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Transmitted via email

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**Re: Draft Integrated General Reevaluation Report and Environmental Impact
Statement for the San Francisco to Stockton Navigation Improvement Project**

Dear Ms. Auvenshine:

Center for Biological Diversity (the “Center”), Communities for a Better Environment (“CBE”), Friends of the Earth (“FoE”), San Francisco Baykeeper (“Baykeeper”) and Sierra Club respectfully submit comments on the April 2019 Draft Integrated General Reevaluation Report and Environmental Impact Statement for the San Francisco Bay to Stockton, California Navigation Study (“DEIS”.) The Expert Report of Greg Karras (“Karras Report”) is also submitted and incorporated by reference.

I. Introduction

The San Francisco Bay-Delta estuary (“Bay”) is home to a delicate estuarine and very special environment. The City of San Francisco and its famous Golden Gate are international icons. Equally precious but less famous are communities further up the estuary, where communities of color have long historical roots in towns such as Rodeo, Martinez and Vallejo. Five petroleum refineries also sit on the banks of the Bay. The San Francisco Bay to Stockton, California Navigation Study (“Project”) considers dredging a 13 mile stretch of the Bay, ignoring the portion of the Bay between Avon, site of the area’s easternmost refinery, and Stockton. The Project would deepen Bay shipping lanes used by four of the five refineries to import crude oil and export refined products. The Project is intended to save these refiners an estimated \$11,312,000 per year and cost the public an estimated annual cost of \$3,596,000/year.¹ Essentially, the Project is intended to give four oil refineries a nearly \$15 million subsidy each year.

¹ DEIS at D-22, D-24.

Compounding the public concern for a deep subsidy to four oil refiners, the Project is being reviewed and approved by agencies far removed from the affected communities, which have given inadequate notice to the people who live and breathe near the Bay. Substantively, while the DEIS describes and analyzes some impacts accurately, at its core, the document fails to meet the requirements of the National Environmental Policy Act (“NEPA”) because it does not correctly describe the Project and its impacts. First, the DEIS piecemeals the 13 mile stretch currently under consideration from the foreseeable remaining portion of the project to extend dredging to Stockton. Next, the DEIS assumes that the Project will reduce ship traffic, when in fact there are no enforceable limits on the frequency of ship calls, and the Project reduces physical limitations on navigation which makes it likely that more, not fewer ships will transit the Bay. Even if it were the case that fewer ships would be transiting the Bay, the Project correctly anticipates these ships will be more heavily laden with petroleum products. The DEIS fails to accurately describe the increased risk of oil spills the increased loads bring. It also fails to analyze the impacts to climate and environmental justice communities from the additional processed petroleum products in which “de-bottlenecking” transport will result.

Further, while the DEIS asserts that mechanical dredging will be used in some instances, it does not rule out clamshell dredging, which is fatal to endangered smelt. Likewise, the DEIS mentions some beneficial reuse of dredge materials, but it is vital for the estuary that the Project commit to beneficial reuse of these materials.

The Center for Biological Diversity (“the Center”) is a non-profit environmental organization with over 1.4 million members and online activists, many of whom live and recreate in the Bay Area. The Center uses science, policy and law to advocate for the conservation and recovery of species on the brink of extinction and the habitats they need to survive. The Center has and continues to actively advocate for increased protections for species and their habitats in California. The proposed project is likely to adversely affect habitat for listed, rare, and imperiled species that the Center has worked to protect, including the delta smelt, imperiled salmon species, and a host of marine mammals that inhabit the Bay Area. The Center’s board, staff, and members use the land and water in California affected by this Project for quiet recreation (including hiking and camping), scientific research, aesthetic pursuits, and spiritual renewal. The Project would also be detrimental to the Center’s interest in fighting climate change and ushering a just transition toward a safe and sustainable future.

Communities for a Better Environment (“CBE”) is a California non-profit environmental health and justice organization with offices in the San Francisco Bay and Los Angeles areas. CBE has thousands of members throughout the state of California. More than 2,700 of CBE’s members live, work, or engage with environmental justice issues in urban communities in Northern and Southern California. This includes hundreds of people living, working, and breathing in Contra Costa County (“County”) and the areas affected by the four refineries with operations the Project will de-bottleneck. CBE’s organizational goals include protecting and enhancing the environment and public health by reducing air and water pollution and minimizing

hazards in California's environmental justice communities, including the communities proximate to the Bay Area's refineries.

Friends of the Earth, founded by David Brower in 1969, fights to protect our environment and create a healthy and just world. We are more than 1.9 million members and activists across all 50 states working to make this vision a reality. We are part of the Friends of the Earth International Federation, a network in 75 countries working for social and environmental justice. Together we speak truth to power and expose those who endanger the health of people and the planet for corporate profit. To accomplish our mission, Friends of the Earth works at the nexus of environmental protection, economic justice and social justice to fundamentally transform the way our country and the world value people and the environment. Our campaigns work to hold politicians and corporations accountable, transform our economic systems, protect our forests and oceans, and revolutionize our food & agriculture systems.

San Francisco Baykeeper ("Baykeeper") is a non-profit organization that protects San Francisco Bay from its biggest threats. Baykeeper has over 5,000 members and supporters in the San Francisco Bay area that are dedicated to ensuring that the Bay is protected for its aquatic and human communities. As part of that work, since its founding in 1989, Baykeeper has worked to ensure that dredging in the Bay is conducted in the most environmentally responsible manner possible.

The Sierra Club is a national non-profit organization of approximately 786,643 members dedicated to exploring, enjoying, and protecting the wild places of the earth; to practicing and promoting the responsible use of the earth's ecosystems and resources; to educating and enlisting humanity to protect and restore the quality of the natural and human environment; and to using all lawful means to carry out these objectives. The Mother Lode Chapter of the Sierra Club has close to 20,000 members. Sierra Club's Dirty Fuels and Beyond Coal Campaign work to stem our nation's dependence on oil and coal and to secure protections for communities and ecosystems from the significant toxic and global warming pollution emitted by oil and coal development, including prevention of oil spills and other catastrophic events and pollution emissions that result from transporting extreme forms of crude oil and coal. Sierra Club has nearly 170,000 members in the State of California who want to ensure that California's treasured landscape and coastlines are protected into the future.

II. The DEIS Fails to Satisfy the National Environmental Policy Act

A. Relevant NEPA Legal Requirements

NEPA is our "basic national charter for the protection of the environment."² Congress enacted NEPA "[t]o declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; [and] to

² 40 C.F.R. § 1500.1.

enrich the understanding of the ecological systems and natural resources important to the Nation.”³ To accomplish these purposes, NEPA requires all agencies of the federal government to prepare a “detailed statement” that discusses the environmental impacts of, and reasonable alternatives to, all “major Federal actions significantly affecting the quality of the human environment.”⁴ This statement is commonly known as an environmental impact statement (“EIS”).⁵

The EIS must “provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.”⁶ This discussion must include an analysis of “direct effects,” which are “caused by the action and occur at the same time and place,” as well as “indirect effects which . . . are later in time or farther removed in distance, but are still reasonably foreseeable.”⁷ An EIS must also consider the cumulative impacts of the proposed federal agency action together with past, present and reasonably foreseeable future actions, including all federal and non-federal activities.⁸ Furthermore, an EIS must “rigorously explore and objectively evaluate all reasonable alternatives” to the proposed project.⁹

B. The DEIS’s Purpose and Need is Flawed

The DEIS states that the overall purpose of channel maintenance is to “reasonably maximize net benefits to the nation.”¹⁰ The proposed 13-mile dredge effort would not maximize net benefits to the nation. In fact, it would do the opposite. First, the Project proposes using \$3.5 million of public funds annually. The identified outcome of the expenditure is to save four refiners more than \$11 million annually. In essence, the public is subsidizing the oil industry to ensure greater profit for private corporations. Second, jeopardizing California’s coastline, tourism industry, marine life, and coastal communities are not in the national interest. Third, facilitating the acceleration of climate change through continued and increased fossil fuel production and refining likewise harms the interests of the United States and does not align with the state’s goals for greenhouse gas reduction. Furthermore, California’s demand for fossil fuels is expected to decline in the coming years, making oil and gas from outside the state less needed.¹¹ California and the nation are under an urgent mandate to reduce and phase out fossil

³ 42 U.S.C. § 4321.

⁴ 42 U.S.C. § 4332(2)(C).

⁵ 40 C.F.R. § 1502.

⁶ 40 C.F.R. § 1502.1.

⁷ 40 C.F.R. § 1508.8.

⁸ 40 C.F.R. § 1508.7.

⁹ 40 C.F.R. § 1502.14(a).

¹⁰ DEIS at 1-2.

¹¹ Erickson et al., *How limiting oil production could help California meet its climate goals*, Stockholm Environmental Institute (2018).

fuel infrastructure. Quite the contrary of “maximizing net benefits to the nation,” the Project locks in a future that exceeds the global capacity for emissions of greenhouse gases.

Finally, the DEIS impermissibly segments this piece of the dredging project from the whole deepening project, including the portion from Avon to Stockton, into a separate, smaller project. The Project was originally aimed at deepening navigation channels all the way to the Port of Stockton.¹² Now the proposed Project only proposes to deepen channels up to Avon.¹³ However, the Port of Stockton continues to be the official non-federal sponsor for the Project.¹⁴

This set of facts indicates that the Corps and the Port of Stockton plan to propose an additional project that would deepen the channels to the Port of Stockton in the future. NEPA does not allow an agency to break a project into smaller parts in order to avoid a finding of significance or a full evaluation of its impacts.¹⁵ If the DEIS had considered dredging up to the Port of Stockton, the analysis would have shown more significant impacts from the Project, in particular to water quality (e.g., increasing chloride concentrations, and decreasing dissolved oxygen) and to listed species. By breaking the dredging Project into at least two portions, the Corps has artificially and improperly segmented it into smaller parts.¹⁶

In addition, deepening the navigation channels to Stockton would likely increase impacts from the type of goods being shipped. Stockton is one of the only ports that exports coal in the Bay Area. Deepening the channel to Stockton would facilitate increased exports of coal, causing more localized impacts to Stockton at the export facility and more impacts from coal shipment to the aquatic environment of the Bay. The DEIS does not consider the impacts of increased coal transportation because it has separated deepening of the channels from Avon to Stockton from this Project. However, the approval of this current Project will facilitate a future project to deepen the channels to Stockton by reducing the cost and extent of the full project. Improper segmentation occurs where the “completion of the first project may cause the benefit/cost ratio on the second to rise sharply.”¹⁷ The completion of channel deepening to Avon through this Project approval would cause the benefit/cost ratio for the deepening to the Port of Stockton to rise sharply. Therefore, the two projects are connected actions that should be considered in a single EIS.

¹² DEIS at ES-1.

¹³ *Id.*

¹⁴ *Id.*

¹⁵ 40 C.F.R. § 1508.27(b)(7) (“Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.”)

¹⁶ *Utahns for Better Transp. v. U.S. Dep’t of Transportation*, 305 F.3d 1152, 1182 (10th Cir. 2002) *as modified on reh’g*, 319 F.3d 1207 (10th Cir. 2003), (the Corps cannot avoid NEPA by artificially dividing a major federal action into smaller components, each without a ‘significant’ impact.”) (citing *Coalition on Sensible Transportation, Inc. v. Dole*, 826 F.2d 60, 68 (D.C. Cir. 1987)).

¹⁷ *Coalition on Sensible Transportation, Inc. v. Dole*, 826 F.2d 60, 70 (D.C. Cir. 1987).

C. The Public Did Not Receive Adequate Notice of the DEIS

The Army Corps of Engineers (“ACOE”) violated the public notice and comment requirements under both the Clean Water Act (“CWA”) and NEPA in its preparation of the DEIS.

1. The Corps Violated Notice Requirements under CWA and NEPA

The DEIS for the Dredging Project, located in the San Francisco Bay Area of California, was noticed on the Corps’ Jacksonville, Florida website.¹⁸ A public notice would normally appear in the “Public Notice” section of the regional Corps website in which the proposed project is located. The Jacksonville, Florida Corps district is not a place one would reasonably expect to find notice for a project located nearly 3000 miles away in California. Moreover, the DEIS documents do not appear on the “Public Notice” part of the Jacksonville Corps website, but rather they are located in the Environmental Documents section under a geographic region labeled “other.”¹⁹ A link to the public notice does not appear in the “Public Notices” section of the San Francisco Corps website though it does appear in the “latest news” section.²⁰

The objective of providing public notice is not to hide the ball, but rather to inform and involve the public.²¹ These procedural safeguards task the agency with “[m]ak[ing] diligent efforts to involve the public” and “[s]olicit[ing] appropriate information from the public.”²² It is difficult to involve and inform the public when notice is provided in the wrong location.

2. The Corps’ Designation of an Out-of-Region District Engineer Should Not Receive Deference due to Lack of Regional Involvement

The Clean Water Act allows the Corps to issue a permit for the discharge of dredged or fill material under § 404, 33 U.S.C. § 1344, but only after providing public notice and an opportunity for public hearing.²³ The Corps’ interpretation of these implementing regulations is normally given deference, but there are cases where such deference is not warranted, such as this one.²⁴

The Corps’ designation of a “district engineer” nearly 3000 miles from the project and where the affected public resides is inconsistent with the law and these implementing regulations

¹⁸ Notice of Availability, Department of the Army Corps of Engineers, Jacksonville District (May 10, 2019.)

¹⁹ *Environmental Documents*, US ARMY CORPS OF ENGINEERS JACKSONVILLE DISTRICT (2019), <https://www.saj.usace.army.mil/About/Divisions-Offices/Planning/Environmental-Branch/Environmental-Documents/#OtherLocations>.

²⁰ See Public Notices, San Francisco District Army Corps of Engineers, <https://www.spn.usace.army.mil/Missions/Regulatory/Public-Notices/Year/2019/Month/3/> (accessed June 21, 2019). See also Latest Releases, San Francisco District Army Corps of Engineers, <https://www.spn.usace.army.mil/>.

²¹ See *California v. Block*, 690 F.2d 753, 770–71 (9th Cir. 1982).

²² 40 C.F.R. §§ 1506.6(a), (d).

²³ See 33 C.F.R. § 320.2(f).

²⁴ See *Ohio Valley Env'tl. Coalition v. United States Army Corps of Eng'rs*, 674 F. Supp. 2d 783, 801 (S.D.W Va. 2009).

and its conclusions should not be afforded deference. The district engineer in Jacksonville, FL cannot meaningfully engage with the public because it has no knowledge of relevant stakeholders and interested parties and is not aware of the local ecosystem where this dredging will occur. The implementing regulations throughout 33 C.F.R. § 320 task the “district engineer”²⁵ with evaluating the impacts a proposed activity may have on the public, requiring analysis of the particular local environment and “full consideration and appropriate weight given to all comments, including those of federal, state, and local agencies, and other experts on matters within their expertise.”²⁶ The Florida Corps may have knowledge of its region’s local environment and relevant stakeholders, but not California’s. Therefore, its interpretations of the public interest deserve no deference.

D. The DEIS’s Analysis of Direct, Indirect, and Cumulative Impacts is Inadequate

The Corps has failed to address a series of clear impacts from this dredging project that allows shipping vessels to enter and exit the San Francisco Bay-Delta estuary with increased capacity. The DEIS fails to consider how the Project’s enabling of greater volumes of oil imports and exports will result in increased oil refinery operations. Increased refinery operations mean more air pollution in the environmental justice communities that surround these refineries and an increase in greenhouse gas emissions. The DEIS also fails to properly consider how the Project will impact wildlife in the Project Area, and how dredging material will be beneficially reused. In addition, the DEIS consideration of increased spill risks and impacts is inadequate. The Corps’ failure to consider these environmental impacts renders the DEIS analysis inadequate.

In addition to direct project impacts, an EIS must examine indirect effects, “which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.”²⁷ “Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.”²⁸ Types of effects that must be considered include “ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems),...economic, social, or health, whether direct, indirect, or cumulative.”²⁹

²⁵ While there is no definition of “district engineer” in the regulations, the contextual interpretation supports the plain text meaning that the district engineer is local. To illustrate, 33 C.F.R. § 320.4(j)(6) states: “The district engineer shall develop operating procedures establishing official communications with Indian Tribes within the district.” It is unreasonable to assume that the use of “district” here contemplates *any* nationwide district engineer to liaise with affected public in a *specific* district.

²⁶ *Id.* § 320.4(a)(3).

²⁷ 40 C.F.R. § 1508.8.

²⁸ *Id.*

²⁹ *Id.*

The Supreme Court has held that impacts must be analyzed when there is “‘a reasonably close causal relationship’ between the environmental effect and the alleged cause.”³⁰ For example, in *Border Power Plan Working Group v. Department of Energy*, 260 F.Supp.2d 997 (S.D. Cal. 2003) the court found Defendants were required to consider the trans-boundary impacts of certain power turbines in Mexico in their EIS on a U.S. transmission line because the projects were “two links in the same chain.”³¹

There are numerous case examples where federal agencies were required to prepare EISs in order to consider the indirect and cumulative effects of their respective projects. *See e.g.*, *Sylvester v. U.S. Army Corps of Engineers*, 884 F.2d 394, 400 (9th Cir.1989) (agency must consider secondary indirect and cumulative effects of an action other than the proposed action under NEPA if they are “two links of a single chain.”); *Port of Astoria, Oregon v. Hodel*, 595 F.2d 467, 480 (9th Cir.1979) (agency's EIS had to consider the supply of federal power and the construction of a private magnesium plant that used the power); *Thomas v. Peterson*, 753 F.2d 754, 761 (9th Cir.1985) (agency's EIS had to consider both a federal road and the federal timber sales that the road would facilitate); *Colorado River Indian Tribes v. Marsh*, 605 F.Supp. 1425, 1433 (C.D.Cal.1985) (agency had to prepare an EIS that considered both the federal action of stabilizing a river bank and the private housing built as a result).

In this DEIS, the Corps has failed to consider numerous direct, indirect, and cumulative effects of the project. NEPA regulations and case law specifically require examination of the reasonably foreseeable impacts of the project, including growth that may be induced by the project. For these reasons, as explained more specifically below, the DEIS fails to satisfy NEPA.

1. The DEIS's Analysis of Greenhouse Gas Emissions Is Inadequate

The DEIS rightly notes the potential threats of climate change to California, but without acknowledging the role the project itself would play in exacerbating climate change by facilitating more oil imports and exports:

Observed environmental changes in California due to global warming include rising temperatures, rising sea levels, a lengthened growing season, and shifts in plant and animal ranges. At a local level, the navigation channel and surrounding area may be at greater risk of changing weather patterns, such as the current drought affecting water resources, the increasing intensity or rainfalls that cause localized flooding, and the local effects from SLR.³²

The DEIS further notes the potential for sea level rise to displace coastal businesses and residence, the increase in wildfires, damage to marine and terrestrial ecosystems, and the increase in the incidence of infectious diseases, asthma, and other health problems.³³ Yet, as the

³⁰ *Department of Transportation v. Public Citizen*, 541 U.S. 752, 767 (2004).

³¹ *Border Power Plant Working Group v. Dep't of Energy*, 260 F. Supp. 2d 997, 1016 (S.D. Cal. 2003) (“effects must be causally linked to the proposed federal action in order for NEPA to require consideration of those effects in an EA or EIS.”).

³² DEIS at 2-26.

³³ *Id.*

above quote indicates, the DEIS places emphasis on how climate change could impact the navigation channel, rather than on how deepening the channel would facilitate more climate change. However, since the navigation channels serve both oil refineries and coal transport terminals in the area, the proposed channel alterations would remove constraints on expanding fossil fuel import and export volumes, as explained in the DEIS:

Given the constraints posed by existing channel depths, inefficient strategies that are currently employed to manage these constraints include:

- Vessels must light-load cargo
- Vessels must wait for favorable (high) tides which increases transportation costs
- High shoaling rates in Bulls Head Reach require dredging annually, incurring large mobilization and demobilization costs, and causing delays to vessels when dredging is postponed.³⁴

In light of these constraints, the primary objective of the channel alterations is to “[r]educe transportation costs and increase deep draft navigation efficiency for the shipment of commodities to and from all facilities within the study area beginning in 2020.”³⁵

The proposed channel alterations would allow vessels to carry more imported crude oil for processing at the refineries. They will also free up capacity to more effectively export refined petroleum products from the Bay Area, which will ultimately be burned. Additionally, the project would expand the capacity of ports to transport coal, most notably the Port of Stockton which oversaw the transport of nearly 800,000 tons of bulk coal in 2016.³⁶ This, however, is at a time when fossil fuel extraction, processing and consumption locally, regionally and globally, and the investments in fossil fuel infrastructure, such as those proposed in the DEIS, that enable it, pose an existential threat to the planet and must be phased out.

a) The US Must Rapidly Shift Away from Fossil Fuels

Scientific research has established that there is no room in the global carbon budget for new fossil fuel extraction if the worst dangers from climate change are to be avoided. Instead, new fossil fuel production and infrastructure must be halted, and much existing production must be phased out to meet the Paris Agreement climate targets and avoid catastrophic climate damages.

The United States has committed to the climate change target of holding the long-term global average temperature “to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels” under the Paris Agreement.³⁷ The Paris Agreement established the 1.5°C climate target given the evidence that

³⁴ DEIS at ES-3.

³⁵ *Id.*

³⁶ Port of Stockton, Port of Stockton Annual Report 2016 (2016).

³⁷ United Nations Framework Convention on Climate Change, Conference of the Parties, Nov. 30-Dec. 11, 2015, Adoption of the Paris Agreement Art. 2, U.N. Doc. FCCC/CP/2015/L.9 (December 12, 2015), <http://unfccc.int/resource/docs/2015/cop21/eng/109.pdf> (“Paris Agreement”). The United States signed the Paris

2°C of warming would lead to catastrophic climate harms.³⁸ Scientific research has estimated the global carbon budget—the remaining amount of carbon dioxide that can be emitted—for maintaining a likely chance of meeting the Paris climate targets, providing clear benchmarks for United States and global climate action.³⁹

Importantly, a 2016 global analysis found that the carbon emissions that would be released from burning the oil, gas, and coal in the world’s currently operating fields and mines would fully exhaust and exceed the carbon budget consistent with staying below 1.5°C.⁴⁰ The reserves in currently operating oil and gas fields alone, even excluding coal mines, would likely lead to warming beyond 1.5°C.⁴¹ An important conclusion of the analysis is that no new fossil fuel extraction or infrastructure should be built, and governments should grant no new permits for extraction and infrastructure.⁴² In short, the analysis established that there is no room in the carbon budget for new fossil fuel extraction or infrastructure anywhere, including in the United States, and much existing fossil fuel production must be phased out to avoid the catastrophic damages from climate change.⁴³

A 2019 analysis underscored that the United States must halt new fossil fuel extraction and rapidly phase out existing production to avoid jeopardizing our ability to meet the Paris

Agreement on April 22, 2016 as a legally binding instrument through executive agreement, and the treaty entered into force on November 4, 2016.

³⁸ Intergovernmental Panel on Climate Change, *Global Warming of 1.5°C*, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (October 6, 2018), <http://www.ipcc.ch/report/sr15/>.

³⁹ The 2018 IPCC special report on *Global Warming of 1.5°C* estimated the carbon budget for a 66 percent probability of limiting warming to 1.5°C at 420 GtCO₂ and 570 GtCO₂ from January 2018 onwards, depending on the temperature dataset used. At the current emissions rate of 42 GtCO₂ per year, this carbon budget would be expended in just 10 to 14 years. See Intergovernmental Panel on Climate Change, *Global Warming of 1.5°C*, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (October 6, 2018), at SPM-16.

⁴⁰ Oil Change International, *The Sky’s Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production* (September 2016), <http://priceofoil.org/2016/09/22/the-skys-limit-report/> at Table 3. According to this analysis, the CO₂ emissions from developed reserves in existing and under-construction global oil and gas fields and existing coal mines are estimated at 942 Gt CO₂, which vastly exceeds the 1.5°C-compatible carbon budget estimated in the 2018 IPCC report on *Global Warming of 1.5°C* at 420 GtCO₂ to 570 GtCO₂.

⁴¹ The CO₂ emissions from developed reserves in currently operating oil and gas fields alone are estimated at 517 Gt CO₂, which would likely exhaust the 1.5°C-compatible carbon budget estimated in the 2018 IPCC report on *Global Warming of 1.5°C* at 420 GtCO₂ to 570 GtCO₂.

⁴² Oil Change International, *The Sky’s Limit California: Why the Paris Climate Goals Demand That California Lead in a Managed Decline of Oil Extraction* (2018), <http://priceofoil.org/ca-skys-limit> at 7, 13.

⁴³ This conclusion was reinforced by the IPCC Fifth Assessment Report which estimated that global fossil fuel reserves exceed the remaining carbon budget (from 2011 onward) for staying below 2°C (a target incompatible with the Paris Agreement) by 4 to 7 times, while fossil fuel resources exceed the carbon budget for 2°C by 31 to 50 times. See Bruckner, Thomas et al., 2014: *Energy Systems in Climate Change 2014: Mitigation of Climate Change*. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press (2014), at Table 7.2.

climate targets and avoid the worst dangers of climate change.⁴⁴ The analysis showed that the U.S. oil and gas industry is on track to account for 60 percent of the world's projected growth in oil and gas production between now and 2030—the time period over which the IPCC concluded that global carbon dioxide emissions should be roughly halved to meet the 1.5°C Paris Agreement target.⁴⁵ If not curtailed, U.S. fossil fuel expansion will impede the world's ability to meet the Paris climate targets and preserve a livable planet.

These analyses highlight that the United States has an urgent responsibility to lead in the transition from fossil fuel production to 100 percent clean energy, as a wealthy nation with ample financial resources and technical capabilities, and due to its dominant role in driving climate change and its harms. The U.S. is currently the world's largest oil and gas producer and third-largest coal producer.⁴⁶ The U.S. is also the world's largest historic emitter of greenhouse gas pollution, responsible for 25 percent of cumulative global CO₂ emissions since 1870, and is currently the world's second highest emitter on an annual and per capita basis.⁴⁷ The U.S. must focus its resources and technology to rapidly phase out extraction while investing in a just transition for affected workers and communities currently living on the front lines of the fossil fuel industry and its pollution.⁴⁸

Ending the approval of new fossil fuel production and infrastructure is also critical for preventing “carbon lock-in,” where approvals and investments made now can lock in decades-worth of fossil fuel extraction that we cannot afford. New approvals for fossil fuel infrastructure—such as pipelines and marine and rail import and export terminals—require upfront investments that provide financial incentives for companies to continue production for decades into the future.⁴⁹ As summarized by Green and Denniss (2018):

⁴⁴ Oil Change International, *Drilling Toward Disaster: Why U.S. Oil and Gas Expansion Is Incompatible with Climate Limits* (January 2019), <http://priceofoil.org/drilling-towards-disaster>.

⁴⁵ Intergovernmental Panel on Climate Change, *Global Warming of 1.5°C*, an IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (2018), <http://www.ipcc.ch/report/sr15/> at SPM-15.

⁴⁶ Oil Change International, *Drilling Toward Disaster: Why U.S. Oil and Gas Expansion Is Incompatible with Climate Limits* (January 2019), <http://priceofoil.org/drilling-towards-disaster> at 5.

⁴⁷ LeQuéré, Corinne et al., *Global carbon budget 2018*, 10 *Earth System Science Data* 2141 (2018) at Figure 5, 2167; Global Carbon Project, *Global Carbon Budget 2018* (published on 5 December 2018) https://www.globalcarbonproject.org/carbonbudget/18/files/GCP_CarbonBudget_2018.pdf at 19 (Historical cumulative fossil CO₂ emissions by country).

⁴⁸ Piggot, Georgia et al., *Realizing a just and equitable transition away from fossil fuels*, Discussion brief, Stockholm Environment Institute (January 2019), <https://www.sei.org/publications/just-and-equitable-transition-fossil-fuels/>.

⁴⁹ Davis, Steven J. and Robert H. Socolow, *Commitment accounting of CO₂ emissions*, 9 *Environmental Research Letters* 084018 (2014); Erickson, Peter et al., *Assessing carbon lock-in*, 10 *Environmental Research Letters* 084023 (2015); Erickson, Peter et al., *Carbon lock-in from fossil fuel supply infrastructure*, Stockholm Environment Institute, Discussion Brief (2015); Seto, Karen C. et al., *Carbon Lock-In: Types, Causes, and Policy Implications*, 41 *Annual Review of Environmental Resources* 425 (2016); Green, Fergus and Richard Denniss, *Cutting with both arms of the scissors: the economic and political case for restrictive supply-side climate policies*, 150 *Climatic Change* 73(2018).

When production processes require a large, upfront investment in fixed costs, such as the construction of a port, pipeline or coalmine, future production will take place even when the market price of the resultant product is lower than the long-run opportunity cost of production. This is because rational producers will ignore ‘sunk costs’ and continue to produce as long as the market price is sufficient to cover the marginal cost (but not the average cost) of production. This is known as ‘lock-in.’”⁵⁰

Given the long-lived nature of fossil fuel projects, ending the approval of new fossil fuel projects is necessary to avoid the lock-in of decades of fossil fuel production and associated emissions.

A very recent study found that phasing out all fossil fuel infrastructure at the end of its design lifetime, starting immediately, preserves a 64 percent chance of keeping peak global mean temperature rise below 1.5°C.⁵¹ By contrast, the study found that delaying mitigation until 2030 reduces the likelihood that 1.5 °C would be attainable to below 50 percent, even if the rate of fossil fuel retirement were accelerated. In other words, every year of delay in phasing out fossil fuel infrastructure makes “lock-in” more difficult to escape and the possibility of keeping global temperature rise below 1.5°C less likely. The study concluded that although difficult, “1.5 °C remains possible and is attainable with ambitious and immediate emission reduction across all sectors.”

Therefore, the Corps should be acting in accordance with a carbon budget that keeps global temperatures below 1.5 degrees Celsius. Instead, the Project would lock in more oil refining, including, foreseeably, the refining of Canadian tar sands crude, which is among the dirtiest and most GHG-intensive feedstock on the planet.⁵² Moreover, such infrastructure changes would facilitate the import and export of more oil, gas, and coal through area ports, ultimately contributing to the global reliance on climate-damaging fossil fuels. With the additional GHG emissions that would result from the proposed channel improvements totaling as much as 7.22 million metric tons of carbon dioxide equivalents (CO₂e) per year even without an increase in processing of Canadian tar sands, the Project would eviscerate local, state and national efforts to avoid devastating climate harms.⁵³

b) The DEIS Fails to Consider the Project’s Impact on Oil Refinery Imports and Exports

The DEIS is inadequate in that it fails to describe and consider the impact the Project’s “de-bottlenecking” of refinery import and export limitations has on greenhouse gas (GHG) emissions. The only climate impact analysis performed by the Draft EIS is that of the

⁵⁰ Green, Fergus and Richard Denniss, Cutting with both arms of the scissors: the economic and political case for restrictive supply-side climate policies, 150 *Climatic Change* 73(2018) at 78.

⁵¹ Smith, Christopher J. et al., Current fossil fuel infrastructure does not yet commit us to 1.5°C warming, *Nature Communications*, doi.org/10.1038/s41467-018-07999-w (2019).

⁵² Carnegie Endowment for International Peace, Oil-Climate Index, Profiling Emissions in the Supply Chain (2017), available at <http://oci.carnegieendowment.org/#supply-chain>.

⁵³ Karras Report at 9-10.

construction and vessel operations.⁵⁴ Despite acknowledging the benefits the project will have to refineries within the project area, the Corps insists, without basis, that the project would not lead to any increase in refinery imports or exports greater than those already projected without the project.⁵⁵

In fact, the Corps refused to consider the possibility of increased exports of refined petroleum products even after explicit recommendations to do so from the US Environmental Protection Agency (“EPA”).⁵⁶ EPA urged further analysis of future impacts: “in addition to analyzing impacts associated with the construction of the project, we recommend that the EIS analyze reasonably foreseeable impacts resulting from a potential increase in the transportation and combustion of refined petroleum and coal, which are major exports of ports within the proposed project area.”⁵⁷ EPA recommends disclosing the GHG emissions that would ultimately be burned as a result of this project, including GHGs emitted overseas after products are shipped out of the project area’s ports and refineries.⁵⁸ EPA again urged in 2018 to evaluate any adverse environmental effects that could result from growth at the four refineries in the area.⁵⁹

The Corps in turn simply asserted, with no reference to facts in the record, that the project would not be expected to result in increased ship traffic.⁶⁰ This cursory response demonstrates a woefully inadequate understanding of the refining industry and does not accurately reflect the project’s potential to “de-bottleneck” the throughput of four major oil refineries, which would lead to a substantial increase in GHG emissions.⁶¹ Since there is a “reasonably close causal relationship” between these effects and the proposed project, the Corps is required by law to include analyses of these effects.

Here, the increased volume of oil and coal passing through the deepened channels will lead to greater refining and export activity. These in turn will lead to more greenhouse gas emissions, both at the refineries and when the products are combusted. Stated differently, the dredging is “a mere step in furtherance of many other steps in the overall development” of the area’s fossil fuel industry.⁶²

The project will likely result in a significant increase in future volumes of crude oil and refined petroleum products shipped through the Bay.⁶³ One of the primary Project purposes is to address the issue that shipping vessels are currently required to be less than fully loaded in order

⁵⁴ DEIS at 4-34 to 4-41. Further, as explained below, the DEIS assumption regarding vessel traffic after Project completion is not supported by fact. Rather, given known refinery plans to increase production, it is more likely that vessel traffic will increase. As a result, the DEIS under-assumes vessel emissions of GHGs.

⁵⁵ DEIS at ES-2, ES-7, 4-66.

⁵⁶ DEIS App. I at 92.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.* at 131.

⁶⁰ *Id.* at 28.

⁶¹ Karras Report at 5.

⁶² *Baykeeper v. United States Army Corps of Eng'rs*, 2006 U.S. Dist. LEXIS 67483.

⁶³ *Id.* at 1-4.

to navigate the shallow Bay channels. By dredging these channels, the Project intends to allow tankers to utilize more of their existing capacity.⁶⁴ The only Bay refinery that can currently send and receive tankers at fuller draft is the Chevron Refinery in Richmond; the Richmond refinery also has the highest capacity utilization rate of all Bay refineries at a rate of 99.7%.⁶⁵ Refineries affected by the project have an average capacity utilization rate of 91.3%, while the total average West Coast refinery capacity utilization rate is 93.5%. The shipping bottleneck that the Project seeks to address currently bars the project-affected refineries from using more of their existing capacity like the Chevron Richmond refinery and other West Coast refineries.⁶⁶ If the Project allows the affected refineries to reach the West Coast capacity utilization rate, a reasonable lower-bound assumption, a 2.4% increase in import and export volume can be expected.⁶⁷ By contrast, a reasonable upper-bound assumption would be the utilization rate of the Chevron Richmond refinery, with a 9.2% expected increase in import and export volume. Between these bounds, this project can be reasonably expected to support a production increase between 151 and 579 million gallons per year of gasoline and diesel.⁶⁸

This massive probable increase in imports of crude oil and exports of refined petroleum products necessarily has a considerable climate impact that the DEIS fails to consider. Using data and analysis developed by the California Air Resources Board (“CARB”) to estimate the total “well-to-wheel” petroleum fuel chain emissions of carbon dioxide equivalents (“CO₂e”) from the extraction, refining, transport and combustion of gasoline and diesel refined in California, the above estimates translate to a potential increase of between 1.88 to 7.22 million metric tons of CO₂e per year.⁶⁹ This vastly exceeds the federal climate impact significance threshold of 25,000 metric tons per year used in the DEIS.⁷⁰ The failure of the Corps to consider the vast climate impact potential of the increase in crude exports likely to be caused by the project renders the DEIS climate impact analysis inadequate.

Because the increased depth will allow more fossil fuel to be transported, refined, and burned, the DEIS must include an analysis of the reasonably foreseeable greenhouse gas emissions that will occur. It is reasonably foreseeable that the project will allow oil companies to transport more oil as a direct or indirect result of the deeper shipping channel. The DEIS is inadequate because it fails to quantify, disclose and analyze these impacts.

2. The DEIS’s Air Quality Impact Analysis is Inadequate

The DEIS also inadequately considers the considerable air quality impacts that the project will cause by increasing refining capacity at project-affected refineries. Much like its incomplete climate impact analysis, the DEIS only considers the air quality impacts of dredging and vessel

⁶⁴ DEIS at ES-2, ES-7.

⁶⁵ Karras Report at 7.

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ *Id.* at 7-8.

⁶⁹ *Id.* at 9-10.

⁷⁰ DEIS at 4-35.

operations while disregarding foreseeable indirect and cumulative impacts on air quality resulting from increased refinery capacity due to the project.⁷¹

As with its climate analysis, the Corps received and ignored input from EPA suggesting it perform analysis on cumulative impacts of the project, including those on refinery operations.⁷² EPA stated in its April 4 letter to the Corps that the EIS should discuss “potential air quality impacts of the project, including cumulative and indirect impacts. Cumulative impacts include, but are not limited to, those from construction, any increased ship traffic, new capacity for larger ships due to channel deepening, increased truck or rail transport, on-dock equipment use, and **refinery operations**.”⁷³

Instead of addressing these cumulative impacts as EPA suggested, the Corps instead only analyzed the air quality impacts of construction and vessel emissions, concluding that criteria pollutants did not cross regulatory thresholds.⁷⁴ This analysis again fails to consider the indirect and cumulative impacts of the project on refinery operations, namely the air quality impacts associated with the project’s increase in refinery capacity utilization.

Criteria pollutants like fine particulate matter (PM_{2.5}), sulfur dioxide (SO₂), oxides of nitrogen (NO_x) and carbon monoxide (CO) co-emit with CO₂e.⁷⁵ Emissions of these pollutants from refineries are correlated with emissions of CO₂e from refineries, mainly due to fossil fuel combustion for process energy in refining.⁷⁶ Therefore, the calculated potential increases in CO₂e emissions from refineries discussed in the previous section also serve to estimate the project’s increases in criteria pollutants.⁷⁷ The upper bound of the potential project impact range, a 9.2% increase in refinery capacity, would result in SO₂, NO_x, and CO levels **three times** the significance thresholds used in the EIS and PM_{2.5} levels only just below the threshold.⁷⁸ Such estimates indicate the project could cause significant air quality impacts that the Draft EIS should analyze. Since the Draft EIS does not do so, it is deficient.

3. The DEIS’s Environmental Justice Analysis is Inadequate

Since the DEIS fails to consider the air quality impacts that the project will cause by increasing refining capacity at project-affected refineries, it also fails to adequately address the effect of this air pollution on the environmental justice communities that live in the project area. While the DEIS does identify that there are minority communities with the project’s Area of Potential Effects (“APE”) that require an environmental justice analysis, it wrongfully concludes

⁷¹ DEIS at 4-30 to 4-34.

⁷² DEIS App. I at 89-90.

⁷³ DEIS App. I at 89 (emphasis added).

⁷⁴ DEIS at 4-33.

⁷⁵ Karras Report at 11.

⁷⁶ *Id.*

⁷⁷ *Id.* at 11-12.

⁷⁸ *Id.* at 12; DEIS at Table 4-3.

that the project will have no disproportionate impacts to these communities compared to surrounding areas.⁷⁹

The purpose of an environmental justice analysis is “to determine whether a project will have a disproportionately adverse effect on minority and low income populations.”⁸⁰ “A finding of no significant impacts to the general population is insufficient (on its own) to base a determination that there are no disproportionately high and adverse impacts to minority populations and low-income populations.”⁸¹ As with all indirect and cumulative project impacts, project impacts on environmental justice communities must be considered in an EIS.⁸² For example, in *Standing Rock*, NEPA analysis of a pipeline project near an environmental justice community was found to be inadequate because it only analyzed construction impacts on the community and not potential spill impacts.⁸³ *Id.*

In the DEIS at hand, the Corps again only considers the air impacts from construction and vessels while ignoring the air impacts from increased refinery operations enabled by the Project.⁸⁴ According to the DEIS, since “[a]ny operational air quality impact would be equally borne by all populations...there would be no disproportionate impacts to the communities within the APE compared to surrounding areas under the No Action Alternative.”⁸⁵ The DEIS even goes as far to say that the “proposed project would not result in cumulatively considerable impacts when considered in combination with other past, present, and reasonably foreseeable future activities within the APE, the study area as a whole, and the surrounding 7-county region.”⁸⁶ The scope of this analysis is inadequate as it fails to examine the reasonably foreseeable future activities within the APE due to the Project.

Increased refinery production and the corresponding increase in air pollution in environmental justice communities is a reasonably foreseeable future activity that must be considered by the DEIS. The DEIS correctly notes several communities within the APE that have a greater percentage of minority residents than the APE as a whole, including refinery communities like Richmond, Vallejo, and Rodeo.⁸⁷ Table 2-12 notes that the refinery communities of Benicia and Martinez are included in the APE, but does not list them within the table.⁸⁸ *Id.* The four project-affected refineries are located within the majority-minority communities of Benicia, Rodeo, and Martinez, which means that any increased refinery

⁷⁹ DEIS at 4-66.

⁸⁰ *Allen v. NIH*, 974 F. Supp. 2d 18, 47 (D. Mass. 2013) (quoting *Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 541 (8th Cir. 2003)).

⁸¹ Promising Practices for EJ Methodologies in NEPA Reviews: Report of the Federal Interagency Working Group on Environmental Justice & NEPA Committee at 38.

⁸² See *Standing Rock Sioux Tribe v. United States Army Corps of Eng'rs*, 255 F. Supp. 3d 101, 140 (D.D.C. 2017).

⁸³ *Id.*

⁸⁴ DEIS at 4-66.

⁸⁵ *Id.*

⁸⁶ DEIS at 4-90.

⁸⁷ DEIS at 2-50.

⁸⁸ *Id.*

emissions due to the project will be affecting environmental justice communities as defined under NEPA.⁸⁹

The increased emissions of criteria pollutants from project-affected refineries discussed in the previous section and the Karras Report are particularly harmful to human health and stand to impermissibly increase mortality rates in these communities.⁹⁰ Using technical documents from the Bay Area Air Quality Management District (“BAAQMD”), the Karras Report estimates that the potential increase in PM_{2.5} emissions due to the project could lead to an additional 53 to 201 deaths over a 30 year span compared to a No-Project alternative.⁹¹ Such an increase in the mortality rate that would be borne by the minority communities that live near the affected refineries constitutes a foreseeable, disproportionate, and highly adverse risk that constitutes a significant environmental justice impact.⁹² This is a far cry from the only impact the Corps found on environmental justice communities, which was the “benefits” of the proposed project to “shipping and the general economy including minority and low-income populations.”⁹³ The inclusion of this impact and exclusion of any analysis of adverse project impacts to refinery emissions makes the DEIS deficient under NEPA.

4. The DEIS Analysis of Dredge Impacts to Wildlife is Inadequate

In the DEIS and accompanying Biological Assessment (“BA”), the Corps inadequately assesses the effects of the Project on regional wildlife and fisheries species. The agency must analyze those impacts in more detail, including the implications of vessel traffic (including ship strikes and noise), water quality, and a reliance on “work windows” to mitigate effects to listed species, especially longfin smelt and Delta smelt.

a) The DEIS Analysis of Impacts to Longfin Smelt and Delta Smelt is Inadequate

The DEIS correctly states that “[m]echanical dredging. . . is generally accepted to entrain far fewer fish than hydraulic dredging because little water is removed along with the sediment and it does not involve any suction.”⁹⁴ The DEIS, however, is unclear whether the Corps will use a mechanical dredge for all dredging conducted under this Project. In Chapter 4 where the Corps analyzes the impacts of the Project, the DEIS indicates that dredging will be done by mechanical dredge.⁹⁵ But at other points in the DEIS, it appears that the Corps is only committing to use a clamshell dredge in the Bull Head Reach channel.⁹⁶ In order to fully inform the public, as well as properly evaluate the impacts of the Project, the Corps must clarify when and where the Corps

⁸⁹ DEIS at 2-50, Exec. Order No. 12898, 59 Fed. Reg. 7629 (Feb. 11, 1994).

⁹⁰ Karras Report at 8.

⁹¹ *Id.* at 7-8.

⁹² DEIS at 4-65.

⁹³ DEIS at 6-7.

⁹⁴ DEIS at 4-48.

⁹⁵ See e.g., DEIS at 4-50 (indicating impacts to Delta smelt and longfin smelt from entrainment are less than significant because Corps using mechanical dredge); see also DEIS at ES-6 (assuming use of clamshell).

⁹⁶ See e.g., DEIS at 2-60, Table 2-15, 3-5, Graphic Executive Summary at 2 (indicating that operations and maintenance dredging of Pinole Shoal will use a hopper dredge).

will use a hopper dredge versus a clamshell dredge. Without a complete and accurate description of the Project and all of its components, an accurate environmental analysis is not possible.⁹⁷

Moreover, the Corps must consider the impacts from maintaining the depth of the Pinole Shoal Channel and Bulls Head Reach, as well as the impacts from the deepening activities themselves. While maintenance dredging of these channels has already been approved by the Corps, as well as other federal and State agencies, maintenance of the channels necessarily changes as a result of the deepening project considered here. The DEIS indicates that a hopper dredge will be used to maintain the depth of the Pinole Shoal Channel.⁹⁸ Yet the DEIS fails to analyze the impacts from continuing to conduct maintenance dredging using a hopper dredge in the Pinole Shoal Channel. Maintenance of the proposed depth is part of this Project and must be evaluated in the DEIS.

The Delta smelt are endemic to the San Francisco Bay-Delta Estuary and were once abundant.⁹⁹ Recent abundance numbers for the Delta smelt have been at historic lows, and the species is on the brink of extinction.¹⁰⁰ Similarly, longfin smelt were once one of the most abundant open-water fishes in the Estuary and were commercially important fish.¹⁰¹ Today the species' numbers have plummeted to record lows in the Bay-Delta.¹⁰² Longfin smelt abundance in 2018 (the most recent year of sampling) were less than 1% of the levels detected when sampling began in 1967; the population has declined approximately 20% since it was listed as threatened by the State of California in 2009.¹⁰³

While most of the decline of Delta smelt and longfin smelt is due to water diversions, dredging, by physically altering and causing entrainment, also harms these imperiled species.¹⁰⁴ In a previous study evaluating the impacts of maintenance dredging in the Bay, the Corps estimated that up to 29 percent of the annual population abundance of Delta smelt and up to 8 percent of the annual population abundance of longfin smelt could be entrained by maintenance dredging operations.¹⁰⁵ Thus, the impacts from using a hopper dredge to conduct maintenance dredging will be significant and must be evaluated and mitigated for in the DEIS.

⁹⁷ See *Blue Mountains Biodiversity Project v. United States Forest Service*, 161 F.3d 1208, 1215 (9th Cir. 2008).

⁹⁸ DEIS at Table 2-15.

⁹⁹ California Dept. of Fish & Wildlife, Delta Smelt, *available at* <https://www.wildlife.ca.gov/Conservation/Fishes/Delta-Smelt>.

¹⁰⁰ See “News worsens for rare Delta fish; Smelt's decline reflects health of estuary as a whole,” Stockton Record (Apr. 18, 2015), *available at* http://www.recordnet.com/article/20150418/NEWS/150419726/101095/A_NEWS; see also Sahagun, Louis, “As California’s delta smelt spirals toward extinction, a future in captivity awaits,” Los Angeles Times, April 22, 2019, *available at*: <https://www.latimes.com/local/california/la-me-threatened-delta-smelt-aquarium-exhibit-20190422-story.html>.

¹⁰¹ The Bay Institute *et al.*, Petition to List the San Francisco Bay-Delta Population of Longfin Smelt (*Spirinchus thaleichthys*) as Endangered Under the Endangered Species Act, August 8, 2007, at p. ii-iii.

¹⁰² *Id.*

¹⁰³ See California Dept. of Fish & Wildlife, Monthly Abundance Indices, *available at* <http://www.dfg.ca.gov/delta/data/fmwt/indices.asp>.

¹⁰⁴ The Bay Institute, *supra* note 101, at p. iii, 25, 45.

¹⁰⁵ Final Environmental Assessment/Environmental Impact Report for Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay, Fiscal Years 2015 – 2024, April 2015, at pp. 3-6.36-3-6.37, 3-6.41, 3-6.48, *available at*

The Corps also must discuss in more detail the behavioral implications of ship traffic on Delta and longfin smelt. While noting that “[g]eneral disturbance from barges, dredging crew and tugs is expected to disturb any delta or longfin smelt in the surrounding area,” the Corps fails to discuss the significance of the fishes’ response to such disturbance—including the “exhibit[ion of] a startled response, followed by escapement from the area.”¹⁰⁶ Given the rapid decline and record low numbers of Delta smelt in the region, the Corps must conduct a more searching analysis of the ways in which sublethal harms might affect the long-term population viability of smelt species.¹⁰⁷

b) Vessel Traffic Implications

In the DEIS, the Corps assumes that deepening the channel will lead to reduced overall vessel traffic (specifically a reduction in Panamax medium class vessels).¹⁰⁸ The DEIS’s assumption is not based on any evidence nor is there a legally binding limit that would restrict the number of vessels. As described above, the greater likelihood is an increase in movement of petroleum products both into and out of the Bay. Any number of factors could lead to an increase in the number of vessels transiting beyond what is forecast and analyzed in the DEIS, with a concomitant increase in vessel impacts on fish and wildlife species.¹⁰⁹

Even assuming the overall reduction in vessel traffic holds, the DEIS nonetheless forecasts a slight increase in the number of larger Aframax and Suezmax vessels.¹¹⁰ The increased presence of these larger vessels—in addition to a potential increase in size or number of accompanying tending vessels—may introduce significantly more noise into the marine environment, particularly if they have larger positioning thrusters and propulsion units.¹¹¹ The threat to marine mammals of ship strike also would increase with any increase in large vessel traffic enabled by the proposed dredging project. Effects of ship strike and noise are discussed in more detail below.

(1) Ship Strikes

The Corps entirely fails to analyze the threat that shipping traffic associated with this navigation channel poses to marine mammals. Ship strikes serve as a primary cause of mortality

https://www.waterboards.ca.gov/rwqcb2/water_issues/programs/dredging/Fed%20Nav%20Channels_FEAEIR_April%202015.pdf.

¹⁰⁶ BA at 39.

¹⁰⁷ *Id.* at 36.

¹⁰⁸ DEIS at 4-67.

¹⁰⁹ Jensen, Caitlin M. et al., Spatial and Temporal Variability in Shipping Traffic Off San Francisco, California, 43 Coastal Mgmt. 575 (2015) (“the economy and policy ... affect shipping”).

¹¹⁰ DEIS at 4-68, Table 4-21.

¹¹¹ Kaplan, M.B. & S. Solomon, A coming boom in commercial shipping? The potential for rapid growth of noise from commercial ships by 2030, 73 Marine Policy 119, 120 (2016).

for large whales worldwide.¹¹² Large vessels (i.e., those ≥ 80 m, which includes Panamax, Aframax, and Suezmax) are responsible for most of the collisions leading to whale death or severe injury.¹¹³ For imperiled populations, “death from vessel collisions may be a significant impediment to population growth and recovery.”¹¹⁴

The ports of San Francisco Bay harbor extensive shipping activity.¹¹⁵ Incoming ship traffic transits several ecologically rich areas including Cordell Bank, Gulf of the Farallones, and Monterey Bay National Marine Sanctuaries.¹¹⁶ These areas provide important habitat for blue whales (*Balaenoptera musculus*), humpback whales (*Megaptera novaeangliae*), and gray whales (*Eschrichtius robustus*).¹¹⁷ Both blue and humpback whales are listed as endangered under the U.S. Endangered Species Act.

In an analysis of ship strikes off the West Coast of the continental United States, scientists found that “the majority of strike mortality occurs in waters off California, from Bodega Bay south and tends to be concentrated in ... designated shipping lanes leading to and from major ports.”¹¹⁸ Shipping lanes off San Francisco pose one of the highest ship strike risks.¹¹⁹ Between 2005 and 2014, the National Oceanic and Atmospheric Administration (NOAA) documented 15 ship strikes of blue, humpback, and gray whales off San Francisco.¹²⁰ Given that ship strikes rarely are detected, the actual number is likely much higher.¹²¹

The Corps forecasts that the proposed dredging project will lead to an increase in the number of larger Aframax and Suezmax vessels.¹²² Larger vessels traveling at proportionately higher speeds as they transit to the navigation channel pose a greater risk of harm to marine mammals from ship strikes, as well as the noise impacts described below. Given the grave risk to whale species, including endangered blue and humpback whales, the Corps must analyze how the proposed project may affect ship strike risk.

¹¹² Rockwood, R. Cotton *et al.*, *High Mortality of Blue, Humpback and Fin Whales from Modeling of Vessel Collisions on the U.S. West Coast Suggests Population Impacts and Insufficient Protection*, PLoS ONE 12(8): e0183052 (2017); Jensen *et al.* (2015).

¹¹³ Jensen *et al.* (2015)

¹¹⁴ Rockwood *et al.* (2017).

¹¹⁵ Jensen *et al.* (2015).

¹¹⁶ *Id.*; Keiper, Carol *et al.*, *Risk Assessment of Vessel Traffic on Endangered Blue and Humpback Whales in the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries: Summary of Research Results*, Oikonomos (2012).

¹¹⁷ Jensen *et al.* (2015).

¹¹⁸ Rockwood *et al.* (2017).

¹¹⁹ *Id.*

¹²⁰ Jensen *et al.* (2015).

¹²¹ *Id.*

¹²² DEIS at 4-68, Table 4-21.

(2) Noise

The Corps also must conduct a more searching analysis on the effects of project-associated noise on regional wildlife and fisheries species. Noise associated with the dredging project itself will be produced by clamshell dredges, tugboats, and a pneumatic jackhammer.¹²³ Even assuming peak SPLs from these sources do not result in lethal harms to fishes (as asserted by the Corps), smelt, salmonids, and green sturgeon might experience behavioral disturbances including reduced foraging, reduced ability to avoid predators, and increased flight/avoidance behavior, as well as neurological stress and hearing threshold shifts.¹²⁴ The Corps must discuss in more detail the individual- and population-level implications of such sublethal harms, by themselves and in conjunction with other stressors such as climate change.¹²⁵

Marine mammals likewise stand to be impacted by the proposed dredging operations.¹²⁶ California sea lions (*Zalophus californianus*) and harbor seals (*Phoca vitulina*) use the project area and stand to be directly impacted by dredging operations.¹²⁷ Potential impacts include changes in feeding, breeding, and predator-avoidance behaviors; flight/avoidance behavior; and changes in dive times, migration routes, and swimming speeds.¹²⁸ The Corps' statement that "marine mammals are highly mobile and would likely avoid areas of noise and disturbance from dredging operations," constitutes an insufficient analysis of the implications of project-related noise on marine mammals.¹²⁹ Relocations are not without cost. Marine mammals must expend energy to move and may relocate to less desirable habitat (e.g., less prey, more threats from ship strikes or predators). While the Corps' notes this in theory, it fails to discuss the implications of these harms in sufficient detail.¹³⁰

Noise associated with the project also will come from the ships utilizing the navigation channel—both while the vessels are transiting the channel and during their approach. While acknowledging that "commercial shipping vessels present under baseline conditions can produce continuous noise in the range of 180 to 189 dB which exceeds the NMFS thresholds for adverse behavioral effects to fish and marine mammals," the Corps neglects to adequately analyze how shipping noise associated with use of a deepened channel will affect regional wildlife.¹³¹

Kaplan and Solomon (2016) estimate that commercial shipping noise could increase by 87-102% by 2030 due to the combined effects of an increase in the volume of goods shipped, an increase in larger and noisier ships, and an increase in distance goods are shipped.¹³² Oil tankers

¹²³ BA at 41.

¹²⁴ BA at 38, 41-42, 55; DEIS at 4-47.

¹²⁵ BA at 42.

¹²⁶ See DEIS at 2-39 (Corps' list of marine mammal species inhabiting the Bay area).

¹²⁷ DEIS at 4-55.

¹²⁸ *Id.*

¹²⁹ *Id.* at 4-47.

¹³⁰ *Id.* at 4-55.

¹³¹ *Id.* at 4-47.

¹³² Kaplan & Solomon (2016).

noise specifically is projected to increase by 11%.¹³³ Because much of the increased noise pollution will be concentrated near harbors and shipping lanes including those in and around San Francisco, it is particularly important that this proposed dredging project address the issue of noise pollution from commercial shipping in more depth.

Any increase in shipping noise threatens marine mammal species resident in the San Francisco Bay area, including endangered blue and humpback whales. Noise generated by commercial shipping reduces marine mammals' ability to communicate, locate prey, and navigate within their habitat, and induces behavioral change. The Corps must discuss these impacts in the DEIS. The Corps also should consider developing and implementing a noise budget to protect vulnerable wildlife and fisheries species from noise pollution generated by ship traffic associated with this navigation channel.¹³⁴ Quantitative management targets identified under the budget could form the basis for regulations or incentive-based sound reduction initiatives.¹³⁵

c) Water Quality

According to the Corps, "[w]ater quality variables ... potentially affected by dredging operations include turbidity, dissolved oxygen, nutrients, salinity, temperature, pH, and concentrations of trace metals and organic contaminants if they are present in the sediments."¹³⁶ Water quality degradation associated with the proposed project is expected to impact Delta and longfin smelt, salmonids (including steelhead and Chinook salmon), and green sturgeon.¹³⁷ While acknowledging the potential water quality implications of the proposed project, there currently exist several gaps in the Corps' analysis. These gaps are discussed in the following subsections.

(1) Turbidity, Temperature, DO, Nutrients & pH

Dredging resuspends sediment and associated organic material, which can lead to temporary increases in turbidity and nutrients, reductions in dissolved oxygen ("DO"), and/or changes in temperature and pH.¹³⁸ The Corps inappropriately minimizes the significance of sublethal harms to wildlife and fisheries species associated with these processes. Such harms to smelt, salmonids, and sturgeon include, but are not limited to, gill damage, body abrasion,

¹³³ *Id.*

¹³⁴ See, e.g., Merchant, N. D., R. C. Faulkner & R. Martinez, *Marine noise budgets in practice*, 11 Conservation Letters 1 (2018); Haver, S.M. et al., *Monitoring long-term soundscape trends in US Waters: The NOAA/NPS Ocean Noise Reference Station Network*, 90 Marine Policy 6 (2018); Redfern, J.V., et al., *Assessing the risk of chronic shipping noise to baleen whales off Southern California, USA*, 32 Endangered Species Research 153-167 (2017); Viola, S. et al., *Continuous monitoring of noise levels in the Gulf of Catania (Ionian Sea). Study of correlation with ship traffic*, 121 Marine Pollution Bull. 97 (2017).

¹³⁵ Heise, K.A. et al. *Proposed Metrics For The Management Of Underwater Noise For Southern Resident Killer Whales Coastal Ocean Report Series* (2) (Ocean Wise, Vancouver, 2017).

¹³⁶ DEIS at 4-11.

¹³⁷ *Id.* at 4-14; BA at 38, 47, Table 3.

¹³⁸ DEIS at 4-15.

reduced reproductive success, reduced visibility, decreased predator avoidance, modified territoriality, altered feeding and homing behavior, and flight/avoidance response.¹³⁹ The cumulative effects of these and other stressors may lead to a host of harms including reduced reproductive output, immunosuppression, and increased mortality. The Corps must discuss expected effects on regional fish populations in more detail.

Increased turbidity and dredging activity also have the potential to disturb marine mammal foraging activities. The Corps declares such effects inconsequential because marine mammals “forage over large areas of San Francisco Bay and the ocean and can avoid areas of temporarily increased turbidity and dredging disturbance.”¹⁴⁰ As discussed above in the context of ocean noise, such relocation is not without cost. The animals must expend energy to relocate, and distribution of prey is not uniform across time and space. Other threats to marine mammals may loom (e.g., ship strikes, predators) in the areas to which they relocate. The Corps must conduct a more searching analysis of potential dredging-related impacts to marine mammals.

The Corps does refer to techniques that can be used to limit these effects, such as slowing the dredge cycle, using silt curtains, and employing particular dredge bucket design.¹⁴¹ The Corps fails, however, to discuss whether these techniques will be employed to minimize harms to aquatic life including the Delta and longfin smelt.¹⁴² The Corps should provide more information on any required mitigation of these resuspension effects.

(2) Contaminant Resuspension

The resuspension of contaminated sediments accompanying the proposed dredging project poses a substantial risk to marine life in the project vicinity, including the endangered Delta smelt, candidate species longfin smelt (*Spirinchus thaleichthys*), steelhead, Chinook salmon, and green sturgeon.¹⁴³ Such resuspension also poses a threat to marine mammals, which—due to high levels of body fat—tend to bioaccumulate lipophilic contaminants.¹⁴⁴

Benthic sediments like those underlying the greater San Francisco Bay area act as a sink for anthropogenic contaminants including heavy metals (e.g., copper, lead, cadmium and zinc), polycyclic aromatic hydrocarbons, phthalates, and persistent organic pollutants (“POPs”) including polychlorinated biphenyls (PCBs), pesticides (e.g., DDT), and flame retardants (PBDEs).¹⁴⁵ Dredging resuspends seafloor sediments, remobilizing a fraction of the

¹³⁹ *Id.* at 4-43, 4-44; BA at 53, 54.

¹⁴⁰ *Id.* at 4-44.

¹⁴¹ *Id.*

¹⁴² See BA at 40 (noting that longfin smelt congregate in deeper waters that would be exposed to increased sediment concentrations from dredging).

¹⁴³ BA at 38, 53.

¹⁴⁴ Ross, P.S. et al., *High PCB Concentrations in Free-Ranging Pacific Killer Whales, Orcinus orca: Effects of Age, Sex, and Dietary Preference*, 40 Marine Pollution Bull. 504 (2000).

¹⁴⁵ Knott, N.A. et al., *Contemporary Ecological Threats from Historical Pollution Sources: Impacts of Large-Scale Resuspension of Contaminated Sediments on Sessile Invertebrate Recruitment*, 46 J. Applied Ecology 770 (2009).

contaminants and making them bioavailable to aquatic life.¹⁴⁶ This bioavailability and uptake can have devastating ecological consequences. For example, remobilized metals like copper and zinc pose a threat to salmon at very low concentrations. Many POPs, including PCBs, bioaccumulate in the fatty tissues of animals and biomagnify up the food chain.¹⁴⁷

Studies of pinnipeds—like the California sea lions and harbor seals occupying the project area—have demonstrated that elevated POP concentrations lead to reproductive impairment, endocrine disruption, immunotoxicity, neurotoxicity, and skeletal abnormalities.¹⁴⁸ A growing body of evidence suggests that organochlorine chemicals put cetacean species at risk for similar toxic responses.¹⁴⁹ Indeed, scientists studying other cetacean populations have found an association between high PCB-concentrations in females and low recruitment, which in turn leads to declining abundance.¹⁵⁰

Despite the threat posed by contaminant resuspension, the Corps downplays the risk, stating that “sediment in the study area generally has low levels of contamination and does not contribute to significant environmental risks when dredged.”¹⁵¹ The Corps relies on “historic sediment testing” in support of its conclusion.¹⁵² This historic testing, however, appears to be highly out of date. For example, the Corps refers to sediment samples taken in Pinole Shoal and Suisan Bay in 1997.¹⁵³ The Corps cannot rely on such outdated data to support the conclusion that there would be no primary, secondary, or cumulative water quality impacts from dredging.¹⁵⁴ Nor can the agency rely on “additional sampling [to] occur during the Preconstruction, Engineering, and Design (PED) phase of this project to confirm” its no-effect conclusion. Instead, the Corps must conduct water quality sampling prior to approving the Project and present the data to the public so that dredging project impacts, including contaminant impacts, can be properly analyzed. Should the project move forward, the Corps should commit to a more frequent, scheduled sampling program to ensure water quality does not degrade over time.

¹⁴⁶ DEIS at 4-15; Knott et al. (2009); Victor, O. et al., *Environmental Effect of Dredging and Geochemical Fractionation of Heavy Metals in Sediments Removed from River*, 6 Modern Chem. 44 (2018).

¹⁴⁷ Ross et al. (2000); Hall, A.J. et al., *Predicting the Effects of Polychlorinated Biphenyls on Cetacean Populations Through Impacts on Immunity and Calf Survival*, 233 Env'tl. Pollution 407 (2018).

¹⁴⁸ Ross et al. (2000); Krahn, M.M. et al., *Effects of Age, Sex and Reproductive Status on Persistent Organic Pollutant Concentrations in “Southern Resident” Killer Whales*, 58 Marine Pollution Bull. 1522 (2009); Lundin, J.I. et al., *Persistent Organic Pollutant Determination in Killer Whale Scat Samples: Optimization of a Gas Chromatography/Mass Spectrometry Method and Application to Field Samples*, 70 Archives Env'tl. Contamination & Toxicology 9 (2016).

¹⁴⁹ Ross et al. (2000).

¹⁵⁰ Hall et al. (2018).

¹⁵¹ DEIS at 2.5. See also DEIS App. G at 4 (“No toxic metals or organics are expected to be released by the Project”).

¹⁵² DEIS at 4-11, 4-16.

¹⁵³ DEIS App. G at 5.

¹⁵⁴ *Id.* at 5-7.

(3) Water Quality and Climate Change

The Corps also must consider how climate change may increase exposure to and bioaccumulation/ biomagnification of certain contaminants in marine organisms including the Chinook salmon. These increases in exposure or bioconcentration may occur (1) as climate change increases contaminant exposure or sensitivity, and/or (2) when contamination leads to an increase in susceptibility to other climate change effects.¹⁵⁵ Alava et al. (2018) estimate climate-induced contaminant amplification Chinook salmon to be on the order of 10%.¹⁵⁶ The Corps must consider how the proposed dredging and any associated contaminant resuspension would interplay with climate change effects and potentially harm resident fish and wildlife species.

d) Work Windows

The Corps' reliance on "work windows" to avoid fisheries harms is misplaced. The Corps attempts to minimize anticipated harms to smelt by asserting that dredging and related activities will occur in designated "work windows."¹⁵⁷ Working in these windows is not mandatory, however, and will only occur "to the extent practicable."¹⁵⁸ The Corps historically has shown a "continuing need" for work window extensions in some areas of the Bay "year after year."¹⁵⁹ Thus smelt and smelt critical habitat may not be adequately protected from project activities. Likewise, out-migrating Chinook might be affected by dredging activities that fall outside the work window.¹⁶⁰

Even when employed, these windows may not be protective of resident species. For example, work windows fail to protect longfin smelt in Bulls Head Reach as the species occupies this area year-round.¹⁶¹ Adult winter-run Chinook may be in the action area if they migrate to spawning grounds in June.¹⁶² The Corps should discuss in more detail its historical record of complying with work windows in this particular navigation channel, as well as impacts that might result should work windows not be practicable. Furthermore, the Corps must conduct ESA Section 7 consultation with the National Marine Fisheries Service (NMFS) and the US Fish and Wildlife Service (FWS) to ensure against species jeopardy.¹⁶³

¹⁵⁵ Alava, J.J. et al., *Projected Amplification of Food Web Bioaccumulation of MeHg and PCBs Under Climate Change in the Northeastern Pacific*, 8 Nature Scientific Reports, Art. No. 13460 (2018), at <https://www.nature.com/articles/s41598-018-31824-5>.

¹⁵⁶ *Id.*

¹⁵⁷ See, e.g., BA at 39, 46, 53; DEIS at 4-45.

¹⁵⁸ BA at 39, 46.

¹⁵⁹ Final Environmental Assessment/Environmental Impact Report Maintenance Dredging of the Federal Navigation Channels in San Francisco Bay Fiscal Years 2015 – 2024 (State Clearinghouse No. 2013022056), found at https://scc.ca.gov/webmaster/ftp/pdf/sccbb/2018/1812/20181206Board11_RCH_Beneficial_Use_Project_Ex2.pdf.

¹⁶⁰ BA at 53.

¹⁶¹ *Id.* at 39.

¹⁶² *Id.* at 53.

¹⁶³ 16 U.S.C.A. § 1536(a)(2).

5. The DEIS Analysis of Impacts from Reuse of Dredge Materials is Inadequate

As with the type of dredging equipment, the DEIS is unclear to what extent the dredged material from Pinole Shoal Channel and Bulls Head Reach will be beneficially reused. When evaluating impacts, the DEIS states that the dredged material will be beneficially reused.¹⁶⁴ Yet, in other places, it appears that at least some of the dredged material will be placed at in-bay disposal locations, SF-10 or SF-16.¹⁶⁵ The Corps must clarify what portion of the sediment dredged during the construction phase and/or operation phase of Project will be beneficially reused. Again, the operation phase (*i.e.*, maintaining the navigational channels at the increased depth) is part of this Project and must be evaluated in the DEIS.

The DEIS also leaves open the possibility that some of the dredged material will be disposed of at SF-DODS, which is 55-miles off the coast of the Pacific Ocean.¹⁶⁶ “Placement of material at SF-DODS is not ideal since it takes material out of the natural system, while both Cullinan Ranch and Montezuma Wetlands both can beneficially use the material and are cost effective. While SF-DODS is not carried forward as a placement site, it is worth mentioning that it is an available placement site if needed, if there are no other beneficial use sites with available capacity prior to construction.”¹⁶⁷ Commenters agree with the Corps that using SF-DODS is “not ideal” because taking material out of the Bay system exacerbates the Bay’s existing sediment deficit, reduces the sediment available for natural wetland replenishment and wetland restoration, and increases the impacts from rising sea levels and storm surges. In addition, transporting sediment to SF-DODS will greatly increase greenhouse gas emissions. Assuming the Corps intends to dispose of all its dredged sediment in a wetland restoration site, the Project is not likely to increase that sediment deficit and resulting impacts in the Bay. However, if the Corps were to take a portion or all of the dredged sediment to SF-DODS, the impacts of taking the sediment out of the natural system would be potentially significant, and the Corps must evaluate such impacts prior to taking that action.¹⁶⁸

6. The DEIS’s Analysis of the Risk of Spills Is Inadequate

The proposed project threatens to increase the risk, severity and the magnitude of oil spills in the Bay Area. The DEIS does not provide credible evidence to support its claim that the project will “reduc[e] the risk of spills.”¹⁶⁹ Data show that there are scores of spills from oil-carrying vessels each year.¹⁷⁰ In the Bay Area, there have already been two major oil spills from vessels in recent history. In 1971, two oil tankers collided near the Golden Gate Bridge, spilling

¹⁶⁴ See *e.g.*, DEIS at ES-4 (“An analysis of placement sites for each alternative determined that placement at Montezuma Wetlands and/or Cullinan Ranch were cost-effective options and, importantly, using these sites maximizes the planning objective to beneficially use material.”), ES-5.

¹⁶⁵ See DEIS at ES-6, Graphic Executive Summary at 2.

¹⁶⁶ DEIS at ES-5 to ES-6.

¹⁶⁷ *Id.*

¹⁶⁸ See 40 C.F.R. § 1502.9(c)(1).

¹⁶⁹ DEIS at 5-8; DEIS App. G at 9.

¹⁷⁰ <https://www.bts.gov/content/petroleum-oil-spills-impacting-navigable-us-waters>

800,000 gallons of bunker fuel into the Bay. Then in 2007, a container ship struck the Bay Bridge and spilled 58,000 gallons of bunker fuel into San Francisco Bay. San Francisco and the surrounding areas are frequently inundated with heavy fog, making ship navigation particularly risky. Lesser known, but more frequent spills have contributed to “chronic” oil pollution in California.¹⁷¹

An oil spill would be catastrophic for the Bay Area. People who reside, work, and recreate in and around the Bay Area waters will be harmed by a spill. The region’s tourism industry will also suffer. Tourism (beach recreation, camping, kayaking, hiking) and eco-tourism (e.g., marine mammal watching) are major economic opportunities along the West Coast for coastal communities.¹⁷² California’s \$45 billion-dollar coastal economy has a lot to lose to a spill.¹⁷³ California commercial fisheries for instance, produced from 186-361 million pounds of fish from 2013-2015, at a value of \$129-\$266 million.¹⁷⁴ After the 2007 disaster, when the container ship Cosco Busan spilled 53,000 gallons of oil into San Francisco Bay, the Governor closed the fishery, a significant portion of which was either contaminated or killed, closed more than 50 public beaches, some as far south as Pacifica, and thousands of birds died. All told, that spill resulted in more than \$73 million in estimated damages and cleanup costs.¹⁷⁵ An oil spill by one of the ships carrying the maximum volume of oil allowed under this dredging project would be many times larger. Finally, the many imperiled species that depend on clean water for their fragile ecosystem will be harmed, and the damage may be irreparable.

a) The Project May Increase the Risk of Spills

The DEIS’s conflicting statements about the risks of spills renders the analysis inadequate. For example, the DEIS claims that a deepened channel will improve safety, but it is unclear why. A deepened channel will not improve safety if companies use larger ships and the under-keel clearance remains the same. The DEIS does not contain any mitigation measures that would limit vessel calls or vessel sizes. Consequently, its projections related to those statistics are unsupported.

To the contrary, refineries in the area have indicated that they are preparing to accept greater numbers of vessels and greater sizes of vessels. For example, Phillips 66 plans to increase the volume of crude oil it processes in the coming years.¹⁷⁶ Other refineries are similarly making

¹⁷¹ Hampton, S., et al., (May 2003) Tank vessel operations, seabirds and chronic oil pollution in California, *Marine Ornithology* 31: 29-34.

¹⁷² West Coast Offshore Vessel Traffic Risk Management Project, Final Project Report and Recommendations (July 2002) (West Coast Vessel Report) p. 14, available at <http://library.state.or.us/repository/2010/201007070951103/index.pdf>

¹⁷³ *California Ocean and Coastal Economies*, National Ocean Economics Program (March 2015), attached.

¹⁷⁴ Based on California Department of Fish and Wildlife and National Marine Fisheries Service data.

¹⁷⁵ See, e.g., *Incident Specific Preparedness Review M/V Cosco Busan Oil Spill in San Francisco Bay Report on Initial Response Phase*, Baykeeper, OSPR, NOAA, et al. (Jan. 11, 2008).

¹⁷⁶ CBE, Phillips 66 Co.’s San Francisco Refinery Tar Sands Oil Expansion in Rodeo, CA, (April 2018) available at <http://www.cbecal.org/wp-content/uploads/2019/03/San-Francisco-Refinery-Tar-Sands-Expansion-Fact-Sheet.pdf>

changes to their refineries to increase throughput capacity or their capacity to process different types of crude. The DEIS, which appears to be based on outdated information,¹⁷⁷ should be updated to reflect these recently disclosed plans.

A recent spill at one of the four refineries the Project would subsidize, Phillips 66 in Rodeo/Crockett, serves as a warning of what could result from increased marine terminal operations. According to press reports, “BAAQMD issued two ‘public nuisance’ violations to Phillips 66 for its Sept. 20, 2016 spill, which leaked oil into the bay and sent an estimated 120 people to the hospital from fumes.”¹⁷⁸ That spill, which occurred while the Yamuna Spirit was offloading at the Phillips 66 Marine Terminal in Rodeo, was responsible for more than 1,400 odor complaints and a shelter-in-place order for the 120,000 residents of Vallejo.¹⁷⁹

In addition, the DEIS contains inadequate analysis of what *other* types of vessels may utilize the newly deepened shipping channel. Historically, other types of vessels have caused a significant portion of oil spills in the Pacific Economic Exclusion Zone.¹⁸⁰

b) The Project May Increase the Severity of Spills

Once oil is spilled, mechanical recovery rates seldom exceed 20%.¹⁸¹ Even more troubling, the DEIS does not analyze the risk of a spill from non-floating oil. Yet area refineries have indicated that feedstocks may incorporate larger portions of non-floating crude feedstocks such as Canadian tar sands oil (mainly diluted bitumen, or “dilbit”) in the future. Just recently, the Canadian government took a significant step toward increasing its tar sands exports to the U.S. West Coast by approving the Trans-Mountain Pipeline.¹⁸² The pipelines would vastly increase tar sands pipeline capacity from 300,000 to 890,000 barrels of oil per day shipped to the West Coast of Canada.¹⁸³ Tar sands refining could increase drastically in California if refining capacity in the Bay Area increases. In fact, the tar sands industry’s expansion plans rely on California’s refinery capacity, partially because Gulf Coast heavy crude refining capacity is more limited.

¹⁷⁷ For example, it incorrectly names two refinery operators that have since sold their ownership of the refineries (Tesoro and Shell).

¹⁷⁸ Katy St. Clair, “Supervisor Brown says ‘no way’ to proposed Phillips 66 expansion,” Times-Herald (Aug. 5, 2017), available at <http://www.timesheraldonline.com/article/NH/20170805/NEWS/170809877>; see also Ted Goldberg, “Refinery, Tanker Firm Cited for Fumes That Sickened Scores in Vallejo,” KQED News (June 16, 2017), available at <https://www.kqed.org/news/2017/06/16/refinery-tanker-firm-cited-for-fumes-that-sickened-scores-in-vallejo/>; Ted Goldberg, “Phillips 66 Seeks Huge Increase in Tanker Traffic to Rodeo Refinery,” KQED News (July 27, 2017), available at <https://www.kqed.org/news/2017/07/27/phillips-66-seeks-big-increase-in-tanker-traffic-to-rodeo-refinery/>.

¹⁷⁹ Ted Goldberg, “Refinery, Tanker Firm Cited for Fumes That Sickened Scores in Vallejo,” *id.*

¹⁸⁰ West Coast Vessel Report (2002) at 6.

¹⁸¹ *Id.* at 14.

¹⁸² Trans Mountain: Canada approves \$5.5bn oil pipeline Project (June 18, 2019) BBC News, <https://www.bbc.com/news/world-us-canada-48641293>.

¹⁸³ <https://www.kindermorgan.com/pages/business/canada/tmep.aspx>

The Kinder Morgan Canada Initial Public Offering Prospectus, which offered investors stock in the company being formed to hold the Trans-Mountain Pipeline Expansion Project (and several other assets), detailed expected markets for the tar sands crude that would fill the pipeline's additional capacity:

At an estimated total capital cost of approximately \$7.4 billion (including capitalized financing costs), upon completion, the Trans Mountain Expansion Project will provide western Canadian crude oil producers with an additional 590,000 barrels per day of shipping capacity and tidewater access to the western United States (most notably Washington, California and Hawaii) and global markets (most notably Asia).¹⁸⁴

The prospective specifically addresses refineries in California:

[R]efineries in Washington State and California, which comprise an important point of sale on the U.S. West Coast, have, in the past, been supplied primarily by crude oil from the Alaska North Slope. As such, there has historically been some competitive pressure on supply originating from the [West Canadian Sedimentary Basin ("WCSB")] for sale in the Washington State and California refinery markets ... due to recent changes in U.S. legislation, oil from the Alaska North Slope may now be sold to markets outside of the United States. To the extent this additional access to alternative markets for Alaskan producers increases overall demand from Washington State and California refineries, the [Trans Mountain Pipeline, TMPL] system, through its Puget Sound pipeline connection to four refineries in Washington State, will be in a position to facilitate supply to such markets for WCSB producers. As evidence of these competitive advantages, capacity on the TMPL has been over-subscribed since 2010 and approximately 80% of the capacity of the TMPL upon completion of the Trans Mountain Expansion Project is subject to long-term firm commitments.¹⁸⁵

This project could accelerate that transition by allowing more Canadian tar sands, which are non-floating crude oils, to be transported through the Bay Area. Previous environmental studies have shown that a spill of submerged oil would prove disastrous for the area by being "almost impossible" to contain.¹⁸⁶ Yet this is exactly the type of risk that will increase as refineries increase the volume of Canadian tar sands they refine. The risk to water and wildlife is simply unacceptable.

The U.S. EPA recently noted that spills of diluted bitumen require different response action and equipment than conventional oil spills.¹⁸⁷ Years after a major spill of diluted bitumen into the Kalamazoo River in Michigan, heavy oil remained at the bottom of the river. Resource-

¹⁸⁴ Kinder Morgan Canada Limited, Preliminary Prospectus, Initial Public Offering, p. 23 (April 24, 2017), attached.

¹⁸⁵ *Id.* at 73.

¹⁸⁶ California State Lands Commission, Tesoro Avon Marine Terminal EIR (2015) at II-4.

¹⁸⁷ EPA, *Comment Letter to US Department of State Regarding the Supplemental Draft Environmental Impact Statement from TransCanada's Proposed Keystone XL Project* (2013), available at <http://www.epa.gov/Compliance/nepa/keystone-xl-Project-epa-comment-letter-20130056.pdf>

intensive cleanup is required to remedy the damage caused by the Kalamazoo oil spill, amounting to \$1 billion in costs to public funds.¹⁸⁸ Furthermore, at least one other previous environmental study disclosed that no one is trained to address this type of spills, nor is it clear that there is equipment that can be used to effectively contain the spill.¹⁸⁹ There is very little publicly available information about the reaction of dilbit to the marine environment and the organisms and ecosystems found there, and widespread uncertainty remains even as to the most basic questions like whether dilbit products will float or sink over time, what chemicals are contained in dilbit at what concentrations, what response dilbit will have to weathering, and how it will interact with marine species and sediment.

Dispersants are not effective at mitigating spill impacts for tar sands.¹⁹⁰ Existing techniques for addressing submerged oil spills are ineffective.¹⁹¹ The DEIS contains no information about what impacts a spill of involving Canadian tar sands would have, nor does it include any indication that such a spill could be contained. No reasonable mitigation or planning can be done with regard to the risk posed by the transport of dilbit to the four affected Bay area refineries without specific information as to the chemical composition of the crude oil being transported.

Details on the types of oil expected to arrive on the tankers utilizing the deepened channel must be part of the DEIS and must be made publicly available. It is irresponsible to base risk assessment and best practices for the handling of dilbit on assessments and practices for conventional oil without at least knowing what the chemical composition of the dilbit is, including separate information on bitumen and diluent constituents, and how it differs from conventional oil. As indicated above, the available scientific evidence suggests that the type of risks associated with marine spills of dilbit, tars sands, and other sinking oils are wholly different from risks from spills of floating conventional crude oil. Additional research into best management practices, spill prevention practices, and cleanup and response planning is needed before approval of a project that may allow a foreseeable increase in the amount of tar sands coming into California's waters.

Even for floating oil, the solvents intended to disperse oil pollution have been found to have environmental impacts of their own. For example the "COREXIT" dispersant used in the BP Deepwater Horizon spill is linked to substantial environmental degradation independent of the oil, and its use has been banned by other countries.¹⁹² The DEIS contains no information about what chemical solvents or dispersants may be used to address oil spills, how effective those solvents are, and what environmental impacts are likely from using those solvents.

¹⁸⁸ CSLC, Tesoro Avon Marine Terminal EIR at II-4.

¹⁸⁹ *Id.* at II-13-14.

¹⁹⁰ EPA, Dispersants webpage: <https://www.epa.gov/emergency-response/dispersing-agents>.

¹⁹¹ *Id.* at II-12.

¹⁹² Marine Management Organisation (UK) website, available at <http://webarchive.nationalarchives.gov.uk/20140108121958/http://www.marinemanagement.org.uk/protecting/pollution/documents/a>.

Dispersants and dispersed oil have been shown to have significant negative impacts on marine life ranging from fish to corals to birds. Dispersants release toxic break-down products from oil that, alone or in combination with oil droplets and dispersant chemicals, can make dispersed oil more harmful to marine life even than untreated oil. Neither the short-term nor the long-term impacts of dispersants on marine life have been adequately tested. As acknowledged by the EPA, the “long term effects [of dispersants] on aquatic life are unknown.”¹⁹³

c) The Project May Increase the Magnitude of Spills

As stated in the DEIS, the project will allow larger ships to transport oil through the area, or alternatively, vessels of the same size will be allowed to carry a greater volume of oil for each ship call. The increased size of the ships and the greater volume of oil indicate that accidents will be greater in scale than they would be without the project.

In sum, the risk of oil spills is greater due to the project’s purpose, which is to allow for larger amount of crude oil to be transported through the Bay Area to and from refineries. The DEIS does not comply with NEPA’s requirements because it provides inadequate disclosure and analysis of the reasonably foreseeable spill impacts of the project.

E. The DEIS Fails to Consider Conflicts with Applicable Laws, Including the California Global Warming Solutions Act Mandate Regarding Shifting GHG Emissions Out of State

The DEIS must consider applicable California and local laws, including the California Global Warming Solutions Act, and it fails to do so. Under CEQ regulations, an agency must review approved State and local plans and laws, and an EIS must discuss any inconsistency of a proposed action.¹⁹⁴ Where an inconsistency exists, the EIS must describe the extent to which the project will be reconciled with the plan or law.¹⁹⁵

Prominent among California laws, the Global Warming Solutions Act of 2006, or AB 32, fights global climate change by establishing a comprehensive program to reduce GHG from all sources throughout the state. The California Air Resources Board (“CARB”) has adopted “greenhouse gas emissions limits and emissions reduction measures ... in furtherance of achieving the statewide greenhouse gas emissions limit....”¹⁹⁶ In AB 32, California’s legislature mandated CARB’s regulations “minimize leakage” as one of its goals in setting these limits and measures.¹⁹⁷ Leakage, or emissions shifting, is “a reduction in emissions of greenhouse gases

¹⁹³ EPA, Questions and Answers on Dispersants (undated), <https://archive.epa.gov/emergency/bpspill/web/html/dispersants-qanda.html> (last accessed 6/21/19).

¹⁹⁴ 40 C.F.R. § 1506.2(d).

¹⁹⁵ *Id.*

¹⁹⁶ Cal. Health & Safety Code § 38562(a).

¹⁹⁷ Cal. Health & Safety Code § 38562(b)(8).

within the state that is offset by an increase in emissions of greenhouse gases outside the state.”¹⁹⁸

The DEIS fails to assess the impact of the Project on emissions shifting. As discussed above and in the Karras Report, the Project will significantly increase exports of refined petroleum products from the Bay Area.¹⁹⁹ In increasing exports, the Project will shift GHG emissions from California to export markets. To the extent that the imported and processed crude remains in California for use and combustion, this Project is also inconsistent with California’s Low Carbon Fuel Standard (LCFS).²⁰⁰ Assuming the four affected refineries increase use of their unused capacity up to the level of their de-bottlenecked Bay area competitor, they will produce approximately 579 million gallons more gasoline and diesel annually.²⁰¹ Using CARB’s data to estimate the CO₂e emissions of gasoline and diesel refined in California, the potential increase is calculated to be between 1.88 to 7.22 million metric tons of CO₂e per year.²⁰² The failure of the Corps to consider the vast climate impact potential of the increase in crude exports likely to be caused by the Project renders the DEIS climate impact analysis inadequate.

Facilitating sustained or increased capacity at refineries is not only contrary to international climate goals but also to California’s own greenhouse gas reduction goals. This project is inconsistent with California’s mandates for rapid statewide GHG emissions reductions. California has strict mandates to rapidly reduce emissions to prescribed levels by the years 2020, 2030 and 2045. The Governor’s Executive Order B-30-15²⁰³ and Senate Bill 32 establish a greenhouse gas emissions reduction target for California of 40 percent below 1990 levels by 2030. Executive Order B-55-18 calls for the state to achieve carbon neutrality as soon as possible, and no later than 2045.²⁰⁴ Senate Bill 100 requires the state to transition fully to renewable and zero-carbon energy by 2045.

III. Conclusion

The DEIS fails entirely to meet NEPA’s requirements. The public was not given adequate notice from the start. Although the Project has hyperlocal, extremely Bay Area specific impacts, the local Corps division in San Francisco is not charged with the effort, but rather an engineering district in Florida is seeking to approve a massive subsidy to Bay Area refiners. Even the “local” sponsor is outside the area the Project purports to affect – the DEIS segments off the Richmond to Avon portion of the dredging efforts so it does not reach the Port of Stockton or consider the impacts increasing coal transport out of Stockton will have. Likewise, although the Corps acknowledges the Project is intended to benefit transport of petroleum in and out of the Bay, it fails entirely to consider the effects of increased refinery throughput the ease of transport will

¹⁹⁸ Cal. Health & Safety Code §38505(j).

¹⁹⁹ Karras Report at 8.

²⁰⁰ Exec. Order No. S-01-07, Cal. Code Regs. tit. 17, § 95480-95503 (Jan. 18, 2007).

²⁰¹ *Id.* at 8, *see* Table 4.

²⁰² *Id.*

²⁰³ Executive Order B-30-15 (April 29, 2015).

²⁰⁴ Executive Order B-55-18 (Sept. 10, 2018).

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bring. The DEIS also fails adequately to describe and consider impacts to climate, air quality, environmental justice communities and wildlife, including endangered species. The DEIS fails adequately to consider water quality impacts, and the significant and foreseeable risks posed by spills of greater volumes and likelihood of increased transport of Canadian tar sands. In sum, the DEIS fails as an informational document.

Sincerely,

/s/
Tyler Earl
Associate Attorney
Communities for a Better Environment

/s/
Hollin Kretzmann
Senior Attorney
Center for Biological Diversity

/s/
Marcie Keever
Oceans & Vessels Program Director
Friends of the Earth

/s/
Erica Maharg
Managing Attorney
San Francisco Baykeeper

/s/
Jessica Yarnall Loarie
Senior Attorney
Sierra Club