Heavy Lift Terminal Development Concerns

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For the California Fish & Game Commission

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CALIFORNIA FISHERMEN'S RESILIENCY ASSOCIATION

- Fishermen are not opposed to renewable energy
- However, fishermen are extremely concerned about resulting cumulative environmental damage by OSW industrialization to the Humboldt Bay Estuary
- And those impacts, like the windmills themselves, are really big

Humboldt Bay Estuary Background

- 2nd largest in California
- 25 square miles of surface area at high tide
- Critical part of the California current marine ecosystem
- Spawning and rearing habitat for commercially important fish, crustaceans and mollusks
- Second only to San Francisco Bay of migrating and overwintering birds
- Home to largest mariculture production in CA

Destruction of the estuary by white settlers after genocidal removal of the Wiyot Tribe

- The destruction of forests, watersheds, and river habitats of Humboldt Bay
- Only 900 acres of salt marsh remaining, reduced from 10,000
- Now there are less than 4000 acres of eelgrass beds
- Most of Central/Mid bay shoreline are abandoned industrial sites and brownfield sites, many still require cleanup

Plans to re-industrialize Humboldt Bay – via Heavy Lift Terminal Project and “wet” turbine storage

Dredging in the Estuary

Heavy Lift Terminal will immediately require removal of 5 million cubic yards of materials

1100 football fields covered in 3 feet of mud

Does not include spoils from 3 additional wet storage sites, federal channel widening and deepening (another 5-10 million cubic yards), and maintenance dredging for the next 50 years.

The proposed site (never before disturbed) likely contains PCB’s, dioxin and other dangerous chemicals in the sediment left from past industrial uses.

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Dredging Impacts

- Increased tidal prism/increased current resulting in treacherous bar conditions
- Channel bank sloughing eroding eelgrass beds clear to Mad River channel
- Years of anoxic dredge turbidity events resulting in low O2 and light attenuation
- Impacts from turbidity to fish and all the way down to bay phytoplankton
- Impacts from turbidity to bay shellfish growers and the planned Nordic Aquafarms Mariculture facility adjacent to the terminal site

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Pollution from Antifoulant Biocide Paints

Developers and Moffet and Nichol Engineering advocate for 20 turbine units, 2- 400’ x 400’ assembly platforms and 2- 400’ barges in bay waters

Total surface submerged surface area = 59 square acres

All require antifouling biocide paint

Using industrial application guidelines for biocide coatings, 17,313 Gallons of paint covering are required to cover 59 square acres of painted surface

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What is in this Antifoulant Biocide Paint?

- Zinc Pyrithione
- Lead
- Arsenic
- Cybutryne Dcoit
- Tralopyric
- Tributyltin
- Cuprous Oxide

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Who gets to bioaccumulate all these toxic chemical compounds?

789 species of fish, bird, mollusks, crustaceans and invertebrates living in the estuary

partial species list on the Humboldt Bay Harbor Recreation and Conservation District website at
http://humboldtbay.org/sites/humboldtbay.org/files/documents/hbmp2007/Appendix_F_Species_List.pdf

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Who else? Us, humans who eat anything raised and harvested as food in the estuary including oysters, mussels, crabs, and farmed fish from the proposed Nordic Aquafarm

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What other impacts are we aware of?

- Blocking and shadowing of sunlight on 21.2 acres for docks, platforms, turbines
- Project lifetime, stormwater runoff pollution from platforms, turbines and upland areas.
- Light pollution - planned onsite “high mast” lighting visible 19 miles offshore
- In bay bird strikes by “stored” turbine units.
- Demolition and transport/disposal of all hazardous waste piling and dock components (creosote timbers)

What other impacts are we aware of?

- Fossil fuel air pollution impacting south Eureka social justice communities created by the demolition, dredging, construction and 50-year operations
- Industrial dust pollution from both construction platforms and industrialized upland areas
- Mining of river gravels and fill to raise the level of the entire upland site
- Damage to coastal viewsheds
- Harbor District downgrading of protective environmental zoning language in the Humboldt Area plan

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"Can we ever imagine a scenario where a project is denied by California regulatory agencies due to environmental damage to California's second largest marine estuary?"

(S. Scheiblauer, Alliance of Communities for Sustainable Fisheries, November 10, 2024)

California Fishermen's Resiliency Association

Thank you for your time and kind attention

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CALIFORNIA FISHERMEN'S RESILIENCY ASSOCIATION

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California Energy Commission
715 P Street
Sacramento CA 95814
March 10, 2024
Docket # 17-MISC-01
AB 525 Strategic Plan
Docket@energy.ca.gov

Re. AB525 Strategic Plan Comments

Dear Chair David Hochschild, Commissioners, and Staff,

Please accept the following comments from the California Fishermen's Resiliency Association (CFRA) on the California Energy Commission's (CEC) SB525, Strategic Plan Report.

Humans and every other living thing on this planet rely on the ocean - the entire planet-wide complicated system for: modulation of the world's climates, the recycling of carbon, almost all of the oxygen we breathe and a major food source for humans and animals. The fishing industry, fishermen and fishermen's families are increasingly alarmed by the lack of measured, logical study of the tremendous possible negative effects posed by OSW ocean industrialization and the disregard for the precautionary principle of "first do no harm".

California Fishermen's Resiliency Association

In January 2022, Northern California Port Commercial Fishermen's Associations formed the California Fishermen's Resiliency Association (CFRA), a California Nonprofit Mutual Benefit Corporation. The California Fishermen's Resiliency Association now serves as a "point of contact" and negotiator for fishermen with developers of offshore wind power, telecommunication and energy transmission subsea cables, and offshore mineral extraction projects. The CFRA represents all fisheries and gear types through its member fishermen's associations which include:

Crescent City Commercial Fishermen's Association
Trinidad Bay Fishermen's Association
Shelter Cove Fishermen's Preservation, Inc.
Salmon Troller's Marketing Association of Noyo
Bodega Bay Commercial Fishermen's Association
San Francisco Crab Boat Owners Association
Half Moon Bay Commercial Fishermen's Association
The Alliance of Communities for Sustainable Fisheries
Commercial Fishermen of Santa Barbara
Santa Cruz Commercial Fishermen's Association
Pacific Coast Federation of Fishermen's Associations

Our Comments by page - Volume 2, Main Report

Page 58 - Oil Spills

This section misrepresents human's ability to clean up (remove) oil contamination from the ocean. According to information supplied by Vineyard Offshore, a California lease holder, the average turbine unit contains in excess of 2200 gallons of lubricating and cooling oils not including diesel for emergency power generation on individual floating turbine units. Upon the event of a catastrophic explosive deconstruction of a turbine unit at sea, there will be no effective clean-up response. There are no known methods for oil removal in typical windy ocean environments, only dilution by the use of dispersant agents, most of which are toxic to marine life. What gets cleaned up is the oil spill insurance money.

Page 59 - Upwelling

Fishermen continue to express concerns for the decrease in wind driven coastal upwelling within the California current system by the extraction of energy from the winds responsible for the upwelling process which results in high oceanic productivity. Any decrease in the wind energy available to drive surface water south and west away from the California Coast will undoubtedly result in decreased primary (phytoplankton) and secondary (zooplankton) trophic levels yet another human driven stressor to the entire marine habitat. The CED report cites a study that mistakenly credits wind energy extraction for creating "increased" upwelling offshore by decreasing inshore wind velocities within wind turbine arrays. Extracted wind energy and decreased wind velocities can only result in an overall decrease in upwelling, not the "slight of hand" increased upwelling offshore as we destroy upwelling in inshore areas

Page 77 - Loss of Fishing Area

This section greatly understates the major generational impact of the conversion of the state's very limited fishing grounds to wind power production and power and information export from OSW sites. The CEC, in its own Sea Space Workshops, expressed the need for 4000 square miles of sea space, all on fishing grounds, and most located north of Point Arena to Crescent City. Not included in the CEC Sea Space area was the additional "take" of at least 1000 square miles of fishing grounds for export cable routes. If implemented, the removal of 5000 square miles of fishing ground access will result in the significant long term reduction of the supply of

sustainably managed seafood resources, a concentration of fishing efforts into smaller and smaller areas, loss of fishing industry jobs, the disappearance of coastal fishing culture and the loss and replacement of shoreside commercial fishing working waterfronts with just more condos, restaurants and t-shirt shops.

Page 78- Site Survey Work

While “high energy” OSW site survey work is not being considered at this time, there continues to be no actual real time “at sea" monitoring of site survey acoustical levels on site survey vessels by independent State of California monitors. Additionally, the State Lands Commission (SLC) issues vessel survey permits to “allow permittees to broadly conduct surveys in state waters (waterward from the mean high tide line to three nautical miles offshore)...., for a period of three years” (SLC - 2.12.24 to CFRA). The permits allow survey vessels to work in California Marine Protected Areas, bays and estuaries, many off-limits to California fishing vessels. Contrary to their statement, the SLC is unable and unauthorized to conduct real time “at sea” monitoring, survey vessel boarding, trip terminations, vessel impoundments or fines for operators found violating survey permit conditions or interfering with permitted and protected commercial fishing in state waters. Lastly, the SLC, in direct violation of SB286, is issuing OSW site survey permits without a “statewide strategy” for OSW development as required by SB286.

Page 78- Food Security Concerns

The accumulation of West Coast fishing ground loss to OSW development will greatly exacerbate the serious ongoing problem of foreign fish imports to the U.S by Russian government activities of Russian fish reprocessing (laundering) and export to the U.S. by China, enabling the Russians to increase military efforts to overthrow the legitimate government of Ukraine. As it is, over 85% of U.S. consumed seafood is imported, while California, Oregon, Washington, and Alaska struggle to market domestic fish even at rock bottom prices.

Please Note

Fishing families, fishermen and the California fishing industry at large are and will continue to be the single most negatively impacted group by OSW ocean industrialization.

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The first five California leases should serve as a demonstration project, allowing sufficient time to study the performance and environmental and socioeconomic effects of these wind farms. This will allow adaptive management and avoidance of future problems

Socio-economic Impacts

Due to the size, scope, and number of federal and state agencies involved in regulating offshore wind development since 2018, California commercial fishermen and their associations have been inundated with requests for consultation. The time and energy to respond to each request

for consultation has a fiscal impact and burden for fishermen who participate in ongoing and regular meetings about offshore wind development, permitting processes, and other activities. This also had a negative financial impact on their crew and families since fishermen are often not compensated for their service
For those fishing industry leaders in this situation, they must take time off from work to attend each meeting or consultation. This puts considerable strain and stress on fishermen who participate in the many consultations and meetings associated with offshore wind. Further, most fishermen are self-employed and do not have funds to pay for staff or consultants' time participating in fisheries consultations and other offshore wind meetings. In nearly all consultations, CEC has learned of the need to financially compensate fishermen for their time and expertise that they are being asked to provide. Further, fishermen require resources to build their internal capacity and technical assistance to support their review of permitting and environmental documents, data, and materials related to offshore wind.

Port Development Concerns- Humboldt Bay

The conversion of Humboldt Bay to an OSW assembly and storage port will be the second largest impact to the Humboldt Bay Estuary since it was first "discovered" by white Europeans. The first was the eradication of the indigenous population by white male Europeans for the purpose of industrialization of the bay to expedite the extraction of the local natural resource — forests, all done at a breakneck pace. Not too long ago, Humboldt Bay was the second most polluted county in California, thanks to the air and water discharge of "black liquors", chlorine, and other toxic compounds from two paper pulp mills which are now falling apart and abandoned. To date, all local extractive industrial activities have been operated on the "boom and bust" method of corporate business. There is little evidence to suggest that this will not be the case with OSW industrial development in Humboldt Bay.

Initially, the first OSW project for Humboldt County was for seven floating turbine units, then it was eleven, then seventeen. Now, it is two hundred turbines with an assembly and "wet" storage area for all the proposed experimental turbines in California and Southern Oregon! We were told that the largest turbine unit had a waterline beam of 300' and maxed out at 850' of height. Now the latest statistic is for a turbine with a 400' beam and 1100' of height. Honestly - who thinks of this stuff? Where are the brakes, the rational thinking, logically taking small incremental steps, instead of jumping into the boiling cauldron feet first and hoping that things will be okay?

Background

The Humboldt Bay Estuary, second largest estuary in California, has twenty five square miles of saltwater surface area at high tide and only eight square miles of saltwater surface area at low tide. Due to historical environmental destruction by white European immigrant populations, Humboldt Bay now contains less than four thousand acres of eelgrass beds. There are only

900 acres of remaining salt marsh, reduced from 10,000 acres before the dikeing, draining and filling of the original salt marsh habitat.

Tuluwat Island (ESHA), adjacent to the proposed OSW site on the Samoa peninsula, is the largest remaining salt marsh tract in the estuary and is directly in the shadow of this proposed project. Over 21,000 Black Brant use Humboldt Bay for overwintering along with Canadian and Aleutian Geese, ducks, and shorebirds from fall until spring. Humboldt Bay is second only to San Francisco Bay in numbers and diversity of migrating water-associated birds overwintering in this coastal segment of the Pacific Flyway.

Humboldt Bay is home to 110 species of marine and anadromous fish and provides spawning and rearing habitat for commercially important fish, crustaceans, and mollusks. Additionally, the northern portion of the Humboldt Bay Estuary is the largest California site for shellfish mariculture with over 300 acres involved in shellfish production and five shellfish nurseries for oyster spat and clam seed production. All of these seed facilities are located on the northern portion of the bay's west side directly up and down current of the proposed Samoa OSW facility.

On a larger scale, the Humboldt Bay ecosystem is an important part of the California Current large marine ecosystem in spite of the past environmental damage and future plans for major reindustrialization within the Humboldt Bay Estuary.

The Environmental Implications of "Wet Storage" of Assembled Turbine Units and Other Floating Structures and Equipment.

The Harbor Bay Harbor District (the district) displayed layout drawings depicting OSW construction facilities at Redwood Terminal 1 and 2 areas outside of the federal navigation channel and "turning basin" on the Samoa Channel dedicated to "wet storage" of up to six assembled turbine units, although charts of Humboldt Bay developed by Moffatt and Nicol Consultants show five additional sites for "wet" storage. In discussions with OSW developers, they expect up to 25 turbine units being held in wet storage for deployment during the construction phase of the project. The District described two assembly sites at Redwood Terminal 1 and stated that a turbine unit could be assembled in about a week. Cutting the turbine assembly crews a little slack, roughly 26 turbine units could be assembled during five winter months while awaiting flat ocean conditions to allow for offshore deployment. For the sake of this discussion, let's assume that construction is progressing with all the required floating equipment in place and 20 turbine units in wet storage in the areas delineated in the Moffatt and Nicol charts.

All of this equipment will require ablative, antifouling, biocide paint coatings. Submerged surfaces lacking antifouling paint protection become habitat substrate for various marine plant and animal colonization. Marine fouling organisms can reduce towing and vessel transit speeds up to two knots per hour and contribute to significant "current drag" on anchored equipment.

How much painted surface area and how much applied paint are we talking about?

While the California Energy Commission recently released information on the proposed “next generation” of floating turbines with a waterline beam of 400 feet and a vertical height above water at 1100 feet, the calculations presented here are for existing technologies — floating turbine units with 300 foot beams and heights of 850 feet above the sea surface.

Surface Area of triangular floating turbines:

Dimensions:
3 cylindrical floats: 40’ diameter x 20’ draft (depth) submerged surface area in unballasted condition = 11,703 square feet
Pontoon ballast structure= 780’ x 10’ x 2’ total submerged surface area = 15,600 square feet
Total submerged surface area of one turbine = 27,303 square feet
Total submerged surface area of 20 turbines = 546,060 square feet or 12.5 square acres underwater

The District plan includes two floating/submersible construction platforms
Dimensions: 400’L x 400’W x 10’ draft(depth)
Total submerged surface area = 1,600,000 square feet or 36 square acres of surface area underwater

The parts and components for the assembly of these floating turbine units will most likely be transported and held in Humboldt Bay on barges and for this discussion assume two barges will be on station at any time during construction.
Material Barges (2)
Dimensions: 400’L x 100’W(Beam)
Light Draft (depth) - 5’
Loaded Draft - 14’
Average draft for Calculations (estimation) = 7’
Waterline length = 350’
Painted submerged surface area for two barges = 490,000 square feet or 5.6 square acres of area under water.

Total submerged painted surface area for 20 turbine units, two assembly floats and two material barges = 59 acres of area coated with ablative antifouling biocide paint .

What other surfaces coated with ablative antifouling biocide paints have we left out?
4 harbor tugs
2 ocean service tow vessels - 150’ LOA
2 site survey ships 350 x LOA x 60”
1 cable vessel 300 LOA x 60 beam
1 material transport ship - 650’ x 80 beam

Using the application guidelines developed by the paint manufacturing industry and assuming all the turbines, platforms and barges receive two coats as per the application guidelines, how much ablative antifouling paint is required to kill marine fouling organisms from settling and living on this equipment?

- Antifoulant topcoat coverage - 300 square feet per gallon when applied by spray for each coat
- One acre is 43,560 square feet. 43,560/300 square feet = 145 gallons of paint to cover an acre
- Total submersed painted surface area = 59.7 acres
- Total amount of ablative antifouling biocide paint required for 2 coats = 17, 313 Gallons
-

What is in this paint? A good place to find the answer to this question is in the Environmental Impact of Antifouling Technologies - State of the Art and Perspectives. Journal of Aquatic Conservation. In the meantime, here is a short list of some of the chemical biocides found in ablative antifouling paints:
Zinc Pyrithione
Lead
Arsenic
Cybutryne Dcoit
Tralopyric
Tributyltin
Cuprous Oxide

Ablative antifouling biocide paints are designed to “wear away” over time, exposing fresh toxins (biocides) to kill marine fouling plants and animals as they attempt to settle on the painted surface. The biocides eroded (sloughed or flaking off) from the paint surface end up in the water. Once in the water column, these toxins are available for ingestion/absorption from a wide variety of marine phytoplankton, zooplankton, larval and adult mollusks, crustaceans, fish and finally at the top of the bioaccumulation pyramid, marine mammals, seabirds and humans. The biocides listed above have been proven to cause deformities in oysters, sex changes in welks and have been traced entering the marine food chain through bioaccumulation.

The following mariculture companies operate oyster and shellfish nursery facilities adjacent (up and down current) to the proposed OSW project:

Hog Island Oyster Co.
Taylor Mariculture
Coast Seafoods
Humboldt Bay Oyster Co.

Additionally, the following companies run extensive grow-out acreage for oysters in Humboldt Bay:
Hog Island Oyster Co.

Coast Seafoods
Humboldt Bay Oyster Co.
Aqua Rodeo Farms

Concurrently, the proposed Nordic Aquafarms project is located less than one mile from the Redwood Terminal/OSW site. If permitted, the Nordic facility plans on pumping 10 million gallons of bay water daily into their facility which will be producing farmed fish for human consumption.

Please explain in detail, how the CEC will address the introduction of toxins derived from 57 acres of ablative antifouling paints into the Humboldt Bay Estuary, its plant and animal populations, and the marine aquaculture and commercial fishing businesses that will be negatively impacted from these biocides.

Dredging in the Humboldt Bay Estuary

The Harbor District report (NOP) mentions dredging and spoils materials (in this case: fines, sand and light gravel) which will be required to be removed for this OSW project, and the cumulative dredging impacts from the total wet storage areas advocated for by the project. Using the Moffatt and Nicol maps of Humboldt Bay, these maps show seven wet storage areas for turbines from the Samoa Bridge Redwood Terminal 1 to Fairhaven, and areas east and south of the Humboldt Bay Harbor entrance. Most or all will require dredging to accommodate unballasted turbine units, remembering that there could be 15- 25 turbine units awaiting calm weather conditions for towing to various lease sites.

How much dredging?
Looking at just the area in the Harbor District NOP maps, the amount of material to be removed looks like this:

1. Three wharf areas as delineated in the District map — 5200’ x 600’ x 20’ divided by 27 = 2,333,111 cubic yards
2. Two “sinking basins” — 450’ x 600’ x 20’ divided by 27 = 200,000 cubic yards
3. Wet storage area southeast of “turning basin” — 3200’ x 600’ x 20’ divided by 27 = 1,422,222 cubic yards

Total dredge spoils for the Samoa project is equal to 5,733,333 cubic yards. How much is 6 million cubic yards of dredge spoils? It is over 1100 football fields each covered with 3 feet of mud.

The entire job of maintenance dredging for the Eureka Small Boat Basin was only 100,000 cubic yards.

Remember, right now we are just talking about the dredge spoils from the Samoa Heavy Lift Dock project. We have not included dredging the many acres of additional wet storage sites, and the additional deepening and widening of the federal navigation channels in the Humboldt Bay Estuary and the yearly maintenance dredging for all areas during the next thirty years!

Questions:

1. The State needs to explain exactly how many months (or years) it will take to remove 13 millions cubic yards of spoils from the Samoa site.
2. What will be the air quality impact of the initial Samoa site dredging, the dredging of the multiple wet storage sites from Samoa to the east and south side of the Harbor entrance, as all of the equipment will be diesel powered.
3. What will be the air quality impact of an additional 30 years worth of maintenance dredging which will be required at all locations?
4. Who will actually do this dredging? None of the existing dredges that are privately owned and operated can operate in California because these dredges are not Air Resources Board compliant.
5. Where is the State planning on dumping 13 million cubic yards of dredge spoils? The Samoa Lagoon" is so small as to be impractical and the expanded H.O.O.D.s site lifespan time table is based on only 1 millions cubic yards per year from all total dredging in Humboldt Bay.

Dredge Material Challenges

Nearly all of the sediment scheduled for removal by dredging is anoxic (Anoxia is the absence of oxygen, so an anoxic environment is one that has no oxygen available. When we talk about anoxic environments, we are often referring to an aquatic environment with no dissolved oxygen…) Oxygen penetration into fine sand and silt bottom sediments stops within a few inches of the substrate surface, the remainder of the sediment column is anoxic. Additionally, these same sediments have collected tons of carbon-based organic debris. These organic materials are slowly broken down by anoxic bacteria which produce methane gas as a byproduct of digestion. Methane gas is a potent greenhouse gas. Methane is released from the bottom sediments into the atmosphere through disturbance of the sediment by human actions such as dredging or by physical changes in the environment. One can easily observe methane releases along the Eureka Inner Reach and Freshwater Slough entrance on minus tides when the easing of hydraulic pressure allows this gas to escape the sediment column. The project's plan to remove 13 millions cubic yards of sediment from the project site will contribute significantly to the project's negative climate footprint.

1. The State should, by scientific methods, publish the volume or weight in tons of the methane release as a result of dredging these sediments and should reveal the total cumulative methane release for the entire bay dredging.
2. Dredge spoils removed from some areas of Humboldt Bay are compromised due to dioxins, PCBs and other dangerous chemicals. Please describe the State's plan for pre-dredging chemical surveys of areas impacted by dredging.
3. Please describe in detail the State's plans for chemical monitoring of dredge spoils as they are being removed, especially in areas of the Samoa Peninsula which have been industrial sites for many decades and have never undergone dredging.

4. Please explain the State's plan to properly dispose of dioxins, PCBs, and other toxic chemicals in dredge spoils removed from the Samoa Heavy Lift Terminal site and all other wet storage areas bay wide.

Impacts of Anoxic Turbidity Events Caused by Dredging.

Along most of the Humboldt Bay shoreline, tidal and subtidal substrates contain very high amounts of fine silts and clays, enough so that the California Coastal Commission no longer allows "beach disposal" of these "fines" material when dredged from Humboldt Bay. All types of dredging equipment stir up and cause to be suspended in the water column the fine particle sized clays and silts. The turbidity events caused by bay dredging create vast volumes of anoxic mud-filled lightless clouds in the water column. These sediment clouds are lethal to schooling clupeoid fish such as anchovies, herring and sardines as well as both osmerid and atherinid smelts, perch, flatfish, and gobies — all of which occupy the Humboldt Bay Estuary. Fishermen have many years of direct observation of forage fish schools avoiding areas being dredged and areas recently dredged and the turbidity events emanating and spreading bay wide from dredging.

On some occasions, turbidity events resulting from dredging have prevented forage fish schools from occupying the Eureka Inner Reach and main channel/entrance areas for an entire summer season. (T. Klassen, K. Bates, Personal Communication, 2020). The reduction or lack thereof of forage fish schools in the Humboldt Bay Estuary deprive marine mammals such as harbor seals and harbor porpoise, topline predators such as salmon, california halibut, leopard sharks, and nesting seabirds like Caspian terns, cormorants, gulls, osprey and pelicans of their summer food source.

Questions:

1. Exactly what plans will the State have in place to prevent these man-made turbidity events during the attempt to initially remove 13 million cubic yards o'f dredge spoils from initial construction of the Samoa Heavy Lift Terminal?
2. Exactly what plans will the State have in place to prevent these man-made turbidity events during the next thirty years of maintenance dredging that will be required at the Samoa Heavy Lift Terminal site, the four other "wet storage" sites and the widening and deepening of federal channel areas associated with the cumulative impacts caused by the District's Samoa Heavy Lift terminal project?

Other Impacts from Man-Made Turbidity Events

The majority of the proposed sites requiring dredging for wet storage of turbine units and the District's Samoa Heavy Lift Terminal are on the west side of Humboldt Bay which is the home of mariculture nursery facilities and shellfish beds belonging to :
Chris Seabird Mariculture
Hog Island Oyster Company
Taylor Mariculture

Coast Seafoods
Humboldt Bay Oyster company
Aqua Rodeo Farms

Additionally, the Hagfish Company and the planned Nordic Aquafarms project will also occupy these same areas. The Nordic project expects to pump 10 million gallons of bay water into the proposed fish farm on a daily basis. None of these water dependent animals in these businesses can tolerate low oxygen sediment-filled bay water created by dredging.

Question: Could the State please explain in detail, the provisions for monetary damage claims' compensation to the mariculture businesses in the Humboldt Bay Estuary caused by man-made dredging turbidity events from the District's Samoa Heavy Lift Terminal project and the deepening and widening of the federal channels?

Changes in the Humboldt Bay Tidal Prism Caused by Additional Dredging

In 1999, a Humboldt Bay Harbor deepening project, costing 15 million dollars, increased federal channel depths to 38 feet. This federal deepening project resulted in a 300% increase in maintenance dredging of recently deepened federal channels in Humboldt Bay.

Harbor Entrance Safety

The Humboldt Bay Harbor entrance bar is considered to be one of the most dangerous on the West Coast. Vessel loss and deaths have been common since the invasion of Europeans via vessel traffic through the entrance. The worst (most dangerous) time to attempt entering Humboldt Bay is during an ebbing current and continuing until low water slack. Any increase in ebb current velocities aggravates the dangerous transit conditions.
Question: How will the State protect mariners from delays and losses resulting from increased ebb current velocities on the Humboldt Bay Entrance as a result of the removal of 13 million cubic yards of dredge spoils from the Samoa Heavy lift terminal and the additional cumulative effects to ebb current velocities caused by all the additional dredging triggered by the Samoa project?

As an unintended consequence, this dredging project will also increase current velocities in North Humboldt Bay. Humboldt Baykeeper reports that "removal of so much material may be causing increased erosion" [in Humboldt Bay]. Extensive bank erosion was observed by fishermen and oyster growers on both the west and east tidal flats of Tuluwat Island, channel banks in the Arcata, Pantherotti and Mad
River channels (T. Kuiper, K. Bates, J. Smith, Personal Communication, 2000 -2001). Channel bank sloughing, undercutting and collapse in these areas caused the deposit of sediment back into areas recently dredged to the "new" increased federal depth. Additionally, channel bank undercutting and collapse in North Humboldt Bay exposed extensive areas of eelgrass rhizomes, and resulted in eelgrass loss (T.Kuiper, Personal communication, 2001)

Question: Given that the Samoa Heavy Lift Terminal project will require removal of 13 million cubic yards of dredge spoils and this project will trigger the dredging of five additional “wet storage” turbine sites, widening of the federal channel at buoy 9, and Elk River/Chevron terminal and cause increased maintenance dredging at all sites — what plans does the State have to restrict the increase in “ebb current” velocities within the Humboldt Bay Estuary caused by this project and its cumulative impacts on the Humboldt Bay tidal prism?

Question: Can the State provide protection for, and prevent any additional loss of eelgrass habitat in the Humboldt Bay Estuary, remembering that any reduction in eelgrass density caused by development permit requests results in extreme mitigation permit conditions and still results in eelgrass loss?

Demolition on the Samoa Site

Pilings

The “Marine Development Sub-Area” demolition will require the removal of thousands of creosote/wood pilings. The CFRA does not consider removal of these pilings as some form of “mitigation” for other environmental damages caused by this project. Removal of these pilings will expose and release fresh creosote trapped in the mud substrate.
Question: How will the State plan to prevent additional creosote releases during piling removal?

Creosote pilings are classified as contaminated hazardous waste and cannot be stored on site but instead must be transferred to a legal certified dump site which charges fees for accepting hazardous waste.

Question: How many pilings will be removed?
Question: How will these pilings be removed?
Question: Where will pilings be transported for legal disposal?
Question: How many round trip truckloads are expected?
Question: What is the fuel expenditure to remove and transport pilings?
Question: What is the total cost to remove, transport and dispose of these pilings?

Dock Materials

Redwood Terminal 1 dock structure contains old growth redwood, untreated Douglas Fir, creosote treated Doulas fir, and pressure treated Douglas and White Fir timbers and decking.

Question: How much of the dock structure will be sorted for resale/recycling.
Question: Of the remaining unsalvageable dock materials what is the volume or weight of unusable wooden structure.
Question: Where will these materials be transported to for legal introduction into the waste stream?

Upland Demolition of Structures

The clearance of the upland portion of the site requires the demolition of all onsite structures.
Question: Will the project make any attempt to demolish these structures in a way where a majority of the wood components are available for reuse/recycle?
Question: What is the cost of demolition, sorting, transportation and landfill fees for this project?
Question: What is the portion (in tons) of hazardous materials (creosote lumber, pressure treated lumber, insulation and asphalt roofing) generated by demolition on the upland portion of the Samoa site?

Blockage and Shadowing of Sunlight by Fixed and Floating Equipment

Marine plants beginning with diatoms, phytoplankton, red, green and brown marine algae, and marine flowering plants such as eelgrass, all require unimpeded exposure to sunlight to photosynthesize and produce dissolved oxygen into the water column as a byproduct of photosynthesis.

Fixed and floating equipment in the water blocks sunlight penetration into the water column. In California, permitting agencies — California Coastal Commission and California Fish and Wildlife, regard sunlight blockage as a serious negative impact caused by piers, wharfs, floating docks, barges, ships and other equipment. A local example of a permitting agency's concerns over shading occurred when Englund Marine, then located at the foot of Commercial Street in Eureka, applied for a permit to tie a "courtesy float" for small boats to access the fuel pier. This float was 6' wide and 20' long. The total area was 120 square feet. It took months for the agency staff to deliberate and provide conditional permitting of this tiny float. The District's Samoa Heavy Lift Terminal includes approximately 552,000 square feet (12.5 acres) of "above water" dock and wharf area shading bay waters at the Samoa Heavy Lift Terminal site. Additionally, the District's drawing #3.2 shows fourteen floating turbine units moored at the site. Just the cylindrical floats create 52,750 square feet of shading of bay waters.

The Samoa HL Terminal plans also contain provisions for two "sinking basins" dredged to a controlling depth of 60 feet to accommodate two submersible floating assembly platforms. The planned footprint of these assembly platforms is 400' x 400'. The total shadow created by these two platforms is 320,000 square feet or 7.3 acres. Total shadow footprint for the Samoa Heavy Lift Terminal project (not including vessels, material barges and tugs) is 924,750 square feet or 21.2 acres of shadow! Again - for a comparison of permitting, the Englund Marine float was 7,706 times smaller than this project!

Question: How will the State plan to mitigate sunlight shadowing of 21 acres of bay water whose ecosystem relies on the primary production of plant photosynthesis for the foundation of the marine food chain?

Humboldt Bay Air Quality Impacts

Low income social justice communities surrounding Humboldt Bay have been and will continue to be the recipients of air pollution caused by in-bay vessel traffic and industry. The State Lands Commission and the Harbor District's recent permitting of the installation/landing of the "Echo" fiber optic communications cable resulted in two ships, the 200 foot long "Cindy Brown Tide" and the 400 foot long fiber optic cable repair ship, the "Segro", tied to wharfs in mid Humboldt Bay for thirty days. During this time, all on-board diesel power generation systems were running 24 hours per day. Additionally, the main propulsion engines were intermittently run. The result of the operation of just these two vessels was a heavy pall of diesel exhaust and combustion particulate hanging in the air over the Harbor and Pine Hill areas of Eureka at daylight each morning. At no time did the District or the Air Resources Board comment or cause to be remedied, the air pollution caused by these in-port vessels. The Samoa Heavy Lift Terminal, if constructed in the next fifteen years, will rely on diesel fuel to power excavators, graders, trucks and other equipment on the upland portion of the site. All dredging, pile driving, bay infilling, the towing of floating equipment, and thousands of trips by tugs hauling dredge spoils to the H.O.O.D.s site will also be diesel powered. If this were not enough, BOEM expects 300 "vessel trips" from Humboldt Bay for site survey of the two lease areas, again all powered by fossil fuels.

Question: The State must calculate the amount of petrochemical fuels in tons to be burned in the Humboldt Bay air basin for the construction of the Samoa Heavy Lift Terminal.

Question: The State must calculate the amount of petrochemical fuels, in tons, to be burned in the Humboldt Bay air basin as a secondary impact of the operation of the Samoa Heavy Lift Terminal over the future thirty year period.

Mining of Fill and Gravels

The Samoa Heavy Lift Terminal plan calls for the mining of fill materials (soils) and gravel to raise the height above sea level for many acres of the Samoa site. The State must address the following questions:

Question: Where will fill materials (soils) suitable for deposit and proper compaction be mined from?

Question: How many dump truck loads in cubic yards will be transported to the site?

Question: How may round trip miles from the mining area to the Samoa site?

Question: What is the total amount in gallons of the petrochemical fuels burned to accomplish mining, transportation and compaction of fills at the Samoa site?

Question: Where will these "stream gravels" be mined from?

Question: What are the long term effects on endangered salmon and steelhead populations from the mining of "stream gravels" from coastal rivers.

Questions: How may dump truck loads in cubic yards will be transported to the Samoa site?

Question: What is the total amount of petrochemical fuels burned to accomplish mining, crushing, transportation and compaction of gravels at the Samoa site?

Water Pollution from Assembly Platforms and Piers

The District is advocating for two bay "sinking basins" to accommodate floating/submersible assembly platforms measuring 400' x 400' (7.3 acres total area). These platforms are the "work stations" for final assembly of turbine components. Assembly activities include welding, metal grinding, sand blasting of metal and painted surfaces, paint application by spray, and the pressure testing of tanks and ballast pontoons prior to launch and other procedures. These activities will generate considerable fine particle-size construction debris - much of it toxic in nature, across the seven plus acres of platform surface.

Question: how will the State address and prevent stormwater runoff into the bay from these platform surfaces?

Questions: How will the State address and prevent grinding, welding and paint particles from entering Humboldt Bay during the submergence of these platforms?

Question: Will the State present a plan to collect and process all stormwater runoff from piers, gangways and assembly areas both over the water and inland?

Long Term Maintenance Costs of Samoa Heavy Lift Terminal

Soaring costs for planned offshore wind energy projects in Northern Europe and the U.S. East Coast coupled with the disappearance of many millions of U.S. dollars due to economic changes are causing the cancellation/delay of many OSW projects worldwide. Floating offshore wind projects yet to be built are being similarly affected.

Question: If the District and the State are successful in permitting and building the Samoa Heavy Lift Terminal facility and then finds itself without long term OSW tenants and given the District's poor financial track record — How will the District finance the required yearly maintenance on this facility without major OSW tenants?

Question: What will be the effect on maintenance funds for other District holdings such as Woodley Island Marina, and the Field's Landing haul-out facility, (both critical fishing industry infrastructure), if the Samoa Heavy Lift Terminal is without tenants?

N.O.P. / Humboldt Bay Area Plan Amendments

The District advocates for amending portions of the Humboldt Bay Area Plan (Local Coastal Program) to accommodate the Samoa Heavy Lift Terminal project and the combined and cumulative negative effects on the Humboldt Bay Estuary. The District has identified "the project as a Priority 1 Site for Coastal Dependent Industrial use". The District would "resolve" [translate: remove] "conflicting" [translate:conflicting with the District's project] language in relation to other Coastal Act policies ...including policies regarding natural resources, viewsheds, and recreation.

Additionally, the District would "modify" [translation: remove] limitations of industrial performance standards, including noise, lighting, vibrations, dust control and "enclosed manufacturing" to meet the needs [translation: to lower the cost of environmental protections at the site and surrounding estuary areas] of this project and surrounding land uses [translation: making it legal to impact housing in Samoa, Tuluwat Island and bay waters by increased industrial activities recently illegal in the Coastal Act].

So, let's break this "amendment request" into smaller pieces to see exactly what said proposed amendments to the Coastal Act through the Humboldt Bay Area Plan might actually look like.

Restricted Recreational Use

The Samoa Heavy Lift Terminal industrial site will be "off limits" to recreational boating, recreational halibut fishing, kayaking and sailing due to the nature of the industrial activities, the large size of the tugs, barges, assembly platforms and ships, their "restrictions in ability to maneuver" and the possible danger to recreational users in the Samoa Heavy Lift Terminal channel.

Question: Will the District or the State explain to the public via the EIR process that the Samoa Channel waters will be closed to recreational use from the south side of the Samoa Bridge to the south end of the second proposed wet storage area.

Coastal Viewshed

The Coastal Act goes to great lengths to preserve and protect Coastal Zone viewsheds. Often, permitting any building construction in the Coastal Zone requires the permittee to erect full size, full height, on-site mock-ups of building silhouettes to allow the public to evaluate viewshed blockage. The District's Samoa Heavy Lift Terminal project will cause the installation of multiple shoreside heavy lift cranes whose height will exceed 650' and up to twenty assembled turbine units of 1,100' in height.

Question: How will the State, through the Coastal Commission process, present to the residents of Humboldt County the true impact to the Coastal Zone viewshed?

Lighting

The District advocates for the “modifications [removal] of industrial performance standards including lighting”. Humboldt Bay, from the Bayshore Mall in the south portion of the Outer Reach Channel to the Northeast end of Tuluwat Island (ESHA) and the entire Eureka Inner Reach are severely compromised by human generated nighttime light sources. Unshielded LED flood lights at Pacific Sea Foods, Caito Fisheries, and other sources, illuminate the east areas of Tuluwat Island. The illegal removal of native vegetation in the Woodley Island Wildlife area (ESHA) by the Harbor District opened the south end of the wildlife area to additional nighttime light pollution. Elevated lighting at the North Coast Exporters chip dock can be seen from eight miles at sea and the “glow” from Eureka is visable 15 miles offshore on clear nights. “High mast lighting” advocated for by the District at up to 150’ tall will be visible 19 miles offshore! This lighting generally employs high pressure sodium, halogen and recently large array LED floodlighting. Large array LED lighting is extremely bright, blinding actually. LED lighting is showing up on automobiles, off-road vehicles, fishing vessels and industrial sites.

Human caused light pollution is negatively affecting fish and avian populations in Humboldt Bay. Tuluwat Island (ESHA), the largest remaining scrap of saltwater marsh in the Humboldt Bay estuary, is populated by both migrating and resident waterfowl. These birds move into the island marsh in darkness to feed and roost. One can observe their arrival right at dark. They typically depart this marsh area before sunrise. High mast lighting, low elevation lighting, lighting on tugs, floating equipment and turbines in wet storage will negatively illuminate this critical marsh area/habitat at night.

Various fish species, including schools of anchovies, sardines and Pacific Herring exhibit both positive and negative phototaxis when exposed to nighttime illumination of bay waters. In the case of herring, which enter Humboldt Bay in December, January and February to spawn, a single dark shadow across an illuminated channel is enough to stop a school from traveling into North Bay to spawn at night. For the past 47 years, Herring fishermen have observed nighttime shadowing events caused by the Samoa Bridge lighting which caused 40 - 100 ton herring schools to pile up against the bridge shadow and not proceed through the bridge shadow to North Bay. The project’s advocacy for lighting at the Samoa Heavy Lift Terminal site and the additional light pollution generated by floating equipment is highly problematic. No high mast or low elevation lighting should be allowed on the project site.

Question: What plans will the State have to present alternative, less damaging illumination on the Samoa site?

Question: Will the State consider the alternative of only allowing construction/operational activities between sunrise and sunset thereby removing the negative nighttime lighting impacts?

Dust Control

The Samoa HL Terminal project advocates for modification [removal] of existing limitations on industrial performance standards including dust control. Hazardous, toxic and non-toxic dust in

the forms of paint and chemical overspray, welding slags, grinding dust from metals, painted surfaces, plastics, sand blasting and equipment and vehicle caused erosion of surfaces will be generated throughout the upland and marine site. Pier and dock decks, floating construction platforms and areas subject to outside construction activities all will be recipients of the above dust compounds.

Question: How will the State propose to contain, stabilize and remove these compounds from introduction into the air and bay waters during the following:

1. Wind events (prevalent all year long)
2. Rain events producing stormwater runoff
3. Equipment caused dust events

Question: What state agency or state funded contractor will be responsible for monitoring environmental compliance of dust, noise and lighting regulations through the lifetime of this project?

Bird Strikes by Wind Turbine Blades

The Humboldt Bay Estuary is a critical habitat for migrating and seasonal bird activities. Aleutian and Canadian geese and many types of ducks over-winter in Humboldt Bay and make multiple daily transits from South Bay to the Arcata Bottoms to feed. Seabirds such as Caspian Terns, Brown Pelicans, gulls, cormorants and other shore birds are present in significant numbers throughout the year. Black Brant are present from fall to early March, feeding in both south and north Humboldt Bay. Significant flock movements take place at night at altitudes from 50 to 200 feet. All of these birds share something in common when in flight over Humboldt Bay — they prefer to fly over the water, not over land.

The CFRA has been told that assembled wind turbines in wet storage must rotate their blades to prevent bearing damage. Tip speed on the blades runs between 150 - 250 mph. Blades rotating on wet storage turbine units will strike birds flying over Humboldt Bay.

Question: Please describe the monitoring plan to document bird strikes by wet storage turbines in the Humboldt Bay Estuary.

Question: Many potential bird strikes will occur at night. Who will monitor and collect dead birds “taken out” at night by wet storage turbines in Humboldt Bay?

Question: How many bird strikes (turbine caused bird mortality events) will be required to cause the closure of Humboldt Bay to wet turbine storage.

Question: Will bird strikes of certain species count more than other more common bird species? Eg. Bald Eagles vs. seagulls

Fishing Industry Impacts

The Samoa Heavy Lift Terminal project will have direct negative impacts on commercial fishing fleet activities during the dredging and construction phases. Dredging, both at the Samoa site and subsequent channel widening dredging will cause a significant increase in vessel traffic in the Bay and Harbor entrances by “tug and tow” operations removing and relocating over 13 million cubic yards of spoils.

Question: What plans does the State have to coordinate and or reduce hazardous “tug and tow” traffic during peak fishing activity periods?

The Samoa Heavy Lift project will have extensive secondary impacts caused by the dredging of “wet storage” areas south of the project site and hazards to navigation caused by turbine piling or mooring structures throughout the Bay.

Question: What plans does the State have to reduce the hazards to “navigation risk” generated by “wet storage” infrastructure bay-wide. Please bear in mind that the increase in vessel traffic caused by the Samoa Heavy Lift Terminal project will be an addition to the survey ship traffic estimated @ 200-300 vessel trips by BOEM.

The Samoa Heavy Lift Project will yet again cause fishermen previously illegally evicted from Woodley Island Marina by the Harbor District to again face eviction/relocation away from the Samoa site. The CFRA response to this second eviction will be addressed in a joint letter from the CFRA Board of Directors and the CFRA legal counsel, Mr. Dustin Owens Esq. of the law offices of Owens and Ross.

Fisheries Displacement

- Being likely that wind farms will force tow boat and barge traffic closer to shore, conflicts with commercial Dungeness crab gear may occur. This could produce another loss of fishing grounds, or the loss of fishing gear… both with socioeconomic costs for fishermen. Additionally, moving this traffic closer to shore can produce more interaction with migrating and feeding whales.

In addition to the above concerns raised by the Alliance of Communities for Sustainable Fisheries, the CFRA member port fishermen’s associations are extremely concerned about the persistent rumor that the port of Humboldt Bay will be repeatedly closed throughout the entire lifespan of OSW operations to accommodate the passage of OSW components in and out of Humboldt Bay.

The average beam of cargo vessels operating in the Humboldt Bay federal channels is 105 feet. The federal channel width in the entrance, main channel and westerly reach is 400 feet. Floating wind power units presently being proposed from the Humboldt WEA have beams in excess of 300 feet! Movement of these units will require up to five ocean service tow boats.

Meanwhile, the West Coast commercial fishing fleet operating out of and into Humboldt Bay will require continuous and uninterrupted twenty-four hour access to this harbor. The CFRA membership requests that the Coast Guard safety plan exactly states, that fishing vessel transit in and out of Humboldt Bay will not be restricted or closed and the Coast Guard will provide fishing vessel safety escorts during OSW operation as required

Carbon Neutrality

In this entire knee-jerk exercise in the promotion of offshore wind power, no one has been able to actually show that any of this effort to industrialize the ocean will ever, in over 50 years, achieve carbon neutrality. Who has added up the carbon footprint of the mining, smelting, and forging of metals, the drilling, pumping, and refining of oil for diesel, bunker C, paints, resins and epoxies, the energy to fabricate, transport, assemble, tow, anchor, maintain, repair and (hopefully) decommission by removal of the turbines, blades, buoyancy hulls, interconnecting and transmission cables, floating substations, shores side transmission and distribution systems?
Simply put — show us the math!

Conservation of Energy and Resources

Something else that's sorely missing is the state and federal policy to simply use less of everything. Buying that energy efficient refrigerator does nothing if we as a country take all of the old refrigerators to the garage and plug them back in. The California Energy Commission and Californians as a whole must work collectively to reduce our "cultural footprint" on what is left of this planet.

Thank you for the opportunity to express our concerns.

Jake Mitchell, President
Ken Bates, Executive Director
The California Fishermen's Resiliency Association

Crescent City Commercial Fishermen's Association
Trinidad Bay Fishermen's Association
Shelter Cove Fishermen's Preservation, Inc.
Salmon Troller's Marketing Association of Noyo
Bodega Bay Commercial Fishermen's Association
San Francisco Crab Boat Owners Association
Half Moon Bay Commercial Fishermen's Association
The Alliance of Communities for Sustainable Fisheries
Commercial Fishermen of Santa Barbara
Santa Cruz Commercial Fishermen's Association
Pacific Coast Federation of Fishermen's Associations