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Sent via electronic mail

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CD8 EIS Comments
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RE: Scoping comments on the proposed CD8 development (POA-2025-00203)

The Center for Biological Diversity submits these scoping comments regarding the proposed CD8 development in the Colville River Delta near Nuiqsut, Alaska. The Center opposes additional oil development, including the CD8 project, because it will have unacceptable climate and environmental consequences. We agree with and incorporate by reference the comments submitted by Grandmothers Growing Goodness, Sovereign Inupiat for a Living Arctic, and Native Movement (GGG Comments). Additionally, we write separately to emphasize the need for the Corps to consider the climate impacts of the proposal, as well as the impacts on threatened and endangered species.

I. CD8 Will Contribute to the Greenhouse Gases Driving the Climate Crisis

Oil Development and Climate Change

If approved, CD8 will contribute to the climate crisis that is already wreaking havoc on Alaska's ecosystems, including in the Western Arctic where the project is proposed. Past Presidents have acknowledged that we are facing a "profound climate crisis" and we have only a little time to pursue bold actions to avoid the most catastrophic impacts of climate change.[1] Studies have demonstrated that every barrel of oil left undeveloped would result in nearly half a barrel reduction in net oil consumption, with associated reductions in greenhouse gas emissions.[2] Conversely, approving new oil and gas activity increases greenhouse gas emissions.

[1] President Joe Biden, Tackling the Climate Crisis at Home and Abroad, Exec. Order No. 14,008, (Jan. 27, 2021); *see also* President Obama on Climate & Energy: A Historic Commitment to Protecting the Environment and Addressing the Impacts of Climate Change, https://obamawhitehouse.archives.gov/the-record/climate (noting that "President Obama believes that no challenge poses a greater threat to our children, our planet, and future generations than climate change — and that no other country on Earth is better equipped to lead the world towards a solution").

[2] *See, e.g.*, P. Erickson 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); P. Erickson

Fossil fuels are driving a global climate emergency that presents a "code red for humanity."[3] As UN Secretary-General António Guterres stated upon the release of the Intergovernmental Panel on Climate Change's (IPCC) 2022 report:

> Climate scientists warn that we are already perilously close to tipping points that could lead to cascading and irreversible climate impacts. But, high-emitting Governments and corporations are not just turning a blind eye, they are adding fuel to the flames. They are choking our planet, based on their vested interests and historic investments in fossil fuels, when cheaper, renewable solutions provide green jobs, energy security and greater price stability…. Climate activists are sometimes depicted as dangerous radicals. But, the truly dangerous radicals are the countries that are increasing the production of fossil fuels. Investing in new fossil fuels infrastructure is moral and economic madness…. [4]

The climate emergency is here, and it is killing people, causing ecosystem collapse, costing the U.S. economy billions in damages every year, and creating escalating suffering across the nation and around the world.[5] The climate crisis also breeds glaring injustice, with Black, Latino, Indigenous, Asian American and Pacific Islanders, and other communities of color and low-wealth communities experiencing the gravest harms.[6] Without deep and rapid reductions in fossil

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and M. Lazarus, Impact of the Keystone XL Pipeline on Global Oil Markets and Greenhouse Gas Emissions, 4 Nature Climate Change 778 (2016); *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, https://wedocs.unep.org/bitstream/handle/20.500.11822/30797/EGR2019.pdf?sequence=1&isAllowed=y; 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), at 4, 14, http://productiongap.org/; Jason Bordoff and Trevor Houser, Navigating the U.S. Oil Export Debate, Columbia SIPA Center on Global Energy Policy, Jan. 2015.

[3] 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, https://www.un.org/sg/en/content/secretary-generals-statement-the-ipcc-working-group-1-report-the-physical-science-basis-of-the-sixth-assessment.

[4] United Nations Secretary-General, *António Guterres (UN Secretary-General) to the press conference launch of IPCC report* (February 28, 2022) (emphasis added), https://media.un.org/en/asset/k1x/k1xcijxjhp; *see also* United Nations Secretary-General's remarks to High-Level opening of COP27 - as delivered, Sharm el-Sheikh, Egypt, Nov. 7, 2022, https://www.un.org/sg/en/content/sg/statement/2022-11-07/secretary-generals-remarks-high-level-opening-of-cop27-delivered-scroll-down-for-all-english-version (UN Secretary-General statements noting that "[g]reenhouse gas emissions keep growing, global temperatures keep rising, and our planet is fast approaching tipping points that will make climate chaos irreversible. . . We are on a highway to climate hell with our foot still on the accelerator" and the "1.5 degree goal is on life support.

[5] IPCC, Climate Change 2022, Impacts, Adaptation and Vulnerability (2022), https://www.ipcc.ch/report/ar6/wg2/; IPCC, AR6 Synthesis Report (2023), https://www.ipcc.ch/report/sixth-assessment-report-cycle/; NOAA, National Centers for Environmental Information, Billion-Dollar Weather and Climate Disasters, https://www.ncdc.noaa.gov/billions/ (reporting that in 2021 alone in the U.S. , there were 20 weather and climate disaster events with losses exceeding $1 billion each and 688 deaths).

[6] Donaghy, Tim & Charlie Jiang for Greenpeace, Gulf Coast Center for Law & Policy, Red, Black & Green Movement, and Movement for Black Lives, Fossil Fuel Racism: How Phasing Out Oil, Gas, and Coal Can Protect Communities (2021), https://www.greenpeace.org/usa/wp-content/uploads/2021/04/Fossil-Fuel-Racism.pdf; U.S. Environmental Protection Agency, Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts, EPA 430-R-21-003 (2021), www.epa.gov/cira/social-vulnerability-report.

fuel production and emissions, global temperature rise will exceed 1.5°C and result in catastrophic damages in the U.S. and around the world.[7]

An overwhelming scientific consensus, including scientific assessments from the IPCC, International Energy Agency (IEA), and United Nations, has established that limiting temperature rise to 1.5°C requires governments to immediately halt approvals of new fossil fuel production and infrastructure projects and phase out existing extraction and infrastructure to keep most fossil fuel reserves in the ground.[8]

The scientific literature documenting these findings has been set forth in a series of authoritative reports from the IPCC, U.S. Global Change Research Program, and other institutions, which make clear that fossil-fuel driven climate change is an existential "threat to human well-being and planetary health"[9] and that every increase in fossil fuel pollution pushes us further toward a dangerous and increasingly unlivable planet.[10] And a recent scientific review described how the

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[7] IPCC, Summary for Policymakers, In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (2018) [Masson-Delmotte, V. et al. (eds.)], https://www.ipcc.ch/sr15/; IPCC, 2022*:* Climate Change 2022: Mitigation of Climate Change, Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [P.R. Shukla et al. (eds.)].

[8] Oil Change International, The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production (September 2016), http://priceofoil.org/2016/09/22/the-skys-limit-report/; Oil Change International, Drilling Toward Disaster: Why U.S. Oil and Gas Expansion Is Incompatible with Climate Limits (2019), http://priceofoil.org/drilling-towards-disaster; Tong, Dan et al., Committed emissions from existing energy infrastructure jeopardize 1.5°C climate target, 572 Nature 373 (2019); SEI, IISD, ODI, E3G, and UNEP, 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 (2020), http://productiongap.org/; International Energy Agency (IEA), Net Zero By 2050: A Roadmap for the Global Energy Sector (October 2021), https://www.iea.org/reports/net-zero-by-2050; Teske, Sven and Sarah Niklas, Fossil Fuel Exit Strategy: An orderly wind down of coal, oil and gas to meet the Paris Agreement (June 2021), https://fossilfueltreaty.org/exit-strategy; Welsby, Dan et al., Unextractable fossil fuels in a 1.5 °C world, 597 Nature 230 (2021); Calverley, Dan and Kevin Anderson, Phaseout Pathways for Fossil Fuel Production Within Paris-compliant Carbon Budgets (2022), https://research.manchester.ac.uk/en/publications/phaseout-pathways-for-fossil-fuel-production-within-paris-complia; Trout, Kelly et al., Existing fossil fuel extraction would warm the world beyond 1.5°C, 17 Environmental Research Letters 064010 (2022); International Institute for Sustainable Development, Navigating Energy Transitions: Mapping the road to 1.5°C (October 2022), https://www.iisd.org/publications/report/navigating-energy-transitions; IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report, A Report of the Intergovernmental Panel on Climate Change, Contribution of Working Groups I, II and III, https://www.ipcc.ch/report/sixth-assessment-report-cycle/; Paul, Mark and Lina Moe, An Economist's Case for Restrictive Supply Side Policies: Ten Policies to Manage the Fossil Fuel Transition, Climate and Community Project (March 2023), https://www.climateandcommunity.org/economists-case-end-fossil-fuels; International Energy Agency (IEA), Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach (September 2023), https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach.

[9] IPCC, Climate Change 2022, Impacts, Adaptation and Vulnerability (2022) at SPM-35, https://www.ipcc.ch/report/ar6/wg2/.

[10] U.S. Global Change Research Program, Climate Science Special Report: Fourth National Climate Assessment, Vol. I (2017), https://science2017.globalchange.gov/; U.S. Global Change Research Program, Impacts, Risks, and Adaptation in the United States, Fourth National Climate Assessment, Vol. II (2018), https://nca2018.globalchange.gov/; IPCC, Summary for Policymakers. In: Global Warming of 1.5°C, Masson-Delmotte, V. et al. (eds.) (2018), https://www.ipcc.ch/sr15/; IPCC, Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate

"vast scientific evidence showing that fossil fuels and the fossil fuel industry are the root cause of the climate crisis, harm public health, worsen environmental injustice, accelerate biodiversity extinction, and fuel the petrochemical pollution crisis" and that "[f]ossil fuels are responsible for millions of premature deaths, trillions of dollars in damages, and the escalating disruption of ecosystems, threatening people, wildlife, and a livable future."[11]

The vast majority of all CO_2 pollution—86 percent—in the U.S. and globally comes from oil, gas, and coal.[12] The science is clear that limiting global temperature rise to 1.5°C under the Paris Agreement requires governments to immediately halt approval of all new fossil fuel production and infrastructure and rapidly phase out existing fossil fuel production and infrastructure in many developed fields and mines.[13] The committed carbon emissions from *existing* fossil fuel infrastructure in the energy and industrial sectors exceed the carbon budget for limiting warming to 1.5°C, meaning that no new fossil infrastructure can be built and much existing infrastructure must be retired early to avoid catastrophic climate harms.[14] Other research shows that the fossil fuels already in development globally, in existing and under-construction oil and gas fields and coal mines, contain enough carbon to substantially exceed the 1.5°C limit, meaning that extraction in existing fields and mines must also be shut down before their reserves are fully depleted.[15]

Yet, as detailed in the landmark United Nations Production Gap Reports, fossil fuel producers are planning to extract more than double the amount of oil, gas, and coal by 2030 than is consistent with limiting warming to 1.5°C.[16] And the most recent report from the International Energy Agency found that global CO2 emissions are expected to increase by close to 300 million metric tons in 2022—to 33.8 billion metric tons—but the rise would have been even more

Change (2021), https://www.ipcc.ch/report/sixth-assessment-report-working-group-i; IPCC, Climate Change 2022, Impacts, Adaptation and Vulnerability (2022), https://www.ipcc.ch/report/ar6/wg2/; IPCC, 2022*:* Climate Change 2022: Mitigation of Climate Change.

[11] Wolf, Shaye, et al., Scientists' warning on fossil fuels, 5 Oxford Open Climate Change 1–26 (2025).

[12] Fourth National Climate Assessment, Vol. II at 60 (2018); IPCC, Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (2021) at 5-19, https://www.ipcc.ch/report/sixth-assessment-report-working-group-i.

[13] IPCC, Summary for Policymakers, In: Global Warming of 1.5°C, Masson-Delmotte, V. et al. (eds.) (2018), https://www.ipcc.ch/sr15/; Oil Change International, Drilling Toward Disaster: Why U.S. Oil and Gas Expansion Is Incompatible with Climate Limits (2019), http://priceofoil.org/drilling-towards-disaster; Tong, Dan et al., Committed emissions from existing energy infrastructure jeopardize 1.5°C climate target, 572 Nature 373 (2019), https://www.nature.com/articles/s41586-019-1364-3; SEI, IISD, ODI, E3G, and UNEP, 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 (2020), http://productiongap.org/; Teske, Sven & Sarah Niklas, Fossil Fuel Exit Strategy: An orderly wind down of coal, oil and gas to meet the Paris Agreement (June 2021), https://fossilfueltreaty.org/exit-strategy; Welsby, Dan et al., Unextractable fossil fuels in a 1.5 °C world, 597 Nature 230 (2021); Trout, Kelly et al., Existing fossil fuel extraction would warm the world beyond 1.5°C, 17 Environmental Research Letters 064010 (2022), https://iopscience.iop.org/article/10.1088/1748-9326/ac6228#references.

[14] Tong, Dan et al., 2019; Pfeiffer, Alexander et al., Committed emissions from existing and planned power plants and asset stranding required to meet the Paris Agreement, 13 Environmental Research Letters 054019 (2018).

[15] Oil Change International, Drilling Toward Disaster, 2019. Trout, Kelly et al. 2022.

[16] The Production Gap 2020 http://productiongap.org/; SEI, IISD, ODI, E3G, and UNEP, The Production Gap Report 2021 (2021), http://productiongap.org/2021report.

significant were it not for record deployment of electric vehicles and renewable energy.[17] The report expects warming to increase by 2.5°C by the end of the century.[18] Rather than increasing fossil fuel production and use, the world's fossil fuel production must decrease by roughly 6 percent per year on average between 2020 and 2030.[19] Another report from the United Nations, the 2022 Emissions Gap Reported stated that there has been inadequate action to meet these goals and called "for the rapid transformation of societies" off fossil fuels.[20]

The U.S. and other wealthy, high-emitting producer nations with the greatest capacity to achieve a just transition must make more rapid cuts. A 2022 Tyndall Center study concluded that an equitable phase-out requires the U.S. to end all oil and gas production by 2031 to preserve a 67% chance of limiting temperature rise to 1.5°C.[21] For a lower 50% of 1.5°C, the U.S. must reduce oil and gas production 74% by 2030 and end production by 2034.[22] Stated succinctly, there is no room in the global carbon budget for any new fossil fuel production and infrastructure of any kind anywhere in the world, right now. All such fossil fuel project approvals are inconsistent with meeting the Paris climate targets and inconsistent with maintaining a livable planet. Conversely, scientists have documented how a "transition away from fossil fuels will provide innumerable societal and planetary benefits and forge a path forward to sustaining life on Earth."[23]

A National Security Strategy released in October 2022 recognized that, "[o]f all of the shared problems we face, climate change is the greatest and potentially existential for all nations," including the United States.[24] A number of other recent reports issued by the Department of Homeland Security, the Department of Defense, the National Security Council, and the National Intelligence Director all highlight the threat that climate change poses to national security. For example, the Office of the Director of National Intelligence issued the first-ever National Intelligence Estimate on Climate Change (NIE). The NIE notes that climate change will increasingly exacerbate a number of risks to U.S. national security interests through (1) increased geopolitical tension as countries argue over who should be doing more, and how quickly, and compete in the ensuing energy transition; (2) cross-border geopolitical flash points from the physical effects of climate change as countries take steps to secure their interests; and (3) climate effects straining country-level stability in select countries and regions of concern.[25] The NIE further states that "[g]iven current government policies and trends in technology development …

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[17] IEA, World Energy Outlook 2022, https://www.iea.org/reports/world-energy-outlook-2022.
[18] *Id.*
[19] The Production Gap 2020; The Production Gap 2021.
[20] United Nations Environment Programme, The Emissions Gap Report 2022: The Closing Window — Climate crisis calls
for rapid transformation of societies (2022), https://www.unep.org/resources/emissions-gap-report-2022.
[21] Calverley and Anderson, Phaseout Pathways for Fossil Fuel Production Within Paris-compliant Carbon Budgets (2022), https://www.iisd.org/publications/report/phaseout-pathways-fossil-fuel-production-within-paris-compliant-carbon-budgets (Tyndall Report).
[22] *Id*. at 6.
[23] Wolf, et al. 2025.
[24] National Security Strategy, Oct. 2022, https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf.
[25] National Intelligence Council's National Intelligence Estimate on Climate Change, Oct. 2021, https://www.dni.gov/files/ODNI/documents/assessments/NIE_Climate_Change_and_National_Security.pdf.

collectively countries are unlikely to meet the Paris goals," and concludes that "[h]igh-emitting countries would have to make rapid progress toward decarbonizing their energy systems by transitioning away from fossil fuels within the next decade."[26]

In the United States, fossil fuel pollution and resulting climate harms are already causing hundreds of thousands of premature deaths each year, and this toll will escalate absent the rapid phase-out of fossil fuels. The fine particulate pollution from fossil fuel combustion alone causes an estimated one in ten deaths each year in the United States, totaling 355,000 premature deaths in 2018.[27] Compared to limiting temperature rise to 1.5°C, warming of 2°C will cause an estimated 153 million more premature deaths worldwide due to increased exposure to fine particulate matter and ozone.[28] Another recent study estimated that every 4,434 metric tons of CO_2 added to the atmosphere in 2020—equivalent to the lifetime emissions of 3.5 average Americans—will cause one excess death globally through 2100.[29] The implications of this finding are that failing to limit temperature rise to 1.5°C and instead allowing 2°C warming will cost 169 million additional lost lives.[30]

Climate change threatens public safety, health and well-being, with particular harms to children, older adults, communities of color, low-income communities, immigrant groups, and persons with disabilities and pre-existing medical conditions.[31] For example, in the Alaskan Arctic, the island upon which the City of Kivalina and Native Village of Kivalina rests is rapidly eroding from increasing arctic temperatures, impacting essential traditional subsistence activities.[32] Climate change has contributed to recent storms, including Typhoon Merbok and Typhoon Halong, that have caused widespread destruction in coastal communities in Western Alaska, forcing mass evacuations and long-term displacement.[33]

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[26] *Id.*; *see also* The White House, Report on the Impact of Climate Change on Migration, Oct. 2021, https://www.whitehouse.gov/wp-content/uploads/2021/10/Report-on-the-Impact-of-Climate-Change-on-Migration.pdf; U.S. Dept. of Defense. Climate Risk Analysis, Oct. 2021, https://media.defense.gov/2021/Oct/21/2002877353/-1/-1/0/DOD-CLIMATE-RISK-ANALYSIS-FINAL.PDF.

[27] Karn Vohra et al., Global mortality from outdoor fine particle pollution generated by fossil fuel combustion: Results from GEOS-Chem, 195 Environmental Research 110754 (2021); *see also* Vohra, Karen et al., The health burden and racial-ethnic disparities of air pollution from the major oil and gas lifecycle stages in the United States 11 Sci. Adv. eadu2241 (2025) (study estimating that oil and gas-related air pollution cause over 91,000 premature deaths in the United States every year, along with hundreds and thousands of health complications).

[28] Drew Shindell et al., Quantified, localized health benefits of accelerated carbon dioxide emissions reductions, 8 Nature Climate Change 291 (2018).

[29] R. Daniel Bressler, The mortality cost of carbon, 12 Nature Communications 4467 (2021).

[30] The difference between the carbon budget needed to limit warming to 1.5°C versus 2°C is 750 Gt CO_2, based on the IPCC Sixth Assessment (see IPCC, Climate Change 2021, at Table SPM.2). With each 4,434 metric tons of CO_2 estimated to result in one death, the additional 750 Gt CO_2 emitted with 2°C versus 1.5°C of temperature rise equates to 169 million additional deaths.

[31] Fourth National Climate Assessment, Vol. II at 548; U.S. Global Change Research Program, The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment (2016).

[32] *See*, *e.g.*, *Native Village of Kivalina v. ExxonMobile Corp.*, 696 F.3d 849 (2012).

[33] Yereth Rosen, Typhoon disaster in Western Alaska raises questions around the region's future, Alaska Beacon (Oct. 17, 2025), available at: https://alaskabeacon.com/2025/10/17/typhoon-disaster-in-western-alaska-raises-questions-around-the-regions-future/.

Health risks from climate change include increased exposure to heat waves, floods, droughts, and other extreme weather events; increases in infectious diseases; decreases in the quality and safety of air, food, and water; displacement; and stresses to mental health and well-being.[34] In the United States, the health costs of air pollution from fossil fuel combustion and climate change are estimated to already exceed $800 billion per year and will become much more expensive without rapid action to curb fossil fuel pollution.[35]

Moreover, the science is overwhelmingly clear that fossil fuels represent a stark threat to the future of biodiversity within the U.S. and around the world due to the dual harms of the climate crisis and the direct impacts from fossil fuel development. As recently stated by scientific experts, "[t]he scale of threats to the biosphere and all its lifeforms — including humanity — is in fact so great that it is difficult to grasp for even well-informed experts" and our planet faces a "ghastly future" unless swift action is taken to reverse the climate crisis, including "a rapid exit from fossil fuel use."[36]

The U.S. federal government in its National Climate Assessments has similarly repeatedly recognized that human-caused climate change is causing widespread and intensifying harms to life across the planet and is driving many species toward extinction. For example, the Fourth National Climate Assessment warned that "climate change threatens many benefits that the natural environment provides to society," and that "extinctions and transformative impacts on some ecosystems" will occur "without significant reductions in global greenhouse gas emissions."[37]

Countless scientific studies have documented how climate change is increasing stress on species and entire ecosystems, causing disruptions of species' distributions, timing of breeding and migration, physiology, vital rates, genetics, and the ecosystem processes that support basic human needs.[38] A 2019 United Nations report concluded that one million animal and plant species are now threatened with extinction, with climate change as a primary driver.[39] Climate change-related local extinctions are already widespread and have occurred in hundreds of species,[40] and extinction risk will accelerate with continued fossil fuel pollution. A 2024 study

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[34] Fourth National Climate Assessment, Vol. II at 540; USGCRP, Impacts of Climate Change on Human Health.
[35] Medical Society Consortium on Climate and Health, The Costs of Inaction: The Economic Burden of Fossil Fuels and Climate Change on Health in the United States, 5 (2021).
[36] Bradshaw, Corey J.A. et al., Understanding the Challenges of a Ghastly Future, 1 Frontiers in Conservation Science Article 615419 (2021).
[37] U.S. Global Change Research Program, Impacts, Risks, and Adaptation in the United States, Fourth National Climate Assessment, Vol. II (2018) at 51, https://nca2018.globalchange.gov.
[38] Parmesan, Camille & Gary Yohe, A globally coherent fingerprint of climate change impacts across natural systems, 421 Nature 37 (2003); Root, Terry L. et al., Fingerprints of global warming on wild animals and plants, 421 Nature 57 (2003); Parmesan, Camille, Ecological and evolutionary responses to recent climate change, 37 Annual Review of Ecology Evolution and Systematics 637 (2006); Chen, I-Ching et al., Rapid range shifts of species associated with high levels of climate warming, 333 Science 1024 (2011); Cahill, Abigail E. et al., How does climate change cause extinction?, 280 Proceedings of the Royal Society B 20121890 (2012); Scheffers, Brett R. *et al.*, The broad footprint of climate change from genes to biomes to people, 354 Science 719 (2016).
[39] Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), Global Assessment Report (May 6, 2019), https://ipbes.net/news/Media-Release-Global-Assessment.
[40] Wiens, John J., Climate-related local extinctions are already widespread among plant and animal species, 14 PLoS Biology e2001104 (2016).

forecast the extinction of 14% to 32% of animal and plant species—representing the devastating loss of 3 million to 6 million species—in the next 50 years, even under intermediate climate change scenarios.[41] Another study estimated that one species will go extinct for every 4.3 million metric tons of CO_2e emitted.[42] Scientists have called for a rapid transformation of our energy system away from fossil fuels to avoid a mass extinction event.[43]

Fossil fuel development also causes a wide array of harms to species and ecosystems: destroying and fragmenting wildlife habitat, reducing water supplies often in water-stressed areas, causing air, noise, and light pollution, contaminating surface and ground water, and facilitating the spread of ecologically disruptive invasive species,[44] with similar harms in the offshore marine environment.[45] Fossil fuel development creates the significant risk of oil spills and brine spills which can kill wildlife and cause devastating effects over large areas. For many species, the harms from the fossil fuel-based energy system have led to mortality, changes in behavior, population declines, disruptions to community composition, and loss of ecosystem function.

In short, every additional ton of CO_2 and fraction of a degree of temperature rise matters.[46]

<u>Alaska's Arctic Is on the Frontlines of the Climate Crisis</u>

Alaska and the Arctic are on the front lines of the climate crisis, suffering rapid rates of sea ice loss and some of the most severe and rapid temperature rise on the planet. Recent research has found that climate models are under-calculating the rate of heating and that over the past four decades the Arctic has been warming nearly four times faster than the globe.[47] Looking forward,

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[41] Wiens, John J. and Joseph Zelinka, How many species will Earth lose to climate change?, 30 Global Change Biology e17125 (2024); *see also* NMFS, Climate Change Escalates Threats to Species in the Spotlight, Aug. 29, 2024, https://www.fisheries.noaa.gov/feature-story/climate-change-escalates-threats-species-spotlight.

[42] Mokany, Karel et al., Reporting the biodiversity impacts of greenhouse gas emissions, 30 Global Change Biology e17037 (2023).

[43] Barnosky, Anthony D., Transforming the global energy system is required to avoid the sixth mass extinction, 2 MRS Energy and Sustainability E10 (2015).

[44] Butt, Nathalie et al., Biodiversity risks from fossil fuel extraction, 342 Science 425 (2013); Brittingham, Margaret C. et al., Ecological risks of shale oil and gas development to wildlife, aquatic resources and their habitats, 48 Environmental Science and Technology 11034 (2014); Pickell, Paul D. *et al.*, Monitoring forest change in landscapes under-going rapid energy development: challenges and new perspectives, 3 Land 617 (2014); Souther, Sara *et al.*, Biotic impacts of energy development from shale: research priorities and knowledge gaps, 12 Frontiers in Ecology and the Environment 330 (2014); Allred, Brady W. et al., Ecosystem services lost to oil and gas in North America, 348 Science 401 (2015); Harfoot, Michael B. et al., Present and future biodiversity risks from fossil fuel exploitation, 11 Conservation Letters e12448 (2018).

[45] Venegas-Li, Rubén, et al., Global assessment of marine biodiversity potentially threatened by offshore hydrocarbon activities, 25 Global Change Biology 2009 (2019).

[46] United Nations, Secretary-General's statement on the IPCC Working Group 1 Report on the Physical Science Basis of the Sixth Assessment, Aug. 2, 2021, https://www.un.org/sg/en/content/secretary-generals-statement-the-ipcc-working-group-1-report-the-physical-science-basis-of-the-sixth-assessment; *see also* 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, https://www.theguardian.com/environment/2021/may/18/no-new-investment-in-fossil-fuels-demands-top-energy-economist ("If governments are serious about the climate crisis, there can be no new investments in oil, gas and coal, from now – from this year.").

[47] Rantanen, Mika *et al*., The Arctic has warmed nearly four times faster than the globe since 1979, 3 Communications Earth & Environment 168 (2022).

Alaska is projected to experience more heating than any other state, with the greatest increases expected in the Alaskan Arctic.[48] Alaska's statewide average surface temperature is projected to increase by 8.1°F by the end of the century under an intermediate emissions scenario (SSP2-4.5) and 14.2°F (7.9°C) under a high scenario (SSP5-8.5), for 2081–2100 relative to 1981–2010.[49]

The Fourth National Climate Assessment, prepared by hundreds of scientific experts and reviewed by the National Academy of Sciences and 13 federal agencies including the Department of the Interior,[50] highlighted the extreme pace of climate change in Alaska and the Arctic:

> Alaska is on the front lines of climate change and is among the fastest warming regions on Earth. It is warming faster than any other state, and it faces a myriad of issues associated with a changing climate.[51]
>
> The rate at which Alaska's temperature has been warming is twice as fast as the global average since the middle of the 20th century.[52]
>
> Temperatures have been increasing faster in Arctic Alaska than in the temperate southern part of the state, with the Alaska North Slope warming at 2.6 times the rate of the continental U.S.[53]
>
> In Alaska, starting in the 1990s, high temperature records occurred three times as often as record lows, and in 2015, an astounding nine times as frequently.[54]

Other more recent studies have found that the Arctic is warming at four times the global rate,[55] with localized warming as high as five times the global average.[56]

The recent U.S. Global Change Research Program's Fifth National Climate Assessment (NCA5) confirmed that Alaska is on the front lines of climate change, as it is warming faster than any other state, and faces a myriad of issues associated with a changing climate:

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[48] Steve T. Gray et al, U.S. Glob. Change Rsch. Prog., *2018: Alaska*, *in* Impacts, Risks, and Adaptation in the United States: Fourth Nat'l Climate Assessment, Vol. II, at 1191 (Reidmiller et al. eds., 2018), https://nca2018.globalchange.gov/downloads/NCA4_Ch26_Alaska_Full.pdf.
[49] Henry P. Huntington et al., *Ch. 29: Alaska*, *in* Fifth Nat'l Climate Assessment (A.R. Crimmins et al., eds., 2023), https://nca2023.globalchange.gov/downloads/NCA5_Ch29_Alaska.pdf.
[50] Fourth National Climate Assessment, Vol. I (2017); Fourth National Climate Assessment, Vol. II (2018); USGCRP [U.S. Global Change Research Program], "Fourth National Climate Assessment: Report Development Process," https://nca2018.globalchange.gov/chapter/appendix-1/.
[51] NCA4 Vol. II at 1190.
[52] *Id*.
[53] *Id.* at 1191.
[54] *Id.* at 1190.
[55] P. Chylek, et al. 2022. Annual Mean Arctic Amplification 1970–2020: Observed and Simulated by CMIP6 Climate Models. Geophysical Research Letters Vol. 49, Issue 13; M. Rantanen, et al. 2022. The Arctic has warmed nearly four times faster than the globe since 1979. Communications Earth & Environment. 3:168.
[56] K. Isaksen, et al. 2022. Exceptional Warming Over the Barents Area. Scientifc Reports 12:9371.

> Since NCA4 was published in 2018, Alaska has continued to experience rapid, widespread, and extreme climate-related changes in the form of ocean warming, record low sea ice, the world's highest rates of ocean acidification, an increasing frequency of extreme events such as marine heatwaves and extreme snow and rain storms in winter. These changes have reduced biological productivity, shifted seasonal timing of productivity, altered food web dynamics, and caused steep declines in prey. In many freshwater environments, these changes result in a combination of reduced summer streamflows, increased summer water temperatures, hypoxia, and decreased prey abundance, which are lethal to many aquatic species. There is no indication that these trends will slow or reverse in the near future.[57]

Arctic summer sea ice extent and thickness have decreased by 40% during the past several decades.[58] Sea ice loss has accelerated since 2000, with Alaska's coast suffering some of the fastest losses.[59] Approximately 95% of the oldest and thickest sea ice has disappeared during the past three decades, and the remaining thinner, younger ice is more vulnerable to melting.[60] The length of the sea ice season is getting shorter as ice melts earlier in spring and forms later in autumn.[61] Along Alaska's northern and western coasts, the sea ice season has shortened by more than 90 days.[62] A study quantifying sea ice trends in all 19 polar bear subpopulation regions from 1979 to 2014 found that in all regions sea ice is retreating earlier in spring and advancing later in fall, and the number of ice-covered days declined in all regions at the loss rate of 7 to 19 days per decade.[63]

As greenhouse gas emissions continue to rise, the Arctic is projected to be virtually ice-free in summer by 2040,[64] a shocking loss given that minimum summer sea ice averaged 2.64 million square miles during 1979 to 1992.[65] As summarized by the Fourth National Climate Assessment:

> Since the early 1980s, annual average arctic sea ice has decreased in extent between 3.5% and 4.1% per decade, become thinner by between 4.3 and 7.5 feet, and began melting at least 15 more days each year. September sea ice extent has decreased between 10.7% and 15.9% per decade (*very high confidence*). Arctic-wide ice loss

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[57] U.S. Global Change Research Program, Fifth National Climate Assessment at Section 29 (2023).

[58] NCA4 Vol. I at 29, 57, 303.

[59] *Id.* at 305.

[60] Osborne, Emily, et al. (eds.), Arctic Report Card 2018, NOAA (2018), https://www.arctic.noaa.gov/Report-Card/Report-Card-2018 at 2; *see also* Moon, T.A. et al. (eds), Arctic Report Card 2021, NOAA (2021), https://www.arctic.noaa.gov/Report-Card/Report-Card-2021.

[61] NCA4 Vol. I at 307.

[62] *Id.* at 307.

[63] Stern, Harry L. and Kristin L. Laidre, Sea-ice indicators of polar bear habitat, 10 The Cryosphere 2027 (2016).

[64] NCA4 Vol. I at 29, 303.

[65] National Oceanic and Atmospheric Administration (NOAA), Climate Change: Arctic Sea Ice Summer Minimum, Climate.gov, Sept. 8, 2020, https://www.climate.gov/news-features/understanding-climate/climate-change-minimum-arctic-sea-ice-extent.

> is expected to continue through the 21st century, *very likely* resulting in nearly sea ice-free late summers by the 2040s (*very high confidence*)."[66]

Rising temperatures are also causing Arctic permafrost to thaw at rapid rates, and coastal erosion is increasing as protective sea ice disappears and sea levels rise. According to the Fourth National Climate Assessment:

> Since the 1970s, Arctic and boreal regions in Alaska have experienced rapid rates of warming and thawing of permafrost, with spatial modeling projecting that near-surface permafrost will likely disappear on 16% to 24% of the landscape by the end of the 21st century.[67]
>
> With the late-summer sea ice edge located farther north than it used to be, storms produce larger waves and cause more coastal erosion. In addition, ice that does form is very thin and easily broken up, giving waves more access to the coastline. A significant increase in the number of coastal erosion events has been observed as the protective sea ice embankment is no longer present during the fall months.[68]

The Intergovernmental Panel on Climate Change (IPCC) similarly concluded in its *Climate Change 2021: The Physical Science Basis* report that: "[i]t is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred," and further that "[t]he scale of recent changes across the climate system as a whole and the present state of many aspects of the climate system are unprecedented over many centuries to many thousands of years."[69] With regard to the Arctic, the IPCC concluded that climate change is causing rapid sea ice loss, permafrost thawing, and loss of snow cover:

> In 2011–2020, annual average Arctic sea ice area reached its lowest level since at least 1850 (*high confidence*). [70]
>
> Late summer Arctic sea ice area was smaller than at any time in at least the past 1000 years (*medium confidence*).[71]

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[66] NCA4, Vol. I at 29, 303.
[67] NCA4 Vol. II at 1197.
[68] *Id*.
[69] Intergovernmental Panel on Climate Change (IPCC), Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (2021), https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/ at SPM-5 and SPM-9.
[70] *Id.* at SPM-9.
[71] *Id.* at SPM-9.

> It is *virtually certain* that the Arctic will continue to warm more than global surface temperature, with *high confidence* above two times the rate of global warming.[72]
>
> The Arctic is projected to experience the highest increase in the temperature of the coldest days, at about 3 times the rate of global warming (*high confidence*).[73]
>
> With additional global warming, the frequency of marine heatwaves will continue to increase (*high confidence*), particularly in the … Arctic *(medium confidence).*[74]
>
> Additional warming is projected to further amplify permafrost thawing, and loss of seasonal snow cover, of land ice and of Arctic sea ice (*high confidence*). [75]
>
> The Arctic is *likely* to be practically sea ice free in September at least once before 2050 under the five illustrative scenarios considered in this report, with more frequent occurrences for higher warming levels.[76]
>
> The Arctic is projected to be practically ice-free near mid-century under mid and high GHG emissions scenarios.[77]

Other scientific assessments have similarly documented the extreme impacts of Arctic climate change, including NOAA's Arctic Report Card[78] and the Arctic Monitoring and Assessment Programme's 2017 Snow, Water, Ice and Permafrost in the Arctic report.[79] The 2024 Arctic Report Card, for example, documents that Arctic surface air temperatures from October 2024 to September 2024 ranked the second warmest on record and that the last nine years are the nine warmest on record; that a heat-wave in August 2024 set all-time record daily temperatures in several northern Alaska communities; that September 2024 was the wettest on record; that all 18 of the lowest September minimum ice extents have occurred in the last 18 years; and that, when considering wildfire and permafrost thaw, Arctic tundra is now a carbon dioxide source rather than a sink, and continues to be a consistent source of methane emissions, among other alarming findings.[80] Other recent studies include the following:

> (1) Increased coastal erosion and storm surge: For Arctic Alaska, Fang et al. (2018) found that decreasing seasonal sea ice extent and a lengthening of the open-water season is

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[72] *Id.* at SPM-19.
[73] *Id.* at SPM-20.
[74] *Id*.
[75] *Id*.
[76] *Id*.
[77] *Id.* at SPM-30.
[78] Thoman, R.L. et al (eds). Arctic Report Card 2020, NOAA (2020), https://arctic.noaa.gov/report-card/report-card-2020.
[79] AMAP, Snow, Water, Ice and Permafrost in the Arctic (SWIPA) 2017, Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway. xiv + 269 pp (2017).
[80] Moon, T.A. et al (eds). Arctic Report Card 2024, NOAA (2024), https://arctic.noaa.gov/report-card/report-card-2024.

resulting in fall storms that generate more destructive waves and cause damage later in the year, resulting in increased flooding and erosion.[81]

(2) Permafrost thaw: McGuire et al. (2018) concluded that effective efforts through the remainder of this century to reduce greenhouse gas pollution would help prevent much of the loss of ecosystem carbon storage from permafrost loss, and "could attenuate the negative consequences of the permafrost carbon–climate feedback**.**"[82] Hjort et al. (2018) evaluated infrastructure hazard areas in the Northern Hemisphere's permafrost regions under projected climatic changes through 2050, and identified 550 km of the Trans-Alaska Pipeline System that are in the area in which near-surface permafrost thaw may occur by 2050.[83]

(3) Changes in snowpack: Cox et al. (2017) reported a trend toward earlier spring snowmelt and later onset of autumn snow accumulation in the North Slope.[84]

(4) Extreme weather events: Walsh et al. (2017) determined that the record-setting warmth during the 2015/16 cold season in Alaska — when statewide average temperatures exceeded the mean by more than 48°C over the 7-month cold season and by more than 68°C over the 4-month late-winter period — was driven in large part by anthropogenic climate change.[85] Lader et al. (2017) examined how climate change is expected to alter the frequencies and intensities of extreme temperature and precipitation events, concluding that "the shifts in temperature and precipitation indicate unprecedented heat and rainfall across Alaska during this century."[86] Pan et al (2018) projected that wet snow and rain-on-snow events will increase in frequency and extent in Alaska with climate warming.[87]

Importantly, the Fourth National Climate Assessment and numerous scientific studies make clear that the harms of climate change to the Arctic and other regions are long-lived, and the choices we make now to reduce greenhouse gas pollution will affect the severity of the climate change impacts that will be suffered in the future.[88] As summarized by the National Research Council,

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[81] Fang, Z. et al., Reduced sea ice protection period increases storm exposure in Kivalina, Alaska, 4 Arctic Science 525 (2018).
[82] McGuire, A.D. et al., Dependence of the evolution of carbon dynamics in the northern permafrost region on the trajectory of climate change, 115 PNAS 3882 (2018).
[83] Hjort, J. et al., Degrading permafrost puts Arctic infrastructure at risk by mid-century, 9 Nature Communications 5147 (2018).
[84] Cox, C.J. et al., Drivers and environmental responses to the changing annual snow cycle of northern Alaska, Bulletin of the American Meteorological Society 2559 (December 2017).
[85] Walsh, J.E. et al., The exceptionally warm winter of 2015/2016 in Alaska, 30 Journal of Climate 2069 (2017).
[86] Lader, R. et al., Projections of twenty-first-century climate extremes for Alaska via dynamical downscaling and quantile mapping, 56 Journal of Applied Meteorology and Climatology 2393 (2017).
[87] Pan, C.G. et al., Rain-on-snow events in Alaska, their frequency and distribution from satellite observations, 13 Environmental Research Letters 075004 (2018).
[88] NCA4 Vol. II, Overview at 4.

"emissions reduction choices made today matter in determining impacts experienced not just over the next few decades, but in the coming centuries and millennia."[89]

II. CD8 Will Affect Endangered and Threatened Species

If approved, CD8 and ancillary activities will affect Endangered Species Act (ESA)-listed species including polar bears, ice seals, and Steller's eiders. The proposed project includes the construction of gravel pads, new facilities, pipelines, power and fiber optic cables, ice roads and pads, gravel roads, waterbody crossings, and barging. The Corps must consider how CD8 will contribute to the harm these species are already suffering from climate change and other development within their range.

<u>Polar bears</u>
CD8 would be within polar bear critical habitat and would affect the Southern Beaufort Sea (SBS) population of polar bears. The loss of sea ice and the lack of adequate regulatory mechanisms addressing greenhouse gas pollution led the Fish and Wildlife Service to list the polar bear as a threatened species in 2008.[90] As a top Arctic predator, the polar bear relies on sea ice for all its essential activities, including hunting for prey, moving long distances, finding mates, and building dens to rear cubs.[91] Separately, the Fish and Wildlife Service designated critical habitat for the polar bear in 2010.[92]

Federal documents acknowledge that shrinkage and premature breakup of sea ice due to climate change is the primary threat to the species, leaving bears with vastly diminished hunting grounds, less time to hunt, and a shortage of sea ice for other essential activities such as finding mates and resting.[93] As summarized in the species' 2017 five-year review, sea ice loss and a shorter sea ice season makes hunting calorie-rich seals more difficult for polar bears, leading to nutritional stress, reduced body mass, and declines of some populations.[94] As the sea ice retreats, polar

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[89] National Research Council, Climate Stabilization Targets: Emissions, Concentrations, and Impacts over Decades to Millennia, Washington, DC: National Academies Press (2011) at 3.
[90] 73 Fed. Reg. 28212 at 28293: "On the basis of our thorough evaluation of the best available scientific and commercial information regarding present and future threats to the polar bear posed by the five listing factors under the Act, we have determined that the polar bear is threatened throughout its range by habitat loss (i.e., sea ice recession). We have determined that there are no known regulatory mechanisms in place at the national or international level that directly and effectively address the primary threat to polar bears—the rangewide loss of sea ice habitat."
[91] *Id.*
[92] U.S. Fish and Wildlife Service, Designation of Critical Habitat for the Polar Bear (Ursus maritimus) in the United States, 75 Fed. Reg. 76086 (Dec. 7, 2010).
[93] 73 Fed. Reg. 28212 at 28303; U.S. Fish and Wildlife Service, Polar bear (Ursus maritimus) Conservation Management Plan, Final. U.S. Fish and Wildlife Service, Region 7, Anchorage, Alaska (2016); U.S. Fish and Wildlife Service, Polar Bear (Ursus maritimus) 5-Year Review: Summary and Evaluation, U.S. Fish and Wildlife Service, Marine Mammals Management, Anchorage, Alaska (Feb. 3, 2017).
[94] Polar Bear 5-Year Review 2017 at 16.

bears have been forced to swim longer distances,[95] which is more energetically costly,[96] and they are spending more time on land where they have reduced access to food.[97] Females are denning more often on land than on ice, increasing the potential for conflicts with humans.[98] Because polar bears have high metabolic rates, increases in movement resulting from loss and fragmentation of sea ice result in higher energy costs and are likely to lead to reduced body condition, recruitment and survival.[99]

SBS polar bears declined by 40 percent over a recent 10-year period,[100] and this decrease has been attributed to sea ice loss that limited access to prey over multiple years.[101] For the bears in this population, research has linked sea ice loss to decreases in survival, lower success in rearing cubs, shrinking body size, and increases in fasting and nutritional stress.[102]

A recent study of polar bear population dynamics in Alaska's SBS from 2001 to 2016 concluded that SBS polar bear carrying capacity has been eroding for nearly two decades and that the SBS population has been in general decline. Specifically, the study estimated that SBS polar bear abundance fluctuated around an average of 565 bears (95% Bayesian credible interval [340,

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[95] Durner, George M. et al., Consequences of long-distance swimming and travel over deep-water pack ice for a female polar bear during a year of extreme sea ice retreat, 34 Polar Biology 975 (2011); Pagano, Anthony M. et al., Long-distance swimming by polar bears (Ursus maritimus) of the southern Beaufort Sea during years of extensive open water, 90 Canadian Journal of Zoology 663 (2012); Pilfold, Nicholas W. et al., Migratory response of polar bears to sea ice loss: to swim or not to swim, 40 Ecography 189 (2017); Durner, George M. et al., Increased Arctic Sea Ice Drift Alters Adult Female Polar Bear Movements and Energetics, 23 Global Change Biology 3460 (2017).
[96] Griffen, Blaine D., Modeling the metabolic costs of swimming in polar bears (Ursus maritimus), 41 Polar Biology 491 (2018).
[97] Cherry, Seth G. et al., Fasting physiology of polar bears in relation to environmental change and breeding behavior in the Beaufort Sea, 32 Polar Biology 383 (2009); Whiteman, John P. et al., Summer declines in activity and body temperature offer polar bears limited energy savings, 349 Science 295 (2015).
[98] Olson, J.W. et al., Collar temperature sensor data reveal long-term patterns in southern Beaufort Sea polar bear den distribution on pack ice and land, 564 Marine Ecology Progress Series 211 (2017); Polar Bear 5-Year Review 2017 at 20-21.
[99] Polar Bear 5-Year Review 2017 at 17; Pagano, Anthony M. et al., High-energy, high-fat lifestyle challenges an Arctic apex predator, the polar bear, 359 Science 568 (2018).
[100] Bromaghin, Jeffrey F. et al., Polar Bear Population Dynamics in the Southern Beaufort Sea during a Period of Sea Ice Decline, 25 Ecological Applications 634 (2015).
[101] Obbard, Martyn E. et al., eds, Polar Bears: Proceedings of the 15th Working Meeting of the IUCN/SSC Polar Bear Specialist Group, Copenhagen, Denmark, 29 June–3 July 2009 (2010) at 52 ("Thus, the SB subpopulation is currently considered to be declining due to sea ice loss"); Bromaghin 2015.
[102] Regehr, Eric V. et al., Survival and breeding of polar bears in the southern Beaufort Sea in relation to sea ice, 79 Journal of Animal Ecology 117 (2010); Bromaghin 2015; Rode, Karyn D. et al., Reduced body size and cub recruitment in polar bears associated with sea ice decline, 20 Ecological Applications 768 (2010); Cherry 2009; Whiteman 2015; Atwood, Todd C. et al., Long-term variation in polar bear body condition and maternal investment relative to a changing environment, 32 Global Ecology and Conservation e01925 (2021); Whiteman, John P. et al, Phenotypic plasticity and climate change: can polar bears respond to longer Arctic summers with an adaptive fast? 186 Oecologia 369 (2018); Pagano, A.M. et al., High-energy, high-fat lifestyle challenges an Arctic apex predator, the polar bear, 359 Science 568 (2018); Pagano, Anthony M. et al., The seasonal energetic landscape of an apex marine carnivore, the polar bear, 10 Ecology e02959 (2020); Pagano, Anthony M. et al., Effects of sea ice decline and summer land use on polar bear home range size in the Beaufort Sea, 12 Ecosphere e03768 (2021); Pagano, A.M. et al., Polar bear energetic and behavioral strategies on land with implications for surviving the ice-free period, 15 Nature Communications 947 (2024); Stroeve, J., et al., Ice-free period too long for Southern and Western Hudson Bay polar bear populations if global warming exceeds 1.6 to 2.6 °C, 5 Communications Earth & Environment 296 (2024).

920]) from 2006 to 2015, which is lower than at any time since passage of the U.S. Marine Mammal Protection Act. The study reported that abundance moved in concert with survival throughout the study period, declining substantially from 2003 and 2006 and afterward fluctuating with lower variation. Importantly, the study concluded that "[t]he potential for recovery is likely limited by the degree of habitat degradation the subpopulation has experienced, and future reductions in carrying capacity are expected given current projections for continued climate warming."[103] The recent August 2023 Species Status Assessment for the Polar Bear prepared by U.S. Fish and Wildlife Service stated that projections for polar bears in Alaska's SBS and Chukchi/Bering Seas (CBS) subpopulations, "were the most pessimistic with populations being greatly decreased for all [Representative [GHG] Concentration Pathways] in all future time periods," including the short term (2020–2030).[104]

The loss of sea ice also jeopardizes the polar bear's sea-ice dependent prey species — the ringed seal and bearded seal — which were listed as threatened in 2012 due to sea ice loss from climate change.[105]

If current greenhouse gas emissions trends continue, scientists estimate that two-thirds of global polar bear populations will be lost by 2050, including the loss of both of Alaska's polar bear populations, while the remaining third will near extinction by the end of the century due to the disappearance of sea ice.[106] However, aggressive emissions reductions will allow substantially more sea ice to persist and increase the chances that polar bears will survive in Alaska and across their range.[107]

CD8 will both increase the greenhouse gases causing polar bears' decline and increase industrial stressors in their range. The Corps must account for these impacts.

Ice Seals

CD8-related barging may affect ringed and bearded seals, which are listed as threatened under the ESA. As mentioned above, climate change is harming, and will continue to harm, ice seals, including ringed and bearded seals. Ringed seals are the most ice-dependent of all ice seals and depend on sea ice and snow cover for essential life functions.[108] Unlike other seals, the ringed

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[103] Bromaghin, J.F, et al., Survival and abundance of polar bears in Alaska's Beaufort Sea, 2001-2016, 11 Ecology and Evolution 14250 (2021).
[104] U.S. Fish and Wildlife Service, Species Status Assessment for the Polar Bear (*Ursus maritimus*) 86 (Aug. 18, 2023).
[105] National Marine Fisheries Service, Threatened Status for the Arctic, Okhotsk, and Baltic Subspecies of the Ringed Seal and Endangered Status for the Ladoga Subspecies of the Ringed Seal, 77 Fed. Reg. 76706 (Dec. 28, 2012); National Marine Fisheries Service, Threatened Status for the Beringia and Okhotsk Distinct Population Segments of the *Erignathus barbatus nauticus* Subspecies of the Bearded Seal, 77 Fed. Reg. 76,740 (Dec. 28, 2012).
[106] Amstrup, Steven C. et al., Forecasting the Range-wide Status of Polar Bears at Selected Times in the 21st Century, U.S. Department of the Interior and U.S. Geological Survey, USGS Science Strategy to Support U.S. Fish and Wildlife Service Polar Bear Listing Decision, Reston, Virginia (2007); Amstrup, Steven C. et al., Greenhouse Gas Mitigation Can Reduce Sea Ice Loss and Increase Polar Bear Persistence, 468 Nature 955 (2010).
[107] Amstrup 2010; Atwood, Todd C. et al., Forecasting the Relative Influence of Environmental and Anthropogenic Stressors on Polar Bears, 7 Ecosphere e01370 (2016); Regehr, Eric V. et al., Conservation status of polar bears (Ursus martimus) in relation to projected sea-ice declines, 12 Biology Letters 20160556 (2016).
[108] 77 Fed. Reg. 76706 (Dec. 28, 2012).

seal is able to inhabit and reproduce in landfast ice during the winter and spring breeding season due to its ability to make and maintain breathing holes in thick ice and to excavate subnivian lairs in snowdrifts over breathing holes, which it uses for resting, giving birth, and nursing pups.[109] Without sufficient sea ice and snow cover, ringed seals freeze to death or are eaten by predators.[110] Studies have documented a nearly 100 percent mortality rate when snow cover was insufficient to build snow caves.[111]

Snow drifts of 45 cm or more are needed for excavation and maintenance of simple lairs, and birth lairs require depths of 50 to 65 cm or more.[112] Such drifts typically only occur where average snow depths are at least 20-30 cm on flat ice and where drifting has taken place along pressure ridges or ice hummocks; areas with less than 20 cm average snow depth in April are inadequate for the formation of ringed seal birth lairs.[113] Sea ice is essential to the formation of snow caves. The loss of sea ice as a platform to collect snow substantially reduces the amount of snow that can accumulate.[114] In addition to being necessary for the accumulation of snow, sea ice serves other important life functions — Arctic ringed seals typically do not come ashore and use sea ice for resting throughout the year, and for pupping, and molting.[115] Earlier sea ice breakup causes premature weaning of pups before they are fully developed, leading to lower pup body condition and high pup mortality, and is associated with lower pregnancy rates.[116] As such, scientists have concluded that depth of snow cover and timing of ice break-up are "the key factors" affecting reproduction and population trajectories of ringed seals.[117]

The best available science shows that the accumulation of snow on Arctic sea ice is expected to decrease by nearly 50 percent within this century, with more than half of that decline occurring before mid-century.[118] By 2100 average snow depths will fail to meet the 20-30 cm minimum needed for successful formation and maintenance of Artic ringed seals' birth lairs in a substantial portion of the subspecies' range.[119] The National Marine Fisheries Service has concluded that this will cause a precipitous decline in the Arctic ringed seal population and to such an extent that the species will no longer exist in substantial portions of its range within the foreseeable future. Accordingly, it listed the species as threatened in 2012.[120]

CD8 will both increase the greenhouse gases causing ice seals' decline and increase industrial stressors in their range. The Corps must account for these impacts.

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[109] *Id.* at 76709.
[110] *Id.*
[111] *Id.*
[112] *Id.* at 76710.
[113] *Id.*
[114] *Id.* at 76721; B.P. Kelly, et al. 2010. Status review of the ringed seal (*Phoca hispida*). NOAA Technical Memorandum NMFS-AFSC-212.
[115] *Id.*
[116] Kelly et al. 2010.
[117] *Id.*
[118] *Id.*
[119] *Id.*
[120] 77 Fed. Reg. at 76706.

Steller's eiders

Steller's eiders are listed as threatened under the ESA. Although Steller's eiders exhibit a patchy distribution, they have been documented around the project area. The 2019 status review for Steller's eiders concluded that "the number of Steller's eiders present on the Arctic Coastal Plain annually is low and highly variable."[121] The agency predicted that current stressors of the population "will continue, and possibly increase."[122] It noted that the threats likely to impact this listed species were "increase[d] oil and gas development (both tundra and offshore), and "increased marine shipping activities," each of which will cause habitat loss, disturbance, collisions, and spill risks.[123] The authors found climate change was also a significant factor. CD8 will both increase the greenhouse gases contributing to Steller's eiders' decline and increase industrial stressors in their range. The Corps must account for these impacts.

III. Conclusion

For the reasons stated above, we oppose the proposed CD8 oil development in the Colville River Delta. If the Corps moves forward with considering this development, it must consider impacts to the climate and endangered and threatened species, as well as those impacts outlined in the GGG letter incorporated here by reference.

Sincerely,

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[121] U.S. Fish and Wildlife Service. 2019. 5-year status review of the Alaska-breeding population of Steller's eiders. Fairbanks Fish and Wildlife Field Office, Fairbanks, Alaska at 5.
[122] *Id.* at 7.
[123] *Id.*