materials such as microalgae, single cell proteins and insect meal

as alternatives to traditional marine sourced ingredients. As an example, Nordic Aquafarms' facilities in Fredrikstad, Norway, have now started using microalgae as a supplement in the diet fed to the fish.

Fundamentally, the diet will be composed of marine ingredients derived from sustainable fisheries, trimmings from seafood processing, sustainably sourced vegetable constituents, vitamins, and minerals. These are formulated into a conventional pelleted fish diet such that they are well balanced and contain only the correct proportion of nutrients needed for the normal growth and development of the fish -- ensuring good uptake, high conversion rates, and minimal waste as a result.

As well as following the feed guidance listed as items 1-7 on page 2-38 of the DEIR, NAFC will choose a feed supplier that will support responsible Supply Certification Programs or similar initiatives that ensure that the raw materials making up the diet, and ingredient suppliers, are evaluated and approved prior to supply. These raw materials are purchased according to strict specifications and the ingredients are analyzed regularly to ensure consistency in quality as well as compliance with feed regulations governed by FDA under the Federal Food, Drug, and Cosmetic Act and administered by FDA – Center of Veterinary Medicine (page 2-37 of the DEIR). A practical example of this can again be seen at NAFC Aquafarms facilities at Fredrikstad in Norway where a key determining factor in selecting the preferred supplier of feed was the fact that the supplier was the first company in the aquaculture industry certified under the ProSustain™ sustainability standard. ProSustain™ is an independent system for certifying continual improvement in product sustainability including market perception analysis, Eco-Efficiency Analysis, and a whole-chain traceability program designed to assess and steer its product portfolio based on defined sustainability and quality criteria. NAFC will look for similar high standards when assessing potential suppliers for the proposed project to ensure the feed mill meets strict environmental and social requirements, source ingredients from socially responsible suppliers, and use environmentally responsible raw materials.

Detailed feed specifications can be provided along with FDA approved labels once NAFC has chosen the supplier that best fits the company's vision of achieving some of the highest environmental stewardship standards of any aquaculture facility in the world today. This information will be provided to the County no later than 90 days prior to stocking the site with feed.

NAFC does not and would not be harvesting wild fish or manufacturing fish feed at any of its facilities including this Project. Pages 2-38 of the DEIR list feed guidance that favors ingredients that are viable alternatives to harvest fisheries and includes the use of by-product trimmings, algae oils, insect meals, etc.

As described on pages 2-38 of the DEIR, NAFC recognizes the importance of the Fish-In-Fish-Out (FIFO) score as a measure of ecological efficiency of feed and the Project will include target limits that are among the best in the industry. In fact, Nordic Aquafarms' Fredrikstad Seafoods land-based facility growing Atlantic salmon in Norway, regularly achieves a FIFO score of 0.8 meaning more fish protein would be produced by the farm than whole fish included in the feed. NAFC will target, at least, the same high standard for the Project in California with the ultimate aim of exceeding this target as the salmon diet continues to evolve and reduce its dependence on traditional marine ingredients.

The sources and species make up of wild harvested fish used in making fish meal and fish oil are reported annually by each of the feed suppliers previously mentioned and can be found in their Sustainability Reports (Skretting Sustainability Report 2020, p. 48-53; BioMar Sustainability

Report 2020, p. 72-73; Cargill Aqua Nutrition Sustainability Report 2020, p36-37). All three feed suppliers have high standards for marine derived materials and ensure their suppliers are compliant with third party certifications for responsible harvesting, processing, and sourcing from fisheries under direct and effective management.

In conclusion, NAFC will not be harvesting wild fish, nor will this project produce fish feed. NAFC will purchase fish feed from fully permitted and licensed companies with likeminded sustainability goals just as we do now for our current commercial operations. Just as we have obtained ASC certification in our Danish and Norwegian facilities and use ASC certified feed manufacturers, we will use certified feed manufacturers in the US. The analysis and disclosure with regard to fish feed is supported by substantial evidence.

Issue 12 – Pending Biological Studies

Claim: The FEIR makes arbitrary determinations of "less than significant" effects prior to obtaining data, or documenting factual basis for determinations

Studies to support many of the effect-determinations in the NAFC DEIR have not been completed. The ongoing saltwater intake study by Tenera may be completed by as late as April 2023. Findings of "less than significant" effects, prior to having those effects quantified, are arbitrary. Neither Humboldt County nor NAFC have conducted upwelling modeling to determine the full extent of nitrogen loading and dispersion in the coastal zone and Humboldt Bay. Invertebrate studies have not been completed on the zooplankton community at the saltwater intakes in Humboldt Bay. Baseline monitoring of the marine ecosystem being exposed to project effluent has not been completed. Making final determinations on environmental and ecosystem effects prior to study completion is arbitrary.

Response:

It is common practice for agencies to approve projects while studies regarding specific project elements are pending. The mitigation and ratios for all impacts have been clearly laid out with performance metrics. All potential impacts have been reduced to less than significant after mitigation. The DEIR Section 3.9 - Hydrology and Water Quality provides clear analysis of the potential impacts to hydrology and water quality resulting from construction and operation of the Project against significance thresholds derived from applicable local, state, or federal policies, or from Appendix G of the CEQA Guidelines.

As discussed on page 3.3-51 of the Biological Resources section of the DEIR:

One of the advantages of the Empirical Transport Model (ETM) is that it provides a relative measure of impacts that should be less prone to estimation error than an absolute measure based on an estimate of the number of larvae entrained per year. The absolute numbers of larvae entrained will change considerably within and between years because of numerous physical and biological factors that affect levels of larval production and survival. The ETM provides a relative measure of impact integrated over some time period (called proportional mortality [PM] in the ETM terminology) that should vary much less over time than absolute levels of impact, such as an estimate of total entrained fishes. An estimate of PM that is very low relative to other natural sources of mortality, or levels of natural variation, indicates that entrainment effects on that organism are not likely to be significant to the population.

In regards to the ongoing Tenera sampling, it is common for projects to move forward as sampling continues and information is gathered. It is proper to defer mitigation to the future, provided that

the parameters by which the efficacy of that mitigation will be measured. The ETM provided sufficient data for regulators to make an informed decision about the potential impacts of the operation of the modernized sea chests. The sampling effort will provide finer resolution to the results of the ETM. This stepwise process is what was recommended by the Coastal Commission, and is how the Project is proceeding.

The mitigation and ratios for all impacts have been clearly laid out with performance metrics. All potential impacts have been reduced to less than significant after mitigation. The appellants claim that determinations of less than significant impacts were arbitrary. Technical evaluations and associated impact analyses were prepared. The County has provided substantive analysis to both disclose potential environmental effects resulting from the whole of the Project to the public and to inform the Planning Commission as to the potential environmental consequences of the Project, and the EIR clearly lays out how the efficacy of mitigation will be evaluated. The analysis of environmental impacts is supported by substantial evidence.

Issue 13 – Potential Risk to Wild Salmon Populations.

Claim: The FEIR makes arbitrary determinations regarding risk to wild salmon populations

Arbitrary "less than significant" effect determinations place wild salmonid population at risk of viral exposure from waste effluent water discharges. Abdominal swelling found in Salmonid Alphavirus (SAV), Piscine Orthoreovirus (PRV) Hematopoietic Necrosis Virus (IHNV) is a result of the accumulation virus-laden fluid from lysed or broken cells. None of the methods proposed by NAFC address sequestered viruses or viral accumulation in blood or abdominal fluids. During a viral outbreak, this portion of the wastewater will contain the highest viral loading of the entire effluent stream, because maximum viral loading in salmonids is often in the blood and in the abdomen. Beyond the UV treatment, there is no proposal to treat this fish-killing wastewater for pathogens, no proposed ozone treatment of processing waste fluids, no reverse osmosis treatment, and no proposed monitoring for high-risk pathogens in this waste stream. The risk of pathogens escaping the facility and affecting wild salmonids remains high. While incoming water will receive ozone treatment to protect farmed fish in the facility from being introduced to wild pathogens, project effluent will not receive similar treatment to protect wild salmonids. This is of greatest concern in the fish processing area, where blood and body fluids from harvested fish would introduce the highest pathogen load into effluent. Viruses that are known to occur in farm-raised Atlantic salmon have heavy loads in effluent from factory floors. For example, piscine orthoreovirus (PRV), a virus that originated in farmed salmon, is known to escape into wild salmon populations along this route. Having a veterinarian check the facility twice a year is not the same as monitoring for viral load coming from the facility and factory floor or for ozone treatment of effluent. This problem, combined with the fact that there are no egg sources available that have been proven to be free of PRV, makes the "less than significant" determination unsubstantiated.

Response:

The EIR's analysis of biological impacts demonstrates that the EIR's impact determination is based upon a comprehensive analysis of potential effects. The EIR concluded, based on substantial evidence, that impacts to wild salmon populations would be less than significant.

NAFC takes fish and biosecurity very seriously for the fish inside and outside our facilities. As depicted on page 2-25 of the Project Description, all water from the facilities operations is routed to the wastewater treatment plant for full treatment. Line G shows all processing wastewater going in to the first step at the wastewater treatment plant. Solids are largely removed in this first step. The following steps further remove materials with the final step being a 0.04-micron ultrafiltration followed by a 300 mJ/cm² UV. As stated in the DEIR on page 3.3-25, all water captured by floor drains is sent to the wastewater treatment plant for the same treatment as production water, as described below.

The proposed effluent treatment is considered state-of-the-art and is designed to remove 99% of total suspended solids (TSS), phosphorus (P), and biological oxygen demand (BOD) as well as 90% of total nitrogen (TN). As designed, the Project's effluent treatment includes ultrafiltration, biofiltration and UV treatment. The level of ultrafiltration used by itself (without use of UV) is suitable biocontainment for bacteria, parasites, fungus, and most salmonid viruses of regulatory concern. For description and specifications of the ultrafiltration equipment see page 2-41 of the DEIR and Suez 2021.

In addition, viruses that might pass filtration would be subject to high dose UV disinfection (300 mJ/cm²). This dose is sufficient to mitigate the threat of any salmonid viruses of concern. In aquaculture, UV disinfection is specified according to logarithmic reduction in viral titre. For example, a one-log reduction refers to a 90% reduction of viral titre, a two-log reduction to a 99% reduction, a three-log reduction to a 99.9% reduction, and a four-log reduction to a 99.99% reduction. The dose required for a log-3 reduction of most salmonid viruses is well below 100 mJ/cm², and that of more tolerant viruses such as Infectious Pancreatic Necrosis Virus (IPNV), an endemic virus to California, is below 250 mJ/cm² (see Table 2.9 below).

The specified dose for UV equipment installed at the intakes and discharge of the Project is for a log-3 reduction of significant viral, bacterial, and parasitic pathogens associated with salmon farming. Section 4.4.1 of the NPDES Draft Order (NCRWQCB 2021) requires the supplier of UV equipment to confirm acceptance of this design and specification. Upon initiating operation of the UV equipment, NAFC would be required to demonstrate compliance with the UV dose requirement to the NCRWQCB. Further conditions of the NPDES permit require NAFC to maintain a program for routine inspection and maintenance of the UV equipment. UV is highly effective against pathogens as demonstrated in Table 2.9 on page 2-32 of the FEIR:

Table 2.9 Pathogen Filtration and UV Parameters

		Size (microns)	UV Dose mJ/cm ² (3 log reduction)
NAFC intake water treatment	Ozone	0.02	250
NAFC wastewater treatment		0.04	300
VIRUS			
Birnavirus	IPNV	0.065	246
Orthomyxoviruses	ISAV	0.1 - 0.13	8 - 51
Rhabdoviruses	IHN, VHSV	0.065 - 0.09	4 - 20
Aquareoviruses	PRV	0.07 - 0.08	50 - 100
Iridovirus	EHN, RSIV, LMBV, VENV	0.12 - 0.330	26
Herpesvirus	OMV, SalHV4	0.2 - 0.25	2 log @2
Hepevirus	CTV	0.03	22 (family reference UV dose)
Togavirus	SAV	0.06 - 0.07	
Totivirus	PMCV	0.05	
Poxvirus	SGPV	0.2 - 0.3	
Nodavirus	VNN	0.025	104 - 211
BACTERIA		0.1 - 10	
	BKD		60
	<i>F. psychrophilum</i>		126
	<i>A. hydrophilia</i>		5
	<i>A. punctata</i>		4
	<i>A. salmonicida</i>		2.7 - 5.9
	<i>Escherichia coli</i> O-26		4
	<i>P. fluorescens</i>		5
	<i>V. anguillarum</i>		2.7 - 4.5
	<i>V. salmonicida</i>		2.7
	<i>Y. ruckeri</i>		2.7
PROTOZOA		1 - 2000	
	<i>Myxobolus cerebralis</i>		40
	<i>Ichthyophthirius multifiliis</i>		100
	<i>Costia necatrix</i>		318
FUNGI		2 - 50	
	<i>Achlya flagellate</i>		220
	<i>Aphanomyces laevis</i>		210
	<i>Saprolegnia sp.</i>		150 - 250

The EIR's conclusion that there is a less-than-significant risk to wild salmon populations is based on substantial evidence in the record.

Issue 14 – Water Quality

Claim: The FEIR fails to adequately address domoic acid proliferation that may result from the Project

The FEIR does not address how localized warming, local currents, tidal flux, and upwelling will contribute to domoic acid outbreaks. The Project will discharge 298 metric tons of

nitrogen per year into the Coastal Zone. The FEIR does not include existing upwelling modeling and does not adequately address the risk of marine upwelling and resuspension of Nitrogenous waste in coastal waters. The FEIR does not take into consideration that localized warming at the outfall pipe combined with nutrient loading from 298 metric tons of Nitrogen per year, would increase the risk of localized domoic acid outbreaks. Nitrogen loading and localized warming of about 10°C (GHD 2020a) are likely to foster a reserve population of Pseudo-nitzschia, which could lead to longer and more frequent localized spikes in domoic acid production. The FEIR does not take into consideration the fact that Pseudo-nitzschia continues to be present in northern coastal California waters and that Pseudo-nitzschia responds very rapidly to localized warming and nutrient loading. Although it is true that domoic acid proliferation is known to be associated with large-scale climate events, the continuing presence of Pseudo-nitzschia in coastal waters puts the marine ecosystem at risk from domoic acid events. Risk posed to the marine fishery is downplayed or discounted in the FEIR. Exposure to viruses, loss of habitat (including food and cover), timing of exposure to toxic chemicals, disruption of migration, thermal pollution, and localized domoic acid proliferation all deserve a harder look in the FEIR. This is especially true for vulnerable species such as green sturgeon, Chinook salmon, coho salmon, steelhead, eulachon, longfin smelt, and Dungeness crab.

Response:

The EIR's analysis of water quality impacts associated with the outfall is exhaustive. The FEIR addresses how localized warming, currents, tidal flux and upwelling will contribute to domoic acid proliferation. This can be found in Master Response 5 on Marine Outfall between pages 2-37 and 2-47 in the FEIR. Concerns related to domoic acid proliferation, and toxic *Pseudo-nitzschia* spp. blooms can also be found in various sections in the DEIR, which are referenced below. In summary, there will not be a continued risk of domoic acid events because toxic blooms require a certain set of environmental conditions. While *Pseudo-nitzschia* is present throughout northern coastal California waters, there is no temporal window nor environmental conditions (e.g., local retentive features, nutrient and temperature stress) to produce toxins (such as domoic acid). Project activities will not create an environment that supports toxic Harmful Algae Blooms (HABs).

The DEIR evaluates toxic algae (Harmful Algal Blooms [HAB]) in Section 3.3 (Biological Resources, page 3.3-29) and Section 3.9 (Hydrology and Water Quality, page 3.9). HABs are driven by large-scale oceanic processes. Numerical modeling (DEIR Appendix E) demonstrated that elevated levels of nutrients from the Marine Outfall are limited in spatial scale and thus unlikely to contribute to a HAB in the coastal waters potentially affected by the Project. There is minimal risk of nutrients entering Humboldt Bay because the effluent 1) enters the Pacific Ocean at the location of the diffuser array, and 2) is dispersed at fast enough rates that regardless of oceanographic forces, effluent would not recirculate nor reenter into Humboldt Bay. The Project's potential contribution to a HAB is unfounded.

Toxic HAB events in the California Current System are commonly associated with *Pseudo-nitzschia* spp. and the production of domoic acid (Horner 1997; Lewitus 2012). *Pseudo-nitzschia* spp. blooms are generally prompted by large-scale events that create a unique combination of temperature, salinity, nutrients (specifically nitrogen and silicate), including marine heat waves and changes in upwelling and wind (McCabe 2016; Trainer 2012). This is referenced in DEIR Section 3.3.6 (Biological Resources) starting on page 3.3-27 and 3.3-29 and Section 3.9.6 (Hydrology and Water Quality) starting on page 3.9-23. Locations that support *Pseudo-nitzschia* blooms, which may become toxic and produce domoic acid when phytoplankton cells remain stressed, are typically found in regions with highly retentive oceanographic features that harbor

the previously described conditions, including Monterey Bay, Point Conception, and the Southern California Bight (Trainer 2012). The north coast of California is vastly different.

The ways that localized warming, local currents and upwelling contribute to domoic acid outbreaks are addressed in DEIR Section 3.3.6 (Biological Resources) starting on page 3.3-27 and 3.3-29 and Section 3.9 (Hydrology and Water Quality) starting on page 3.9-23. Compared to more southern regions, Northern California has significantly more wind and wave energy, and higher upwelling indices (Jacox 2018). The highly energetic climate yields strong currents in waters nearby the Project. Quantitative predictions and numerical models describing the fast dispersal rate and degree to which effluent is diluted (throughout space and time) in the surrounding waters are provided in DEIR Appendix E.

Despite nutrient loading from 14 mg per liter of nitrogen, the nitrogenous waste is dispersed and diluted at such high rates, that the capacity for an algal bloom (including, but not limited to *Pseudo-nitzschia* spp.) to develop at the Ocean Discharge site because of the Project's effluent is drastically reduced, if not eliminated. There will be minimal resuspension of nitrogenous waste in coastal waters because it is rapidly dispersed and diluted. A high-level wastewater treatment will also remove 90% of nitrogen prior to discharge. The reserve of *Pseudo-nitzschia* in coastal waters will not be impacted by the Project.

The potential for localized upwelling and warming to contribute to HABs has also been addressed. This is explained in the discussion of how nutrient loading from the Project will not drive toxic blooms. Regional HABs (including that of *Pseudo-nitzschia*) in Northern California require significantly larger scale changes (to temperature and upwelling) in the oceanographic environment (McCabe 2016) compared to what will occur from the Project. Compared to changes in nutrients and temperature driven by regional changes in wind and upwelling, Project activities (i.e., localized nutrient loading and increased temperature) will not result in significant changes in water quality. This holds true, regardless of the dispersal and dilution rates described in DEIR Appendix E. There is also minimal evidence suggesting that human activities (such as agricultural runoff, submarine groundwater discharge etc.) contribute to toxic HABs (Anderson 2008).

Lastly, NAFC is using the best available wastewater treatment technology and voluntarily agreed to additional baseline and project monitoring specified in the DEIR Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be Completed by the Applicant), starting on page 3.9-12. This monitoring is more rigorous than regulatory requirements and includes monitoring as requested by commenters. As a result, there is a negligible risk for localized and regional HAB events that would impact fisheries and marine resources. Since Project activities will not contribute to increased toxic HAB events, marine fisheries will not be impacted by the Project.

Section 3.9 of the DEIR evaluates the potential impacts to hydrodynamics and water quality resulting from construction and operation of the Project against significance thresholds derived from applicable local, state, or federal policies, or from Appendix G of the CEQA Guidelines. Appendix E Numeric Modeling Report (Dilution Study) is a 60-page marine modelling investigation that supports the NPDES permitting and mixing zone characterization for NAFC's proposed facility, namely through:

1. Establishment of water quality objectives for the coastal waters.
2. Near-field modelling to ascertain if the water quality objectives are achieved in close proximity to the diffuser.
3. Three-dimensional (3D) hydrodynamic modelling to predict the spatial extent that water quality objectives are met if not met in close proximity to the diffuser.

4. 3D particle modelling to evaluate whether particulate organic loads pose a risk to the proximal benthic habitat.

Key conclusions from this investigation for the proposed future comingled discharge through the RMT II multiport diffuser include:

- The preliminary concept design of 64 open ports yields a predicted mixing zone (i.e., marine toxicity and physiological stress to biotic receptors) that is met within 5 ft of the diffuser on the basis of the near-field modelling. The port exit velocity of ~10 ft/s also maintains the ports clear of sediment build-up and biofouling and maintains optimal levels of jet-induced near-field mixing.
- Though there are some differences in the predicted zone of water quality degradation (i.e., elevated nutrients) with the 3D modelling of the two scenarios (i.e., typical summer conditions and a large winter river inflow event):
 - The risk of enhanced pelagic productivity from elevated nutrients in the surface and midwater column is 'very low'.
 - The risk of enhanced benthic productivity from elevated nutrients in the near-seabed waters is 'very low'.
 - The predicted organic gross sedimentation rates during both scenarios are very low and pose a low risk of impacting the benthic community.

Harmful algal blooms are discussed further in the FEIR on pages 2-46 through 47:

The Project's potential contribution to a HAB is unfounded. The location of the diffuser array is approximately 1.55 miles offshore of the peninsula and approximately 3.5 miles north of the entrance to Humboldt Bay, as shown in Figures 2-1 and 2-2 referenced in DEIR Section 2.0 (Project Description).

Additionally, NAFC has voluntarily committed to additional baseline and project monitoring, above and beyond regulatory requirements. This monitoring is described in DEIR Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be Completed by the Applicant, page 3.9-12) and includes water quality monitoring as requested by commentors.

*The environmental (and oceanographic) conditions at the Ocean Discharge site are not suitable for localized HABs. Compared to more southern regions, Northern California has significantly more wind and wave energy, and higher upwelling indices (Jacox 2018). As described in DEIR Section 3.3.6 (Biological Resources) starting on page 3.3-27 and 3.3-29 and Section 3.9 (Hydrology and Water Quality) starting on page 3.9-23, the highly energetic climate yields strong currents in waters nearby the Project. Quantitative predictions and numerical models describing the fast dispersal rate and degree to which effluent is diluted (throughout space and time) in the surrounding waters are provided in DEIR Appendix E. For example, Section 5.3 of the DEIR Appendix E shows that elevated temperatures from the comingled discharge into the ocean are limited to within several feet of the diffuser nozzles to meet the thermal dilution target of 4, and hence cannot provide a thermal refugia for *Pseudo-nitzschia* spp. Since the effluent is dispersed and diluted at such high rates, the capacity for an algal bloom (including, but not limited to *Pseudo-nitzschia* spp.) to develop at the Ocean Discharge site because of the Project's effluent is drastically reduced, if not eliminated, and therefore, there also is no temporal*

window and environmental conditions (e.g., retentive features) to produce toxins (such as domoic acid).

Regional HABs (including that of Pseudo-nitzschia) in Northern California are also unlikely to develop as a result of the effluent discharge because they require significantly larger scale changes in the oceanographic environment (McCabe 2016). Compared to changes in nutrients driven by changes in wind and upwelling, Project effluent will not result in significant changes in water quality, as the high-level wastewater treatment removes a large portion of nitrogen prior to discharge. This holds true, regardless of the dispersal and dilution rates described in DEIR Appendix E. There is also minimal evidence suggesting that human activities (such as agricultural runoff, submarine groundwater discharge etc.) contribute to toxic HABs (Anderson 2008).

Lastly, NAFC is using the best available wastewater treatment technology and voluntarily agreed to additional baseline and project monitoring specified in the DEIR Section 3.9.5 (Hydrology and Water Quality Methodology, Additional Monitoring to be Completed by the Applicant), starting on page 3.9-12. As a result, there is a negligible risk for localized and regional HAB events that would impact fisheries and marine resources to occur.

There is no evidence that the Project would have a significant environmental impact with regard to HABs.

Issue 15 – Impacts to Sand Lance, a Non-Listed Species

Claim: The FEIR fails to address the sand lance spawning habitat in the vicinity of the saltwater intakes

The Pacific sand lance are a major prey resource for birds, marine mammals, fishes, and some invertebrates. Variation in the availability of sand lance can have major effects on the breeding success and survival of their predators. The sand lance is an important prey species for threatened coho and Chinook salmon. Rather than address the sand lance spawning beds and wintering habitat that are likely to be disrupted by construction, redevelopment, and operation of the saltwater intakes, the FEIR focuses on the percent volume of water diverted by the saltwater intakes and mistakenly likens sand lance habitat to longfin smelt habitat. Loss of sand lance breeding habitat and entrainment of sand lance eggs and larvae could have a significant impact on marine bird and threatened salmonid foraging. Until surveys are completed, estimates of the impacts on Pacific sand lance are speculative at best.

Response:

Pacific Sand Lance is not listed under the federal or state Endangered Species Act, and there is no evidence of a significant impact with regard to impacts to this population as a food source. Sand lance eggs are demersal and slightly adhesive (Robards et al. 1999), making them less susceptible to entrainment at the Humboldt Bay water intakes. Larvae have been captured in plankton tows in Humboldt Bay (Steinbeck pers. comm. 2022, Eldridge and Bryan 1972) and juveniles in bottom trawls (Cole 2004); however, only small larvae that have weak swimming ability would be subject to potential entrainment, similar to longfin smelt larvae, as described in DEIR starting on page 3.3-46.

Construction and redevelopment of the existing intake structures would have minimal and short-term disturbance to demersal habitat that could be used for spawning by Pacific sand lance, as described in the DEIR Section 2.4. Although Pacific sand lance can be an important forage fish prey resource, they exhibit high interannual variability and are one of many fish species that

contribute to the diet of salmonids, seabirds and marine mammals (Thompson et al. 2018), such as Pacific herring, sardines, anchovy, and smelts.

There is no evidence that the Project would have a significant environmental impact with regard to Sand Lance.

References

This section contains new references not previously included in either the DEIR or FEIR. Documents cited in the above letter that were previously referenced in the DEIR or FEIR are not repeated in this section.

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