Closing the Ocean Fracking Gap: EPA Leadership Is Needed to Regulate Aging Rigs and Evolving Risks Offshore

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> "[A] volatile creature with good days and bad. Her moods swing, her pressures shift and her lifeblood flows from black pools two miles below the sea floor."[1]

> "The American administration is more like an ecosystem, in which the President may change the habitat but does not control the organisms within it."[2]

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1. David Kelly, *Oil Rig, 9 Miles Offshore, Is Home and Work Above the Sea*, L.A. TIMES (May 27, 2001), https://www.latimes.com/archives/la-xpm-2001-may-27-me-3292-story.html (describing platform Gail on the Pacific OCS off the coast of Southern California).

2. Keith Bradley, *The Design of Agency Interactions*, 111 COLUM. L. REV. 745, 747 (2011).

INTRODUCTION

The oil platform "Gail" was installed off the coast of California more than thirty years ago.[3] It is a large and sophisticated operation supported by a towering steel structure anchored to the sea floor more than two hundred meters below.[4] This structure attracts its own community of sea life.[5] Juvenile rockfish take refuge among midwater crossbeams that serve as a vital nursery habitat.[6] A colorful mosaic of hot pink strawberry anemones, cold-water corals, mussels, and scallops hide the steel.[7] The structure also attracts migratory fish and sharks,[8] while sea lions use it as a playground.[9] Whale-watching boats pass Gail in search of grey whale babies on their first migration and orcas on the hunt in the adjacent Channel Islands National Marine Sanctuary.[10] Gail's complex machinery, flashing lights, and flares are impressive, but unseen below the surface, toxic pollution is discharged into these biologically rich ocean waters.

3. *See* Milton S. Love et al., *The Role of Jacket Complexity in Structuring Fish Assemblages in the Midwaters of Two California Oil and Gas Platforms*, 95 BULLETIN OF MARINE SCIENCE 597, 598–99 (2019).

4. *Id.*

5. *Id.*; *see also* Deborah Netburn & Sean Greene, *Millions of sea creatures lived on the Elly platform off the California Coast. Will they survive the oil spill?*, PHYS.ORG (Oct. 11, 2021), https://phys.org/news/2021-10-millions-sea-creatures-elly-platform.html.

6. Love et al., *supra* note 3, at 598.

7. Netburn & Greene, *supra* note 5.

8. *See* Derke J. G. Snodgrass et al., *Potential Impacts of Oil Production Platforms and their Function as Fish Aggregating Devices on the Biology of Highly Migratory Fish Species*, 30 REVS. IN FISH BIOLOGY & FISHERIES 405 (2020), https://link.springer.com/article/10.1007/s11160-020-09605-z.

9. Netburn & Greene, *supra* note 5.

10. *See* Kelly *supra* note 1; BRIAN P. SEGEE & ELISE O'DEA, ENVIRONMENTAL DEFENSE CENTER, DIRTY WATER: FRACKING OFFSHORE CALIFORNIA 22 (2015), https://www.environmentaldefensecenter.org/wp-content/uploads/2015/03/DirtyWater.pdf.

Oil platforms famously fail.[11] A catastrophic spill in Santa Barbara in 1969 inspired the first Earth Day.[12] More recent spills in California, as well as the 2010 Deepwater Horizon disaster in the Gulf of Mexico, loom large in the public memory.[13] But between large accidents, standard operations produce more continuous and invisible pollution, including the discharge of toxic fluids used in and created by oil production.[14] In both cases, the age of a platform exacerbates the environmental risk.[15] Not only is older infrastructure more likely to fail, but operators employ riskier and more polluting practices on old wells where production has slowed.[16]

In 2011, journalists and environmental advocates discovered that one such practice, hydraulic fracturing, or fracking, was being used on aging platforms in California, including Gail.[17] Unlike the onshore fracking boom that has produced a glut of natural gas with novel horizontal drilling methods, offshore fracking is typically used as a well-stimulation treatment on existing wells to enhance production and extend the production lifespan.[18] Chemical-laden fluids are injected at high pressure into the oil well, cracking up the reservoir in the hopes of releasing additional oil and gas.[19] The fracking fluids then come back up to the platform from the well, along with other sea water, and are released into the ocean.[20] Freedom of Information Act (FOIA) requests to the Bureau of Safety

11. On average, there was close to one large oil spill (>10,000 barrels) every year between 1969 and 2017, as well as thousands of smaller spills. *Largest Oil Spills Affecting U.S. Waters Since 1969*, NOAA: OFFICE OF RESPONSE & RESTORATION (Apr. 5, 2017), https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/largest-oil-spills-affecting-us-waters-1969.html.

12. Soumya Karlamangla, *How a California Disaster Inspired the First Earth Day*, N.Y. TIMES (Apr. 22, 2022), https://www.nytimes.com/2022/04/22/us/earth-day-1969-oil-spill.html; *see* SEGEE & O'DEA, *supra* note 10, at 4–5, 11.

13. *See generally* Julie Cart & Rachel Becker, *The Latest Massive California Oil Spill: What You Need to Know*, KQED (Oct. 5, 2021), https://www.kqed.org/news/11891079/the-latest-massive-california-oil-spill-what-you-need-to-know; Lisa Friedman, *Ten Years After Deepwater Horizon, U.S. Is Still Vulnerable to Catastrophic Spill*, N.Y. TIMES (Apr. 19, 2020), https://www.nytimes.com/2020/04/19/climate/deepwater-horizon-anniversary.html.

14. *See generally* SEGEE & O'DEA, *supra* note 10.

15. *See generally* GERHARD ERSDAL ET AL., AGEING AND LIFE EXTENSION OF OFFSHORE STRUCTURES: THE CHALLENGE OF MANAGING STRUCTURAL INTEGRITY (2019).

16. *See* BUREAU OF SAFETY & ENV'T ENF'T & BUREAU OF OCEAN ENERGY MGMT., PROGRAMMATIC ENVIRONMENTAL ASSESSMENT OF THE USE OF WELL STIMULATION TREATMENTS ON THE SOUTHERN CALIFORNIA OUTER CONTINENTAL SHELF 1–4 (Feb. 2016), https://www.bsee.gov/sites/bsee.gov/files/bsee_boem_combined_wst_pea_and_memo.pdf (explaining that fracking is used when "recovery has begun to decline").

17. Mike Ludwig, *Special Investigation: Fracking in the Ocean Off the California Coast*, TRUTHOUT (July 25, 2013), https://truthout.org/articles/special-investigation-fracking-in-the-ocean-off-the-california-coast/.

18. *Id.*

19. JANE C. S. LONG ET AL., AN INDEPENDENT SCIENTIFIC ASSESSMENT OF WELL STIMULATION IN CALIFORNIA, CALIFORNIA COUNCIL ON SCIENCE AND TECHNOLOGY & LAWRENCE BERKELEY NATIONAL LABORATORY 29–30 (2015), https://ccst.us/wp-content/uploads/160708-sb4-vol-I.pdf.

20. *Id.* at 5, 42, 50. The chemical constituents of this fracking flowback—the fluid returning to the surface—may be different from what was injected due to chemical reactions taking place upon injection and the release of other materials from the reservoir.

and Environmental Enforcement (BSEE) produced documents showing that the agency had approved more than two hundred instances of fracking at six offshore sites in Southern California.[21]

This practice is not unique to California. In addition to the Pacific, oil development takes place in the Gulf of Mexico and Alaska regions. Further FOIA requests revealed that fracking occurred more than three thousand times in the Gulf of Mexico between 2010 and 2020, releasing "at least" 66.3 million gallons of toxic fracking fluids into the Gulf.[22] In the Alaska region, fracking has been performed in both Cook Inlet and the Beaufort Sea in the Arctic.[23]

While these FOIA requests produced documents from individual BSEE approvals of applications to frack, they also uncovered emails that demonstrated a lack of institutional awareness that the practice was being deployed.[24] Pacific Region staff admitted that there was no comprehensive recordkeeping of permitted well-stimulation activities.[25] Outside of those directly involved with a given approval, there was no internal reporting or evaluation. Nor was there reporting or coordination with the Environmental Protection Agency (EPA), their partner agency in water quality protection.[26] Despite industry experts and BSEE staff understanding that environmental risks are elevated when fracking is performed,[27] analysis of those risks in the permitting process was notably and unlawfully absent.[28]

This Note explores how fracking has slipped through the cracks in a closely regulated industry. It describes the regulatory landscape with a special focus on two agencies with authority to prohibit water pollution: BSEE and the EPA. BSEE has offshore permitting authority, focused on safety and environmental

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21. Associated Press, *Calif. sees more fracking in offshore oil drilling than state officials believed, records show*, WASH. POST (Oct. 19, 2013, 6:16 PM), https://www.washingtonpost.com/national/health-science/calif-sees-more-fracking-in-offshore-oil-drilling-than-state-officials-believed-records-show/2013/10/19/1d72cf50-38fb-11e3-8a0e-4e2cf80831fc_story.html.

22. *See* CTR. FOR BIOLOGICAL DIVERSITY, TOXIC WATERS: HOW OFFSHORE FRACKING POLLUTES THE GULF OF MEXICO 1 (2021), https://www.biologicaldiversity.org/campaigns/fracking/pdfs/Toxic-Waters-offshore-fracking-report-Center-for-Biological-Diversity.pdf.

23. *See* Letter from Kristen Monsell, Staff Att'y, Ctr. for Biological Diversity, to Jolie Harrison, Chief, Permits and Conservation Div., Off. of Protected Res., and Mandy Migura, Cook Inlet Beluga Recovery Coordinator, Off. of Protected Res., (June 22, 2016), https://www.biologicaldiversity.org/campaigns/offshore_fracking/pdfs/Letter_to_NMFS-Offshore_Fracking_and_Cook_Inlet_Belugas6-22-16.pdf_.

24. *See* Ludwig, *supra* note 17.

25. *See* Associated Press, *supra* note 21.

26. *See* EPA & U.S. DEP'T OF THE INTERIOR, MEMORANDUM OF UNDERSTANDING BETWEEN THE U.S. ENV'T PROT. AGENCY AND THE U.S. DEP'T OF THE INTERIOR (2021), https://www.bsee.gov/sites/bsee.gov/files/doi-epa-npdes-mou-signed-and-ocrd.pdf [hereinafter BSEE EPA 2021 MOU].

27. *See* PAUL SONNIER, CSI TECHNOLOGIES, FINAL REPORT: WELL STIMULATION EFFECTS ON ANNULAR SEAL OF PRODUCTION CASING IN OCS OIL & GAS OPERATIONS 15 (2015), https://www.bsee.gov/sites/bsee.gov/files/tap-technical-assessment-program//728aa.pdf.

28. *See* Env't Def. Ctr. v. Bureau of Ocean Mgmt., 36 F.4th 850, 882 (9th Cir. 2022) (holding that BOEM and BSEE must complete a comprehensive Environmental Impact Statement under NEPA before permitting risky and unstudied well stimulation techniques like fracking).

oversight.[29] The EPA's Clean Water Act authority, in contrast, is just one slice of a broader environmental protection mission.[30] That clean water mandate is also spread across inland waters in addition to oceans, regulating countless industries and diverse municipal dischargers.[31] This mismatch in agency mission and jurisdictional scale, one more narrow and one very broad, has left a gap between BSEE and the EPA in their offshore oil and gas regulation.

Examining the root of the problem, this Note outlines how we might design an administrative apparatus to address emerging environmental harms in the context of aging oil and gas infrastructure. Part I sets the scene in the marine ecosystems of Southern California and the oil and gas industry operating there. Part II provides an overview of the regulatory status quo under BSEE and the EPA. Part III characterizes the inaction by regulators due to jurisdictional overlap and describes why additional National Environmental Policy Act (NEPA) review is not a complete solution to bridge the regulatory gap. Part IV details the strengths of the EPA to fill this gap with a dynamic regulatory program and provides recommendations for how the EPA can lead in this regulatory space while working closely with BSEE to leverage its complementary expertise.

It is critically important to uncover agency design strategies that will more effectively regulate offshore fracking and other novel and risky practices, as their use is swiftly on the rise.[32] The cumulative impacts of thousands of toxic discharges on an ecosystem, compounded by other sources of pollution and separate types of influences, can be prevented. Understanding how agencies must evolve to meet novel regulatory challenges is broadly relevant in our changing world. It can also inform how expertise from across the federal family is leveraged in complex decision making most effectively.

I. A PACIFIC SUNSET FOR OIL & GAS

The United States exploits oil and gas resources below the sea floor in three regions—the Pacific, Gulf of Mexico, and Alaska.[33] Offshore projects comprise 15 percent of total U.S. oil production and 2 percent of gas production, with the

29. *About BSEE*, BUREAU OF SAFETY & ENV'T ENF'T, https://www.bsee.gov/about-bsee (last visited Aug. 29, 2023).

30. *See Our Mission and What We Do*, EPA, https://www.epa.gov/aboutepa/our-mission-and-what-we-do (last visited Sept. 2, 2023).

31. *See Summary of the Clean Water Act*, EPA, https://www.epa.gov/laws-regulations/summary-clean-water-act (last visited Sept. 2, 2023)

32. *See* CTR. FOR BIOLOGICAL DIVERSITY, *supra* note 22, at 1; *see, e.g.*, Offshore Energy Today, *Aker BP Boasts New Well Stimulation Methods Offshore*, OFFSHORE ENERGY (Dec. 10, 2019), https://www.offshore-energy.biz/aker-bp-boasts-new-well-stimulation-method-offshore/.

33. *See generally* BUREAU OF OCEAN ENERGY MGMT., 2023–2028 NATIONAL OUTER CONTINENTAL SHELF OIL AND GAS LEASING PROGRAM: DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (2022), https://www.boem.gov/sites/default/files/documents/oil-gas-energy/national-program/2023-2028-NationalOCSOilGasLeasingDraftPEISVol1.pdf.

overwhelming majority in both cases coming from the Gulf of Mexico.[34] Just twenty-three platforms operate in the Pacific Outer Continental Shelf (OCS), all in Southern California.[35] And they are all old, each standing for at least thirty years since installation.[36] As infrastructure ages and production slows, the region faces the existential threat of decommissioning. In this Part, I describe the environmental setting of the Pacific OCS, the industry context in which fracking is deployed, and how environmental advocates and the State of California have won a fracking moratorium with recent litigation.

A. Southern California's Offshore Environment

From the border with Oregon, the California coast heads straight south until Point Conception, where it takes a dramatic curve inward at what is called the Southern California Bight.[37] The cold waters of the California current keep washing straight past the Bight, which is instead filled with warmer waters coming up from San Diego.[38] The Channel Islands create an outer edge of this warm basin.[39] This boundary between warm and cold waters attracts an assemblage of sea life found nowhere else.[40] For this reason, the archipelago has earned the nickname North America's Galapagos.[41]

Several protected marine mammals are present in the area throughout the year. Grey whales migrate during the spring and fall on their journey between Arctic feeding grounds and winter nurseries in Baja, Mexico.[42] Blue whales, the largest mammal ever to have lived on the planet, can be seen aggregating in the summers enjoying the rich feeding grounds.[43] These ocean giants depend on

34. *Oil & Gas Energy*, BUREAU OF OCEAN ENERGY MGMT., https://www.boem.gov/oil-and-gas-energy (last visited Sept. 2, 2023); *see also Outer Continental Shelf Oil and Gas Production*, BUREAU OF SAFETY & ENV'T ENF'T, https://www.data.bsee.gov/Production/OCSProduction/Default.aspx (last updated Aug. 14, 2023 2:37 PM).

35. BUREAU OF SAFETY & ENV'T ENF'T & BUREAU OF OCEAN ENERGY MGMT., *supra* note 16, at 1-1.

36. A new platform has not been installed since 1989. *Id.*

37. Kenneth Schiff et al., *Southern California Bight regional monitoring*, 4 REGIONAL STUDIES IN MARINE SCIENCE 34, 34–35 (2016), https://www.sciencedirect.com/science/article/pii/S2352485515000535.

38. *Southern California Bight Oceanography: Circulation*, CAL. STATE UNIV. LONG BEACH, https://www.csulb.edu/geological-sciences/southern-california-bight-oceanography/circulation (last visited Sept. 2, 2023).

39. *See id.*

40. *See Southern California Bight Oceanography: Biology*, CAL. STATE UNIV. LONG BEACH, https://www.csulb.edu/geological-sciences/southern-california-bight-oceanography/biology (last visited Sept. 2, 2023).

41. *See* Corinne Heyning Laverty, *North America's Galapagos*, THE UNIV. OF UTAH PRESS, https://uofupress.lib.utah.edu/north-americas-galapagos/ (last visited Sept. 2, 2023).

42. *See Gray Whale*, NAT'L PARK SERV.: CHANNEL ISLANDS, https://www.nps.gov/chis/learn/nature/gray-whale.htm (last visited Sept. 2, 2023).

43. *Blue Whale*, NAT'L PARK SERV.: CHANNEL ISLANDS, https://www.nps.gov/chis/learn/nature/blue-whale.htm (last visited Sept. 2, 2023).

complex ocean food webs and clean coastal habitats to refuel for the rest of the year.[44]

Many marine organisms rely on rocky reefs with some hard surface for them to attach to, but the sea floor in Southern California is primarily sandy bottom.[45] As a result, there is tough competition for space when hard surfaces present themselves, even steel ones.[46] The underwater structures supporting oil platforms in the area provide habitat for juvenile fish that take refuge in the complex reef of invertebrate life that colonizes the infrastructure.[47]

Teeming with life, the region has attracted special protection. The Channel Islands are a National Park, which includes underwater areas one mile from the shore.[48] The Channel Islands National Marine Sanctuary protects additional ocean areas around the islands.[49] Several state-run marine protected areas throughout Southern California complement these federally protected areas.[50] These areas provide a refuge where ecosystems can flourish with more limited impact from human activities.

Humans are indeed active in this area—more than twenty million people live within an hour of the coast.[51] The Pacific is the first home of the Chumash people, indigenous to the region, who practice a maritime culture and have stewarded coastal ecosystems since time immemorial.[52] In addition, the region experiences heavy marine traffic coming and going from the largest port on the west coast.[53] There are also extensive areas set aside for military activities, including missile testing over the ocean.[54] And the ecosystems support commercial and recreational fishing.[55] Taken together, the ocean in Southern

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44. *See id.*

45. *See California State Waters Map Series — Offshore of Gaviota, California*, UNITED STATES GEOLOGICAL SURV. (Apr. 20, 2018), https://www.usgs.gov/publications/california-state-waters-map-series-offshore-gaviota-california.

46. Netburn & Greene, *supra* note 5.

47. Love et al., *supra* note 3, at 598.

48. *See* Shawnté Salabert, *The Ultimate Channel Islands National Park Travel Guide*, OUTSIDE MAG. (June 23, 2021), https://www.outsideonline.com/adventure-travel/national-parks/ultimate-channel-islands-national-park-travel-guide/.

49. *Channel Islands National Marine Sanctuary*, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, https://channelislands.noaa.gov/ (last visited Sept. 2, 2023).

50. *See California Marine Protected Areas (MPAs)*, CAL. DEP'T OF FISH AND WILDLIFE, https://wildlife.ca.gov/Conservation/Marine/MPAs/Network/Southern-California (last visited Sept. 2, 2023).

51. Schiff, *supra* note 37, at 35.

52. *Our History*, SANTA YNEZ BAND OF CHUMASH INDIANS, https*://www.santaynezchumash.org/chumash-history* (last visited Sept. 6, 2023).

53. *See* Schiff, *supra* note 37, at 35.

54. *See* U.S. DEP'T OF NAVY, SOUTHERN CAL. RANGE COMPLEX COASTAL CONSISTENCY DETERMINATION 1-12–1-13 (2008), https://documents.coastal.ca.gov/reports/2008/10/W8b-10-2008-a3.pdf.

55. Alec D. MacCall et al., *Southern California Recreational and Commercial Marine Fisheries*, 38 MARINE FISHERIES REV. 1, 1 (1976), https://spo.nmfs.noaa.gov/sites/default/files/pdf-content/MFR/mfr381/mfr3811.pdf.

California is a busy but biologically productive home to a wealth of biodiversity. Aging oil platforms stand at the center of this seascape.

B. The Aging Oil & Gas Industry

An oil platform enters the life extension phase once it has outlived its original design life, typically twenty to thirty years.[56] The original design life is the "assumed period for which a structure is to be used for its intended purpose with anticipated maintenance but without substantial repair being necessary."[57] All the platforms off the coast of Southern California, each of which has been standing for more than thirty years, are in the life extension phase.[58]

We know that infrastructure remaining in place for more than thirty years increases the risk of failure, not only due to deterioration but also because design standards become outdated.[59] This bears out in the comprehensive data on pipeline failures.[60] Throughout the United States, oil and gas operations depend on old, corroding pipelines to transport product.[61] Offshore, we know many of these pipelines are between forty and sixty years old.[62] Federal regulators have shown that failures resulting in spills become increasingly probable with age.[63] In addition to structural deterioration when surpassing thirty years since installation, an oil platform is markedly more likely to fail due to outdated design.[64] With wave heights reaching far higher than engineers anticipated thirty or forty years prior, structures built decades ago may not be able to withstand today's storms.[65]

Notwithstanding the increased environmental risk, life extension is attractive for operators to avoid decommissioning. Unlike in the Gulf of Mexico and Alaska where there has been more recent development, all the rigs in the Pacific are in this life extension phase.[66] With no sign that new development could become politically feasible in the future, the resources of the Pacific OCS

56. ERSDAL ET AL., *supra* note 15, at 15–16.

57. *Id.* at 7–8

58. Note that they have also outlasted the expected lifetime analyzed in an EIS before installation. *See, e.g.*, Miyoko Sakashita, *Corrosion, Methane Flares, Toxic Discharges*, MEDIUM (Oct. 30, 2018), https://medium.com/center-for-biological-diversity/corrosion-methane-flares-toxic-discharges-touring-californias-aging-offshore-oil-platforms-5b951802ff79 (describing a visit to platform Gilda, installed in 1978 under an EIS that cited a 20-year lifespan).

59. *See* ERSDAL ET AL., *supra* note 15, at 12.

60. RICHARD STOVER, REVIEW OF THE U.S. DEPARTMENT OF TRANSPORTATION REPORT: THE STATE OF THE NATIONAL PIPELINE INFRASTRUCTURE 5–6 (2013), http://www.icogitate.com/~oildrop/PHMSA_report_analysis.pdf.

61. *See id.*

62. *Frequently Asked Questions: Offshore Oil Pipelines*, CTR. FOR BIOLOGICAL DIVERSITY, https://www.biologicaldiversity.org/campaigns/Refugio_oil_spill/faq.html (last visited Sept. 4, 2023).

63. STOVER, *supra* note 60, at 5.

64. ERSDAL ET AL., *supra* note 15, at 12.

65. *Id.* at 10–13 (describing the incidents of structural failures in the Gulf of Mexico region due to hurricanes).

66. *See supra* note 36.

will be closed to development forever if the existing rigs are shut down. This puts additional pressure on the industry to maintain and enhance production on the existing aging infrastructure.[67]

Decommissioning is the "abandonment and making safe of oil and gas fields, installations, and pipelines," a "set of activities to manage and dispose of installations and platforms and to eliminate the environmental footprint" at the end of a field's producing life.[68] Regulatory requirements include plugging all wells and severing well casings, removing pipelines and platforms from their foundations, removing any other obstruction along the seafloor, and then disposing of platforms in scrap yards or at artificial reef sites.[69] It may also include the removal and disposal of onshore support infrastructure.[70] However, options may range from complete removal to partial removal for use as an artificial reef habitat or other industrial reuse.[71] Any form of decommissioning is costly, providing another incentive to pursue life extension when possible.[72]

Under U.S. law, lessees face decommissioning either within one year after a lease terminates or when the installation is "no longer useful for operation."[73] A platform is "no longer useful for operations" when it has been toppled by a

67. Notably, there are billions of barrels of oil reserves remaining off the California coast, so this has major economic implications for industry, as well as consequences for the climate. *See* LONG ET AL., *supra* note 19, at vi.

68. Ben Holland & Michael Davar, *Decommissioning: Scope for Dispute*, *in* THE REGULATION OF DECOMMISSIONING, ABANDONMENT AND REUSE INITIATIVES IN THE OIL & GAS INDUSTRY 230 (2020). International law requires decommissioning of "disused offshore installations and structures" under the United Nations Convention on the Law of the Sea to which the United States is not a party but adopts some norms. However, it is also required under the International Maritime Organization 1989 Guidelines, which the United States has adopted. *Id.* at 233; *see also Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone*, INTERNATIONAL MARITIME ORGANIZATION (1989), https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.672(16).pdf

69. U.S. DEP'T OF THE INTERIOR, BUREAU OF SAFETY AND ENV'T ENF'T, NOTICE TO LESSEES AND OPERATIONS OF FEDERAL OIL AND GAS LEASES IN THE PACIFIC OUTER CONTINENTAL SHELF REGION, NTL NO. 2020-P02, 1–2 (Aug. 21, 2020), https://www.bsee.gov/sites/bsee.gov/files/notices-to-lessees-ntl//ntl-2020-p02-decommissioning-of-pacific-outer-continental-shelf-region-pocsr-facilities-d.pdf (listing required decommissioning tasks for the Pacific OCS).

70. INTERAGENCY DECOMMISSIONING WORKING GROUP, A CITIZEN'S GUIDE TO OFFSHORE OIL AND GAS DECOMMISSIONING (2019), https://www.slc.ca.gov/wp-content/uploads/2019/07/IDWG-Decom-Citizens-Guide-6-24-19.pdf; *see also* U.S. DEP'T OF THE INTERIOR, BUREAU OF SAFETY AND ENV'T ENF'T, *supra* note 69 (listing required decommissioning tasks for the Pacific OCS).

71. *See* INTERAGENCY DECOMMISSIONING WORKING GROUP, *supra* note 70.

72. In the United States lessees must secure decommissioning costs; however, decommissioning standards improve and expected costs increase over time, dwarfing what companies have set aside. For this reason, the federal government now carries massive decommissioning liability. *See* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-16-40, OFFSHORE, OIL AND GAS RESOURCES: ACTIONS NEEDED TO BETTER PROTECT AGAINST BILLIONS OF DOLLARS IN FEDERAL EXPOSURE TO DECOMMISSIONING LIABILITIES (2017), https://www.gao.gov/products/gao-16-40. Unfortunately, this may create an incentive for regulators, as well as operators, to avoid decommissioning.

73. *See* U.S. DEP'T OF THE INTERIOR, BUREAU OF OCEAN ENERGY MGMT., OIL AND GAS LEASE OF SUBMERGED LANDS UNDER THE OUTER CONTINENTAL SHELF LANDS ACT, § 22 (2017), https://www.boem.gov/sites/default/files/about-boem/Procurement-Business-Opportunities/BOEM-OCS-Operation-Forms/BOEM-2005.pdf.

hurricane or otherwise destroyed, or has not been used in the past five years.[74] However, if a platform can keep pumping, it will never meet this trigger.[75] Therefore, the lease term extends as long as an operator is either producing enough to cover royalties and costs or drilling and reworking in the hopes of regaining production.[76]

Operators use well-stimulation treatments like fracking in this context to extend the production life of leases. When production slows, it is not necessarily because the resource is dwindling but because the pressure in the reservoir has decreased enough to prevent efficient recovery from a well with conventional methods.[77] Well stimulation is aimed at improving the flow of oil and gas up the well.[78] Hydraulic fracturing achieves this by sending fluid down into the well at high enough pressure to fracture the geologic formation, creating a network of cracks that allow more oil and gas to travel up the well.[79] In addition to fracking fluids, sand or other materials are also pushed down the well to keep the new cracks propped open.[80]

The environmental impacts of fracking are numerous, and the risks of performing it on aging infrastructure are magnified. Although this Note focuses on the discharge of chemical-laden fracking fluid into the ocean, fracking is associated with rampant methane leaks that pollute the atmosphere and contribute to climate change.[81] In addition, the high pressure and chemical cooling exerted by the fracking procedure stresses critical infrastructure at the well and platform, increasing the likelihood of a spill.[82] For example, the same force used to crack up the reservoir can damage cement well casings, leading to an increased risk of failure.[83]

Discharged fracking fluids have unknown impacts on ocean ecosystems. The impact of fracking on water quality is understudied, with almost no information published about its impacts on marine systems.[84] This lack of study

74. U.S. DEP'T OF THE INTERIOR BUREAU OF SAFETY AND ENV'T ENF'T, NOTICE TO LESSEES AND OPERATIONS OF FEDERAL OIL AND GAS LEASES AND PIPELINE RIGHT-OF-WAY HOLDERS IN THE OUTER CONTINENTAL SHELF, GULF OF MEXICO OCS REGION, NTL NO. 2018-G03, at 1–2 (Dec. 11, 2018), https://www.bsee.gov/sites/bsee.gov/files/notices-to-lessees-ntl//ntl-2018-g03.pdf (providing a detailed definition of "no longer useful").

75. *See* 30 C.F.R. § 250.180 (2024); 43 U.S.C. § 1337(b)(2).

76. *See* U.S. DEP'T OF THE INTERIOR, BUREAU OF OCEAN ENERGY MGMT., *supra* note 73, § 3.

77. *See* LONG ET AL., *supra* note 19, at 26–28.

78. *See* NEAL ADAMS, FINAL REPORT: WELL STIMULATION REGULATION REVIEW FOR BSEE, UNIV. OF HOUSTON 7 (2015), https://www.bsee.gov/sites/bsee.gov/files/tap-technical-assessment-program//728ab.pdf; *see* LONG ET AL., *supra* note 19, at 26.

79. ADAMS, *supra* note 78, at 7.

80. *See* LONG ET AL., *supra* note 19, at 26–29.

81. Under its Clean Air Act authority, the EPA regulates methane emissions from the industry.

82. *See* SONNIER, *supra* note 27, at 11.

83. *Id.* at 15–16.

84. *See* Gagnon et al., *Impacts of Hydraulic Fracturing on Water Quality: A Review of Literature, Regulatory Frameworks and an Analysis of Information Gaps*, 12 ENV'T REV. 122 (2016), https://cdnsciencepub.com/doi/pdf/10.1139/er-2015-0043 (reviewing water quality impacts to surface and groundwater in US and Canada, discussing regulatory regimes); *see, e.g.*, Yuhe He et al., *In Vitro*

is partly due to operators' use of complex chemical formulations[85] and secrecy.[86] However, a single study on marine fish confirmed that exposure to fracking discharges is harmful. *Mahi-mahi* fish exposed to diluted fracking flowback waters swam slower than unexposed fish and experienced a host of critical physiological impacts.[87] Beyond this study, a number of routinely used chemicals are known to cause reproductive and behavioral harm, with evidence suggesting that toxic effects could be fatal for organisms close to a point of discharge.[88]

The choice to permit fracking is a choice to allow risky life extension practices and delay decommissioning. This choice allows continued environmental harm from polluting practices and increased risk of catastrophic infrastructure failures.

C. Fracking Moratorium under EDC v. BOEM

A lack of information on the environmental impacts of well stimulation does not justify regulators turning a blind eye. NEPA requires that federal agencies study significant environmental consequences of actions before taking them.[89] In *Environmental Defense Center v. Bureau of Ocean Energy Management* (*EDC v. BOEM*), the Ninth Circuit upheld a moratorium on fracking and other unstudied well-stimulation treatments in the Pacific region based on BOEM's failure to meet this and related procedural requirements under the Endangered Species Act (ESA) and Coastal Zone Management Act (CZMA).[90]

Assessment of Endocrine Disrupting Potential of Organic Fractions Extracted from Hydraulic Fracturing Flowback and Produced Water (HF-FPW), 121 ENV'T INT'L 2018, https://www.sciencedirect.com/science/article/pii/S0160412018313916 (listing the toxicity impacts identified in studies of aquatic bio to date as "altered metabolism, cell and tissue damage related to oxidative stress, disruption of cardio-respiratory functions, malformations during developmental and disruption of endocrine functions").

85. *See, e.g.*, Yuhe He et al., *Chemical and Toxicological Characterizations of Hydraulic Fracturing Flowback and Produced Water*, 114 WATER RSCH. 78 (2017). Fracking flowback is "often highly saline and chemically complex solutions comprising original fracturing fluid components and additives (*e.g.*, biocides, scale inhibitors, surfactants, *etc.*), chemical species from the targeted geological formation (such as metals and petrogenic organic compounds), and newly transformed/created compounds from parent chemical species reacting in the high-heat, high-pressure downhole environment." Erik J. Folkerts et al., *Exposure to Hydraulic Fracturing Flowback Water Impairs Mahi-Mahi (Coryphaena hippurus) Cardiomyocyte Contractile Function and Swimming Performance*, 54 ENV'T SCI. & TECH. 13365, 13579 (2020).

86. Jonathan Hahn, *Oil and Gas Companies Routinely Frack with "Trade Secret" Chemicals, Including PFAS*, SIERRA (Feb. 9, 2022), https://www.sierraclub.org/sierra/oil-and-gas-companies-routinely-frack-trade-secret-chemicals-including-pfas; Madeeha Dean, *An Environmental FOIA: Balancing Trade Secrecy with the Public's Right to Know*, 109 CAL. L. REV. 2423, 2426–27 (2021), https://www.californialawreview.org/print/an-environmental-foia-balancing-trade-secrecy-with-the-publics-right-to-know/.

87. *See* Folkerts et al., *supra* note 85.

88. *See* CTR. FOR BIOLOGICAL DIVERSITY, *supra* note 22, at 3.

89. 42 U.S.C. § 4332.

90. 36 F.4th 850, 882 (9th Cir. 2022).

NEPA requires that federal agencies take a "hard look" at environmental impacts before taking a major action like building a project, promulgating a rule, or approving a permit.[91] At the center is an evaluation of multiple reasonable alternatives, including an option to take "no action."[92] These analyses take on impressive breadth, and agencies produce extensive reports examining likely impacts on water, air, biological resources, cultural resources, seismicity, and many more areas of concern.[93] This requirement is purely procedural, meaning that once an agency has cataloged likely impacts and assessed their significance, the agency is not required to choose the most environmentally friendly alternative.[94]

This underlying controversy began because BOEM and BSEE, the agencies responsible for the "expeditious and orderly development" of seabed resources "subject to environmental safeguards," did not perform their statutory duties to engage the public, wildlife agencies, and the State of California in decision making.[95] But this was only brought to light because environmental advocates suspected that fracking and other unstudied well-stimulation treatments were in use at platforms off of Southern California.[96] FOIA records confirmed these suspicions, ultimately showing that the agencies granted more than fifty fracking permits without any environmental review.[97]

This FOIA revelation sparked an initial round of litigation. The Environmental Defense Center (EDC) and the Center for Biological Diversity[98] separately sued BOEM and BSEE for not completing an environmental review under NEPA.[99] The parties jointly settled these cases, and the federal regulators committed to developing a programmatic environmental assessment (EA) analyzing hydraulic fracturing and related well treatments on oil rigs off the Pacific coast.[100] During this time, the federal defendants would also withhold approval of additional fracking permits.[101] BOEM and BSEE issued a draft EA, received public comments for 30 days, and then issued a final EA and a finding

91. *Id.* at 872.

92. 40 C.F.R. § 1502.14 (2024).

93. *E.g.*, BUREAU OF SAFETY & ENV'T ENF'T & BUREAU OF OCEAN ENERGY MGMT., *supra* note 16; *see* Environmental Impact Statement (EIS) Format And Content Process, BUREAU OF OCEAN ENERGY MGMT., https://www.boem.gov/environment/environmental-assessment/environmental-impact-statement-eis-format-and-content-process (last visited Sept. 6, 2023).

94. *See, e.g.*, Vermont Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, 435 U.S. 519 (1978).

95. *See* Outer Continental Shelf Lands Act, 43 U.S.C. § 1332.

96. *See* Ludwig, *supra* note 17.

97. EDC v. BOEM, 36 F.4th 850, 865 (9th Cir. 2022).

98. The Center for Biological Diversity was co-plaintiff with the Wishtoyo Foundation, a non-profit organization representing the Chumash Indians, first people of California who refer to the Pacific as their first home. *See* WISHTOYO CHUMASH FOUNDATION, https://www.wishtoyo.org/ (last visited Feb. 7, 2024); *Our History*, SANTA YNEZ BAND OF CHUMASH INDIANS, https://chumash.gov/chumash-history (last visited Feb. 7, 2024).

99. Env't Def. Ctr. v. Bureau of Ocean Energy Mgmt., No. 16-cv-08418, 2018 WL 5919096, at *1 (C.D. Cal. Nov. 9, 2018).

100. *Id.*

101. *Id.* at *2.

of no significant impact.[102] Under the settlement, the agencies could then resume approval of fracking permits.[103]

Following the settlement, the environmental organizations again separately sued the agencies, this time over the sufficiency of the EA.[104] They claimed that the EA was deficient and that the agencies were required to complete a full environmental impact statement (EIS) to comply with NEPA.[105] They also claimed that ESA Section 7 consultation was required.[106] The State of California filed a separate suit under the CZMA, claiming that the agencies needed to perform a consistency review before permitting the fracking activities.[107] These cases were consolidated as a single matter encompassing claims under all three statutes.[108] Plaintiffs ultimately prevailed at the Ninth Circuit, requiring agencies to complete the environmental review, ESA consultation, and state consistency review processes before permitting further fracking.[109]

The Ninth Circuit ruled that where a federal agency authorizes potentially environmentally harmful activities on the OCS, it must heed straightforward mandates under three statutes: NEPA, the ESA, and the CZMA.[110] It ruled that to comply with NEPA, agencies must perform a more comprehensive EIS rather than an EA when an action may cause significant unknown impacts in a particularly sensitive environment.[111] Here, the appeals court found that the discharge of harmful chemicals into the ecologically unique Santa Barbara Channel requires a full EIS.[112] Further, Section 7 of the ESA requires an agency to consult with expert wildlife agencies about the potential impacts of "agency action" on listed species and their critical habitat.[113] Here, when the agency made a finding of no significant impact under NEPA, it "affirmatively authorized" companies to proceed with fracking activities.[114] Because these activities could harm endangered species, the conclusion of the NEPA process was an "agency action" requiring Section 7 consultation.[115] Finally, and similarly, the CZMA requires a federal agency to perform a review of consistency with a state's coastal management program when a federal action offshore affects state waters—the

102. *See BSEE & BOEM Publish Joint Environmental Assessment On Use Of Well Stimulation Treatments in Federal Waters Off California*, BUREAU OF OCEAN ENERGY MGMT. (May 27, 2016), https://www.boem.gov/newsroom/press-releases/bsee-and-boem-publish-joint-environmental-assessment-use-well-stimulation.

103. *EDC v. BOEM*, 2018 WL 5919096, at *5.

104. EDC v. BOEM, 36 F.4th 850, 863 (9th Cir. 2022) (describing the case history).

105. *Id.* at 872 (describing plaintiffs' NEPA allegations).

106. *Id.* at 882–83.

107. *Id.* at 863.

108. *Id.*

109. *See id.* at 864.

110. *See id.*

111. *See id.* at 879–81 (discussing the factors laid out in regulation that the agency must consider when determining whether to prepare an EIS).

112. *Id.* at 879.

113. *Id.* at 883; 16 U.S.C. § 1536.

114. 36 F.4th at 884.

115. *Id.*

waters within three nautical miles of the state's coastline.[116] But BOEM failed to perform such a review and, thus, violated the CZMA.[117] Finding violations of procedural mandates under all three statutes, the court enjoined further fracking permitting pending the completion of an EIS, complete ESA consultation, and a consistency review of the California coastal management program.[118]

Although the procedural disputes in *EDC v. BOEM* concerned multiple types of underlying environmental impacts,[119] discharge of unstudied toxic fracking fluids was central to the analysis of the NEPA claims.[120] In finding that the EA's analysis of reasonable alternatives was insufficient, the court looked to the inadequate analysis of the "no open water discharge" option and the agencies declining to consider alternatives to limit the volume or content of fracking fluid or require disclosure on the chemicals used.[121] In addition, the court found that an agency is required to complete a full EIS due to the lack of toxicity data for the majority of chemicals used or specific information about impacts on the marine environment.[122] The opinion highlights that decisions about oil and gas development are made in the context of a critical information gap about water quality impacts.

II. THE COMPLEX INSTITUTIONAL FRAMEWORK OFFSHORE

Several federal agencies regulate oil and gas development on the OCS. While states maintain jurisdiction of the area closest to the coastline,[123] federal jurisdiction stretches out to the edge of the 200 nautical mile exclusive economic zone.[124] Beyond this zone, international waters begin.[125] Reaching from the edge of state waters out to international jurisdiction, the federally managed seafloor of the OCS is nearly as large as the total land acreage of the United States, almost 2.5 billion acres.[126]

This Part describes the status quo at the two federal regulators most important in controlling offshore operations: BSEE and the EPA. It details the institutional structures and regulatory programs relevant to shaping the activities

116. *Id.* at 885.

117. *Id.*

118. *Id.* at 890–91.

119. For example, the ESA claims stemmed in part from a FWS determination that three listed species would be vulnerable to the increased risk of oil spills due to fracking. *Id.* at 884.

120. *See id.* at 877.

121. *Id.* at 877–78.

122. *Id.* at 880.

123. Most states retain jurisdiction out to three nautical miles from the coastline, but in both Texas and Florida, there is a three-league jurisdiction, or nine nautical miles. This means more of the submerged lands in the Gulf of Mexico fall in state jurisdiction. *Federal Offshore Lands*, BUREAU OF OCEAN ENERGY MGMT., https://www.boem.gov/oil-gas-energy/leasing/federal-offshore-lands (last visited Sept. 6, 2023).

124. *See* 43 U.S.C. § 1331(a).

125. *See* BUREAU OF OCEAN ENERGY MGMT., *supra* note 123.

126. *About BOEM Fact Sheet*, BUREAU OF OCEAN ENERGY MGMT., https://www.boem.gov/sites/default/files/documents/newsroom/fact-sheets/BOEM_About.pdf (last visited Sept. 6, 2023).

on the OCS. In addition, the discussion of the EPA highlights the important role states can play in developing water pollution controls through required external review of EPA permitting decisions. Under the cooperative federalism regime set up in the CZMA and the Outer Continental Shelf Lands Act (OCSLA), this is one way that adjacent coastal states retain meaningful regulatory authority in offshore areas.[127]

A. BSEE and Energy Development

The U.S. Department of the Interior and agencies that manage offshore oil and gas development were designed to have complementary missions, but this was not always the case.[128] Initially, a single agency, the Mineral Management Service, provided resource management, oversight, and revenue collection functions for all offshore oil and gas development.[129] However, following the Deepwater Horizon disaster, egregious prior conduct suggesting deep industry capture came to light.[130] It was clear that regulatory changes alone could not improve safety in the offshore energy industry; the entire administrative apparatus needed to be reshaped.[131]

In consultation with Congress, the Department of the Interior divided the Mineral Management Service into three new agencies with clear and separate missions.[132] Revenue collection is now isolated in the Office of Natural Resource Revenue, and the remaining responsibilities are split between two Bureaus.[133] BOEM is responsible for resource management, including leasing

127. *See, e.g.*, Congressional declaration of policy in the CZMA, 16 U.S.C. § 1452, and the same in OCSLA noting the importance of affected coastal states, 43 U.S.C. § 1332.

128. Specifically, reorganization following the Deepwater Horizon spill was "intended to remove the perceived and real conflicting missions of these agencies by clarifying and separating missions across three agencies." BUREAU OF OCEAN ENERGY MGMT., OIL AND GAS LEASING ON THE OUTER CONTINENTAL SHELF, https://www.boem.gov/sites/default/files/uploadedFiles/BOEM/Oil_and_Gas_Energy_Program/Leasing/5BOEMRE_Leasing101.pdf (last visited Sept. 8, 2023). Note also that these agencies oversee all energy development including renewables and some other mineral and mining on the OCS, not just oil and gas development.

129. *See* Press Release, U.S. Dep't of Interior, Salazar Divides MMS's Three Conflicting Missions (May 19, 2023), https://www.doi.gov/news/pressreleases/Salazar-Divides-MMSs-Three-Conflicting-Missions.

130. Juliet Eilperin & Scott Higham, *How the Minerals Management Service's Partnership with Industry Led to Failure*, WASH. POST (Aug. 24, 2010, 10:14 PM), https://www.washingtonpost.com/wp-dyn/content/article/2010/08/24/AR2010082406754_5.html?sid=ST2010082404823; *see also Protecting the Public Interest: Understanding the Treat of Agency Capture: Hearing Before the Subcom. on Admin. Oversight and the Cts. of the Comm. on the Judiciary, U.S. Senate*, 111TH CONG. (2010), https://www.govinfo.gov/content/pkg/CHRG-111shrg64724/html/CHRG-111shrg64724.htm

131. *See* Eric Biber & Holly Doremus, *Gulf Oil Spill: Obama's Regulatory Response Falls Short*, L.A. TIMES (May 20, 2010), https://www.latimes.com/archives/la-xpm-2010-may-20-la-oe-doremus-mms-20100520-story.html.

132. *See* BUREAU OF OCEAN ENERGY MGMT., *supra* note 128; Press Release, U.S. Dep't of Interior, *supra* note 129.

133. *See Organizational History*, BUREAU OF SAFETY & ENV'T ENF'T, https://www.bsee.gov/about-bsee/our-organization/organizational-history (last visited Sept. 8, 2023).

and environmental analysis.[134] BSEE is "the lead federal agency charged with improving safety and ensuring environmental protection related to the offshore energy industry."[135] In its own words, it is "a focused regulatory authority staffed with subject matter experts."[136]

Together, BOEM and BSEE carry out the regulatory framework described in OCSLA, which authorizes the Secretary of the Interior to manage and regulate offshore oil and gas resource development in federal waters.[137] The statute prioritizes development, instructing that the resources of the OCS "should be made available for expeditious and orderly development," but makes this development "subject to environmental safeguards" and safety standards.[138] OSCLA seeks to ensure that operations use "technology, precautions, and techniques sufficient to prevent or minimize the likelihood of blowouts, loss of well control, fires, spillages . . . or other occurrences which may cause damage to the environment."[139] The statute then lays out specific procedures for four phases of development: planning, leasing,[140] exploration, and development and production.[141]

In this process, BOEM first develops a five-year leasing program, essentially a plan for lease sales, and completes an EIS under NEPA.[142] It then carries out the lease sales described in the program, producing an EIS for each sale.[143] BOEM next reviews and approves lessees' exploration plans and, subsequently, their development and production plans.[144] BSEE has permitting and oversight authority throughout the exploration and production phases, including decommissioning.[145] It reviews and approves individual permits to drill wells under approved exploration or development plans, as well as permits to engage in modified activities and decommissioning.[146]

For every permitting decision, BSEE reviews proposed activities for human and environmental safety.[147] This review includes collecting information about the equipment and techniques to be used and assessing consistency with the approved exploration or development plan for which BOEM has already

134. *Id.*
135. *Id.*
136. *Id.*
137. OCSLA applies to leasing and development on the outer continental shelf, or OCS. This is between 3nm–200nm from the coastline, with a few exceptions. States retain jurisdiction over offshore oil and gas development within 3nm of the coastline.
138. 43 U.S.C. § 1332.
139. *Id.* § 1332(6).
140. *See* 43 U.S.C. §§ 1337, 1344(a)(2).
141. 43 U.S.C. § 1351.
142. BUREAU OF OCEAN ENERGY MGMT., *supra* note 128.
143. *Id.*
144. *Id.*
145. *See generally* 30 C.F.R. § 250 (2024).
146. *Id.*
147. *See* 43 U.S.C. § 1351(i); 30 C.F.R. § 250.106.

performed an EA.[148] Well stimulation activities require approval of an application for permit to modify, which allows an operator to deviate from activities already approved in their production plan.[149] In these approval decisions, BSEE applies its expertise narrowly, looking at environmental safety with an engineering lens and following OCSLA's mandate to use "technology, precautions, and techniques" to reduce environmental harm.[150]

BSEE uses the best available and safest technology (BAST)—a technology-based standard—to evaluate equipment and practices to be deployed.[151] Under BAST, operators are required to use the best, economically feasible technology where equipment failure could significantly affect safety or the environment.[152] The agency proactively identifies the types of equipment that meet this definition and develops performance requirements that it incorporates into regulations.[153] This program is specifically focused on equipment for which failure results in human or environmental safety concerns.[154] Although these technology-based standards are designed to prevent environmental harm, they do not directly regulate environmental impacts.

BSEE regulates pollution prevention directly and approaches environmental safety from an engineering lens. These regulations prohibit "unauthorized" discharges and require a lessee to "control and remove" any such pollution that "damages or threatens to damage life (including fish or other aquatic life)" or "the marine, coastal, or human environment."[155] The provision goes on to establish that the agency "may restrict" specific harmful pollution from drilling practices but says less about chronic pollution from production.[156] Importantly, "unauthorized" discharges may be fairly narrow as the EPA

148. *See* 30 C.F.R. § 250.465; *see also* Application for Permit to Modify, Form-0124, U.S. Dep't of Interior, https://www.bsee.gov/sites/bsee.gov/files/form-0124.pdf (last visited Sept. 9, 2023).

149. 30 C.F.R. § 250.465.

150. *See* 43 U.S.C. § 1332(6). Note that BSEE must also evaluate these decisions under NEPA. However, as discussed *infra* Part IV.B, the agency applies categorical exclusions broadly, skipping NEPA review of individual permitting decisions.

151. *See Best Available and Safest Technologies*, BUREAU OF SAFETY AND ENV'T ENF'T, https://www.bsee.gov/what-we-do/offshore-regulatory-programs/emerging-technologies/BAST (last visited Sept. 9, 2023).

152. 30 C.F.R. § 250.107(c). Note that BSEE can waive BAST requirements for existing operators. *Id.* § 250.107(c)(3).

153. *See Best Available and Safest Technologies*, BUREAU OF SAFETY & ENV'T ENF'T, https://www.bsee.gov/what-we-do/offshore-regulatory-programs/emerging-technologies/BAST (last visited Sept. 9, 2023); *see also* NATIONAL ACADEMY OF ENGINEERING & NATIONAL RESEARCH COUNCIL, BEST AVAILABLE AND SAFEST TECHNOLOGIES FOR OFFSHORE OIL AND GAS OPERATIONS: OPTIONS FOR IMPLEMENTATION (2013), https://nap.nationalacademies.org/read/18545/chapter/5 (providing an in depth discussion of how BSEE might strengthen BAST implementation in the future, which the agency solicited from the National Academies of Scientists and Engineers).

154. As opposed to evaluating environmentally harmful processes or technologies to make the least harmful the standard.

155. 30 C.F.R. § 250.300 (containing regulations about "Pollution prevention").

156. *See id.*

authorizes the discharge of multiple waste streams with varying levels of pollution control.[157]

In addition to regulatory programs, BSEE conducts annual inspections of offshore operations.[158] Inspectors look for compliance with their regulations, approved plans governing the specific operator, and other applicable laws.[159] BSEE staff specifically examine equipment designed to prevent major accidents.[160] Under an agreement with the EPA, BSEE performs water quality inspections and shares findings with the local EPA regional office.[161] Facilities receive annual and periodic unannounced inspections unless they are deemed a higher risk and require more frequent inspections.[162]

In summary, BSEE is an agency designed to improve the engineering integrity of the offshore oil and gas industry. It approaches its mandate to protect the environment by reducing the likelihood of equipment failures and use of risky practices, while BOEM conducts actual environmental analysis. BSEE's role is to facilitate the responsible development of OCS resources through a permitting regime tailored to answering engineering safety questions rather than assessing environmental impact directly. While engineering integrity and environmental safety are two sides of the same coin, this deep expertise can also give an agency tunnel vision.

B. The EPA's Clean Water Act Authority in the Ocean

To operate, offshore oil and gas installations must also hold a permit from the EPA. The Clean Water Act sets a firm baseline that the unauthorized "discharge of any pollutant by any person shall be unlawful."[163] The EPA has a broad mission to "protect human health and the environment."[164] The agency also has a more specific mandate to protect and improve water quality in implementing the Clean Water Act.[165] EPA satisfies this mandate with extensive research programs, regulatory programs, and enforcement. However, to date, those programs have failed to regulate novel chemical discharges from the offshore oil and gas industry as the use of well stimulation technologies have evolved and become more common.

157. *See infra* Part II.B.2 for a detailed description of how EPA regulates different waste streams.
158. 30 C.F.R. § 250.130.
159. *Id.* § 250.130(a).
160. *Id.* § 250.130(b).
161. *See* BSEE EPA 2021 MOU, *supra* note 26.
162. *Fact Sheet*, BUREAU OF SAFETY AND ENV'T ENF'T (May 2021)., https://www.bsee.gov/sites/bsee.gov/files/fact-sheet//fnl-fact-sheet-bsee-inspections-5621.pdf.
163. 33 U.S.C. § 1311.
164. *Our Mission and What We Do*, EPA, https://www.epa.gov/aboutepa/our-mission-and-what-we-do (last updated May 23, 2023).
165. *See* EPA, *supra* note 31; 33 U.S.C. § 1342.

1. NPDES Permits and Procedures

Where industrial pollution is inevitable, it is controlled by a permitting regime called the National Pollution Discharge Elimination System (NPDES).[166] This system gives the EPA the tools to regulate based on the contents of the discharge itself, as well as the water quality impacts of the waters receiving the pollution.[167] When the EPA approves a discharge of pollutants in a NPDES permit, it is deemed lawful under the Clean Water Act.[168]

NPDES permits contain provisions for effluent limitation and water quality standards, as well as monitoring and reporting requirements.[169] The specific provisions of a given permit are developed in a public process with external review.[170] This includes the publication of a draft permit and holding a public comment period.[171] In the case of NPDES permits governing discharges on the OCS, the adjacent coastal state is engaged in consistency review under the CZMA, in which the state must concur that the permit meets state coastal policy.[172]

Importantly, the EPA regularly revisits the NPDES permits it grants, as their terms cannot exceed five years.[173] The permit reissuing process includes the same requirements for public engagement and external review as the initial permit process.[174] Further, the Clean Water Act contains anti-backsliding provisions that prohibit a permit from being reissued with less stringent effluent limitations.[175] Therefore, upon re-issuance, these effluent limitations can only be strengthened or maintained and cannot be relaxed, barring certain exceptions.[176] By regularly revisiting technology-based and water quality criteria, the EPA can use this permitting regime to strengthen pollution control over time.

NPDES permits generally apply to a single applicant—an individual point source.[177] However, the EPA sometimes issues general permits that apply to many similar polluters.[178] For example, the EPA issues a general permit to cover

166. 33 U.S.C. § 1342.

167. *See* 33 U.S.C. §§ 1311–12.

168. *See* EPA, *supra* note 31.

169. *NPDES Permit Basics*, EPA, https://www.epa.gov/npdes/npdes-permit-basics (last updated Dec. 23, 2022).

170. 40 C.F.R. § 124.12 (2024).

171. *Id.*

172. *See* CAL. COASTAL COMM'N, FEDERAL CONSISTENCY IN A NUTSHELL 10 (2001), https://www.coastal.ca.gov/fedcd/guidecd.pdf (providing a helpful statutory overview).

173. 40 C.F.R § 122.46. Note however that the permit conditions of the expired permit continue to govern until a new permit is issued. *Id.* § 122.6(a).

174. 40 CFR §§ 124–124.1(a) (stating that these procedures apply to the NPDES reissuing process).

175. 33 U.S.C. § 1342(o).

176. *See id.*

177. *NPDES Permit Basics*, EPA, https://www.epa.gov/npdes/npdes-permit-basics (last updated Dec. 23, 2022).

178. EPA's website provides a helpful overview of the NPDES permit program, including the use of general permits. *NPDES Permit Basics*, EPA, https://www.epa.gov/npdes/npdes-permit-basics (last updated Dec. 23, 2022).

all offshore oil and gas operations in a region.[179] Individual operators can opt into the general permit or seek an individual permit.[180] The EPA can also require an operator to pursue an individual permit where circumstances have changed and pollution is no longer appropriately controlled under the general permit.[181]

To participate in a general permit, an operator must submit a "Notice of Intent" to the EPA with information about the discharges they expect will be covered under the permit.[182] Like all NPDES permits, the EPA "prescribe[s] conditions" on the permit for "data and information collection" to enhance compliance.[183] NPDES permittees must also notify the EPA of any expected changes to discharges or noncompliance events.[184] In addition to this duty to monitor water quality and report to the EPA, operators must make facilities available for inspection and regular water quality sampling by regulators.[185]

2. Effluent Limitations for Offshore Oil & Gas

The specific contents of a NPDES permit depends on the nature of the regulated entities and the waters to which they discharge. The Clean Water Act includes special provisions for discharge to the ocean, as well as discharge of toxic wastes.[186] The EPA performs water quality research and technology evaluation to develop industry-specific rules. In 1993, the EPA promulgated effluent limitation guidelines for offshore oil and gas waste streams, which were then incorporated into the NPDES permits for the industry.[187]

Congress has provided special provisions for discharges to the ocean. The ocean discharge criteria state that the EPA cannot issue a permit for discharges into the ocean where there is "insufficient information" to make a "reasonable judgment" as to the human and ecological health impacts of a proposed discharge.[188] The statute specifically requires consideration of pollution impacts

179. NPDES General Permit GMG290000 (Sept. 19, 2017); NPDES General Permit CAG280000 (Dec. 20, 2013). Region 10, which includes Alaska, issues two separate permits for the Beaufort and Chuckchi seas but considered them together in the 2012 reissuing process. *See* Reissuance of the NPDES General Permits for Oil and Gas Exploration Facilities on the Outer Continental Shelf and Contiguous State Waters in the Beaufort Sea and on the Outer Continental Shelf in the Chukchi Sea, AK, 77 Fed. Reg. 65547 (Oct. 29, 2012).

180. EPA, *supra* note 177.

181. *See* 40 C.F.R. 122.28(b)(3) (describing when an individual permit is required); 40 C.F.R. 122.28(c) (describing specific regulations for offshore oil and gas).

182. *NPDES Permit Basics*, EPA, https://www.epa.gov/npdes/npdes-permit-basics (last updated Dec. 23, 2022).

183. 33 U.S.C. § 1342(a)(2).

184. 40 CFR § 122.41(l).

185. 40 CFR § 122.41(i).

186. Toxic pollutants are defined in the CWA as those that "cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions . . . or physical deformations" in organisms exposed or their offspring. 33 U.S.C. § 1362(13). The EPA publishes a list of pollutants considered to be toxic in its regulations. 40 CFR § 401.15.

187. *See* Oil and Gas Extraction Point Source Category; Offshore Subcategory Effluent Limitations Guidelines and New Source Performance Standards, 58 Fed. Reg. 12454 (Mar. 4, 1993).

188. 33 U.S.C. § 1343(c)(2).

on everything from plankton to wildlife and beaches.[189] The EPA interprets these requirements in its regulations, stating that a NPDES permit may allow ocean discharges where the agency determines the proposed pollution "will not cause unreasonable degradation of the marine environment."[190] If the agency has insufficient information to make such a finding, it can allow the discharges with special requirements for dilution and additional monitoring.[191]

To regulate existing polluters, the EPA uses technology-based standards.[192] Under these standards, the EPA looks to whether a technology, which could be a method, device, or practice to reduce pollution discharge, should be mandated across an industry category.[193] The default standard is the best available technology economically achievable (BAT).[194] Under BAT, the EPA evaluates infrastructure age, processes used, engineering, cost of implementation, and non-water quality environmental impacts to determine whether a new pollution control technology should be implemented.[195] For a subset of pollutants deemed "conventional," including oil and grease, the EPA uses the best conventional pollutant control technology standard developed through a two-part cost-reasonableness test.[196] However, the EPA will apply the BAT rather than the best conventional pollutant control technology for conventional pollutants where the BAT is more stringent.[197]

The EPA last engaged in a dedicated rulemaking for technology-based standards for offshore oil and gas effluent in the late 1980s, culminating in a 1993 rule.[198] The guidelines characterize the waste streams common to offshore oil and gas operations and assess technology options for reducing pollution in each of them.[199] The EPA's evaluation was anchored in a study of thirty platforms representative of differing production techniques across a wide

189. 33 U.S.C. § 1343(c)(1)(a).

190. See 40 C.F.R. § 125.123.

191. *Id.* § 125.123(c)–(d).

192. A new point source polluter is also subject to New Source Performance Standards (NSPS) regulations, which the EPA also developed through the 1993 effluent guidelines. NSPS holds new sources to a more stringent standard of effluent reduction, given that they are able to implement the best available processes and technologies from the start. *See* EPA, DEVELOPMENT DOCUMENT FOR FINAL EFFLUENT LIMITATIONS GUIDELINES AND NEW SOURCE PERFORMANCE STANDARDS FOR THE OFFSHORE SUBCATEGORY OF THE OIL AND GAS EXTRACTION POINT SOURCE CATEGORY I-3 (1993), https://www.epa.gov/sites/default/files/2015-06/documents/o_g_offshore_dd_1993.pdf [hereinafter 1993 DEV DOC].

193. *See NPDES Permit Limits*, EPA, https://www.epa.gov/npdes/npdes-permit-limits (Oct. 3, 2022).

194. *See* 33 U.S.C. § 1311; 1993 DEV DOC, *supra* note 192, at I-2.

195. 1993 DEV DOC, *supra* note 192, at I-2.

196. EPA, *supra* note 193; *see also* 1993 DEV DOC, *supra* note 192, at I-2.

197. 1993 DEV DOC, *supra* note 192, at I-2.

198. Oil and Gas Extraction Point Source Category; Offshore Subcategory Effluent Limitations Guidelines and New Source Performance Standards, 58 Fed. Reg. 12454 (Mar. 4, 1993); *Oil and Gas Extraction Effluent Guidelines*, EPA, https://www.epa.gov/eg/oil-and-gas-extraction-effluent-guidelines (last updated Sept. 5, 2023) (detailing the broader context of the regulatory timeline).

199. *See* 1993 DEV DOC, *supra* note 192, at I-4–I-5.

geographic distribution.[200] The EPA assessed processes for reducing toxic pollution from drilling activities and operations-related waste streams and set effluent limitation guidelines based on those assessments.[201]

The EPA evaluated a waste stream specific to well stimulation and similar practices and analyzed produced water discharges as a separate category.[202] Produced water comes up from wells and can be contaminated with oil and grease or other chemicals introduced to the well or originating in the reservoir.[203] The EPA determined that the toxic pollutants found in produced water, including benzene and heavy metals, were adequately controlled by the effluent controls used to reduce the discharge of oil and grease.[204] Looking across technologies for limiting the release of oil and grease, the EPA determined a BAT standard for limiting oil and grease discharge.[205] These limitations, twenty-nine milligrams of oil and forty-eight milligrams of grease per liter of produced water, continue to be incorporated in NPDES permits for the industry.[206] In addition to finding that "[o]il and grease serve[] as an indicator for toxic pollutants," the EPA further justified the decision not to set effluent limitations for these pollutants directly based on a lack of available data and finding only low levels of the pollutants unlikely to be controlled when oil and grease are controlled.[207]

Replicating this approach for the well treatment, completion, and workover fluids waste stream, the EPA found that toxic pollutants, including fracking fluids, were controlled by applying oil and grease limitations that already satisfied BAT.[208] The rulemaking defined well treatment fluids as those "used to restore or improve productivity"[209] and specifically described the practice of hydraulic fracturing.[210] However, it listed the items injected into the well to keep fractures propped open, like glass beads and cracked walnut shells, without addressing chemical additives.[211] It also stated that the practice was "rarely done" due to the logistics and cost offshore at the time.[212] Overall, "[d]ue to the variation of types of fluids used" in the well treatment waste stream, as well as "the volumes used and the intermittent nature of their use," the EPA declined to control those pollutants individually.[213] Instead, the EPA determined that well treatment fluids could be comingled and discharged with produced water, and

200. *Id.* at V-I5.
201. *See id.*
202. *Id.* at III-5–III-8.
203. *Id.* at IX-1.
204. *See id.* at II-2.
205. *Id.*
206. *Id.* at VI-7; General Permit No. CAG280000, *supra* note 179, at 18–19.
207. 1993 DEV DOC, *supra* note 192, at VI-6.
208. *Id.* at VI-7.
209. *Id.* at III-7.
210. *Id.* at IV-16.
211. *Id.*
212. *Id.*
213. *Id.* at VI-7–VI-8.

that the oil and grease limits for produced water would control toxicity under the BAT standard.[214]

In stark contrast, the EPA set effluent limitations for some toxic pollutants in the waste streams associated with drilling. Drilling fluids may be water- or oil-based, and like fracking fluids, they may contain toxic constituents.[215] The BAT developed in the 1993 guidelines prohibits the discharge of diesel oil-containing drilling fluid because of the increased presence of toxic pollutants compared to mineral oil drilling fluid, a viable substitute.[216] The guidelines also limit the allowed level of mercury and cadmium in the barite which is used in drilling fluids, finding that this will in turn limit other heavy metals.[217] Finally, the EPA stated that offshore operators "must consider toxicity in selecting additives" when formulating drilling fluid and "select the less toxic alternative."[218] Unlike for well treatment fluids, the EPA analyzed a range of drilling fluids to assess BAT[219] and explicitly addressed the opportunity to limit toxic discharges by substituting less toxic options.[220]

For thirty years, the EPA has not engaged in this type of comprehensive assessment of pollution discharges to update the water quality guidelines, while the industry and our understanding of marine ecosystems have continued to evolve. In the decades since the 1993 guidelines, the EPA has worked on various related pollution issues. For example, it has worked with Interior agencies on controlling methane emissions from offshore oil and gas production.[221] It has investigated the impacts of onshore fracking operations on drinking water resources.[222] It has even updated effluent guidelines for drilling fluids used offshore as the technology has evolved.[223] However, it has not revisited the effluent limitations for well treatment fluids or comingled produced water.

214. *Id.*
215. *Id.* at VII-4–VII-5.
216. *Id.* at II-2, VII-17.
217. *Id.* at VII-20.
218. *Id.* at VI-4.
219. *See id.* at V-23–V-26.
220. *Id.* at VI-4.
221. Bylin et al., *Designing the Ideal Offshore Platform Methane Mitigation Strategy* (2010), https://www.epa.gov/sites/default/files/2016-09/documents/spe126964.pdf.
222. EPA, HYDRAULIC FRACTURING FOR OIL AND GAS: IMPACTS FROM THE HYDRAULIC FRACTURING WATER CYCLE ON DRINKING WATER RESOURCES IN THE UNITED STATES (2016), https://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=332990.
223. EPA, DEVELOPMENT DOCUMENT FOR FINAL EFFLUENT LIMITATIONS GUIDELINES AND STANDARDS FOR SYNTHETIC-BASED DRILLING FLUIDS AND OTHER NON-AQUEOUS DRILLING FLUIDS IN THE OIL AND GAS EXTRACTION POINT SOURCE CATEGORY I-7 (2000), https://www.epa.gov/sites/default/files/2015-06/documents/og_sbf_dd_final_2000.pdf.

3. The NPDES General Permit for the Pacific OCS

The EPA issued its first NPDES general permit for oil and gas operators off the coast of California in 1982.[224] But in the intervening decades, the EPA did not update the permit as prescribed by statute. Instead, there were a number of delays in permit updates due to conflicts between the State of California's requirements for more rigorous standards and pushback by industry.[225] These delays led to a patchwork of individual permits being issued for new sources in the early 1990s.[226] However, the EPA finally updated the general permit in 2004, 2009, and most recently, 2014.[227] The 2014 permit was set to expire in 2019 but is still in effect.[228]

The 2014 NPDES general permit generally adopts the effluent limitations in the EPA's 1993 guidelines. It adopts the BAT limitations on oil and grease in produced water and well treatment waste streams, assumed to provide an indicator for controlling other pollutants.[229] It also provides an overall limit on the volume of produced water that may be discharged, setting a unique limit for each platform in millions of barrels per year.[230] In addition, the permit requires operators to evaluate whether discharges of produced water have a "reasonable potential . . . to cause or contribute to exceedances of applicable marine water quality criteria" listed in the permit, termed "constituents of concern."[231]

This regime leaves fracking fluids essentially unregulated.[232] By adopting the 1993 guidelines, the permit incorporated the assumption that control of oil and grease will adequately control pollutants from the well treatment waste stream, though the EPA developed the guidelines at a time when fracking offshore was less common and did not involve the same chemical additives of concern today.[233] In addition, sampling for analysis of water quality criteria is aimed at analyzing produced water generally and has no requirement for collection at the time of a comingled discharge of fracking fluid.[234]

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224. *See* CAL. COASTAL COMM'N, CD-001-13, STAFF REPORT 5 (2013), https://documents.coastal.ca.gov/reports/2013/6/W13a-6-2013.pdf (determining consistency with past NPDES Permits).

225. *Id.* at 6–7.

226. *Id.* at 6.

227. *See id.* at 7.

228. *See* NPDES General Permit CAG280000, *supra* note 179.

229. *See id.* at 19–20.

230. *Id.* at 17–18.

231. *Id.* at 13; *see also id.* at 54 (listing, in Table D-1 the applicable water quality criteria for dozens of pollutants including arsenic, selenium, benzene, and toluene).

232. Note that there is a prohibition on discharge of produced sands from hydraulic fracturing. *Id.* at 25, 39. The list of prohibited toxics is astonishingly short: "There shall be no discharge of diesel oil, halogenated phenol compounds, or chrome lignosulfonate." *Id.* at 25. There are a few platforms which have benzene and sulfide effluent limits listed, but this is not due to fracking. *Id.* at 41, App. A.

233. *See* CTR. FOR BIOLOGICAL DIVERSITY, *supra* note 22.

234. The Ninth Circuit also found this timing issue troubling, noting that discharges from well treatment may never actually be collected in the toxicity testing regime without coordination. EDC v. BOEM, 36 F.4th 850, 875 (9th Cir. 2022).

The NPDES process affords a rich opportunity for external review, which was conducted for a draft of the 2014 permit. The EPA engaged in consistency review with the State of California, consultation with wildlife agencies under the ESA, correspondence with BSEE, and a public comment process.[235] These layers of external input resulted in changes to the monitoring and reporting required and a specific mention of the need to revisit pollution control guidelines if new information about the environmental impacts of fracking fluid discharge comes to light.[236]

The California Coastal Commission is heavily involved with the EPA's NPDES permitting decisions, carrying out the State's authority under the CZMA.[237] Commission staff review a draft permit for consistency with the State's coastal management plan, which includes commitments to protect the marine environment under the California Coastal Act.[238] Staff from the Commission and EPA staff work together to revise the permit to gain a consistency finding. In the most recent update, the Commission was concerned with the ocean discharge of byproducts of oil and gas activities. It found that there was insufficient information to determine that those discharges "inhibit biological productivity or cause harm to populations of marine organisms in OCS waters" as prohibited by state policy.[239] For this reason, it allowed the permit to be issued with increased commitments by EPA and BSEE to monitor water quality impacts.[240]

BSEE also formally contacted the EPA during the NPDES process to ensure that the EPA considered the potential impacts of fracking. BSEE cited the lack of information available on the impacts of these discharges around the same time it was itself becoming aware of the issue while responding to advocates' FOIA requests on the topic.[241] In response to this letter, as well as a letter from California lawmakers, the EPA added a special reporting requirement to discharges of well treatment fluids.[242] Under this new provision, operators must "maintain an inventory of the quantities and application rates of chemicals used

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235. *See* EPA, FACT SHEET, FINAL NPDES GENERAL PERMIT NO. CAG280000 FOR OFFSHORE OIL AND GAS EXPLORATION, DEVELOPMENT AND PRODUCTION OPERATIONS OFF SOUTHERN CALIFORNIA 1 (2013), https://www.epa.gov/sites/default/files/2017-08/documents/cag280000-addendum-factsheet.pdf.

236. *See id.* at 15–16.

237. *See Federal Consistency*, CAL. COASTAL COMM'N, https://coastal.ca.gov/fedcd/fedcndx.html.

238. *See* CAL. COASTAL COMM'N, *supra* note 224, at 4–5. Under the CZMA, state policy is set out in a coastal management plan or program. This coastal program defines the coastal zone of the state and provides a comprehensive statement of land and water use policies. 16 U.S.C. § 1453(12). The CZMA states that federal activities taking place outside the coastal zone that may affect the coastal zone, for example taking place in adjacent federal waters, should be "conducted in a manner consistent" with state policy. 16 U.S.C. § 1456(c)(3)(A).

239. *See* CAL. COASTAL COMM'N, *supra* note 224, at 2.

240. *See id.* at 2.

241. *See* EPA, *supra* note 235, at 16 ("A February 2013 inquiry from BSEE to Region 9 concerning requirements for this discharge prompted Region 9 to consider the need for additional information concerning discharge 003, particularly the chemicals used for hydraulic fracturing operations offshore.").

242. *Id*. at 15–16.

to formulate well treatment . . . fluids."[243] This inventory is submitted to the EPA quarterly and must be made available whenever the EPA deems it necessary, such as to assess an accidental discharge.[244]

Currently, the NPDES permit for the Pacific OCS allows fracking flowback waters to be mixed with produced water and treated for oil and grease contamination before discharge.[245] These effluent limitations are based on decades-old assumptions about how the industry operates.[246] While there are dedicated reporting requirements to better understand the chemicals being discharged today, this falls short of the rigorous monitoring and research regime needed to assess the impacts of fracking discharges to the ocean.

III. OVERLAPPING MISSION AND AGENCY INACTION

Environmental plaintiffs secured a substantial win in *EDC v. BOEM*, with a fracking moratorium staving off further pollution until BOEM and BSEE can complete additional environmental review.[247] However, this more comprehensive environmental analysis solves only a narrow slice of the challenge of regulating offshore fracking. A complete solution requires a better understanding of how the regulatory processes at BSEE and the EPA interact and why that interagency relationship has failed to regulate this issue. This includes investigating why each agency has not independently pursued regulation under their own mandate and institutional identity, as well as processes for agency coordination that have been insufficient to date.

Administrative agencies have a stated core mission. How an agency's mission is interpreted and implemented at different levels of the organization or across regional offices shapes its identity and culture, impacting how it regulates industries. The mission may be derived from a statutory mandate, shaped by political appointees and the executive. A mission may be broad or narrow, vague, or highly specific. For example, the Department of the Interior's mission statement has three parts: the agency "protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities."[248] BSEE, a Bureau within Interior, has a more specific mission statement: "to promote safety, protect the environment and conserve resources offshore through

243. *Id*.
244. *Id*. at 15.
245. *See* NPDES General Permit CAG280000, *supra* note 179, at 17.
246. *See* 1993 DEV DOC, *supra* note 192, at IV-16 (describing offshore fracking as "rarely done" and not including the chemical additives used today).
247. *See* EDC v. BOEM, 36 F.4th 850, 891 (9th Cir. 2022).
248. *About Interior*, U.S. DEP'T OF THE INTERIOR, https://www.doi.gov/about.

vigorous regulatory oversight and enforcement."[249] In contrast, the EPA's stated mission is simply to "protect human health and the environment."[250]

How a mission statement is reflected in agency decisions may depend heavily on the agency's internal structures and practices and the specific expertise of the employees that populate that structure. An agency may have an internal culture reproducing a specific interpretation of the mission, creating a regulatory inertia that, while promoting stability, creates a drag on the agency's ability to adapt. When an agency is tasked with regulating a multi-dimensional problem, a guiding mission and internal culture impact how civil servants simplify the problem into something manageable and prioritize individual dimensions or stakeholders to address.[251] In this context, having two regulatory agencies with complementary missions can help better regulate multiple dimensions of an environmental problem. However, it can also lead to important environmental harms getting overlooked.[252]

When pollution flows from one place to another, like from federal waters to the state coastline, adjacent governance bodies must coordinate a solution. But this is also true when pollution flows not across geographic borders, but from the jurisdiction of one agency to another. In both cases, it can be easy for regulators to assume or expect another regulator will invest in a solution.[253] Further, members of the public and specialized interests may not know where to invest political efforts to solve the problem. As a result, they may direct advocacy efforts at the wrong regulator or diffuse political interest across regulators in such a way that no single entity appreciates the full cry for change.[254] Especially important here, in the context of regulating a powerful industry, coordination can dilute industry influence at a single agency and reduce the impact of capture in decision making.[255]

The complex institutional framework offshore produces a critical gap between BSEE and the EPA, despite both having a statutory mandate for environmental protection. As revealed by advocates and journalists, offshore operators have been discharging harmful fracking fluids into the ocean effectively without regulation.[256] In this Part, I characterize this regulatory gap, describing the inadequate status quo of agency coordination and highlighting the

249. *About Bureau of Safety and Environmental Enforcement*, U.S. DEP'T OF THE INTERIOR, https://www.bsee.gov/about-bsee.

250. *Our Mission and What We Do*, EPA, https://www.epa.gov/aboutepa/our-mission-and-what-we-do (last updated May 23, 2023).

251. *See* Bradley, *supra* note 2, at 776, 784.

252. Freeman & Rossi, *Agency Coordination in Shared Regulatory Space*, 125 HARV. L. REV. 1131, 1135 (2012).

253. *See id.* at 1187.

254. William W. Buzbee, *Recognizing the Regulatory Commons: A Theory of Regulatory Gaps*, 89 IOWA L. REV. 1, 33 (2003).

255. Freeman & Rossi, *supra* note 252, at 1186–87.

256. *See infra* Part II.C.

shortcomings of relying on agencies implementing NEPA to provide the forum for filling this gap.

A. Regulatory Commons between EPA & BSEE

Paradoxically, too many regulators with overlapping jurisdiction can produce a "complex, multi-layered political-legal" landscape in which environmental harms are left unaddressed rather than overregulated.[257] William Buzbee calls this the "regulatory commons" problem, borrowing from the concept of the tragedy of the commons, in which common pool natural resources are over-exploited because individual rational users lack the incentive to curb use.[258] Similarly, overlapping regulatory jurisdictions may disincentivize regulatory action, leaving regulatory gaps.[259] In both cases, coordination problems and a lack of a collective agreement are the roots of inaction, spurring a disincentive for political investment in regulatory efforts.[260] This issue of fragmented regulatory control is especially prevalent in the ocean where it exacerbates resource management challenges.[261]

Part of the issue is a mismatch of jurisdictional scale, with BSEE's scope almost internal to the physical infrastructure of a platform and related equipment, and the EPA holding an expansive mission far beyond ocean protection.[262] Where a regulator's jurisdiction does not match the scale of the environmental risk, there is a "lack of a regulator with primacy over an activity and its effects."[263] Multiple issues result. First, where there are multiple potential regulators, demand for regulation is splintered, and no single agency understands the aggregate interest in regulation.[264] For example, advocates may be focused on lobbying the Interior agencies responsible for offshore development, with the EPA left largely unaware. Other issues include the dilution of credit for solving the regulatory problem, which in turn reduces the incentive to invest in developing and implementing a regulatory solution.[265] Further, there is sometimes a strong bias to maintain the regulatory status quo.[266] Here, any regulatory action taken by BSEE, BOEM, or the EPA will have uncertainty as to what extent it will alleviate environmental risk, but absolute certainty that the agency will face strong opposition from those it regulates.

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257. Buzbee, *supra* note 254, at 2.
258. *Id*. at 4–6.
259. *Id.* at 21–22.
260. *Id.* at 14.
261. Robin Craig & J.B. Ruhl, *Governing for Sustainable Coasts: Complexity, Climate Change, and Coastal Ecosystem Protection Sustainability,* 2 SUSTAINABILITY 1361, 1362–63 (2010) (describing fragmentation of authority between many agencies as an impediment to effective ocean governance).
262. *See infra* Part IV.
263. Buzbee, *supra* note 254, at 22.
264. *Id*. at 33.
265. *Id.* at 34.
266. *Id*. at 35.

Though a predictable result, inaction is not the inevitable result of agency overlap. There are many examples of regulatory conflict, where agencies battle over power to define a policy.[267] Further, clear procedural rules can provide an interface between two agencies which provides a stable platform for sharing regulatory authority in a given domain.[268] Rather than letting the ball drop or tearing it in two, enforceable guidelines for interacting in a regulatory process give two agencies a framework to regulate in tandem.[269] Due to the complexity of environmental regulation, it may be most effective to have multiple agencies with unique expertise and culture making parallel or joint regulation within such a defined hierarchy of prescribed interactions.[270]

Offshore fracking provides a case study of the regulatory commons.[271] At least four agencies have "overlapping jurisdiction over [water] pollution prevention for energy activities on the OCS."[272] The mismatch of jurisdictional scale and mission compounds the problem of overlapping authority. BSEE narrowly focuses on the offshore energy industry and interprets its mission vis-à-vis environmental safety to engineering requirements and limited inspection of actual pollution.[273] The EPA has an incredibly broad environmental protection mandate and may not prioritize this issue, given political considerations. In the context of limited investment in monitoring and enforcement, the agency may be unaware of the extent of the pollution.

But these agencies have also been instructed to work together. BSEE and the EPA have specific statutory guidance to collaborate with other agencies. The Clean Water Act authorizes the EPA, with the consent of the appropriate other agency head, to leverage another agency's personnel to achieve its water quality mandate.[274] OCSLA similarly instructs Interior to coordinate with other agencies for safety enforcement and environmental regulation.[275] To this end, BSEE and the EPA have an agreement for coordination called a memorandum of understanding (MOU).[276] This agreement recognizes the value of their distinct expertise and complementary missions to work together to protect water

267. Daniel A. Farber & Anne Joseph O'Connell, *Agencies As Adversaries*, 105 CAL. L. REV. 1375, 1404 (2017) (highlighting that in some cases this conflict can benefit decision-making by leading to increased information and resources invested in a decision).

268. *See* Bradley, supra note 2, at 772.

269. *See id.*

270. *See* Buzbee, *supra* note 254, at 53; *see also* Freeman & Rossi, *supra* note 252, at 1169–73 (detailing a joint-rulemaking process representing significant coordination and sharing of expertise between the EPA and National Highway Traffic Safety Administration).

271. Buzbee, *supra* note 254, at 2.

272. *Water Quality Program*, BUREAU OF SAFETY & ENV'T ENF'T, https://www.bsee.gov/what-we-do/environmental-compliance/environmental-programs/water-quality-program.

273. *See infra* Part III.A for a detailed discussion of the scope of BSEE's regulatory activities.

274. 33 U.S.C. § 1361(b).

275. 43 U.S.C. § 1334(a).

276. The current MOU was signed in 2021, so was not in effect for the decades that fracking fluid was being discharged outside the regulators' awareness.

quality.[277] It lays out the necessary "development and exchange of information" that should happen for NPDES permitting and enforcement to leverage distinct agency strengths.[278]

The agreement clearly defines agency roles for collaboration on water quality sampling. Under the MOU, BSEE primarily performs water sample collection to monitor compliance with the governing NPDES permit, and the EPA provides guidance and training based on its extensive expertise in studying water quality.[279] The agreement provides that individual regions will develop more specific agreements under the MOU.[280] Those now in effect are also largely limited to describing the allocation of inspection and enforcement responsibilities, rather than information sharing in developing NPDES or drilling permit conditions.[281]

The agreement provides a vague commitment for BSEE to "establish and maintain requirements for pollution prevention and control" alongside the EPA providing "appropriate recommendations" to ensure technical regulation of offshore activities aligns with compliance with the NPDES permit.[282] This is paired with a broad commitment to share information.[283] Unlike the inspection and monitoring regime, these provisions fall short of designing a coherent process for agency staff to follow or for agency leadership to evaluate.

Although the EPA and BSEE do not currently regulate together effectively, they are not incompatible. There is enough overlap in the regulatory approach to provide the basis for a strong partnership. For example, both agencies have an environmental mandate carried out through permitting and a specific shared goal of creating uniform technology standards for regulated industry.[284] Further MOU agreements can provide a vehicle for effective coordination.[285] Where the current interactions fall short, this agency relationship can be redesigned to deploy science-based regulation in a quickly evolving industry effectively.

277. BSEE EPA 2021 MOU, *supra* note 26, at 1–2.

278. *Id.* at 5.

279. *Id.* at 8.

280. *Id.* at 8.

281. *See* Memorandum of Agreement between Minerals Mgmt. Serv. Pac. OCS Region and EPA Region 9 (Nov. 30, 1989), https://www.bsee.gov/sites/bsee.gov/files/bsee-interim-document/internal-guidance/1989-epa-moa-region9-and-mms-pacific-region.pdf (describing a shared annual inspection work plan to monitor NPDES compliance).

282. *Id.* at 8.

283. *Id.* at 9.

284. *The Origins of EPA*, EPA, https://www.epa.gov/history/origins-epa (last updated June 5, 2023).

285. For a detailed overview of how interagency agreements support coordination, including MOU's used in diverse regulatory contexts, *see* Freeman & Rossi, *supra* note 252, at 1161–65. As they note, and as evidenced by the current EPA-BSEE agreements, they are not always implemented vigorously and may require rewriting and renegotiating when proved ineffective. *See id.* at 1164.

B. NEPA Alone Cannot Bridge the Gap

NEPA has had impressive success infusing environmental considerations into decision making across diverse federal agencies.[286] It can also provide a rich forum for public participation and transparency,[287] which has been sorely lacking in the offshore regulatory space. However, there is an unfortunate history of Interior agencies failing to implement NEPA and realize its benefits in the context of the offshore industry.[288] Even if implemented wholeheartedly, NEPA would not necessarily provide the structures needed in the relationship between BSEE and the EPA to regulate the ever-evolving water quality impacts of oil and gas. A robust NPDES permitting process at the EPA would better serve water quality regulation and provide informational and public transparency value where NEPA implementation has fallen short.

Offshore regulators notoriously avoid environmental review of offshore operations.[289] They do this by adopting previously completed environmental documents and applying broadly defined "categorical exclusions."[290] The first step for BSEE engaging in the NEPA process is determining whether an EA or EIS is required or whether there is an applicable categorical exclusion to allow the agency to skip NEPA review.[291] Categorical exclusions are intended to describe minor or purely administrative actions that, as a category, are unlikely to have significant environmental impacts.[292] But here, Interior policy lists "minor" changes to planned activities or approvals for permits to drill as categorical exclusions, under the assumption that significant impacts have already been assessed by BOEM when an exploration or drilling plan was approved.[293]

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286. *See* Paul J. Culhane, *NEPA's Impacts on Federal Agencies, Anticipated and Unanticipated*, 20 ENV'T L. 681, 690 (1990).

287. *See* 40 CFR § 1506.6; COUNCIL ON ENV'T QUALITY, A CITIZEN'S GUIDE TO NEPA: HAVING YOUR VOICE HEARD 17–21 (2021).

288. See Holly Doremus, *Through Another's Eyes: Getting the Benefit of Outside Perspectives in Environmental Review*, 38 BOSTON COLLEGE ENV'T. AFFAIRS L. REV. 247, 262–67 (2011) (describing the shortcomings of the NEPA process surrounding the Macondo well prior to its catastrophic failure in the *Deepwater Horizons* incident).

289. *See, e.g.*, *BP and Other Companies Exploited a Regulatory Agency to Continue Negligent Offshore Drilling*, UNION OF CONCERNED SCIENTISTS (Oct. 12, 2017); *The Minerals Management Service: Bad Science in the Name of Private Interests*, UNION OF CONCERNED SCIENTISTS (Aug. 5, 2010), https://www.ucsusa.org/resources/attacks-on-science/minerals-management-service-bad-science-name-private-interests.

290. 40 CFR § 1508.4 (providing the CEQ definition of a categorical exclusion under NEPA); *see Categorical Exclusion Reviews*, BUREAU OF OCEAN ENERGY MGMT., https://www.boem.gov/environment/environmental-assessment/categorical-exclusion-reviews.

291. *See* BUREAU OF SAFETY & ENV'T ENF'T, BSEE NEPA POLICY, INTERIM POLICY DOCUMENT 3–4 (2013), https://www.bsee.gov/sites/bsee.gov/files/bsee-interim-document/safety/bsee-nepa-policy.pdf (including a Categorical Exclusion Review template).

292. *See* 40 CFR § 1508.4.

293. *See* U.S. DEP'T OF THE INTERIOR, DEPARTMENT MANUAL 15.4(C)(11), https://www.doi.gov/sites/doi.gov/files/elips/documents/516-dm-15.pdf.

This pattern of accepting new risks under the guise of outdated or inapplicable environmental review documents suggests that the large investment in up-front review dictated by NEPA is the wrong approach to regulate evolving practices like offshore fracking. The *EDC v. BOEM* litigation revealed that it had been forty years since an agency had produced a full EIS for some installations.[294] This is because this level of environmental assessment is typically only performed in the planning stages of a project.[295] It can make sense to allow an agency to perform an in-depth environmental review at the outset of a project and then make many individual decisions that fall within the scope of the prior review without the need to re-analyze each one. But this approach is sharply undercut when decades of technology development and environmental science have altered the decision context. Where the prior review never considered well stimulation, there is effectively no prior review to base a decision on.

In the context of advancing technology, it may be hard to know when a minor change in operations crosses the line to fall outside the scope of studied activities. Staff may judge that a single instance of well stimulation is a minor change, unlikely to have a significant impact necessitating a full EA, and so never engage in the environmental study that would facilitate an informed decision.[296] Looking back forty years, operations may look very different from what was originally analyzed. Each incremental development may have been easy to overlook, though the cumulative impact when compounded over decades makes the need for NEPA review obvious. For this reason, a regime like the regularly updated NPDES program may be better suited for iterative analysis of a dynamic industry. Where installations are operating far past their intended lifespan, the investment in an EIS at the lease sale stage has diminished value for decision making decades later. However, as a platform ages, it is unclear at exactly what juncture a new EA or EIS should be performed.

Part of this issue is alleviated where NEPA created a cultural shift within agencies,[297] but this never took hold in the offshore regulators. When Congress passed NEPA, agencies with no mention of environmental priorities in their mission were suddenly asked to perform detailed environmental reviews of their actions and incorporate it into decision making.[298] This brought on a well-documented shift in agency culture, in part by bringing on additional staff with environmental expertise.[299] However, offshore regulators remained captured by

294. Complaint at ¶ 95, EDC v. BOEM, No. 2:16-cv-08418, 2018 WL 5919096 (C.D. Cal. Nov. 11, 2016).

295. *See* U.S. DEP'T OF THE INTERIOR, *supra* note 293, at 15.4(A) (listing 5-year leasing programs, lease sales and the approval of development and production plans as the three types of actions that normally require an EIS).

296. *See id.* at 15.4(C).

297. *See* Culhane, *supra* note 286, at 690–91.

298. *Id.* at 682.

299. *See* Daniel R. Mandelker, *Thoughts on NEPA at 40*, 39 ENV'T L. REP. NEWS & ANALYSIS 10640, 10640 (2009).

industry through this period and did not experience the same shift toward broadened environmental perspectives in decisions.[300] Personnel making permitting decisions had little incentive to break from a pattern of applying broad categorical exclusions.

The reorganization of the Mineral Management Service following the Deepwater Horizon disaster did not alleviate this problem.[301] Congress and the Department of Interior placed environmental analysis entirely under BOEM's jurisdiction, with BSEE permitting staff's NEPA responsibilities to be limited to applying the categorical exclusions.[302] In this regime, those making permitting decisions in BSEE are siloed from environmental professionals in charge of NEPA review. BSEE staff have little incentive to run a permit decision up to BOEM staff for additional investment in review, and by the same token, BOEM staff thinking about environmental impacts from the industry may have limited insight into the details of how offshore operations evolve through a lease lifetime. Although they are currently tasked with providing an EIS about the use of fracking in Southern California,[303] BOEM has had trouble getting the industry to participate in the assessment of chemical discharges in the past,[304] and the product of the review process may still be plagued by information scarcity.

Finally, NEPA lacks substantive teeth. Perhaps one of the most common criticisms of the statute, NEPA imposes procedural requirements on agency decision making but no substantive requirement for environmental impacts to determine the outcome of a decision.[305] The review processes can certainly change the content of agency decisions, but because NEPA does not mandate that those decisions reduce impacts, it cannot be used to hold agencies accountable for environmental outcomes. Instead, agencies retain the discretion to weigh the impacts they have studied and make value judgments about whether likely environmental harms are acceptable. This flexibility may be desirable where the relative importance of an environmental impact varies greatly based on the specific context of the decision. However, in the case of water quality, there is a substantive national commitment under the Clean Water Act to uphold.[306] Reviewing environmental consequences under the NPDES permit

300. *See* Doremus, *supra* note 288, at 271–72.

301. Following the Deepwater Horizons disaster, a commission was set up to make recommendations to improve regulation in the industry. Recommendations that required Congressional action were never enacted, including much needed NEPA reform. Hana Vizcarra, *Deepwater Horizon Ten Years Later: Reviewing agency and regulatory reforms*, HARVARD L. SCH. ENV'T & ENERGY L. PROGRAM (May 5, 2020), http://eelp.law.harvard.edu/wp-content/uploads/Deepwater-Horizon-Ten-Years-Later-v4_Final.pdf.

302. *See* BUREAU OF SAFETY & ENV'T ENF'T, *supra* note 291.

303. *See generally* EDC v. BOEM, 36 F.4th 850 (9th Cir. 2022).

304. *See* U.S. GOV'T ACCOUNTABILITY OFFICE, REPORT TO CONGRESSIONAL REQUESTORS REGARDING OFFSHORE OIL AND GAS: UPDATED REGULATIONS NEEDED TO IMPROVE PIPELINE OVERSIGHT AND DECOMMISSIONING 16 (2021), https://www.gao.gov/assets/gao-21-293.pdf (noting no regulatory action despite a likely Clean Water Act violation).

305. *See* Mandelker *supra* note 299, at 10641.

306. *See* EPA, *supra* note 31.

update process, rather than NEPA, offers a process for filling in critical information, engaging the public, and imposing much needed substantive water quality protections.

IV. EPA MUST TAKE THE LEAD

Improving environmental regulation of ocean industries should start at the EPA. The Interior agencies must also reform their approach to managing environmental risk, but relying on such reform to bridge the gaps described above is insufficient. Part of the informational gap is a need for basic research and environmental monitoring. The EPA has the expertise and methods as well as personnel and culture to examine water quality and proactively adapt to assessing a changing industry. Further, the NPDES program has many features that lend itself to this task, if it is implemented more vigorously with a specific emphasis on de-permitting aging polluters.

A. Science Drives the EPA

The EPA was created to provide a central federal hub for research on environmental pollution, as well as biological and physical environmental baselines.[307] The EPA has ocean-specific programs, such as developing water quality guidelines for coral reef protection.[308] In parallel, the agency has complementary programs examining coastal wetland protection.[309] Alongside investment in marine research, the EPA has extensive experience developing water quality testing methods that apply in many contexts.[310] It is important that the study of marine pollution is nested within a much greater scientific project because it benefits from the methodological and theoretical development of related fields.

With this research role, the EPA has long been a leader in thinking through the challenges of assessing the impacts of ocean pollution and how to best inform sound management decisions in the marine environment.[311] For example, EPA experts develop and implement technology-based effluent and water quality standards.[312] As a part of this process, agency scientists study ecosystem health

307. *See* EPA, *supra* note 284.

308. *Coral Reefs*, EPA, https://www.epa.gov/coral-reefs (last updated Aug. 12, 2023).

309. *EPA's Efforts: Coastal Wetlands Initiative*, EPA, https://www.epa.gov/wetlands/epas-efforts-coastal-wetlands-initiative-0 (last updated May 16, 2023).

310. *Clean Water Act Analytical Methods*, EPA, https://www.epa.gov/cwa-methods (last updated July 28, 2023). For a specific example, EPA scientists and engineers developed novel methods for measuring toxic metals when state regulators started setting water quality standards far below the levels that were typically detectible. This included new methods for measuring low levels of arsenic, mercury, selenium and other metals. *See* EPA, METHOD 1669: SAMPLING AMBIENT WATER FOR TRACE METALS AT EPA WATER QUALITY CRITERIA LEVELS iii, 1 (1996), https://www.epa.gov/sites/default/files/2015-10/documents/method_1669_1996.pdf.

311. *See* Allan Hirsch, *The Impact of Ocean Pollution*, 7 EPA J. 16, 18–19 (1981).

312. 33 U.S.C. § 1311.

to determine a permissible level of pollution and devise replicable methods for monitoring water quality that can be enshrined in regulations.[313] This requires the study of chemistry, ecology, physiology, and public health. This type of multi-faceted expertise is sorely needed to fully inform ocean fracking decision making.

Beyond what the experts do at the EPA, the agency culture they reproduce is also desirable. With over 15,000 employees,[314] more than half of whom are scientists and engineers,[315] the EPA has a deep bench to draw from in carrying out environmental science and science-informed regulatory programs. In contrast, BSEE and BOEM have less than 1,500 employees combined, only a fraction of whom perform environmental assessment.[316] The fact that there are thousands of scientists at the EPA creates an agency culture of evaluation and progress that can support dynamic regulation of a rapidly evolving industry. When regulators have a culture of scientific evaluation, they can raise and examine questions that interrupt agency inertia to rubberstamp approvals.

B. EPA Supremacy in Regulating Offshore Fracking

In the most recent update to the Pacific region's general permit, the EPA acknowledged a lack of information about discharges associated with fracking, noting the need to update the permit with new information.[317] As a first step to filling this deficit, the EPA must revisit its 1993 effluent guidelines. The EPA's key assumption that limits to oil and grease can control toxic discharges is outdated.[318] The development of new effluent guidelines should include a study looking at multiple platform types across the three oil-producing regions, updating what was done to inform the 1993 guidelines.[319] In addition, research specifically monitoring water quality at the time of a well stimulation activity is needed to understand what constituents of fracking fluid are discharged, in what concentration, and how long they persist in the immediate environment. Such a study will help inform an analysis of the cumulative impacts of widespread and more frequent fracking in each region.

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313. *See, e.g.*, *Aquatic Life Criteria & Methods for Toxics*, EPA, https://www.epa.gov/wqc/aquatic-life-criteria-and-methods-toxics (last updated Aug. 16, 2023).

314. *What Kind of People Work at EPA?*, EPA, https://www.epa.gov/careers/what-kind-people-work-epa (last updated Aug. 14, 2023).

315. *EPA Workforce Composition*, U.S. EQUAL EMP. OPPORTUNITY COMM'N, https://www.eeoc.gov/federal-sector/reports/environmental-protection-agency-epa.

316. *BOEM Fact Sheet*, BUREAU OF OCEAN ENERGY MGMT., https://www.boem.gov/sites/default/files/documents/newsroom/fact-sheets/BOEM_About.pdf (showing BOEM has fewer than 600 employees); *About BSEE*, BUREAU OF SAFETY & ENV'T ENF'T, https://www.bsee.gov/about-bsee/our-organization#:~:text=The%20Bureau%20of%20Safety%20and,more%20than%20850%20federal%20employees (showing BSEE has about 850 employees).

317. *See* EPA, *supra* note 235.

318. *See* BUREAU OF SAFETY & ENV'T ENF'T & BUREAU OF OCEAN ENERGY MGMT., *supra* note 16, at 4–26.

319. 1993 DEV DOC, *supra* note 192, at VI-5.

This new water quality science will allow the regulation of fluid formulas and whether open-ocean discharge is allowed at all. In updating the effluent guidelines, the EPA should require operators to use the less harmful formulation options under BAT, as it has done with drilling fluid.[320] In fact, the EPA has required operators to submit chemical inventories since 2014 under the general permit in the Pacific region,[321] so the agency should have a foundation of information to begin assessing which, if any, formulations are of less environmental concern.

The EPA should also evaluate discharge options under the BAT technology-based standard. Open-ocean discharge should be examined alongside discharge to geologic formations and return to shore through pipelines. BOEM and BSEE have already begun evaluating the use of fracking without open-ocean discharge in the Pacific region under NEPA.[322] However, technology review by EPA would necessarily consider the substantive ocean discharge criteria under the Clean Water Act.[323] Under these criteria, the EPA cannot allow discharge to the ocean with "insufficient information" on environmental risk.[324] Further, operators in each region already sometimes dispose of fracking fluid in discharges to geologic formations or with onshore disposal.[325] Under the BAT standard, the EPA may require operators to use one of these already-developed technology options if they wish to participate in a general permit.

These science-based regulatory projects will change BSEE decision making at the individual permit level in two ways: establishing a hierarchy and requiring information sharing. By imposing restrictions on chemicals used and prohibiting open-ocean discharge, implemented in NPDES permits, BSEE will have clear guidance about how to evaluate permit applications from operators seeking permission to frack. BSEE is required to review permit applications for compliance with federal law broadly, including the terms of a governing NPDES permit.[326] BSEE will need to look to the EPA's determinations about allowed activities, giving the EPA regulatory supremacy.

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320. *Id*. at V-4.

321. *See* EPA, *supra* note 235, at 15–16.

322. BUREAU OF SAFETY & ENV'T ENF'T & BUREAU OF OCEAN ENERGY MGMT., *supra* note 16, at 2–7, 8.

323. *See* 33 U.S.C. § 1343.

324. *See* 33 U.S.C. § 1343(c)(2).

325. These alternative forms of disposal come with their own host of risk. Discharge to geologic formations may trigger earthquakes in the seismically active Southern California OCS. *See* CTR. FOR BIOLOGICAL DIVERSITY, TROUBLED WATERS: OFFSHORE FRACKING'S THREAT TO CALIFORNIA'S OCEAN, AIR AND SEISMIC STABILITY 1 (2014), https://www.biologicaldiversity.org/campaigns/offshore_fracking/pdfs/Troubled_Waters.pdf. Disposal onshore must be done in a way to prevent pollution of drinking water resources and waterways, a key concern about onshore fracking operations. The EPA will need to evaluate whether these alternatives are more acceptable as used by existing operators. BAT provides the framework to do so.

326. 30 CFR § 250.101; *see also* U.S. Dep't of Interior, *supra* note 148, at 3 (asking applicants for information about whether proposed activity is "covered by an EPA Discharge Permit").

Second, information sharing between regional offices may in itself help loosen regulatory inertia.[327] The status quo at BSEE begs some obvious solutions. The agency should be tracking instances of well stimulation to inform internal decision making and regulatory programs. This basic information will provide a start for the BAST process or NEPA review at BOEM and is necessary to fulfill its partnership with the EPA. Under their current interagency agreement, BSEE and the EPA must share information, but with little definition about what information and when.[328] This agreement should be expanded to require BSEE to characterize offshore operations in a summary of existing and newly permitted activities, highlighting areas relevant to water quality risk, such as well stimulation. This should be communicated regularly at the regional level alongside regular monitoring and inspection reporting. BSEE should also report individual planned instances of well stimulation to allow the EPA regulators to collect water quality data around the event.[329] Increased regular communication with EPA staff may more prominently bring environmental concerns into BSEE permit decisions and combat a culture of rubberstamp approvals.

C. The NPDES Process Reimagined

Agency culture is determined by who populates the staff, but also the practices and procedures that are replicated to further the agency's mission. With improved science on well stimulation and a foundation of information sharing, the partnership between the EPA and BSEE can go one step further to use the process of regularly updating NPDES permits as a forum to evaluate the need for decommissioning aging infrastructure. The NPDES framework has many desirable attributes that could be used to identify new regulatory issues in an evolving industry. The regular five-year updates allow for iteration as technologies and science evolve.[330] Anti-backsliding provisions prevent the EPA from loosening effluent limitations and serve as a statutory mandate to prevent the industry from becoming dirtier over time.[331] Further, the opportunity for a rich external review and public participation process brings diverse perspectives and solutions that enhance decision making.[332] By using the NPDES permit process, but expanding its scope, advocates and stakeholders will have a clear venue for participation in the regulatory process.

327. Buzbee, *supra* note 254, at 65–67.

328. *See* BSEE EPA 2021 MOU, *supra* note 26.

329. Note that the State through consistency review and also the Santa Barbara Channelkeeper through NPDES update comment have called for 3rd party independent sampling. EPA, RESPONSE TO PUBLIC COMMENTS: REISSUANCE OF NPDES GENERAL PERMIT NO. CAG280000 FOR OFFSHORE OIL AND GAS EXPLORATION 10 (2013), https://www.epa.gov/sites/default/files/2017-08/documents/cag280000-response-public-comments_0.pdf.

330. *See* 40 C.F.R. § 122.46.

331. 33 U.S.C. § 1342(o).

332. *See* 40 C.F.R. § 124.

To date, the permitting updates for the Pacific OCS general permit have largely rolled forward stale effluent guidelines with some updates to monitoring and reporting.[333] However, because the permit is designed to cover a finite group of existing sources,[334] the updates should take the aging nature of those sources into account and more closely examine the increased risk to water quality.

Under this regime, NPDES updates in the Pacific should include an initial status report, co-developed by BSEE and EPA-region staff, convened in a joint technical team. This report will describe activities on the OCS under the existing permit, trends and predictions for the next five-year period, BSEE evaluations of environmental risk given recent incidents, and EPA evaluations of pollution controls and water quality given compliance and enforcement efforts. It is hard to overstate the need for information where currently, BSEE has no practice of internally tracking well stimulation, much less sharing that information with the EPA. The agencies can use the report to enhance the monitoring and inspection of specific facilities stipulated in the permit conditions. Further, instituting a joint body will ensure a deeper level of expertise exchange, allowing EPA regulators to engage critically in the unique regulatory challenges in offshore oil and gas.[335]

Finally, with a shared picture of the state of the industry and environmental outlook, EPA and BSEE regional staff can look beyond whether specific chemicals or practices are environmentally acceptable and proactively to whether operators are unlikely to continue to meet the permit requirements as they age. In conjunction with permit reissuance, the EPA should provide BSEE with a formal assessment of water quality risk of installations in the life extension phase. While the EPA can prohibit the release of oil, BSEE's focus on risk management is critical to preventing catastrophic accidents. There is currently no unified framework for triggering decommissioning based on risk to water quality and marine ecosystems. Based on their work together, the EPA should develop and provide BSEE with guidelines to make these decisions at the regional level.

CONCLUSION

In the process of disentangling its failure to study and regulate fracking, BSEE wrote a letter to the EPA. It asked the EPA if it was considering discharges related to fracking as it revisited pollution controls for oil and gas operators under the Pacific region NPDES permit.[336] It is remarkable that until then, these

333. *See generally* CAL. COASTAL COMM'N, *supra* note 224.

334. *See* NPDES General Permit CAG280000, *supra* note 179, at 1.

335. Such joint technical teams between the EPA and the National Highway Traffic Safety Administration were instrumental in the shared regulatory process to regulate greenhouse gas emissions from the transportation sector, which required a "significant feat of regulatory harmonization" between the agencies. Freeman & Rossi, *supra* note 252, at 1169–72.

336. *See* NPDES General Permit CAG280000, *supra* note 179.

agencies, both tasked with permitting a risky industry while preventing environmental harm, did not begin a dialogue around novel, polluting fracking activities. As a result, neither required adequate information gathering or scientific analysis of its environmental impacts.

This Note has provided one vision for improved coordination between these agencies in the hopes of stimulating better-informed decision making. It suggests where to invest resources in science immediately and details how federal agencies can deploy existing regulatory programs to accelerate the end of dirty oil and gas production in Southern California. It posits that providing BSEE and the EPA a set of prescribed interactions and giving the EPA clear authority over their overlapping pollution control responsibilities, will fill the gap that has left fracking unregulated. If such a regime can be achieved in the Pacific, perhaps it can spur broader decommissioning from the densely developed Gulf of Mexico to the Alaskan Arctic.