Via Electronic Mail and U.S. Mail

January 27, 2022

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Re: The Corps Must Deny NWP 12 Coverage for the San Pedro Bay Pipeline Repair Project (Corps File No. SPL-2021-00617-ERS)

Dear Col. Balten and Mr. Sweeney,

On behalf of the Center for Biological Diversity, we urge the U.S. Army Corps of Engineers ("Corps") to **deny** Applicant Amplify Energy's application for coverage under Nationwide Permit 12 (Oil or Natural Gas Pipeline Activities) for its proposed San Pedro Bay Pipeline Repair Project (Corps File No. SPL-2021-00617-ERS). Providing coverage to this project under Nationwide Permit 12 would violate the Clean Water Act. Furthermore, Amplify Energy must apply for incidental take authorization for its activities under the Marine Mammal Protection Act and the Corps must conduct a full Endangered Species Act consultation and National Environmental Policy Act analysis for the project. This is no ordinary repair—it is a repair of a decades-old pipeline following a significant rupture and spill. It cannot be rushed through under a streamlined permit that lacks site-specific analysis. Instead, it requires and deserves a closer look.

As you are well aware, in October 2021, the 41-year-old, 17-mile-long Pipeline 00547 connecting Platform Elly to shore in San Pedro Bay ruptured approximately five miles off of Huntington Beach, California, spewing an estimated 25,000 gallons of crude oil into the Pacific Ocean and California's coastal environment.[1] The pipeline serviced offshore oil and gas drilling

[1] Hannah Fry, et al., Massive oil spill sends crude onto Orange County beaches, killing birds, marine life, LA Times, Oct. 2, 2021 (Beta Offshore reported to the National Response Center that its pipeline from

and processing platforms authorized by the federal government,[2] and the rupture occurred in federal waters off Huntington Beach. The oil slick spread over an area greater than 25 square miles of ocean, and many miles of beach in Orange County were oiled.[3] The spill fouled sensitive marine, beach, and wetland habitat; forced closure of fisheries;[4] and harmed and killed birds, fish, plants, invertebrates, and marine mammals. The spill has impacted animals protected under the Endangered Species Act, including threatened snowy plovers,[5] as well as oiled waters used by highly endangered western Pacific leatherback sea turtles and marine mammals protected under the Marine Mammal Protection Act.[6] The spill highlights one of the numerous harmful impacts of offshore oil drilling and why we must immediately transition away from this dirty, dangerous practice for good.

On December 13, 2021, the Corps, Los Angeles District, Regulatory Division received an application from Amplify Energy for Regional General Permit #63 (Repair and Protection Activities in Emergency Situations). Amplify Energy requested approval to begin work just four days later on December 17. The proposed project included five activities: patching the pipeline crack; installing a "pollution dome" over the crack' removing hundreds of feet of pipeline; installing new pipeline to replace the removed sections; and installing 1,200 square feet of concrete mats along the length of the replaced pipeline sections. The repairs would occur over an estimated two to three months using the derrick barge the *Salta Verde*, using a four-point mooring system to anchor the vessel.[7]

Platform Elly to shore had spilled oil. The spill was initially estimated at 126,000 gallons of crude oil, then increased to 144,000 gallons); Smith, Hayley, Officials declare O.C. oil spill cleanup complete, Los Angeles Times (Dec. 29, 2021).

[2] See, e.g., Cypher, H.T., Letter Approving Plan of Development for the Beta Unit, OCS-P 0300 and P 0301 (Jan. 3, 1980).

[3] Fieldstadt, Elisha, Tim Stelloh and The Associated Press, Ship's anchor seen as possible cause for massive oil spill in Southern California, NBC, Oct. 4, 2021.

[4] California Department of Fish and Wildlife, Southern California Fisheries Closure Implemented Due To Oil Spill, Oct. 4, 2021.

[5] *See, e.g*., Ritchie, E.I., 7 Western snowy plovers saved from oil in Huntington beach sand, here's how, The Orange County Register (Oct. 9, 2021).

[6] *See* Benson, S., K.A. Forney, J.E. Moore, E.L. LaCasella, J.T. Harvey, and J.V. Carretta. 2020. A long-term decline in the abundance of endangered leatherback turtles, Dermochelys coriacea, at a foraging ground in the California Current Ecosystem, Global Ecology and Conservation 24; *see also* NMFS. Revised April 15, 2020. Stock Assessment Report: BLUE WHALE (*Balaenoptera musculus musculus*): Eastern North Pacific Stock; NMFS. Revised April 15, 2021. Stock Assessment Report: FIN WHALE (*Balaenoptera physalus velifera*): California/Oregon/Washington Stock; NMFS. Revised April 15, 2020. NMFS. Revised April 15, 2020. Stock Assessment Report: GRAY WHALE (*Eschrichtius robustus*): Eastern North Pacific Stock; NMFS. Revised April 15, 2020. Stock Assessment Report: GUADELUPE FUR SEAL (*Arctocephalus townsendi*); NMFS. Revised April 15, 2020. Stock Assessment Report: HUMPBACK WHALE (*Megaptera novaeangliae*): California/Oregon/Washington Stock at 179–80; NMFS. Revised Dec. 30, 2020. Stock Assessment Report: NORTH PACIFIC RIGHT WHALE (*Eubalaena japonica*): Eastern North Pacific Stock; NMFS. Revised April 15, 2020. Stock Assessment Report: SPERM WHALE (*Physeter macrocephalus*): California/Oregon/Washington Stock.

[7] *See* Amplify Energy RGP 63 Application at 2; Application Enclosure 1.

Most of these activities would be ineligible for coverage under Regional General Permit #63. It is our understanding from correspondence with your office that most of these activities are now being considered by the Corps under Nationwide Permit 12.[8] However, for the reasons described below, the application for coverage must be denied as it does not meet the criteria for coverage specified in Nationwide Permit 12 and cannot go forward absent a more detailed application and site-specific Clean Water Act, Endangered Species Act, Marine Mammal Protection Act, and National Environmental Policy Act review.[9]

I. This Project *Does Not* Qualify for NWP 12 Coverage

The Corps must issue an individual permit under Clean Water Act Section 404 and Rivers and Harbors Act Section 10 for activities like this one that do not qualify for a Nationwide Permit because they are likely to have more than minimal individual and cumulative impacts and are contrary to the public interest.

Both the Clean Water Act and the Rivers and Harbors Act prohibit certain activities that damage our waters, wetlands, and environment unless permitted by the Corps. Section 404 of the Clean Water Act gives the Corps responsibility for permitting activities that involve the discharge of dredged or fill materials into U.S. waters. Section 10 of the Rivers and Harbors Act gives the Corps permitting responsibility for projects that impair navigable waters. 33 U.S.C. § 1344(a), (d); *id.* § 403.

For categories of "similar" activities that "will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment," the Corps may issue a Nationwide Permit—a general permit that avoids the need for any further review of activities in the category. *See* 33 C.F.R. § 330.1(b), (g) (2021).

Nationwide Permit 12 authorizes certain "[a]ctivities required for the construction, maintenance, repair, and removal of oil and natural gas pipelines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than ½ acre of waters of the United States for each single and complete project." Department of Defense, Final Rule, *Reissuance and Modification of Nationwide Permits*, 86 Fed. Reg. 2744, 2860 (Jan. 13, 2021). The ½ acre limit is for "tidal" or "non-tidal" waters. 86 Fed. Reg. at 73538. Nationwide Permit 12 requires a pre-construction notification (PCN) "prior to commencing the activity" if, among other reasons, a Rivers and Harbors Act section 10 permit is required or the discharge will result in the loss of greater than 1/10-acre of waters of the United States. 86 Fed. Reg. at 2860.

[8] Email from Eric Sweeney (Senior Project Manager, U.S. Army Corps of Engineers) to Miyoko Sakashita (Center for Biological Diversity) (Dec. 22, 2021).
[9] Department of the Army Regional General Permit Number 63 for Repair and Protection Activities in Emergency Situations (Nov. 19, 2018).

While Nationwide Permit 12 should be revoked for many reasons and is the subject of ongoing litigation,[10] that is not the focus of this letter. Nationwide Permit 12 is inapplicable here for other reasons—namely this project will have more than minimal individual and cumulative adverse environmental effects and is contrary to the public interest. It thus "cannot be authorized" by a Nationwide Permit according to the Nationwide Permit 12 Decision Document ("NWP 12 Decision Document"),[11] which also states "[w]hen reviewing PCNs for proposed oil or natural gas pipeline activities, district engineers consider the potential direct and indirect impacts on fish and wildlife habitat and water quality, as well as other public interest review factors identified in 33 CFR 320.4(a)(1)."[12] This is reflected in the final rule approving Nationwide Permit 12 as well. *See* 86 Fed. Reg. at 2874 ("[i]n reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest").

The referenced regulatory section, 33 C.F.R. § 320.4(a)(1), requires the Corps to evaluate all "probable impacts, *including cumulative impacts*, of the proposed activity *and its intended use* on the public interest." (emphasis added). The Corps must evaluate "[a]ll factors which may be relevant to the proposal" including several in particular that are directly implicated here: "the cumulative effects" of this pipeline repair as well as conservation, aesthetics, general environmental concerns, fish and wildlife values, navigation, water quality, safety, and "the needs and welfare of the people." *Id*. The Corps must deny Nationwide Permit 12 coverage to this project because it is likely to have more than minimal individual and cumulative impacts on the environment and is contrary to the public interest.

The pipeline repair and restart will affect ecologically important marine resources. An individual permit application is required in order to fully evaluate the individual and cumulative impacts of this project on marine species and resources. The waters off the coast of Long Beach, Seal Beach, and Huntington Beach are of ecological significance and provide habitat for several endangered species.[13] Blue, fin, sei, humpback, and sperm whales, as well as other marine mammals like dolphins, use southern California seawaters. Leatherback, loggerhead,

[10] There are many reasons the Corps should revoke NWP 12, as outlined in the Center for Biological Diversity's Petition To Halt the Approval of Fossil Fuel Infrastructure Permits as Contrary to the Public Interest and for Associated Actions and Rulemaking (Oct. 6, 2021) and the ongoing lawsuit against the Corps, which we hereby incorporate by reference. *Center for Biological Diversity v. Scott*, 4:21-cv-00047 (D. Mont., May 3, 2021).

[11] NWP Decision Document at 4.

[12] NWP Decision Document at 8.

[13] The RGP 63 Application submitted to Army Corps acknowledges that "federally listed species potentially occurring within the Action Area" include: white abalone (*Haliotis sorenseni*), steelhead (*Oncorhynchus mykiss*), olive ridley sea turtle (*Lepidochelys olivacea*), East Pacific green sea turtle (*Chelonia mydas*), loggerhead sea turtle (*Caretta caretta*), Pacific leatherback sea turtle (*Dermochelys coriacea*), California least tern (*Sternula antillarum*), marbled murrelet (*Brachyramphus marmoratus*), short-tailed albatross (*Phoebastria albatrus*), blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), Northern Pacific right whale (*Eubalaena japonica*), sperm whale (*Physeter macrocephalus*), and Guadalupe fur seal (*Arctocephalus townsendi*). Application at 3.

green, and olive ridley sea turtles also occur in this area. Endangered white and black abalone are found in the intertidal zones. Protected fish, including the tidewater goby and southern California steelhead population, are in the area, and the endangered California clapper rail, endangered snowy plover, endangered California least tern, and the state endangered savannah sparrow all inhabit the coastal area. Most of these animals are migratory, and do not observe the borders between federal and state waters.

Pipeline repairs often result in discharges to the marine environment. The ruptured pipeline may still have residual oil and oily mixtures in it that may be released into the water when repairs are undertaken. Along with this pollution, vessels and barges, generators, pipecutting, wet welding, and air jetting among other activities produce noise and disturbance that can disrupt key behaviors such as feeding, breeding and communication. Noise pollution masks important communication among whales and other marine mammals, and it can interfere with echolocation used for navigation and feeding. Depending on the precise repair activities carried out, the impacts on coastal resources could include varying degrees of additional noise and pollution, from for example cutting and removing a section of pipeline, or welding, which may also disturb the seafloor and its benthic habitat.

Seafloor construction activities Amplify Energy may undertake (including but not limited to sand air jetting, placement and burying concrete mats, burying the pipeline, and/or dredging) will cause turbidity and resuspension of contaminants in the water column. This can expose marine mammals and their prey to toxins—which are a key threat to and bioaccumulate in marine mammals. Poor water quality conditions harm marine mammals as well as fish and fish nurseries, and sediments can smother and harm or kill benthic species.[14] Depending on water currents and conditions and the method of removing any dredged or other material, the plume can spread for vast distances. Finally, noise from dredging operations can range from 111 to 170 dB, with potential impacts on marine mammals and their prey.[15]

Moreover, this project's proposed use of a mooring system and cables for the derrick barge pose an entanglement risk to marine mammals. While entanglement with the mooring lines themselves may be unlikely due to their diameter, marine mammals — and baleen whales in particular — are more likely to be at risk from secondary entanglement, in which an animal becomes entangled in derelict fishing gear that has accumulated on a facility component, and tertiary entanglement, in which an animal already entangled in gear swims near a mooring line and the gear becomes entangled.[16]

[14] Wenger et al., A critical analysis of the direct effects of dredging on fish, Fish and Fisheries 18:967–985 (2017).
[15] Wenger et al. 2017.
[16] Cassoff, R.M., Moore, K.M., McLellan, W.A., Barco, S.G., Rotstein, D.S., Moore, M.J., 2011. Lethal entanglement in baleen whales. Dis. Aquat. Org. 96, 175–185; Farr, H., Benjamin Ruttenberg, Ryan K. Walter, Yi-Hui Wang, Crow White, Potential environmental effects of deepwater floating offshore wind energy facilities, Ocean & Coastal Management, Volume 207, 2021.

Moreover, the existing pipeline has been displaced — a long 4,000-foot section has been displaced by 105 feet laterally.[17] Any efforts to move the pipeline could most certainly have more than minimal adverse impacts on the environment. And to the extent that the repair work displaces marine mammals from their preferred habitat, these animals would also be at increased risk of vessel collision in the busy Long Beach Port area, which could result in death or injury.

The repair and restart of this 40+ year old pipeline threatens additional ruptures and oil spills and demands a site-specific analysis. An individual permit application is required in order to fully evaluate the individual and cumulative impacts of oil spills from this pipeline individually and in light of the surrounding network of aging oil and gas platform and pipeline infrastructure.[18] Further, a site-specific analysis is necessary to evaluate whether this repair is the best course of action relative to other alternatives including shutdown or a more extensive repair. It is notable, and alarming, that federal agencies continue to rely on a 1978 joint Environmental Assessment/Environmental Impact Report to comply with the federal National Environmental Policy Act and California Environmental Quality Act.[19]

Nationwide Permit 12 purported to assess "general environmental concerns," including oil spills:

> For oil pipelines, operators are required to comply with the Pipeline and Hazardous Materials Safety Administration's safety requirements, and have plans for addressing the risk of oil spills. Oil spills are also addressed through the Oil Pollution Act of 1990, which is administered by the U.S. Environmental Protection Agency and the U.S. Coast Guard. The U.S. EPA is responsible for oil spills in inland waters and the U.S. Coast Guard is responsible for oil spills in coastal waters and deepwater ports.

NWP 12 Decision Document at 90 (similar language for natural gas pipelines).

This Nationwide Permit 12 paragraph does not encompass an analysis of the direct and indirect impacts of oil spills and very real risk of future spills occurring off California's coast from this and nearby pipelines. Although it will still be many months or years before the true wildlife toll from this spill is known, there have already been significant impacts to wildlife and sensitive marine and coastal habitat. As noted above, seven threatened western snowy plovers were rescued by wildlife experts in just the days following the spill, many more birds have been killed or covered in oil, and dolphins were observed swimming through the slick.[20] There are

[17] Schuler, M., Coast Guard Declares San Pedro Bay Pipeline Fracture a Major Marine Casualty, gCaptain (Oct. 7, 2021).
[18] Fry, Hannah, Oil sheen confirmed off Huntington Beach as charges are filed in earlier spill, Los Angeles Times (Dec. 16, 2021).
[19] U.S. Geological Survey, State Lands Commission, Port of Long Beach, Shell OCS Beta Unit Development (Dec. 1, 1978).
[20] Ritchie, E.I., 7 Western snowy plovers saved from oil in Huntington beach sand, here's how, The Orange County Register (Oct. 9, 2021); s*ee also* U.C. Davis, Oiled Wildlife Care Network, Pipeline

numerous ESA-listed species that inhabit the area affected by the spill.[21] For example, Whale Safe — a technology-powered mapping and analysis tool displaying near real-time whale data for the Santa Barbara Channel — indicates that humpback presence was "very high" in December and January, and the presence of fin whales off southern California is currently "high."[22]

This tragic spill highlights yet one of the many dangers drilling for oil poses to wildlife. Indeed, even before the most recent spill, new information highlighted the risks and dangers of oil spills. For example, a recent analysis of federal records from the Pipeline and Hazardous Materials Safety Administration (PHMSA) found that from 1986 to July 2021, nearly 1,400 oil and gas pipeline leaks, spills, and other significant incidents in California have caused at least $1.2 billion in damages, as well as 230 injuries and 53 deaths.[23] Nationally, there were 18,087 oil and gas pipeline incidents from 1986 until March 2020, including 638 deaths and 3,752 injuries.[24] The PHMSA data also indicate that there are more incidents in the first two years of pipeline's life than in the next seven years combined.[25]

The risks of an oil spill or other accident are all-the-more heighted on the Pacific Outer Continental Shelf (OCS), where oil and gas companies have been drilling *for decades* from infrastructure that went into place between the 1960s and 1980s.[26] For example, the 1985 environmental impact statement prepared for the construction and operation of the Plains All American Pipeline (a pipeline that ruptured and caused a massive oil spill in California's coastal environment in 2015) by the Bureau of Land Management and California State Lands Commission acknowledged that spills happen, and determined that the risk of a spill *more than doubles* as the pipeline aged from 20 to 40 years.[27]

Moreover, according to scientists, aging poses risks of corrosion, erosion, and fatigue stress to subsea pipelines.[28] Subsea pipeline corrosion appears to accelerate over time,[29] and can

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P00547 Incident Wildlife Numbers; Stanley, Alyse, Major Oil Spill Off the Coast of Southern California Has 'Dolphins Swimming Thru the Oil,' Gizmodo (Oct. 3, 2021).

[21] U.S. Fish and Wildlife Service, Information for Planning and Consultation (Oct. 7, 2021).

[22] Whale Safe, https://whalesafe.com/ screenshots from Dec. 13, 2021 and Jan. 25, 2022.

[23] Center for Biological Diversity, Analysis: Even Before Orange County Leak, California Pipeline Incidents Caused $1.2 Billion In Damages (Oct. 7, 2021); *see also* Stover, Richard, Review of the US Department of Transportation Report *The State of the National Pipeline Infrastructure*, Aug. 2013.

[24] *See* Center for Biological Diversity, Oil and Gas Pipeline Incidents Since 1986. Map by Curt Bradley, MP4 and data available on the Center for Biological Diversity Digital Assets Database.

[25] Whale Safe, https://whalesafe.com/ screenshots from Dec. 13, 2021 and Jan. 25, 2022.

[26] *See, e.g.*, BOEM, Pacific OCS Region Map.

[27] California State Lands Commission & Bureau of Land Management, Draft Environmental Impact Report/ Environmental Impact Statement for the Celeron/All American And Getty Pipeline Projects (Aug. 1984) at 4-166.

[28] Petroleum Safety Authority Norway. 2006. Material Risk – Ageing offshore installations. Prepared by Det Norske Veritas on request from Petroleum Safety Authority Norway.

[29] Mohd, M.H. and J.K. Paik. 2013. Investigation of the corrosion progress characteristics offshore oil well tubes. Corrosion Science 67:130-141.

act synergistically with fatigue stress to increase the rate of crack propagation.[30] Marine environments are especially known to produce significant corrosion on steel surfaces, and when a steel structure is at or beyond its elastic limit, the rate of corrosion increases 10 to 15 percent.[31] One offshore pipeline study found that after 20 years, the annual probability of pipeline failure increases rapidly, with values in the range of 0.1 to 1.0, which equates to a probability of failure of 10 to 100 percent per year.[32] Another study covering 1996 to 2010 found that accident incident rates, including spills, increased significantly with the age of infrastructure.[33]

The U.S. Department of Transportation found that offshore pipelines can be more vulnerable than onshore pipelines. They have a greater vulnerability to severe weather conditions than onshore pipelines, especially during hurricane events. And massive wave action can alter the pipeline stability, causing gradual displacement, especially in small diameter pipelines.[34] Offshore pipelines can also face more corrosion than onshore pipelines due to higher temperature and pressure conditions that occur during the laying of these pipelines.[35]

Consistent with these findings, a report published in 2010 found that the number of oil spills from offshore rigs and pipelines between 2000 and 2009 *more than quadrupled* the rate of spills in prior decades.[36] In particular, from the early 1970s through the 1990s, offshore rigs and pipelines averaged about four spills per year of at least 50 barrels (or 2,100 gallons). The average annual total spills skyrocketed to more than 17 from 2000 to 2009, and averaged 22 per year from 2005 to 2009 alone.[37] And the number of spills, as well as the quantity of spilled oil, grew significantly worse even when taking increased production into account.[38] In other words, another oil spill is not a question of if, but a question of when.

Moreover, increases in shipping navigation, traffic, and hazards increase the risk of repairing this pipeline as-is. The offshore oil platforms and this pipeline are in an area heavily trafficked by vessels. One theory of the source of the pipeline rupture is that a ship's anchor may

[30] Petroleum Safety Authority Norway. 2006. Material Risk – Ageing offshore installations. Prepared by Det Norske Veritas on request from Petroleum Safety Authority Norway.
[31] Mohd, M.H. and J.K. Paik (2013) Investigation of the corrosion progress characteristics of offshore subsea oil well tubes. Corrosion Science 67: 130-141; Igor, A., R.E. Melchers, Pitting corrosion in pipeline steel weld zones, Corros. Sci. 53 (12) (2011) 4026–4032; Melchers, R.E., M. Ahammed, R. Jeffrey, G. Simundic, Statistical characterization of surfaces of corroded, Mar. Struct. 23 (2010) 274–287.
[32] Bea, R., C. Smith, B. Smith, J. Rosenmoeller, T. Beuker, and B. Brown. 2002. Real-time Reliability Assessment & Management of Marine Pipelines. 21st International Conference on Offshore Mechanics & Arctic Engineering. ASME.
[33] Muehlenbachs, et al. 2013. The impact of water depth on safety and environmental performance in offshore oil and gas production. Energy Policy 55:699-705.
[34] U.S. Department of Transportation: Federal Highway Administration. Impacts of Climate Change and Variability on Transportation Systems and Infrastructure: The Gulf Coast Study, Phase 2. 2015.
[35] Keuter, J. (2014). In-line Inspection of Pipes Using Corrosion Resistant Alloys (CRA). Rosen Technology and Research Center GmbH, Rosen Group, Germany.
[36] Levin, Alan, *Oil Spills Escalated in this Decade*, USA Today, June 8, 2010.
[37] Levin 2010.
[38] Levin 2010.

have moved the pipeline.[39] Shipping traffic has increased substantially since the platforms were built in shipping lanes.[40] Another significant concern is that ships waiting to call on Long Beach Port are anchoring for extended periods of time, causing the area around the platforms to become congested and increasing the risk of another subsea disturbance and rupture.[41] Additionally, ships are getting much larger requiring heavier anchors and posing new challenges for safe navigation and the ability to alter course or speed.[42]

Oil spills have a wide array of lethal and sublethal impacts on marine species, both immediate and long-term.[43] Direct impacts to wildlife from exposure to oil include behavioral alteration, suppressed growth, induced or inhibited enzyme systems, reduced immunity to disease and parasites, lesions, tainted flesh, and chronic mortality.[44] Oil can also exert indirect effects on wildlife through reduction of key prey species.[45] Oil destroys the water-proofing and insulating properties of feathers and fur of birds and mammals, respectively, thereby compromising their buoyancy and ability to thermoregulate.[46]

Marine mammals can be exposed to oil internally by inhaling volatile compounds at the surface, swallowing oil, consuming oil-contaminated prey, and externally by swimming in oil.[47] Exposure to toxic fumes from petroleum hydrocarbons during oil spills have been recently linked to mortality in cetaceans, even years after such accidents.[48] Studies have determined, for example, that the Deepwater Horizon oil spill caused adrenal and lung lesions in bottlenose dolphins which led to an unusual mortality event in which dolphins died over the course of several years.[49]

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[39] Allen, L., Second Ship Under Investigation In Connection With Huntington Beach Oil Spill, Forbes (Nov. 6, 2021).
[40] *See, e.g.*, Tournadre, J., Anthropogenic pressure on the open ocean: The growth of ship traffic revealed by altimeter data analysis 41 Geo-phys. Res. Lett. 7924–7932 (2014) (noting worldwide ship traffic has increased by 300 percent since 1992).
[41] Anguiano, Dani, Backlog of cargo ships at southern California ports reaches an all-time high, The Guardian, Oct. 20, 2021.
[42] *See, e.g.*, Chokshi, Niraj, Why the World's Container Ships Grew So Big, New York Times, Mar. 31, 2021.
[43] Peterson, C. H., S. D. Rice, J. W. Short, D. Esler, J. L. Bodkin, B. E. Ballachey, and D. B. Irons. 2003. Long-term ecosystem response to the Exxon Valdez oil spill. Science 302:2082-2086; Venn-Watson, S. *et al.* Adrenal Gland and Lung Lesions in Gulf of Mexico Common Bottlenose Dolphins (Tursiops truncatus) Found Dead following the Deepwater Horizon Oil Spill. *PLoS ONE* 10, e0126538 (2015).
[44] Holdway, D. A. 2002. The acute and chronic effects of wastes associated with offshore oil and gas production on temperate and tropical marine ecological processes. Marine Pollution Bulletin 44:185-203.
[45] Peterson et al. 2003.
[46] Jenssen, B. M. 1994. Review Article: Effects of oil pollution, chemically treated oil, and cleaning on the thermal balance of birds. Environmental Pollution 86:207-215; Peterson et al. 2003.
[47] NOAA. 2010. Analysis of Hydrocarbons in Samples Provided from the Cruise of the R/V WEATHERBIRD II, May 23-26, 2010, National Oceanic and Atmospheric Administration, Silver Spring, Maryland, 20910.
[48] Venn-Watson et al. 2015.
[49] Venn-Watson et al. 2015.

In addition, oiled shores can affect nesting and foraging areas of bird species. Oiled adults returning to the nest can contaminate their eggs and chicks with oil. Studies on the effects of oil on eggs have shown significant mortality and developmental defects in embryos.[50] Oiled birds are also at high risk of ingesting oil when they preen their feathers. Ingested oil can damage the gastrointestinal tract, evidenced by ulcers, diarrhea, and a decreased ability to absorb nutrients, and inhibit proper hormone function.[51] The federally protected western snowy plovers and the California least tern are extremely sensitive to disturbances such as oil spills, especially during the nesting season.[52] In the past few years, snowy plovers have begun successfully nesting and raising young again at Huntington Beach after a more than five decade absence.[53] This oil spill threatens the conservation gains snowy plovers have made on southern California beaches.

Exposure to crude oil also adversely affects fish at all stages.[54] Early life stages of fish are particularly sensitive to the effects of toxic oil components such as polycyclic aromatic hydrocarbons which can cause larval deformation and death. Adult fish exposed to oil can suffer from reduced growth, enlarged liver, changes in heart and respiration rates, fin erosion, and reproductive impairment.[55] Additionally, fish and sharks are at risk from lethal coating of their gills with oil, and declines in and contamination of their food sources. Exposure to crude oil has also been linked to long-term population effects in fish. A recent study based on 25 years of research demonstrated that embryonic salmon and herring exposed to very low levels of crude oil can develop heart defects that impede their later survival, indicating that the spill may have had much more widespread impacts than previously thought.[56]

ESA-listed California tiger salamanders are also particularly vulnerable to oil spills. The U.S. Fish and Wildlife Service's 5-year review for the species specifically states that "sources of chemical pollution that may adversely affect Central California tiger salamanders include hydrocarbon and other contaminants from oil production ..." and that spilled oil can "negatively affect the food chain, with effects to algae growth and less prey species available, resulting in smaller salamander larvae."[57]

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[50] Jenssen 1994.
[51] Jenssen 1994.
[52] Hampton, Steve, J. Marek, L. Henkel, C. Sandoval, J. Boyce, and B. Standley. 2020. Refugio Oil Spill Bird Injury Assessment.
[53] Audubon, Western Snowy Plovers nest at Huntington State Beach for the first time in five decades, Aug. 2018.
[54] Carls, M. G., S. D. Rice, and J. E. Hose. 1999. Sensitivity of fish embryos to weathered crude oil: part I. Low-level exposure during incubation causes malformations, genetic damage, and mortality in larval pacific herring (Clupea pallasi). Environmental Toxicology and Chemistry 18:481-493; Bernanke, J., and H.-R. Kohler. 2009. The impact of environmental chemicals on wildlife vertebrates. Reviews of Environmental Contamination and Toxicology 198:1-47.
[55] Bernanke and Kohler 2009; U.S. Fish and Wildlife Service, Effects of Oil on Wildlife and Habitat (June 2010).
[56] Incardona, et al. 2015. Very low embryonic crude oil exposures cause lasting cardiac defects in salmon and herring. Scientific Reports 5, Article number: 13499, doi:10.1038/srep13499.
[57] U.S. Fish and Wildlife Service, California Tiger Salamander Central California Distinct Population Segment (Ambystoma californiense) 5-Year Review: Summary and Evaluation (Oct. 21, 2014).

Threatened and endangered plants, such as marsh plants, are vulnerable to oil spills. When marsh plants come into contact with crude oil, it can cause nearly complete mortality.[58] Additionally, the oil can reside in the soil and cause long-term stress for marsh vegetation and erosion of marshlands.[59] Salt marsh bird's-beak, Ventura marsh milkvetch, and other threatened and endangered plants along the Southern California coast are at risk.

The pipeline repair and restart will have more than minor individual and cumulative climate impacts. The Corps must specifically evaluate the "general environmental concern" of this project's contribution to greenhouse gas emissions and climate change. Despite its attempt to avoid this obligation in Nationwide Permit 12,[60] this is a foreseeable effect of this pipeline repair's authorization. Continued oil drilling is deepening the climate crisis. Repairing and restarting this pipeline will prolong greenhouse gas emissions from platforms Ellen and Eureka, whose oil is processed at platform Elly.[61] These platforms should have been decommissioned many years ago, and they have outlived their intended lifespan. The Beta Unit platforms are also flaring or burning off produced gas — emitting 95,226 million cubic feet of methane, a powerful greenhouse gas, from January 2015 to August 2018 alone.[62] These greenhouse gas emissions harm California's coastal resources through ocean warming and acidification with impacts on wildlife, sea level rise, shoreline protection, and access. New information reveals the extent of the climate crisis and the role that continued oil drilling plays in fueling the climate emergency. This in turn has harmful effects on numerous imperiled species.

The climate crisis is already causing devastating impacts from rising seas and coastal erosion; more destructive hurricanes and wildfires; increasing heatwaves, droughts, and floods; imperiling food and water security; and the collapse of ecosystems. The overwhelming scientific consensus has conclusively determined that without significant, rapid emissions reductions, warming will exceed 1.5 degrees Celsius and will result in catastrophic damage around the world. Every fraction of additional warming above 1.5 degrees Celsius will worsen these harms, threatening people's lives, health, safety, and livelihoods; as well as the economy and national security for this generation and future generations.

For example, the Intergovernmental Panel on Climate Change ("IPCC")'s most recent report in August 2021 finds that it is now unequivocal that human influence has warmed the

[58] NOAA, Oil Spills in Marshes (2013).
[59] Levine, B.M., J.R. White, R.D. DeLaune, K. Maiti. 2017. Crude Oil Effects on Redox Status of Salt Marsh Soil in Louisiana. Soil Science Society of America Journal, 81 (3): 647.
[60] NWP 12 Decision Document at 91 ("For oil or natural gas pipelines, general environmental concerns may include the burning of the fossil fuels that occurs after the oil or natural gas reaches its destination, which produce carbon dioxide that contribute to greenhouse gas emissions. The Corps does not have the authority to control the burning of fossil fuels or the adverse environmental effects that are caused by burning those fossil fuels to produce energy.")
[61] *See, e.g.,* Richards, H., California's massive offshore oil spill: What we know, E&E News (Oct. 5, 2021).
[62] Bureau of Safety and Environmental Enforcement, OGOR-B Flaring FOIA Response Spreadsheet (2015-2018).

climate and caused widespread, rapid changes to every inhabited region across the globe.[63] Over the next 20 years, it is likely that global temperatures will meet or exceed 1.5°C of warming with current emissions.[64] The report confirms that aggressive reductions in greenhouse gas emissions are necessary. Unless there are immediate and rapid reductions in emissions, limiting warming to 1.5°C or even 2°C will be beyond reach.[65] The report shows that extreme climate changes will be more widespread at 2°C compared to 1.5°C warming, including increased heat waves, more severe storms, and greater sea level rise.[66] For instance, the report states that extreme sea level events that only used to occur once every 100 years could happen every year by the end of the century.[67]

This follows the IPCC's 2018 Special Report on Global Warming of 1.5°C that quantified the devastating harms that would occur at 2°C warming, also highlighting the necessity of limiting warming to 1.5°C to avoid catastrophic impacts to people and life on Earth.[68] The report provides overwhelming evidence that climate hazards are more urgent and more severe than previously thought, and that aggressive reductions in emissions within the next decade are essential to avoiding the most devastating climate change harms. The IPCC report concludes that pathways to limit warming to 1.5°C with little or no overshoot require "a rapid phase out of CO_2 emissions and deep emissions reductions in other GHGs and climate forcers."[69] In pathways consistent with limiting warming to 1.5°C, global net anthropogenic CO_2 emissions must decline by about 45 percent from 2010 levels by 2030, reaching net zero around 2050; for a two-thirds chance for limiting warming to 1.5°C, CO_2 emissions must reach net zero in 25 years.[70]

And a 2018 report from the U.S. Geological Survey estimated that carbon emissions released from extraction and end-use combustion of fossil fuels produced on federal lands alone — not including non-federal lands — accounted for approximately one quarter of total U.S. carbon emissions during 2005 to 2014.[71] This research further establishes that the United States must halt new fossil fuel projects and close existing fields and mines before their reserves are

[63] IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B. R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press.
[64] *Id*. at Summary For Policy Makers (SPM) 17–18.
[65] *Id*. at SPM 36.
[66] *Id*. at SPM 32.
[67] *Id*. at SPM 33.
[68] 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 (Oct. 6, 2018).
[69] *Id.* at 2-28.
[70] *Id.* at SPM-15.
[71] Merrill, Matthew D. et al., Federal lands greenhouse gas emissions and sequestration in the United States—Estimates for 2005–14: U.S. Geological Survey Scientific Investigations Report 2018–5131 (2018) at 8.

fully extracted to achieve the Paris climate targets and avoid the worst damages from climate change.

A 2019 study also highlighted the importance of immediately halting all new fossil fuel infrastructure projects to preserve a livable planet.[72] The study found that every year of delay in phasing out fossil fuel infrastructure makes carbon "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."[73] Another 2019 analysis also 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 climate targets and avoid the worst dangers of climate change.[74]

The United Nations' November 2019 "Emissions Gap" report reiterated the need for urgent action to cut fossil fuel emissions. According to the report, if the world is to limit global warming to 1.5°C, countries must cut emissions by at least 7.6 percent per year over the next decade, for a total emissions reduction of 55 percent between 2020 and 2030.[75] The United Nations' November 2019 "Production Gap" report shows that countries like the United States are on course to extract vastly more fossil fuels than what is allowed to meet a 1.5°C or even 2°C target. Countries' current fossil fuel production plans would lead to 120 percent more fossil fuel emissions by 2030 than would be consistent with a 1.5°C pathway, and 210 percent more by 2040.[76] The United States is a primary contributor to this dangerous over-production of fossil fuels as the world's largest oil and gas producer and second largest coal producer, with current policies projected to lead to a 30 percent increase in oil and gas production by 2030.[77] And the International Energy Agency ("IEA") recently issued a report concluding that "hav[ing] a fighting chance of . . . limiting the rise in global temperatures to 1.5°C. . . requires nothing short of a total transformation of the energy systems that underpin our economies."[78]

Upon the release of the Working Group I contribution to the IPCC's Sixth Assessment Report, U.N. Secretary António Guterres said "This report must sound a death knell for coal and fossil fuels, before they destroy our planet. . . . Countries should also end all new fossil fuel exploration and production."[79] Fatih Birol, Executive Director of the IEA, said upon the release

[72] Smith, Christopher J. et al., Current fossil fuel infrastructure does not yet commit us to 1.5°C warming. Nature Communications (2019); *see also* 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) (describing carbon lock-in).
[73] Smith 2019.
[74] Oil Change International, Drilling Toward Disaster: Why U.S. Oil and Gas Expansion Is Incompatible with Climate Limits (Jan. 2019).
[75] Emissions Gap Report 2019 at 25, 26.
[76] Production Gap Report 2019 at 4, 14.
[77] Production Gap Report 2019 at 31.
[78] International Energy Agency, Net Zero by 2050: A roadmap for the global energy system (2021).
[79] United Nations Secretary-General, Secretary-General's statement on the IPCC Working Group 1 Report on the Physical Science Basis of the Sixth Assessment, Aug. 9, 2021.

of the IEA's climate report in May 2021: "If governments are serious about the climate crisis, there can be no new investments in oil, gas and coal, from now – from this year."[80]

President Biden himself has acknowledged the science and directed federal agencies to take all necessary action. For example, in his January 27, 2021 Executive Order on Tackling the Climate Crisis at Home and Abroad, he wrote:

> There is little time left to avoid setting the world on a dangerous, potentially catastrophic, climate trajectory….we face a climate crisis that threatens our people and communities, public health and economy, and, starkly, our ability to live on planet Earth….We must listen to science — and act….It is the policy of my Administration to organize and deploy the full capacity of its agencies to combat the climate crisis to implement a Government-wide approach that reduces climate pollution in every sector of the economy.

Exec. Order No. 14,008, *Tackling the Climate Crisis at Home and Abroad*, 86 Fed. Reg. 7619 (Feb. 1, 2021).

Drilling off California contributes to the climate emergency. One study estimated, for example, that for each unit (QBtu) of federal oil production cut, other oil supplies would substitute for about half a unit (0.56 QBtu) and net oil consumption would drop by nearly half a unit (0.44 QBtu).[81] In short, every barrel of federal oil left undeveloped would result in nearly half a barrel reduction in net oil consumption, with associated reductions in greenhouse gas emissions. The analysis recommended that "policy-makers should give greater attention to measures that slow the expansion of fossil fuel supplies."[82] Other studies have reached similar conclusions.[83] For example, an analysis published in the journal *Nature Climate Change* concluded that increased oil production would significantly increase global oil consumption as the result of greater supplies and lower global oil prices.[84] Using publicly available global oil supply curves from the International Energy Agency and peer-reviewed elasticities of demand, the analysis estimated that each barrel of increased oil production would result in an increase of 0.59 barrels of global oil consumption.[85]

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[80] Harvey, Fiona, No new oil, gas or coal development if world is to reach net zero by 2050, says world energy body, Guardian (May 18, 2021).
[81] Erickson, P. and M. Lazarus, How would phasing out US federal leases for fossil fuel extraction affect CO2 emissions and 2°C goals?, Stockholm Environment Institute, Working Paper No. 2016-2 (2016).
[82] Erickson and Lazarus 2016.
[83] Erickson, P. and M. Lazarus, Impact of the Keystone XL Pipeline on Global Oil Markets and Greenhouse Gas Emissions, 4 Nature Climate Change 778 (2014*); see also* P. Erickson, Rebuttal: Oil Subsidies—More Material for Climate Change Than You Might Think (Nov. 2, 2017); United Nations Environment Programme, Emissions Gap Report 2019, UNEP, Nairobi (2019), at 25, 26; United Nations Environment Programme, et al., The Production Gap: The discrepancy between countries' planned fossil fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C (2019).
[84] Erickson, P. & Lazarus, M., Impact of the Keystone XL Pipeline on Global Oil Markets and Greenhouse Gas Emissions, 4 Nature Climate Change 778 (2014).
[85] Erickson and Lazarus 2014.

Although this study focused on the effects of increases in Canadian tar sands production, the lead author used the same model to estimate that, for each barrel of California oil left in the ground, an added 0.4 to 0.8 barrels would be produced elsewhere.[86] This yields a net reduction in global oil consumption of between 0.6 and 0.2 barrels, "as consumers respond to the small price increase by making shifts in their vehicle purchases, driving habits, and other decisions."[87]

Furthermore, repair and restart of this pipeline will only work against California's established energy policy, which pledges to aggressively reduce carbon consumption. Senate Bill 32 in 2016 committed to reducing emissions an additional 40 percent by 2030. In 2018, California passed Senate Bill 100 outlining aggressive reductions in carbon fuel for electricity generation, targeting a 50% reduction by 2030 and a 100% reduction by 2045.[88] Executive Order B-55-18 in the same year established the goal of statewide carbon neutrality by 2045.[89] More recently, Governor Newsom announced a phase-out of gasoline-powered cars.[90] These are far from idle goals. Data show that California is rapidly reducing its demand for fossil fuels. From 2014 to 2019, California's in-state power generation from solar increased by more than 18,900 GWh, a 140%+ gain, increasing solar's share of in-state power generation by 9 percentage points.[91] Meanwhile, California's total oil consumption is projected to decline.[92]

In sum, the project is directly at odds with national and California energy policy and trends. The October 2021 spill highlights the urgent need to phase out dangerous and dirty fossil fuel production out of California and federal waters for good. There is no reason to resuscitate this pipeline for the benefit of the oil industry.

The impacts of vessel traffic and vessel strikes associated with resuming oil and gas activity. In addition to the spill and climate impacts, new information reveals effects of oil and gas activities on the Pacific OCS to an extent the Corps has not previously considered, including the frequency with which endangered whales are struck and killed by vessels.

Oil and gas activity increases vessel traffic, for example, from servicing wells and transporting materials, or responding to oil spills. This increases the risk of vessel strikes of various endangered animals, including several species of whales. New information reveals, for example, that whales are increasingly being struck by vessels off California, and that these

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[86] Erickson, P. & Lazarus, M., *How Limiting Oil Production Could Help California Meet Its Climate Goals,* Stockholm Environment Institute Discussion Brief (2018) at 2.
[87] Erickson and Lazarus 2018.
[88] S.B. 100, 2017-2018 Reg. Sess. (Cal. 2018).
[89] Office of Governor Newsom, Executive Order B-55-18 to Achieve Carbon Neutrality (2018).
[90] Office of Governor Newsom, *Governor Newsom Announces California Will Phase Out Gasoline-Powered Cars & Drastically Reduce Demand for Fossil Fuel in California's Fight Against Climate Change* (Sep. 23, 2020).
[91] California Energy Commission. Total Electricity System Power (2020) (comparing in-state renewables generation in 2014 [45,350 GWh of 199,193 GWh total] to in-state renewables generation in 2019 [64,336 GWh of 200,475 GWh]).
[92] California Air Resources Board, *California's 2017 Climate Change Scoping Plan* (2017) at ES-8 (according to the Scoping Plan, CARB expects a decrease in fossil fuel demand of 45% by 2030).

incidents may be negatively affecting whale recovery. Carretta et al. 2020 found that in 2018, vessels killed or seriously injured 13 whales in California — the highest number on record since NMFS began keeping records in 1982.[93] Vessel strikes represented the majority of human-caused large whale deaths on the U.S. West Coast from 2014 to 2018, with a total of at least 26 whale deaths, followed by fishery-related entanglements (at 21 deaths).[94] For fin whales, eight died from vessel strikes during this time, representing the leading cause of human-caused injury and death.[95] For both blue whales (three deaths) and humpback whales (13 deaths), vessel strikes are the second leading cause of injury and death after fishery interactions.[96]

These reported collisions vastly underestimate actual strikes because many go unseen. Rockwood et al. 2017 created a model that calculated encounter risk, strike risk, and mortality estimates. [97] The results estimated 18 blue whale mortalities due to ship strikes annually, including only the period of July to November when whales are most likely to be present in the U.S. West Coast exclusive economic zone.[98] The authors also estimated that 22 humpback whales and 43 fin whales died per year during this time period.[99] Given the uncertainty in accounting for whale collision avoidance, they also calculated strike mortality in the case of no avoidance, producing estimates of 40 blue, 48 humpback, and 95 fin whale deaths.[100] At least one new study indicates that blue whales have a limited ability to avoid collisions with vessels. The study concluded that while whales have some cues to avoid ships, this is true only at close range, under certain oceanographic conditions, and if the whale is not otherwise distracted by feeding, breeding, or other behaviors.[101]

Updated abundance estimates for humpback whales off Southern California allowed Rockwood and Jahncke 2019 to estimate that humpback mortality from January to April in Southern California alone was 6.5 whales (1.63/month).[102] When added to the estimated mortality from July to November, this means that the total estimated annual humpback mortality from vessel strikes in California alone is 23.4 deaths (16.9 + 6.5).[103] This study neither included information for January to April for fin or blue whales, nor estimated humpback mortality in central or Northern California. Thus, even this updated study underestimates whale mortality.

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[93] Carretta, James V. et al. 2020. Sources of Human-Related Injury and Mortality for U.S. Pacific West Coast Marine Mammal Stock Assessments, 2014- 2018, U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC631.
[94] Carretta et al. 2020.
[95] Carretta et al. 2020
[96] Carretta et al. 2020.
[97] Rockwood, R., et al., 2018. 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.
[98] Rockwood et al. 2018.
[99] Rockwood et al. 2018.
[100] Rockwood et al. 2018.
[101] Szesciorka, A.R., et al. 2019. A Case Study of a Near Vessel Strike of a Blue Whale: Perceptual Cues and Fine-Scale Aspects of Behavioral Avoidance. Front. Mar. Sci., vol. 6, art. 761.
[102] Rockwood, C and Jahncke J. 2019. Management recommendations to reduce deadly whale strikes off California. Unpublished report for the National Oceanic and Atmospheric Administration, the United States Coast Guard, and the Maritime Industry. 16 p.
[103] Rockwood et al. 2019.

This level of vessel strike is impeding the recovery of endangered whales off California. Indeed, scientists have concluded that "death from vessel collisions may be a significant impediment to population growth and recovery."[104] For example, the minimum estimate of blue whale abundance is 1,050 whales, which gives a potential biological removal (PBR) level for U.S. waters of 1.23 whales.[105] Ship strikes alone exceed the blue whale's PBR several times over. Additionally, the current stock assessment report for humpback whales off California provides a PBR for U.S. waters of 16.7 whales (which does not properly account for the listing of the Central America and Mexico DPSs under the ESA or the low population size of the endangered Central America humpback whale DPS).[106] The estimated humpback whale mortality from vessel strikes is over this PBR level.

Economics. The Corps should address the economic impacts of this pipeline's repair and restart in a tailored analysis. Nationwide Permit 12 purported to assess the economic impacts of oil and natural gas pipeline activities, but indicated that they were only positive, generating "jobs and revenues." NWP 12 Decision Document at 12. In reality, this pipeline, its spills, and likely future spills from this aging infrastructure will have a detrimental effect on California's economy. It would be arbitrary for the Corps here to assume certain economic benefits for this project without accurately disclosing its true costs, particularly after a rupture and oil spill prompted the project in the first place.

The Refugio oil spill caused more than $36 million in natural resource damage, assessment, and Coast Guard cleanup costs.[107] A complete and accurate assessment of this pipeline's climate pollution, air pollution, oil spill damage and risks, and other costs would show that they outweigh any purported benefits.

For example, recent research highlights the strong link between fine particulate matter emissions from burning fossil fuels and serious illness and premature death.[108] Increases in mortality and increased incidence and prevalence of other diseases from air pollution have substantial social costs, and methods for calculating these social costs are scientifically rigorous and widely used.[109] Likewise, although a cost-benefit analysis is not necessarily the ideal or exclusive method for assessing contributions to an adverse effect as enormous and potentially catastrophic as climate change, a federal interagency working group has developed a tool to

[104] Rockwood, et al. 2019.
[105] NMFS. Revised April 15, 2020. Stock Assessment Report: BLUE WHALE (Balaenoptera musculus musculus): Eastern North Pacific Stock at 188.
[106] NMFS. Revised April 15, 2020. Stock Assessment Report: HUMPBACK WHALE (Megaptera novaeangliae): California/Oregon/Washington Stock at 179–80.
[107] Sahagún, Louis, *Pipeline company to pay more than $60 million for 2015 oil spill near Santa Barbara*, L.A. Times (Mar. 13, 2020).
[108] *See, e.g.*, Vohra, Karn et al., *Global mortality from outdoor fine particle pollution generated by fossil fuel combustion*, 195 Environmental Research (Apr. 2021).
[109] U.S. EPA BenMap, https://www.epa.gov/benmap (Environmental and Benefits Mapping and Analysis Program that assesses the health impact and economic value of PM2.5 and ozone on premature mortality, heart disease, and asthma. The economic value is based on metrics such as 'willingness-to-pay' and costs-of-illness. The tool has been used by many communities to assess benefits.).

determine the costs of carbon pollution. The social cost of carbon is an estimate of the monetized damages from an incremental increase in carbon emissions in a given year, which includes — but is not limited to — climate-related changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services.[110]

We cannot continue to sacrifice our climate and our communities' health to protect this industry; instead, we have to transition workers and our economy. to a fossil-fuel free economy that meets the needs of current fossil fuel workers and creates high-road jobs is possible and necessary. A survey of more than 200 of the world's most senior economists and economic officials found that investment in clean energy infrastructure, clean research and development spending, connectivity infrastructure investment, and other incentive spending have both climate benefits and the greatest stimulus effect ("economic multiplier") over time.[111] Investing in a just transition to a clean energy economy will benefit workers and our economy. For example, one major national study has shown that every million dollars shifted from fossil fuels to renewable energy will yield a net increase of about 5 jobs.[112] California-specific research yields similar results. One recent study compared two scenarios: business-as-usual which assumed the continued gradual decline in California oil production, and no new policies, against a policy scenario that assumed that no permits for new oil wells would be issued and that ongoing oil production within 2,500 feet of homes, schools, and hospitals would be phased out.[113] The policy scenario also assumed new construction of solar power, sufficient to replace the oil cutbacks, and use of the increased solar energy to fuel electric vehicles. The state as a whole would gain about 5,000 full-time equivalent (FTE) jobs per year from the "no new permits" policy scenario.

A recent report endorsed by 20 labor unions outlines the "California Climate Jobs Plan" for economic recovery and climate stabilization that creates one million new jobs through 2030 through major investments in infrastructure and agriculture.[114] The plan offers concrete recommendations for workers in the fossil fuel industry, tailored to different career stages. This plan shows that if we want to create jobs, we can do so while also advancing broader equitable transition policies. LA County, for example, has convened a Just Transition Task Force that dovetails with the California Climate Jobs Plan. The LA Task Force initially focused on job opportunities in oil well abandonment and site remediation. It was recently expanded to develop a strategy that moves the County away from dependence on fossil fuels and toward investment in

[110] Interagency Working Group on Social Cost of Greenhouse Gases, U.S. Government, Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 (Feb. 2021).
[111] Hepburn, Cameron et al., *Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?*, Smith School Working Paper No. 20-02, Oxford Smith School of Enterprise and the Environment (May 4, 2020).
[112] Garrett-Peltier, Heidi. *Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input output model*, 61 Economic Modeling (2017).
[113] Ackerman, Frank et al., Synapse Energy Economics, Inc., *Can Clean Energy Replace California Oil Production? Petroleum cutbacks and the California economy*. (2018)
[114] Pollin, Robert et al., *A Program for Economic Recovery and Clean Energy Transition in California*, (June 2021).

"building climate-resilient infrastructure that supports human health."[115] The rest of California and the U.S. should follow a similar path that prioritizes jobs in the new energy economy.

II. This Project Also *Should* Not Qualify for Nationwide Permit 12 Coverage

In the alternative, the Corps should use its "discretionary authority and require an individual permit for a specific activity" (NWP 12 Decision Document at 5) and deny Amplify Energy coverage under Nationwide Permit 12 to protect important regional concerns and resources. At the regional level, each division engineer is empowered "to modify, suspend, or revoke [nationwide permit] authorizations for any specific geographic area, class of activities, or class of waters within his division." 33 C.F.R. § 330.5(c)(1); *see also id*.§ 330.4(e)(1), (2). This authority may be exercised whenever the division engineer "determines sufficient concerns for the environment under [40 C.F.R. Part 230] or any other factor of the public interest so requires, or if [the division engineer] otherwise determines that the [nationwide permit] would result in more than minimal adverse environmental effects either individually or cumulatively." *Id.* § 330.4(e)(1)(relating to specific geographic areas, class of activities, or class of waters within a division); *see id.* § 330.4(e)(2)(relating to specific activities).

The Corps should exercise this authority to protect the sensitive aquatic resources of this coastal area and meaningfully address the unique and substantial threats posed by this aging pipeline and platform infrastructure. This will also enable the Corps to consider a reasonable range of alternatives to repairing this pipeline, including a more through repair or the pipeline's retirement.

III. This Project Requires A Marine Mammal Protection Act Take Permit

As the Center communicated to Amplify Energy on January 3, 2022, if it pursues its plans to repair the San Pedro Bay oil pipeline, it must apply to the National Marine Fisheries Service (NMFS) for authorization to take marine mammals incidental to its proposed repair activities.[116] The construction activities will "take" marine mammals and therefore are prohibited under the Marine Mammal Protection Act (MMPA) absent federal authorization. 16 U.S.C. § 1371; *see also* NWP 12 Decision Document at 4 ("[i]n some cases, activities authorized by an NWP may require other federal, state, or local authorizations. Examples of such cases include, but are not limited to: activities that are in marine sanctuaries or affect marine sanctuaries or marine mammals;" 33 CFR § 330.4(b)(2) ("NWPs do not obviate the need to obtain other Federal, state, or local permits, approvals, or authorizations required by law.")

As described in detail above and in our January 3 letter, the pipeline is in waters that are an ecologically important, and the repair activities (including but not limited to noise, disturbance, and pollution from equipment, activities, and support vessels; increased entanglement risk from the mooring system and cables; and the risk of an additional oil spill), will harass, disturb, and potentially injure marine mammals. Amplify Energy thus must apply for and receive a take permit from NMFS before proceeding.

[115] L.A. County Board of Supervisors, September 15, 2021 Meeting Transcript, Agenda Item 24.
[116] *See* Center for Biological Diversity letter to Amplify Energy Corp. (Jan. 3, 2022).

IV. This Project Requires Full Section 7 Consultation Under the Endangered Species Act

Before permitting Amplify to begin this project, the Corps must initiate and complete formal consultation pursuant to the Endangered Species Act with NMFS and the U.S. Fish and Wildlife Service (FWS) to ensure the project adequately protects protected species.

Considered "the most comprehensive legislation for the preservation of endangered species ever enacted by any nation," the Endangered Species Act (ESA), 16 U.S.C. §§ 1531-1544 embodies Congress's "plain intent . . . to halt and reverse the trend toward species extinction, whatever the cost." *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 180, 184 (1978). The ESA reflects "a conscious decision by Congress to give endangered species priority over the 'primary missions' of federal agencies." *Id*. at 185. Once a species is listed, the ESA provides a variety of procedural and substantive protections not provided by any other law, including the designation of critical habitat, the preparation and implementation of recovery plans, the prohibition against the "taking" of listed species, and the requirement for interagency consultation. *Id*. §§ 1533(a)(3), (f), 1538, 1536. Each of these protections seek to ensure not only the species' continued survival, but its ultimate recovery.

To comply with these substantive obligations, the ESA requires that "[e]ach Federal agency shall, in consultation with . . . [the Service], insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical habitat]." 16 U.S.C. § 1536(a)(2). A federal action jeopardizes the continued existence of a species if it "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." 50 C.F.R. § 402.02. This section 7(a)(2) consultation process has been described as the "heart of the ESA." *W. Watersheds Project v. Kraayenbrink*, 632 F.3d 472, 495 (9th Cir. 2011). The Service and the action agency must utilize the "best scientific and commercial data available" during the consultation process. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(d).

The Corps must initiate formal consultation with the Services if it determines that an action "may affect" listed species or critical habitat unless the biological assessment or informal consultation concludes that the action is not likely to adversely affect any listed species or critical habitat and the service concurs in writing with that finding. 50 C.F.R. § 402.14(a), (b). The "may affect" standard broadly includes "[a]ny possible effect, whether beneficial, benign, adverse, or of an undetermined character." 51 Fed. Reg. 19,926 (June 3, 1986).

This project may affect and is likely to adversely affect species protected under the ESA and thus the Corps must engage in formal consultation with FWS and NMFS. Amplify Energy's application to the Corps for coverage under Regional General Permit number 63 (RGP 63) acknowledged that:

> federally listed species potentially occurring within the Action Area" include: white abalone (*Haliotis sorenseni*), steelhead (*Oncorhynchus mykiss*), olive ridley sea turtle (*Lepidochelys olivacea*), East Pacific green sea turtle (*Chelonia mydas*), loggerhead sea turtle (*Caretta caretta*), Pacific leatherback sea turtle (*Dermochelys coriacea*), California least tern (*Sternula antillarum*), marbled murrelet (*Brachyramphus marmoratus*), short-tailed albatross (*Phoebastria albatrus*), blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), Northern Pacific right whale (*Eubalaena japonica*), sperm whale (*Physeter macrocephalus*), and Guadalupe fur seal (*Arctocephalus townsendi*).[117] The Application notes that "[i]n particular, Guadalupe fur seals may use the project area for foraging and humpback whales may pass through the Action Area on its migratory routes. The project would not occur within mapped designated critical habitat for any federally listed species.[118]

This list may not be inclusive of all federally protected species that this project may affect given Amplify Energy's limited interpretation of the project and its area of impact. Amplify Energy's Regional General Permit # 63 application stated that "the Corps has made a 'no effect' determination for federally listed species pursuant to Section 7 of the Endangered Species Act."[119] The Corps' "no effect" determination here is indefensible for the reasons detailed above. In sum, the repair and restart of the pipeline certainly "may affect" threatened and endangered species with its direct vessel and equipment noise and disturbance; increased risk of collisions; increased risk of a further oil spill, sedimentation, and other pollution; and other repair impacts.

Further Section 7 of the ESA requires an analysis of the impacts beyond those of the repairs. It requires an appraisal of whether the direct and indirect effects of an action—in the context of the existing status of the species, added to the environmental baseline, and taken together with cumulative effects—are "likely to jeopardize the continued existence of a species." 50 C.F.R. § 402.14(g)(4), (h)(1); *see also* 16 U.S.C. § 1536(b)(3), (4). Here these indirect and cumulative effects include, but are not limited to, the restart of the pipeline and Platform Elly, which processes oil from Platforms Eureka and Ellen, and the attendant increase in vessel traffic; increased risks of oil spills; and increase in air, water, and climate pollution from operation of this oil and gas infrastructure and the ultimate combustion of its product.

[117] Application at 3.
[118] Application at 3.
[119] Application at 4.

V. This Project Requires a Full National Environmental Policy Act Analysis

Before Amplify Energy can proceed, the Corps must conduct a project-specific National Environmental Policy (NEPA) analysis. It cannot rely on the scant NEPA analysis conducted for Nationwide Permit 12. And it certainly cannot rely on the 1978 joint Environmental Assessment/Environmental Impact Report for its compliance with NEPA.[120]

NEPA declares that it is our national policy to "promote efforts which will prevent or eliminate damage to the environment and biosphere. 42 U.S.C. § 4321. It declares that it is the responsibility of the federal government to act to "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations." 42 U.S.C. § 4331(b)(1). To reach these goals, federal agencies must prepare an Environmental Impact Statement ("EIS") for all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332(2)(C). NEPA's regulations provide that an agency may first prepare an Environmental Assessment ("EA") aimed at determining whether the environmental impact of a proposed action is "significant," warranting preparation of an EIS. 40 C.F.R. § 1501.3.

The purpose of NEPA is to "insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken," and to "help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." 40 C.F.R. § 1500.1(a)-(c).[121]

Both EAs and EISs must specify the underlying purpose and need to which the agency is responding in proposing the action. *Id*. §§ 1502.13, 1508.9(b). Both EAs and EISs must also "describe the environment of the areas to be affected or created by the alternatives under consideration." *Id.* § 1502.15. Additionally, EAs and EISs must discuss a proposed action's direct, indirect, and cumulative effects. 40 C.F.R. §§ 1502.16, 1508.9(b). Direct effects are "caused by the action and occur at the same time and place," whereas indirect effects are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." *Id.* § 1508.8.

Cumulative effects are "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." *Id*. § 1508.7. The Ninth Circuit has held that "[a] proper consideration of the cumulative impacts of a project requires some quantified or detailed information . . . [g]eneral

[120] U.S. Geological Survey, State Lands Commission, Port of Long Beach, Shell OCS Beta Unit Development (Dec. 1, 1978).

[121] All citations to NEPA regulations in this letter are to the 1978 CEQ regulations (subject to a narrow amendment removing the requirement for a worst-case analysis in 1986), which are codified at 40 C.F.R. § 1500–1508.1. The Council on Environmental Quality adopted new NEPA regulations that became effective on September 14, 2020. *Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act*, 85 Fed. Reg. 43,304 (July 16, 2020). However, the Corps can and should use the version of the regulations previously in effect as the Biden administration is reviewing a proposed rule to restore the previous CEQ regulations, 86 Fed. Reg. 55,757 (Oct. 7, 2021), and there are at least five pending legal challenges to the 2020 NEPA regulations.

statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided. The analysis must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present, and future projects." *Klamath-Siskiyou Wildlands Center v. Bureau of Land Mng't*, 387 F.3d 989, 993-94 (9th Cir. 2004) (internal quotation marks and citation omitted).

EAs and EISs must also include a reasonable range of alternatives, 42 U.S.C. § 4332(2)(C)(iii), (E), 40 C.F.R. § 1508.9(b), and provide "a clear basis for choice among options by the decisionmaker and the public." 40 C.F.R. § 1502.14. "Under NEPA, an agency's consideration of alternatives is sufficient if it considers an appropriate range of alternatives, even if it does not consider every available alternative. An agency need not, therefore, discuss alternatives similar to alternatives actually considered, or alternatives which are infeasible, ineffective, or inconsistent with the basic policy objectives for the management of the area[.]" *Northern Alaska Env'l Center v. Kempthorne*, 457 F.3d 969, 978 (9th Cir. 2006) (quotation marks and internal citations omitted).

To our knowledge, the Corps has failed to comply with these NEPA requirements for this major federal action. The NEPA regulations define major federal action as "actions with effects that may be major and which are potentially subject to Federal control and responsibility. Major reinforces but does not have a meaning independent of significantly ([40 C.F.R.] § 1508.27)." 40 C.F.R. § 1508.18. The issuance of a permit that allows the restart of an offshore oil platform is a major federal action. *See Ramsey v. Kantor*, 96 F.3d 434 (9th Cir. 1996) ("if a federal permit is a prerequisite for a project with adverse impact on the environment, issuance of that permit does constitute major federal action and the federal agency involved must conduct an EA and possibly an EIS before granting it."). If this project is to proceed, the Corps must prepare either an EA/FONSI or an EIS/Record of Decision before Amplify Energy may proceed. The NEPA analysis must fully evaluate the direct, indirect, and cumulative impacts of this project as discussed above and assess a reasonable range of alternatives to the action that avoid and mitigate the risks the project poses, including retirement of this pipeline and the platform to which it connects.

VI. Conclusion

In sum, we respectfully urge the Corps to deny any request from Amplify Energy for coverage under Nationwide Permit 12 and to instead require an individual permit application and review process that complies with all applicable laws, including the Clean Water Act, MMPA, ESA, and NEPA. A careful review of this pipeline repair and restart is needed to comply with the law and safeguard California's coastal resources. Ultimately, state and federal agencies should be moving expeditiously toward decommissioning the aging Beta Unit infrastructure.

Thank you for your consideration of these comments.

Sincerely,

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References Cited[122]

Ackerman, Frank et al., Synapse Energy Economics, Inc., Can Clean Energy Replace California Oil Production? Petroleum cutbacks and the California economy. (2018)

Allen, L., Second Ship Under Investigation In Connection With Huntington Beach Oil Spill, Forbes (Nov. 6, 2021).

Anguiano, Dani, Backlog of cargo ships at southern California ports reaches an all-time high, The Guardian, Oct. 20, 2021.

Audubon, Western Snowy Plovers nest at Huntington State Beach for the first time in five decades, Aug. 2018.

Bea, R., C. Smith, B. Smith, J. Rosenmoeller, T. Beuker, and B. Brown. 2002. Real-time Reliability Assessment & Management of Marine Pipelines. 21st International Conference on Offshore Mechanics & Arctic Engineering. ASME.

Benson, S., K.A. Forney, J.E. Moore, E.L. LaCasella, J.T. Harvey, and J.V. Carretta. 2020. A long-term decline in the abundance of endangered leatherback turtles, Dermochelys coriacea, at a foraging ground in the California Current Ecosystem, Global Ecology and Conservation 24.

Bernanke, J., and H.-R. Kohler. 2009. The impact of environmental chemicals on wildlife vertebrates. Reviews of Environmental Contamination and Toxicology 198:1-47.

BOEM, Pacific OCS Region Map.

Bureau of Safety and Environmental Enforcement, OGOR-B Flaring FOIA Response Spreadsheet (2015-2018).

California Air Resources Board, California's 2017 Climate Change Scoping Plan (2017)

California Department of Fish and Wildlife, Southern California Fisheries Closure Implemented Due To Oil Spill, Oct. 4, 2021.

California Energy Commission, 2020, Total Electricity System Power.

California State Lands Commission & Bureau of Land Management, Draft Environmental Impact Report/ Environmental Impact Statement for the Celeron/All American and Getty Pipeline Projects (Aug. 1984).

Carls, M. G., S. D. Rice, and J. E. Hose. 1999. Sensitivity of fish embryos to weathered crude oil: part I. Low-level exposure during incubation causes malformations, genetic damage, and

[122] References will be submitted to the Corps on a USB drive along with a hard copy of this letter, and they are also available at the following link: https://tinyurl.com/5n7u9aw3.

mortality in larval pacific herring (Clupea pallasi). Environmental Toxicology and Chemistry 18:481-493.

Carretta, James V. et al. 2020. Sources of Human-Related Injury and Mortality for U.S. Pacific West Coast Marine Mammal Stock Assessments, 2014- 2018, U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC631.

Cassoff, R.M., Moore, K.M., McLellan, W.A., Barco, S.G., Rotstein, D.S., Moore, M.J., 2011. Lethal entanglement in baleen whales. Dis. Aquat. Org. 96, 175–185.

Center for Biological Diversity, Analysis: Even Before Orange County Leak, California Pipeline Incidents Caused $1.2 Billion In Damages (2021).

Center for Biological Diversity, Oil and Gas Pipeline Incidents Since 1986. Map by Curt Bradley, MP4 and data available on the Center for Biological Diversity Digital Assets Database.

Center for Biological Diversity, Petition To Halt the Approval of Fossil Fuel Infrastructure Permits as Contrary to the Public Interest and for Associated Actions and Rulemaking (Oct. 6, 2021).

Chokshi, Niraj, Why the World's Container Ships Grew So Big, New York Times, Mar. 31, 2021.

Cypher, H.T., Letter Approving Plan of Development for the Beta Unit, OCS-P 0300 and P 0301.

Department of the Army Regional General Permit Number 63 for Repair and Protection Activities in Emergency Situations (Nov. 19, 2018).

Email from Eric Sweeney (Senior Project Manager, U.S. Army Corps of Engineers) to Miyoko Sakashita (Center for Biological Diversity) (Dec. 22, 2021).

Erickson, P. and M. Lazarus, How would phasing out US federal leases for fossil fuel extraction affect CO2 emissions and 2°C goals?, Stockholm Environment Institute, Working Paper No. 2016-2 (2016).

Erickson, P. and M. Lazarus, Impact of the Keystone XL Pipeline on Global Oil Markets and Greenhouse Gas Emissions, 4 Nature Climate Change 778 (2016).

Erickson, P., Rebuttal: Oil Subsidies—More Material for Climate Change Than You Might Think (Nov. 2, 2017).

Erickson, P. and Lazarus, M., How Limiting Oil Production Could Help California Meet Its Climate Goals, Stockholm Environment Institute Discussion Brief (2018).

Farr, H., Benjamin Ruttenberg, Ryan K. Walter, Yi-Hui Wang, Crow White, Potential environmental effects of deepwater floating offshore wind energy facilities, Ocean & Coastal Management, Volume 207, 2021.

Fieldstadt, Elisha, Tim Stelloh and The Associated Press, Ship's anchor seen as possible cause for massive oil spill in Southern California, NBC, Oct. 4, 2021.

Fry, H., et al., Massive oil spill sends crude onto Orange County beaches, killing birds, marine life, Los Angeles Times (Oct. 2, 2021).

Fry, Hannah, Oil sheen confirmed off Huntington Beach as charges are filed in earlier spill, Los Angeles Times (Dec. 16, 2021).

Garrett-Peltier, Heidi. Green versus brown: Comparing the employment impacts of energy efficiency, renewable energy, and fossil fuels using an input output model, 61 Economic Modeling (2017).

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).

Hampton, Steve, J. Marek, L. Henkel, C. Sandoval, J. Boyce, and B. Standley. 2020. Refugio Oil Spill Bird Injury Assessment.

Harvey, Fiona, No new oil, gas or coal development if world is to reach net zero by 2050, says world energy body, Guardian, May 18, 2021.

Hepburn, Cameron et al., Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?, Smith School Working Paper No. 20-02, Oxford Smith School of Enterprise and the Environment (May 4, 2020).

Holdway, D. A. 2002. The acute and chronic effects of wastes associated with offshore oil and gas production on temperate and tropical marine ecological processes. Marine Pollution Bulletin 44:185-203.

Igor, A., R.E. Melchers, Pitting corrosion in pipeline steel weld zones, Corros. Sci. 53 (12) (2011) 4026–4032.

Incardona, et al. 2015. Very low embryonic crude oil exposures cause lasting cardiac defects in salmon and herring. Scientific Reports 5, Article number: 13499.

Interagency Working Group on Social Cost of Greenhouse Gases, U.S. Government, Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 (Feb. 2021).

International Energy Agency, Net Zero by 2050: A roadmap for the global energy system (2021).

IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B. R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press.

IPCC, 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 (Oct. 6, 2018).

IPCC, 2021: Climate Change 2021: Summary for Policy Makers.

Jenssen, B. M. 1994. Review Article: Effects of oil pollution, chemically treated oil, and cleaning on the thermal balance of birds. Environmental Pollution 86:207-215.

Keuter, J. (2014). In-line Inspection of Pipes Using Corrosion Resistant Alloys (CRA). Rosen Technology and Research Center GmbH, Rosen Group, Germany.

L.A. County Board of Supervisors, September 15, 2021 Meeting Transcript, Agenda Item 24.

Letter from Center for Biological Diversity to Amplify Energy Corp. (Jan. 3, 2022).

Levin, Alan, Oil Spills Escalated in this Decade, USA Today, June 8, 2010.

Levine, B.M. , J.R. White, R.D. DeLaune, K. Maiti. 2017. Crude Oil Effects on Redox Status of Salt Marsh Soil in Louisiana. Soil Science Society of America Journal, 81 (3): 647.

Melchers, R.E., M. Ahammed, R. Jeffrey, G. Simundic, Statistical characterization of surfaces of corroded, Mar. Struct. 23 (2010) 274–287.

Merrill, Matthew D. et al., Federal lands greenhouse gas emissions and sequestration in the United States—Estimates for 2005–14: U.S. Geological Survey Scientific Investigations Report 2018–5131 (2018).

Mohd, M.H. and J.K. Paik (2013) Investigation of the corrosion progress characteristics of offshore subsea oil well tubes. Corrosion Science 67: 130-141.

Muehlenbachs, et al. 2013. The impact of water depth on safety and environmental performance in offshore oil and gas production. Energy Policy 55:699-705.

NMFS. Revised April 15, 2020. Stock Assessment Report: BLUE WHALE (*Balaenoptera musculus musculus*): Eastern North Pacific Stock.

NMFS. Revised April 15, 2021. Stock Assessment Report: FIN WHALE (*Balaenoptera physalus velifera*): California/Oregon/Washington Stock.

NMFS. Revised April 15, 2020. Stock Assessment Report: GRAY WHALE (*Eschrichtius robustus*): Eastern North Pacific Stock.

NMFS. Revised April 15, 2020. Stock Assessment Report: GUADELUPE FUR SEAL (*Arctocephalus townsendi*).

NMFS. Revised April 15, 2020. Stock Assessment Report: HUMPBACK WHALE (*Megaptera novaeangliae*): California/Oregon/Washington Stock.

NMFS. Revised Dec. 30, 2020. Stock Assessment Report: NORTH PACIFIC RIGHT WHALE (*Eubalaena japonica*): Eastern North Pacific Stock.

NMFS. Revised April 15, 2020. Stock Assessment Report: SPERM WHALE (*Physeter macrocephalus*): California/Oregon/Washington Stock.

NOAA, Oil Spills in Marshes (2013).

NOAA. 2010. Analysis of Hydrocarbons in Samples Provided from the Cruise of the R/V WEATHERBIRD II, May 23-26, 2010, National Oceanic and Atmospheric Administration, Silver Spring, Maryland, 20910.

Office of Governor Newsom, Executive Order B-55-18 to Achieve Carbon Neutrality (2018).

Office of Governor Newsom, Governor Newsom Announces California Will Phase Out Gasoline-Powered Cars & Drastically Reduce Demand for Fossil Fuel in California's Fight Against Climate Change (Sep. 23, 2020).

Oil Change International, Drilling Toward Disaster: Why U.S. Oil and Gas Expansion Is Incompatible with Climate Limits (Jan. 2019).

Peterson, C. H., S. D. Rice, J. W. Short, D. Esler, J. L. Bodkin, B. E. Ballachey, and D. B. Irons. 2003. Long-term ecosystem response to the Exxon Valdez oil spill. Science 302:2082-2086.

Petroleum Safety Authority Norway. 2006. Material Risk – Ageing offshore installations. Prepared by Det Norske Veritas on request from Petroleum Safety Authority Norway.

Pollin, Robert et al., A Program for Economic Recovery and Clean Energy Transition in California, (June 2021).

Richards, H., California's massive offshore oil spill: What we know, E&E News (Oct. 5, 2021).

Ritchie, E.I., 7 Western snowy plovers saved from oil in Huntington beach sand, here's how, The Orange County Register (Oct. 9, 2021).

Rockwood, C and Jahncke J. 2019. Management recommendations to reduce deadly whale strikes off California. Unpublished report for the National Oceanic and Atmospheric Administration, the United States Coast Guard, and the Maritime Industry. 16 p.

Rockwood, R., et al., 2017. 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.

S.B. 100, 2017-2018 Reg. Sess. (Cal. 2018).

Sahagún, Louis, Pipeline company to pay more than $60 million for 2015 oil spill near Santa Barbara, L.A. Times (Mar. 13, 2020).

Schuler, M., Coast Guard Declares San Pedro Bay Pipeline Fracture a Major Marine Casualty, gCaptain (Oct. 7, 2021).

Smith, Christopher J. et al., Current fossil fuel infrastructure does not yet commit us to 1.5°C warming. Nature Communications (2019).

Smith, Hayley, Officials declare O.C. oil spill cleanup complete, Los Angeles Times (Dec. 29, 2021).

Stanley, Alyse, Major Oil Spill Off the Coast of Southern California Has ‘Dolphins Swimming Thru the Oil,’ Gizmodo, Oct. 3, 2021.

Stover, Richard, Review of the US Department of Transportation Report The State of the National Pipeline Infrastructure, Aug. 2013.

Szesciorka, A.R., et al. 2019. A Case Study of a Near Vessel Strike of a Blue Whale: Perceptual Cues and Fine-Scale Aspects of Behavioral Avoidance. Front. Mar. Sci., vol. 6, art. 761.

Tournadre, J., Anthropogenic pressure on the open ocean: The growth of ship traffic revealed by altimeter data analysis 41 Geo-phys. Res. Lett. 7924–7932 (2014).

U.S. Army Corps of Engineers, Nationwide Permit 12 Decision Document (2021).

U.C. Davis, Oiled Wildlife Care Network, Pipeline P00547 Incident Wildlife Numbers, https://owcn.vetmed.ucdavis.edu/pipeline-p00547-incident (last updated Nov. 11, 2021).

U.S. Department of Transportation: Federal Highway Administration. Impacts of Climate Change and Variability on Transportation Systems and Infrastructure: The Gulf Coast Study, Phase 2. 2015.

U.S. Fish and Wildlife Service, Effects of Oil on Wildlife and Habitat (June 2010).

U.S. Fish and Wildlife Service, Information for Planning and Consultation, IPaC (Oct. 7, 2021).

U.S. Fish and Wildlife Service, California Tiger Salamander Central California Distinct Population Segment (Ambystoma californiense) 5-Year Review: Summary and Evaluation (Oct. 21, 2014).

U.S. Fish and Wildlife Service, Southern Sea Otter (Enhydra lutris nereis) 5-Year Review: Summary and Evaluation, Sept. 15, 2015.

U.S. Geological Survey, State Lands Commission, Port of Long Beach, Shell OCS Beta Unit Development (Dec. 1, 1978),

United Nations Environment Programme, Emissions Gap Report 2019, UNEP, Nairobi (2019).

United Nations Environment Programme, et al., The Production Gap: The discrepancy between countries' planned fossil fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C (2019).

United Nations Secretary-General, Secretary-General's statement on the IPCC Working Group 1 Report on the Physical Science Basis of the Sixth Assessment, Aug. 9, 2021.

Venn-Watson, S. et al. Adrenal Gland and Lung Lesions in Gulf of Mexico Common Bottlenose Dolphins (Tursiops truncatus) Found Dead following the Deepwater Horizon Oil Spill. PLoS ONE 10, e0126538 (2015).

Vohra, Karn et al., Global mortality from outdoor fine particle pollution generated by fossil fuel combustion, 195 Environmental Research (Apr. 2021).

Wenger et al., A critical analysis of the direct effects of dredging on fish, Fish and Fisheries 18:967–985 (2017).

Whale Safe, https://whalesafe.com/, screenshot from Dec. 13, 2021.

Whale Safe, https://whalesafe.com/, screenshot from Jan. 25, 2022.