UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY
HYDROCARBONS AND GEOTHERMAL ENERGY OFFICE

In The Matter Of:	§	
	§	
Corpus Christi Liquefaction, LLC	§	**Docket No. 26-32-LNG**
Corpus Christi Liquefaction Stage IV, LLC	§	
	§	
Cheniere Marketing, LLC	§	
	§	

MOTION TO INTERVENE AND PROTEST OF INGLESIDE ON THE BAY COASTAL WATCH ASSOCIATION, INC., INDIGENOUS PEOPLES OF THE COASTAL BEND, KARANKAWA TRIBE OF TEXAS, AND CARRIZO/COMECRUDO TRIBE OF TEXAS, LLC

EXHIBIT 8
PART 1

CENTER *for* BIOLOGICAL DIVERSITY

Oil and gas industry in Louisiana
photo by Ken Lund CC BY-SA

IMPACTS OF LNG EXPORTS ON THREATENED AND ENDANGERED SPECIES

As the Department of Energy ("DOE") considers new analyses to inform its process for approving authorizations of new liquefied natural gas ("LNG") export, it is imperative to consider the wide-ranging harm these export activities cause to threatened and endangered species in the U.S.

This map highlights some of the protected habitat and species impacted by LNG export operations in the U.S., including offshore export facilities and the supporting infrastructure (e.g., pipelines) that feed them. As detailed below, there is growing evidence of harm from these activities to biodiversity and ecosystems that DOE must adequately consider when determining whether LNG exports are in the public interest.

The Natural Gas Act prohibits any person from importing or exporting natural gas to any foreign country "without first having secured an order of the Commission authorizing it to do so."[1] DOE cannot issue export authorizations to non- free trade agreement countries if "after opportunity for hearing, it finds that the proposed exportation or importation will not be consistent with the public interest."[2]

Manatees

The climate emergency – driven by the continued use of fossil fuels – is contributing to a mass extinction crisis: one million animal and plant species are now threatened with extinction with fossil fuel-caused climate change as a primary driver.[3] The Endangered Species Act ("ESA") requires all federal agencies to "ensure that any action authorized, funded, or carried out" is "not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification" of a species critical habitat.[4] The ESA requires that federal agencies consult with expert wildlife agencies and affirmatively promote the conservation of listed species.[5] Similarly, the Marine Mammal Protection Act ("MMPA") prohibits the "taking" of

[1] U.S.C. 717b(a). The "Commission" is now understood to be the Department of Energy.
[2] 15 U.S.C. § 717b(a).
[3] Intergovernmental Science-Policy Platform on Biodiversity & Ecosystem Services (IPBES). (2019). *Global assessment report on biodiversity and ecosystem services.* IPBES secretariat, Bonn, Germany. https://ipbes.net/global-assessment.
[4] 16 U.S.C. § 1536(a)(2).
[5] 16 U.S.C. § 1536(a)(1); Krakoff, S, & Finley, S. (2024, February 6). Letter to Martha Williams, Director, U.S. Fish and Wildlife Service, on federal agency obligations under section 7(a)(1) of the Endangered Species Act. U.S. Department of Interior, Office of the Solicitor. https://www.fws.gov/sites/default/files/documents/federal-agency-obligations-under-section-7-a-1-memo-2024-02-06.pdf.

Right whales photo by Sea to Shore Alliance under NOAA research permit 20556

marine mammals, defined as harassment, hunting, capturing or killing.[6] Harassment is any act of pursuit, torment or annoyance that has the potential to injure or disturb a marine mammal in the wild including the disruption of behavioral patterns like breeding or migration.[7] Even with such protections, however, the construction and operation of liquefied natural gas ("LNG") export facilities has caused significant harm to protected wildlife and has made it increasingly hard for dwindling populations to recover.

Although scientists have called for a rapid transformation of our energy system away from fossil fuels to avoid a mass extinction event,[8] the past several years has seen a rampant surge in LNG exports, which adversely affect species survival and accelerate global heating. Currently, there are eight existing LNG export terminals in the country, another 19 approved and under construction or awaiting construction, and six more currently seeking federal approval.[9] The rapid expansion of LNG export infrastructure and shipping of LNG comes with severe consequences for vital ecosystems and wildlife species already on the brink of extinction.

LNG exports negatively impact endangered species and their critical habitat across terrestrial and marine ecosystems. Construction and operation of LNG export facilities adversely impact both ESA and MMPA protected species (collectively "protected species") through discharge of toxic chemicals, noise pollution, physical habitat disturbance and alteration, direct mortality (e.g., ship strikes, oil spills), and worsening climate change. Numerous mobile and stationary emission sources associated with LNG export facilities discharge a wide array of pollutants onshore and offshore, including pollution from onshore terminals, pipelines, trucks, marine vessels, locomotives, cargo handling equipment, refineries, and storage facilities. Supporting infrastructure, such as pipelines, requires dredging and disposal events during construction, and poses the risk of leaks during operation. This results in the release of contaminants into critical ecosystems, which threaten wildlife and human communities alike.

For coastal and marine species, waste from ships and other port activities can result in destruction or degradation of habitat areas and harm to marine life. Ships and other vessels run over, injure, and kill whales, sea turtles, and other marine animals. Underwater noise pollution from LNG export-related construction and operations threatens marine species with impacts ranging from permanent hearing loss (Permanent Threshold Shift, PTS), temporary hearing loss (Temporary Threshold Shift, TTS), to behavioral harassment.[10] Additionally, non-native marine species transported and released from ship ballast water can become invasive in their new habitat and introduce new diseases.[11]

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[6] Marine Mammal Protection Act, 16 U.S.C. §§ 1361-1423.

[7] 16 U.S.C. § 1362(18)(A)(i-ii), (18)(C-D).

[8] Barnoksy, A. (2015). Transforming the global energy system is required to avoid the sixth mass extinction. *MRS Energy & Sustainability*, 2(E10). https://doi.org/10.1557/mre.2015.11.

[9] Federal Energy Regulatory Commission. (2024, October 10). U.S. LNG export terminals- existing, approved not yet built, and proposed. https://cms.ferc.gov/media/us-lng-export-terminals-existing-approved-not-yet-built-and-proposed.

[10] TetraTech. (2023, February). Request for incidental harassment authorization for marine mammals for the New Fortress Energy Louisiana FLNG project. National Oceanic and Atmospheric Administration. https://www.fisheries.noaa.gov/s3/2023-03/NFELNG_2023IHA_App_OPR1.pdf.

[11] U.S. Environmental Protection Agency. (2023, December 14). *Ports Primer: 7.1 Environmental Impacts.* Community-Port Collaboration. https://www.epa.gov/community-port-collaboration/ports-primer-71-environmental-impacts.

The enormous carbon pollution emitted during the LNG export lifecycle also worsens the global climate crisis, thus increasing harm to the wide array of protected species that are particularly vulnerable to global heating – such as polar bears and corals.

Many species legally protected under the ESA and the MMPA are already impacted by existing LNG export operations and will face even greater harm if these exports continue to be authorized. At least 27 protected marine species face threats from current and planned LNG export operations in the Gulf of Mexico and Alaska:

- Rice's whale
- Sperm whale
- Humpback whale
- North Pacific right whale
- Cook Inlet beluga whales
- Bottlenose dolphin
- 5 sea turtles (green, loggerhead, leatherback, hawksbill, Kemp's ridley)
- Gulf sturgeon, pallid sturgeon
- Nassau grouper
- Smalltooth sawfish
- Giant manta rays
- Oceanic whitetip sharks
- West Indian manatees
- 7 corals (elkhorn, staghorn, boulder star, mountainous star, lobed star, rough cactus, pillar)
- Queen conch


Staghorn coral

At least 20 protected terrestrial and freshwater species face threats from current and planned LNG export operations along the Gulf coast:

- Ocelot
- Gulf Coast jaguarundi
- Northern long-eared bat
- Eastern black rail
- Northern Aplomado falcon
- Red-cockaded woodpecker
- Cactus ferruginous pygmy-owl
- Piping plover
- Red knot
- Wood stork
- Alabama red-bellied turtle
- Yellow-blotched map turtle
- Black pinesnake
- Eastern indigo snake
- Gopher tortoise
- Pondberry
- Slender rush-pea
- South Texas ambrosia
- Texas ayenia


Wood Stork

Marine Species Threatened in the Gulf of Mexico

The Gulf of Mexico is home to some of the most productive and biodiverse tropical and temperate habitats in the United States, including coral reefs, wetlands, seagrass beds, mangroves, Sargassum, as well as hard- and soft-bottom marine communities. These ecosystems support thousands of species of fish, whales, dolphins, sea turtles, corals, and other animals. There are twenty ESA-listed marine species in the Gulf of Mexico[12] and up to twenty species of resident marine mammals protected under the MMPA.[13]

Additionally, the Gulf has been identified as "Biologically Important Areas" (BIAs) for two species of marine mammals, highly endangered Rice's whales (previously considered a population of Bryde's whale) and bottlenose dolphins.[14] The Rice's whale, endemic to the Gulf of Mexico, is considered one of the planet's most endangered marine mammals, with fewer than 100 individuals and a current best estimate of 50 whales that exclusively inhabit Gulf of Mexico waters.[15] Recent science demonstrates that the loss of even a single Rice's whale could result in the extinction of this species.[16] This Administration recently proposed critical habitat for the species that directly overlaps with proposed oil and gas export projects in the Gulf of Mexico. Continued expansion of these operations in this critical habitat for Rice's whales thus threatens the very existence of the species.

Sperm whales are also a resident endangered species along the continental shelf edge across the Gulf of Mexico. Some portions of the population occur in the Gulf year-round. Female and juveniles spend most of their life cycle within the Gulf of Mexico, and bull males will migrate in from the broader Atlantic to reproduce.[17] While sperm whales are primarily found in deeper waters in the Gulf of Mexico, they have also been observed in waters as shallow as 30-40m on the shelf and near the Delfin LNG project site.[18] The response of sperm whales to environmental changes and anthropogenic stressors, such as operations from oil and gas export projects, has been extensively studied.[19] Construction, operation, and vessel traffic noise can directly interfere with intraspecies communication,[20] which in turn can decrease social cohesion and the ability for the animals to reproduce. For

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[12] National Oceanic Atmospheric Administration. (2024, March 18). *Threatened and Endangered Species List Gulf of Mexico*. https://www.fisheries.noaa.gov/southeast/consultations/threatened-and-endangered-species-list-gulf-mexico.

[13] Baumgartner, M., K. Mullin, L. Nelson May, T. D. Leming. (2001). Cetacean habitats in northern Gulf of Mexico. *Fishery Bulletin* 99(2), 219.

[14] LaBrecque, E., Curtice, C., Harrison, J., Van Parijs, S. M., & Halpin, P. N. (2015). Biologically important areas for cetaceans within U.S. waters Gulf of Mexico region. *Aquatic Mammals* (Special Issue), *41*(1). http://dx.doi.org/10.1578/AM.41.1.2015.1

[15] Rosel P.E., Wilcox L.A., Yamada T.K., & Mullin K.D. (2021). A new species of baleen whale (Balaenoptera) from the Gulf of Mexico, with a review of its geographic distribution. *Marine Mammal Science, 37*(2), 577- 610. https://doi.org/10.1111/mms.12776; NOAA Fisheries. (2023, May). Rice's whale (Balaenoptera ricei): Northern Gulf of Mexico stock. https://www.fisheries.noaa.gov/s3/2023-08/Rices-Whale-Northern-Gulf-of-Mexico-2022.pdf

[16] *See, e.g.,* Endangered and Threatened Wildlife and Plants; Endangered Status of Gulf of Mexico Bryde's Whale, 84 Fed. Reg. 15,446, 15446-488 (Apr. 15, 2019) (listing decision, determining that the whale is at a "high risk of extinction" under three statutory factors); see e.g., National Oceanic and Atmospheric Administration. *Rice's whale*. NOAA Fisheries. https://www.fisheries.noaa.gov/species/rices-whale; P.E. Rosel, P.J. Corkeron, L. Engleby, D. Epperson, K. Mullin, M.S. Soldevilla, and B.L. Taylor. (2016). Status review of Bryde's whales (Balaenoptera edeni) in the Gulf of Mexico under the Endangered Species Act. NOAA Tech. Memo. NMFS-SEFSC-692. http://doi.org/10.7289/V5/TM-SEFSC-692, at iv, 130-32; *see also* Natural Resources Defense Council. (2023, October 6). Comment re: proposed critical habitat designation for Rice's whale. NOAA-2023-0028. https://www.regulations.gov/comment/NOAA-NMFS-2023-0028-25145 (Providing a summary of the recent science on the Rice's whale and threats to the species, including evidence of the species' persistent occurrence in central and western Gulf waters and direct threats of vessel strikes, noise and spills from oil and gas development).

[17] National Oceanic and Atmospheric Administration. *Sperm whale*. NOAA Fisheries. https://www.fisheries.noaa.gov/species/sperm-whale

[18] Rice, A. (2022, February 2). Possible risks to marine protected species from the construction and operation of the Delfin LNG offshore terminal. Sierra Club Environmental Law Program, at 9.

[19] Ackleh, A. S., R. A. Chiquet, B. Ma, T. Tang, H. Caswell, A. Veprauskas, N. Sidorovskaia. (2017). Analysis of lethal and sublethal impacts of environmental disasters on sperm whales using stochastic modeling. *Ecotoxicology*, 26, 820-830. https://doi.org/10.1007/s10646-017-1813-4

[20] Erbe, C., Reichmuth, C., Cunningham, K., Lucke K., Dooling, R. (2016). Communication masking in marine mammals: A review and research strategy. *Marine Pollution Bulletin,* 103, 15- 38. https://doi.org/10.1016/j.marpolbul.2015.12.007

Green sea turtle

species like the sperm whale, which use echolocation for feeding, vessel noise can also disrupt foraging patterns[21] and increase physiological stress.[22]

All five sea turtle species that inhabit the Gulf of Mexico—green, hawksbill, Kemp's ridley, leatherback, and loggerhead—are protected under the ESA.[23] Of the five sea turtle species in the Gulf of Mexico, Kemp's ridley sea turtles are the most vulnerable to threats, especially threats that cause population-level impacts like the Deepwater Horizon oil spill, due to their already low numbers and location of nesting habitat. Kemp's ridley sea turtle observations demonstrate a broadly distributed population with highly concentrated sightings that overlap significantly with oil and gas export operations. Noise from offshore supply vessels induce behavioral reactions from sea turtles even at distance, and sea turtles face a higher likelihood of being struck and killed by vessels traveling through the Gulf given increased traffic from expanded export operations. The National Marine Fisheries Service found in its 2020 Gulf of Mexico oil and gas drilling biological opinion that status quo drilling activities will kill 11,500 sea turtles every year by vessel strikes (including 2,100 of Kemp's ridley sea turtles).[24] In addition to these offshore harms, endangered sea turtles are adversely impacted by onshore infrastructure, including the construction and operation of new LNG pipelines, which destroy critical nesting habitat.

Expanded oil and gas export operations also exacerbate harm to the West Indian manatee, increasing the likelihood of direct injury from toxic leaks and releases, noise pollution, degradation of critical habitat, and fatal vessel strikes due to increased activity in the species habitat.[25]

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[21] National Oceanic and Atmospheric Administration. Pygmy *Sperm whale*. NOAA Fisheries. https://www.fisheries.noaa.gov/species/pygmy-sperm-whale; Rice, A. (2022, February 2). Possible risks to marine protected species from the construction and operation of the Delfin LNG offshore terminal. Sierra Club Environmental Law Program

[22] Rolland, R. M., S. E. Parks, K. E. Hunt, M. Castellote, P. J. Corkeron, D. P. Nowacek, S. K. Wasser, S. D. Kraus. (2012). Evidence that ship noise increases stress in right whales. *Proceedings of the Royal Society B: Biological Sciences*, 279, 2363-2368. https://doi.org/10.1098/rspb.2011.2429

[23] Reneker, J., M. Cook, B. Stacy, R. W. Nero, D G. Stewart. (2018, October) Summary of sea turtle strandings, incidental captures and related survey effort in Mississippi during 2017. NOAA Technical Memo, NMFS-SEFSC-732 (2018).

[24] National Marine Fisheries Service. (2020, March 13). Biological opinion on the federally regulated oil and gas program activities in the Gulf of Mexico. https://doi.org/10.25923/hyeh-mb74

[25] Sierra Club et. al. (2021, December 13). Comments on SPOT Terminal, LLC, National Environmental Policy Act draft environmental impact statement. Docket No. MARAD-2019-0011-1267; *see also* Campagna, C., F. T. Short, B. A. Polidoro, R. McManus, B. B. Collette, N. J. Pilcher, Y. Sadovy de Mitcheson, S. N. Stuart, K. E. Carpenter. (2011). Gulf of Mexico oil blowout increases risks to globally threatened species. Bioscience 61(5), 393-97. https://doi.org/10.1525/bio.2011.61.5.8

Terrestrial and Freshwater Species Threatened Along the U.S. Gulf Coast

Proposed and pending LNG export terminals threaten nearly 21,000 acres of wetlands in Louisiana and Texas.[26] These LNG facilities would not only destroy large areas of undeveloped wetlands, but also pollute nearby wildlife refuges, divide wildlife movement corridors, and destroy habitat for protected species such as the eastern black rail and ocelot.[27]

Marine Species Threatened in Alaska

In Alaska, the expansion of oil and gas development – such as the approval of the Alaska LNG export terminal in Nikiski – poses significant threats to the protected Cook Inlet beluga whale and North Pacific right whale.

Cook Inlet beluga whales are critically endangered. The population has declined more than 75% since 1970, and scientists believe their recovery is hindered by noise pollution, habitat degradation and loss, and the cumulative harm of multiple, human-caused stressors. Vessel traffic from LNG exports would increase the threats of deadly ship strikes, noise pollution, and catastrophic oil spills for this already impacted species.

The eastern North Pacific right whale population ranges from the Bering Sea to Baja California and is down to only about 30 individuals. With few reproducing females, the population is at extreme risk of imminent extinction. Similar to the Cook Inlet beluga, increased vessel traffic from LNG export would threaten this species with catastrophic oil spills, deadly vessel strikes, and noise pollution.

Climate Threatened Species Harmed by the LNG Buildout

The rise in greenhouse emissions posed by the increased production and shipping of LNG exacerbates threats to the wide array of species already being harmed by climate change and jeopardizes ESA-listed species that are particularly vulnerable to climate change such as corals and polar bears. Climate change is heating the Arctic nearly four times faster than the rest of the planet. If global heating continues at current rates, polar bears are likely to go extinct throughout the vast majority of their range by or before the end of the century, including the loss of all polar bears in Alaska.[28]

The current U.S. energy system based on fossil fuel extraction and use is fundamentally damaging to wildlife. DOE's public interest review must fully consider the impacts of LNG exports on the nation's biodiversity heritage.

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[26] Gibbons, B. (2023, March 1). Proposed LNG export terminals threaten 21,000 acres of wetlands, many in Louisiana. *Oil and Gas Watch*. https://news.oilandgaswatch.org/post/proposed-lng-export-terminals-threaten-22-000-acres-of-wetlands-many-in-louisiana

[27] Brown, G. (2023, July 11) Rio Grande Valley LNG projects hit with legal challenges over FERC's flawed approvals. *Sierra Club*. https://www.sierraclub.org/press-releases/2023/07/rio-grande-valley-lng-projects-hit-legal-challenges-over-ferc-s-flawed; Sierra Club et al. (2022, October). Rio Grande Valley: At risk from fracked-gas export terminals. https://www.sierraclub.org/press-releases/2022/10/report-rio-grande-valley-texas-risk-lng-export-terminals.; Louisiana Wildlife Federation. (2022, October 13). Opposition to siting of Commonwealth LNG export terminal at the mouth of Calcasieu Pass to protect threatened eastern black rail. https://lawildlifefed.org/resolution/opposition-to-siting-of-commonwealth-lng-export-terminal-at-the-mouth-of-calcasieu-pass-to-protect-threatened-eastern-black-rail/

[28] Molnár P.K., Bitz C.M., Holland M.M., Kay J.E., Penk S.R., Amstrup S.C. (2020). Fasting season length sets temporal limits for global polar bear persistence. *Nature Climate Change,* 10, 732-738, https://doi.org/10.1038/s41558-020-0818-9.

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Earth Insight
FOSSIL FUEL THREATS TO THE OCEAN:
Marine Life and Coastal Communities at Risk
DEFENSA AMBIENTAL DEL NOROESTE
DAN
auriga
AJESH
AJEMALIBU Self Help
JAMAICA ENVIRONMENT TRUST
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CLEAN WATER · HEALTHY SALMON
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FEMAPO

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Table of Contents

Executive Summary

During the first half of 2026, global economies have experienced the consequences of fossil fuel dependence. Despite this, and repeated warnings by organizations such as the International Energy Agency that new oil and gas fields and long-lived fossil fuel infrastructure are incompatible with limiting global warming to 1.5°C, many countries are planning to ramp up their fossil fuel activities – in fact, 85% of all new hydrocarbon discoveries in 2024 were located offshore.[1]

This report examines a new wave of planned oil, gas and liquefied natural gas (LNG) expansion in coastal and offshore regions around the world. Across 11 case studies, this report looks at countries where significant fossil fuel investment plans are moving forward or being actively promoted. These include new LNG export projects in Argentina, Alaska, Mexico and Tanzania; and expanded offshore licensing in Australia, Cameroon, Indonesia, Jamaica, Kenya, Norway, and Trinidad & Tobago.

Together, these projects show how oil and gas expansion is not limited to isolated wells or single offshore blocks. It often involves large, connected systems of pipelines, ports, export terminals, seismic surveys, shipping routes, processing facilities and other associated onshore infrastructure. If built, these projects could lock countries into decades of fossil fuel infrastructure dependence, while increasing pressure on biodiversity, coastal livelihoods and climate stability.

The report draws on geospatial analysis to assess how planned or existing oil and gas blocks, LNG infrastructure, and associated risk zones overlap with Marine and Coastal Protected Areas (PAs), Important Marine Mammal Areas (IMMAs), Key Biodiversity Areas (KBAs), Ecologically or Biologically Significant Marine Areas (EBSAs), coral reefs, seagrasses, and mangroves.

The findings raise serious concerns. The analysis shows that much of the planned infrastructure threatens ecologically sensitive regions and areas where local and Indigenous communities rely on healthy marine and coastal ecosystems for their livelihoods.

In Alaska, the proposed LNG project would link the North Slope and Cook Inlet through an 800-mile pipeline, increasing pressure on beluga whale habitat, salmon fisheries, and Indigenous food systems. In Norway, new licenses in the Barents Sea overlap with Arctic marine ecosystems and the North Atlantic humpback whale migratory corridor.

In tropical and subtropical regions, the risks are equally significant. Kenya's proposed offshore blocks overlap with virtually all coral reefs, mangroves, PAs, and KBAs, and most of the IMMAs in the country. Jamaica's Walton-Morant block threatens nearly all coral reefs and seagrass beds in the south coast, affecting fishing grounds and tourism-dependent coastal communities. In Trinidad & Tobago, all the coral reefs are within oil and gas risk zones and an EBSA about ten times the size of the country is overlapped by the 2025 bid round blocks. Indonesia's new offshore blocks affect protected areas within the Coral Triangle, including

mangrove-rich regions of West Papua. Tanzania's planned LNG project would add new pressure to the Mozambique Channel EBSA and coastal habitats around Lindi. In Argentina's Gulf of San Matías, planned LNG infrastructure would affect a semi-enclosed Patagonian marine ecosystem used by southern right whales, Magellanic penguins, dolphins, sea lions, and artisanal fishing communities. In Mexico, planned LNG export projects in the Gulf of California would add tanker traffic, pipelines, and gas infrastructure to one of the world's most ecologically important marine regions. Although Vista Pacífico LNG has been cancelled, other projects such as Saguaro LNG and Amigo LNG could still increase risks from ship strikes, underwater noise and pollution in a key whale habitat.

Several case studies also show how fossil fuel development can threaten unique species and communities that are already facing environmental stress. In Cameroon, new blocks overlap mangroves, estuaries, and protected coastal landscapes in regions with a long history of oil pollution and gas flaring. In Australia, the Otway Basin release illustrates the persistence of offshore expansion pressures in waters that are critical for whales, seabirds, seagrass, and coastal livelihoods.

85%

of all new hydrocarbon discoveries in 2024 were offshore.[1]

Across the case studies, common risks include oil spills, seismic disturbance, underwater noise, vessel strikes, dredging, coastal industrialization, operational discharges, habitat fragmentation, and restrictions on fishing access. These impacts would fall most heavily on communities whose livelihoods depend on fisheries, tourism, subsistence harvesting, and healthy coastal ecosystems.

A humpback whale breaches off a rugged coastline, highlighting the extraordinary marine ecosystems that support some of the ocean's most iconic species. Image Credit: Envato Elements

Introduction

Oceans and coastlines are central to climate stability, biodiversity, and human wellbeing. Coral reefs, mangroves, seagrass meadows, estuaries, wetlands, and productive shelf ecosystems support fisheries, protect shorelines, store carbon, and sustain the livelihoods, food systems and cultural practices of coastal and Indigenous communities. Yet many of these same regions are now being targeted for new oil and gas developments.

This report examines a new wave of offshore and coastal fossil fuel expansion across 11 case studies: Kenya, Tanzania, Cameroon, Norway, Alaska, Jamaica, Trinidad & Tobago, Argentina, Mexico, Indonesia, and Australia. These case studies show how fossil fuel expansion is threatening rich coastal and marine areas and the livelihoods of communities that rely on them. We also explore how these projects often involve wider industrial systems, including offshore platforms, pipelines, processing plants, export terminals, and associated onshore infrastructure. Many of the projects also require dredging and seismic surveys, and they often result in increased vessel traffic – activities that have negative consequences for humans and ecosystems.

The following sections outline the methodology, present key findings and examine 11 case studies in detail. They also set out recommendations to protect these regions and the people who depend on them.

OVER THE 11 CASE STUDIES PRESENTED

430,200km²

ARE COVERED BY OIL & GAS BLOCKS

Methodology and Analytical Framework

This report uses geospatial analysis to examine how offshore and coastal fossil fuel developments—including oil and gas blocks and LNG infrastructure—will encroach on ecologically sensitive areas and affect local and Indigenous communities, particularly in regions with prospective hydrocarbon potential. In this context, "prospective areas" are regions that have active or upcoming oil and gas licensing rounds, LNG projects, or areas of interest for future development.

The 11 case studies in this report were selected based on criteria like high data quality, available local partners for validation, and global representation. While this assessment covers a range of important geographies, it should be noted that many other prospective regions are not included in this analysis and may be mapped and examined in future assessments.

This report analyzes some of these prospective areas that face substantial plans from governments and corporations for large-scale fossil fuel expansion, with offshore drilling and LNG infrastructure on the horizon. The influx of financing, the drilling of wells, and the construction of ports, pipelines, and processing facilities risk locking these regions into decades of fossil fuel infrastructure dependence. This concerning shift undermines future pathways for renewable energy transitions, threatens biodiversity, and compromises the well-being of coastal and Indigenous communities.

DRIVES BIODIVERSITY AND ECOSYSTEM HEALTH

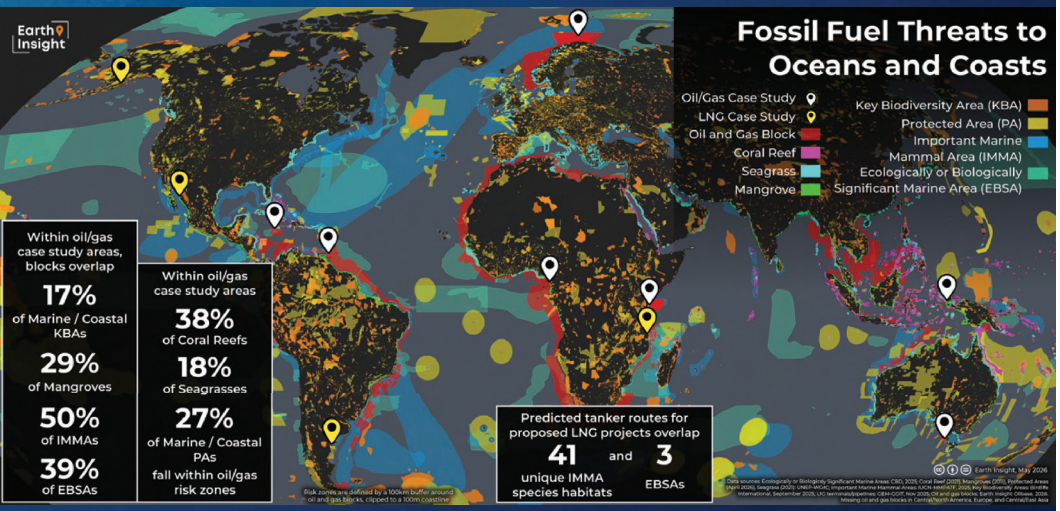
REGULATES OUR CLIMATE AND WEATHER

SUPPORTS CULTURES, LIVELIHOODS AND FOOD SECURITY

An offshore oil platform operates in coastal waters, illustrating the expanding footprint of fossil fuel infrastructure in marine ecosystems that support biodiversity, fisheries, and coastal communities. Image Credit: Envato Elements

GLOBAL FINDINGS

Oil and gas expansion threatens critical ecosystems, biodiversity, and the communities that depend on them.



- 38% of coral reefs in the case studies fall within oil and gas risk zones.
- 18% of seagrasses in the case studies fall within oil and gas risk zones.
- 29% of mangroves in the case studies are directly overlapped by oil and gas blocks.
- 27% of marine and coastal PAs in the case studies fall within oil and gas risk zones and 6% are directly overlapped by oil and gas blocks.
- 13% of marine and coastal KBAs in the case studies are overlapped by oil and gas blocks.
- 50% of all IMMAs in the case studies are overlapped by oil and gas blocks.
- 39% of all EBSAs in the case studies are overlapped by oil and gas blocks.
- Oil and gas blocks cover more than 430,200 km², an area roughly the size of Sweden.
- Our combined study areas cover more than 1,935,000 km², an area roughly the size of Mexico.
- Predicted tanker routes for proposed LNG projects overlap the habitats of 41 unique IMMA species and three EBSAs.
- This report focuses on six proposed terminals with a combined liquefaction capacity of 65 mtpa, equivalent to roughly 16% of the global LNG market trade in 2024.

COUNTRY FINDINGS

KENYA

100% of coral reefs, mangroves, and Marine and Coastal PAs and KBAs in the region are overlapped by oil and gas blocks.

TANZANIA (LINDI)

2 EBSAs In the Lindi district, predicted tanker routes overlap two EBSAs, home to endangered species like the whale shark, hawksbill and green sea turtles, and dugong.

CAMEROON

68% of Marine and Coastal Protected Areas | 43% of mangroves | 92% of EBSAs = overlapped by the 2025 oil and gas blocks, in a combined area of more than 4,000 km².

NORWAY (BARENTS SEA)

59% of the North Atlantic Humpback Whale Migratory Corridor IMMA | 40% of Particularly Valuable and Vulnerable Areas = overlapped by the APA 2025 blocks.

ALASKA (COOK INLET)

The proposed Alaska LNG pipeline and predicted tanker routes cross the habitat of the endangered Cook Inlet beluga whale and three KBAs.

JAMAICA (SOUTH COAST)

100% of Coral Reef | 100% of Seagrasses | 62% both Marine and Coastal PAs and KBAs = fall within oil and gas risk zones.

TRINIDAD & TOBAGO

45% of EBSAs | 20% of IMMAs = overlapped by the 2025 bid round blocks.

ARGENTINA (GULF OF SAN MATÍAS)

21,190 km² of Marine and Coastal PAs and predicted tanker routes overlap the habitats of 19 key and fisheries-important species like the Southern right whale.

MEXICO (GULF OF CALIFORNIA)

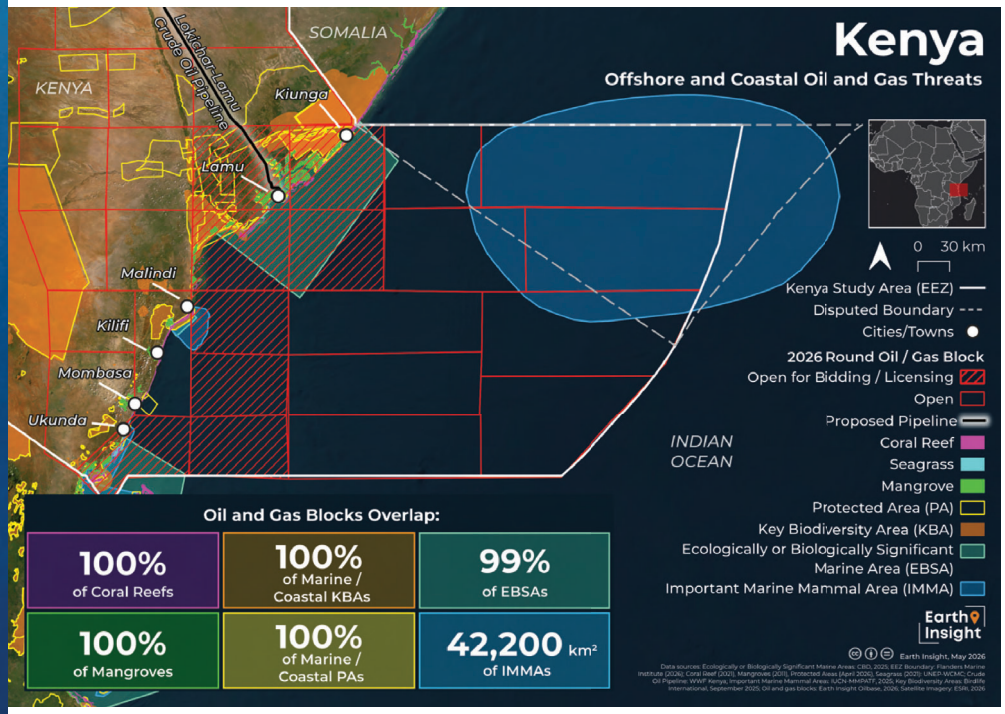
98,200 km² of Marine and Coastal PAs | 23,400 km² of Marine and Coastal KBAs | 177,200 km² of IMMAs and predicted tanker routes overlap 36 unique IMMA species habitats including the critically endangered Vaquita.

INDONESIA (WEST/SOUTH-WEST PAPUA)

14% of mangroves are overlapped by the 2025 oil and gas blocks. | 96% of IMMAs (7,430 km²) | 15% of Marine and Coastal PAs = fall within oil and gas risk zones.

AUSTRALIA (OTWAY BASIN/ BASS STRAIT)

31% of seagrasses | 46% of Marine and Coastal PAs | 67% of IMMAs = fall within oil and gas risk zones.



Kenya is planning to license 50 oil and gas blocks,[2] marking a significant new phase in the country's upstream petroleum ambitions. This follows the expiration of most of the country's existing exploration licenses in 2024. Of the 50 new blocks, ten are expected to be open for bidding in the second half of 2026[3] – eight of them in the Lamu Basin.

The planned licensing round comes at a time when Kenya is simultaneously positioning itself as a regional leader in renewable energy and climate action, raising a growing debate over the contradiction between expanding fossil fuel exploration and advancing commitments under the Paris Agreement and just energy transition frameworks.

The region is already undergoing infrastructure development under the Lamu Port South Sudan Ethiopia Transport (LAPSSET) corridor,[4] which aims to transform Lamu into a major transport and export hub.

Lamu is one of East Africa's biodiversity hotspots. Its waters host coral reefs, seagrass meadows and mangrove forests that provide nursery habitat for fish and other animals, including five different sea turtle species[5] and the vulnerable dugong.[6] These ecosystems sustain artisanal fisheries that are central to food security and local economies along the Lamu archipelago. The region is also home to long-established Swahili communities whose cultural identity, knowledge systems and daily practices are closely tied to the sea and its resources.

Our analysis shows that 100% of coral reefs (410 km²) and mangroves (540 km²) in the region are overlapped by oil and gas blocks – as are 100% of marine and coastal PAs (2,480 km²) and KBAs (2,410 km²). Similarly, the blocks also overlap virtually with all the region's EBSAs (14,190 km²), and 61% of IMMAs (42,200 km²).

This means that some of the most fragile and biologically productive marine ecosystems may be directly exposed to the risks of seismic surveys, offshore drilling, dredging, shipping traffic, oil spills, chemical discharge and underwater noise pollution.

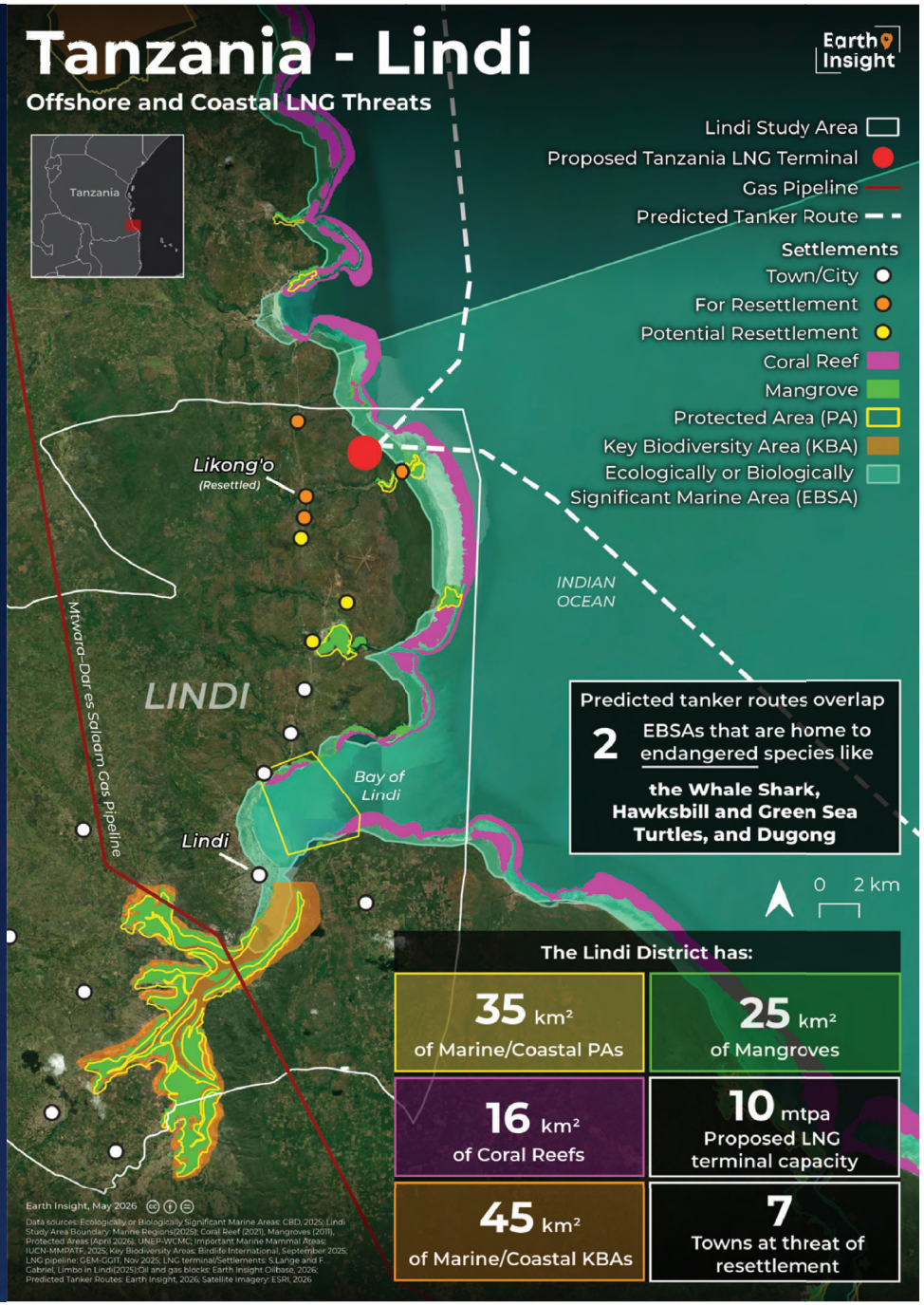
Coral reefs and mangroves are critical breeding and nursery grounds for marine life, sustain fisheries, protect coastlines from erosion and storms, and store vast amounts of blue carbon essential for climate regulation. Their degradation would not only accelerate biodiversity loss and ecosystem collapse but also weaken the region's resilience to climate change and intensify coastal vulnerability. Equally concerning is the overlap with IMMAs, where seismic blasting and industrial offshore activity threaten the migration, feeding, communication, and survival of whales, dolphins and other marine species.

For coastal communities, the implications are profound and potentially devastating. Thousands of fisherfolk and marine-dependent households rely on healthy coral reefs, mangroves, and coastal ecosystems for food security, income, cultural identity, and survival.

Local communities have strongly opposed oil and gas plans in the region. The Kenya Oil and Gas Working Group (KOGWG)[7] has been working with local communities to strengthen public participation, and to promote transparency and accountability around fossil fuel projects. KOGWB is also part of the "Coastline not Oil Line"[8] campaign, a grassroots movement aimed at raising awareness on the ecological, social, and climate related risks associated with offshore oil and gas expansion, while advocating for the protection of coastal ecosystems and community livelihoods.

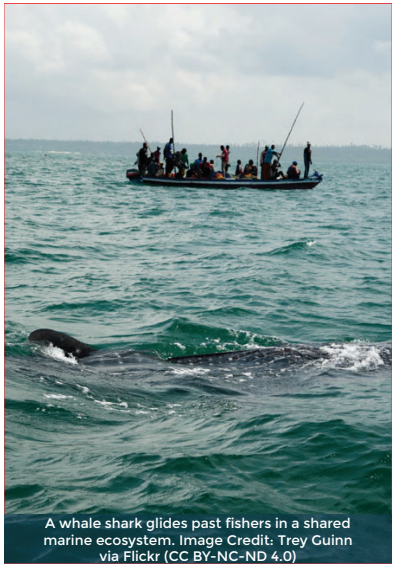
In recent months, reports about plans[9] for a new oil refinery in Mombasa have raised concerns among climate campaigners, economists, and energy analysts, who see new fossil fuel developments as steps in the wrong direction.[10] In March, the Council of Governors, a body representing governors from 47 Kenyan counties, called for a plan to transition away from fossil fuels while emphasizing the need for financial and technical support to undertake a just transition.[11]

A community boat procession in Lamu, Kenya, during the "Bahari Yetu Maisha Yetu" ("Our Ocean, Our Life") campaign, which promotes the protection of coastal ecosystems and sustainable livelihoods. Image Credit: Kenya Oil & Gas Working Group



Tanzania is seeking to revive one of Africa's largest LNG projects. The proposed Tanzania LNG development, planned for Likong'o in the southern Lindi region, would turn offshore gas reserves into liquefied natural gas for export to global markets.

The project has been valued at around $42 billion and is backed by major international companies including Shell, Equinor and ExxonMobil, alongside the national oil company (Tanzania Petroleum Development Company, TPDC).[12] If built, it would lock in a new fossil fuel export industry on Tanzania's Indian Ocean coast for decades.



A whale shark glides past fishers in a shared marine ecosystem. Image Credit: Trey Guinn via Flickr (CC BY-NC-ND 4.0)

The affected area sits within the Mozambique Channel and Northern Mozambique Channel EBSAs,[13] a region recognized for its high productivity and biodiversity, including coral reefs, migratory routes, and critical habitats for many marine species, including humpback whales, dugongs, whale sharks, and manta rays.[14]

Our analysis shows that predicted tanker routes overlap both EBSAs, threatening endangered species like the whale shark, hawksbill and green sea turtles, and the dugong.

Onshore infrastructure adds further risks. Planned pipelines and associated facilities intersect coastal habitats, including sections that run through the Lindi Creek Key Biodiversity Area,[15] an area identified for its importance to species conservation and habitat integrity. There are 25 km² of mangroves, 35 km² of marine and coastal PAs, and 46 km² of marine and coastal KBAs in the Lindi offshore area.

The Tanzania LNG project has already caused significant resettlement problems in Lindi, affecting not only the project site but also adjacent areas that had not been contemplated in the original plan.[16] Disagreements between the government and oil companies over the relocation area, the number of people affected, and who should receive economic compensation created uncertainty and frustration among local communities. The resettlement in Likong'o Village had a particularly severe impact on that community, leading to the loss of ancestral land, coconut farms, and key sources of income. The displacement weakened economic stability, food security, and the cultural ties that connected the community to the land. At least seven communities are at risk of being relocated due to the proposed LNG project, and Likong'o has already been relocated.

Local opposition and concern around gas development in southern Tanzania has centered on land, compensation, local benefits, and community participation. Opposition in Mtwara against the construction of a pipeline to Dar es Salaam caused riots in the early 2010s.[17] More recently, research on Lindi found that land acquisition and resettlement processes created confusion and frustration among people affected by the LNG project.[18]

TANZANIA (LINDI)

Aerial view of the Sanaga River, one of Cameroon's most important freshwater and coastal ecosystems. Image Credit: Westend61 via Alamy

In recent months, Cameroon has been trying to revitalize its oil and gas industry. During the first half of 2026, the country opened bidding for nine blocks. Five of them were awarded, one in the Rio del Rey basin and four in the Douala/Kribi-Campo basin.[20]

Since the 1970s, the Rio del Rey basin, located in the eastern Gulf of Guinea along Cameroon's border with Nigeria, has been the country's main offshore oil-producing region.[21] The basin hosts a number of mature fields and a network of offshore platforms, pipelines and export infrastructure. As fields have aged, output has steadily declined and discoveries have become smaller and less frequent. The long history of extraction has also been associated with environmental pressures, including oil spills,[22] gas flaring, and chronic pollution[23] affecting coastal ecosystems such as mangroves and estuaries, as well as the fishing communities that depend on them. For example, an oil pipeline built in Ebome in the 2000s destroyed a reef used by local fishermen.[24] The Cameroon Oil Transportation Company built two fishing ponds as compensation, but locals say the ponds are less productive and can only be harvested a few times a year. A FAO-published study found that fishing is the main livelihood in Rio del Rey's mangrove communities, reported by 47% of interviewees, followed by fish smoking at 30% and dugout canoe construction and repair at 10%.[25] These activities depend on healthy mangroves, clean estuarine waters and access to fishing grounds.

The Douala/Kribi-Campo basin, along Cameroon's southern coastline, represents a less developed hydrocarbon region.[26] Oil and gas activity here has been largely confined to exploration, including seismic surveys[27] and a small number of exploratory wells.[28] However, results to date have been mixed, with no major commercial discoveries confirmed.

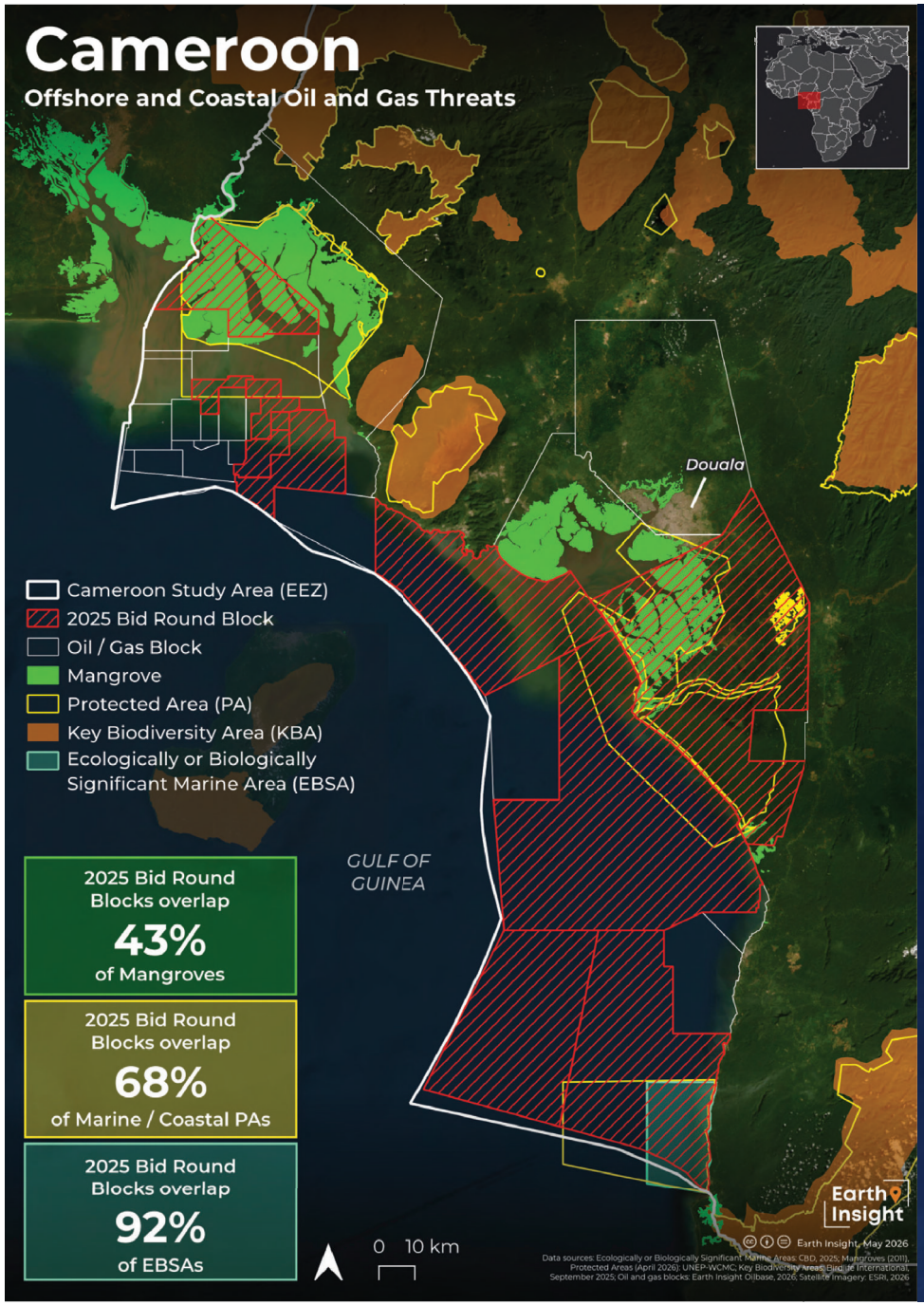
In both basins combined, about 68% of marine and coastal PAs are overlapped by the 2025 bid round oil and gas blocks - more than 4,000 km². In Rio del Rey, blocks overlap within the Estuaire du Rio Del Rey,[29] one of the most important coastal ecosystems in Cameroon and the wider Gulf of Guinea. Its mangrove forests provide habitat to many threatened and endemic species.[30]

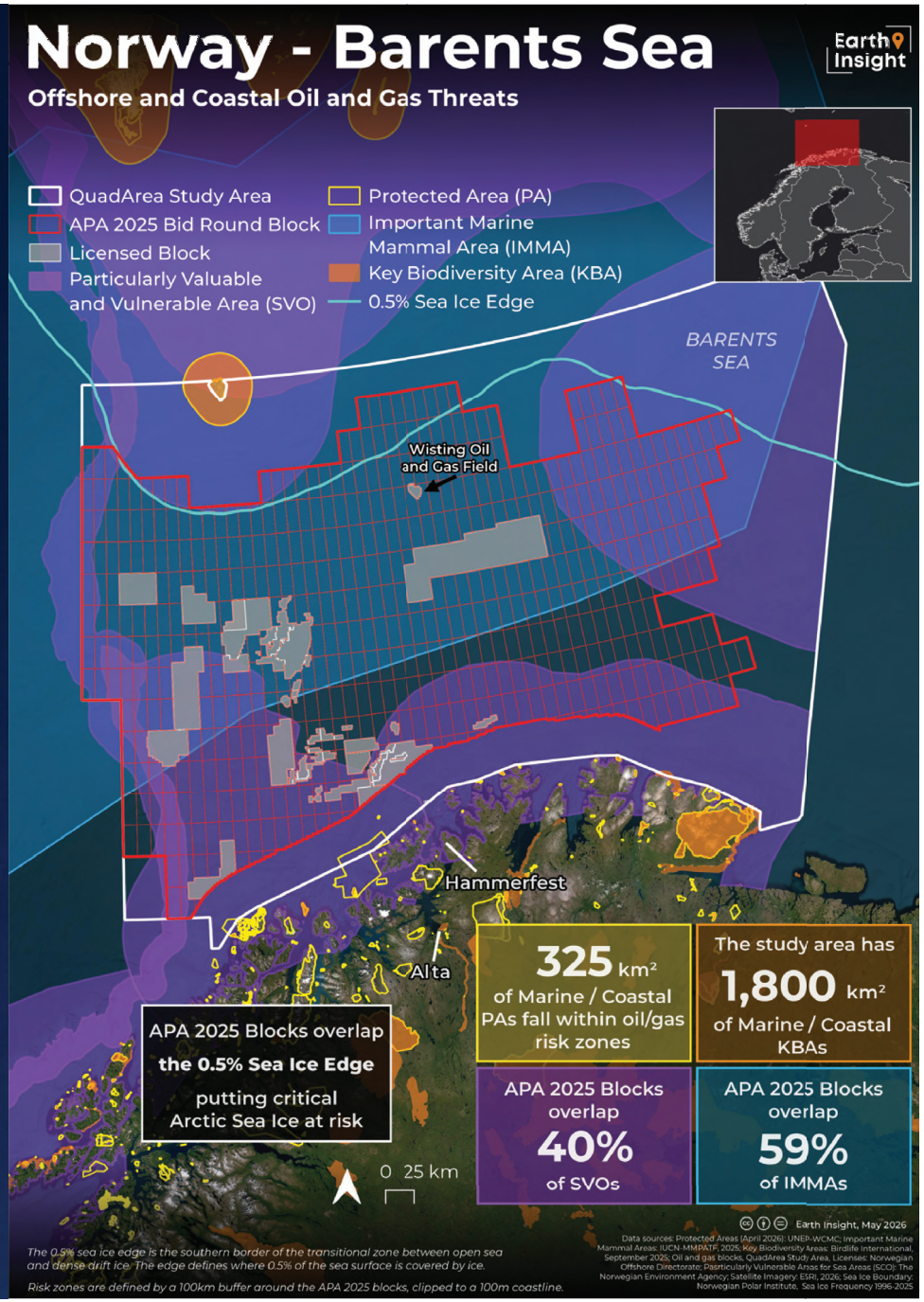
In the Douala/Kribi-Campo basin, planned blocks are within the Douala-Edea National Park[31] and the proposed area for the Ndongere National Park[32] and the Kribi-Campo proposed marine protected area[33] – the latter identified as an EBSA. About 92% of the EBSA is overlapped by the 2025 bid round blocks.

Located around the Sanaga River estuary and extending into coastal and nearshore environments, these areas encompass a mosaic of mangroves, coastal forests, lagoons and estuaries that support high levels of biodiversity. According to our analysis, about 43% or 854 km² of mangroves in the region are overlapped by oil and gas blocks.

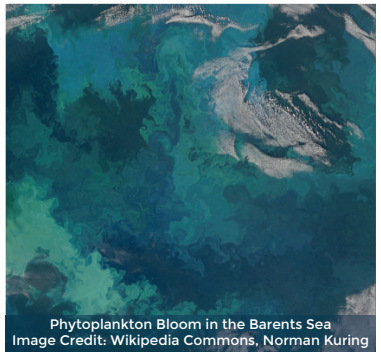
While Douala-Edéa is an established protected area, Ndongere is still in the process of being defined and gazetted, reflecting ongoing efforts to expand conservation through a mix of national parks and community-managed coastal ecosystems.

Civil society and affected communities in Cameroon have repeatedly challenged the social and environmental impacts of oil and gas infrastructure. For example, in 2011, four Cameroonian organizations (RELUFA, CED, FOCARFE, and CARFAD) filed a complaint[34] with the Compliance Advisor Ombudsman on behalf of communities affected by the Chad-Cameroon pipeline, raising concerns about compensation, loss of livelihoods, waste management, community health and safety, and impacts on Indigenous communities.





In January 2026, Norway offered a new package of oil and gas production licenses to 19 companies – the APA 2025 blocks.[35] Five of those licenses, which grant exclusive rights for exploration, drilling, and extraction, are for sites in the Barents Sea, at the country's northernmost tip.


Phytoplankton Bloom in the Barents Sea
Image Credit: Wikipedia Commons, Norman Kuring

This Arctic region holds Norway's largest undeveloped gas potential, with estimated resources of 1,399 billion standard cubic meters36 – equivalent to about two decades of Germany's annual gas consumption.[37] Because of its remoteness and high logistical costs, only a small fraction of this gas is currently being extracted. But if current plans go ahead, new infrastructure would make it more attractive for future investment.

The Barents Sea plays a key role for Arctic biodiversity. It is an important feeding ground for sperm, fin, humpback, and minke whales, and for many seabird species, including long-tailed ducks and little auks. Marine species like the Atlantic salmon and the Greenland halibut are also frequent in its waters. On the sea floor, the region is home to cold-water coral reefs.

Fossil fuel developments in the Barents Sea would cause major impacts for these species. Whales and other large marine mammals are susceptible to vessel strikes and very sensitive to underwater noise. Operational discharges and potential spillings could also have negative effects for marine plants and animals. Similarly, a planned 800-kilometers pipeline across the Barents Sea would pose a major risk to corals and other seabed species.[38]

Our analysis shows that 325 km² of marine and coastal PAs are within oil and gas risk zones, putting them at risk from oil spills, vessel traffic and other impacts. Similarly, about 59%, or 104,600 km², of the North Atlantic Humpback Whale Migratory Corridor Important Marine Mammal Area[39] is overlapped by the APA 2025 oil and gas blocks. Some 40% of Particularly Valuable and Vulnerable Areas (or SVO, the initials of Særlig verdifulle og sårbare områder in Norwegian – regions considered essential for marine biodiversity and biological production) are overlapped by APA 2025 oil and gas blocks.

Onshore impacts could also arise from expanded coastal infrastructure like power transmission lines, which would affect regions where Sámi Indigenous communities live and where reindeer herding and other traditional land uses remain important.

Sea ice adds another layer of risk to oil and gas development in the Barents Sea. The marginal ice zone, where open water transitions into dense drift ice, is one of the Arctic's most productive ecosystems, supporting plankton, ice algae, fish larvae, seabirds, marine mammals and polar bears.[40] Norway's own government has warned that oil pollution in this zone could have major impacts, as a single spill could affect many vulnerable species and habitats at once.[41] Our analysis shows that the APA 2025 blocks overlap with the 0.5% sea ice edge, which is the southern border where open sea transitions to sea ice that covers more than 0.5% of the ocean surface. Oil-spill response in these conditions is also highly uncertain. Ice, darkness, extreme cold, rough weather and remoteness can prevent responders from reaching a spill quickly, while ice can trap oil, hide it from detection, or make conventional clean-up tools much less effective.[42]

Environmental groups such as WWF Norway, Greenpeace Norway, and Young Friends of the Earth Norway have actively opposed new oil and gas activities in Norway, particularly in the Arctic's waters of the Barents Sea.[43] In some cases, this opposition has also reached the courts. In November 2025, two of these organizations won a legal case, with the court ruling that approvals for three offshore developments were invalid because the government had not sufficiently assessed combustion emissions.[44]

NORWAY (BARENTS SEA)

In Alaska, there is a plan to bring gas from the North Slope to Cook Inlet through an 800-mile pipeline. While some of this gas would be used domestically, the plan also includes building a terminal to export LNG to the Asian market. If it goes ahead, Alaska LNG would be one of the largest infrastructure projects in the US. As with other large-scale LNG developments, the project is not a single site but a connected system of extraction, transport and export infrastructure spanning multiple ecosystems.

The consequences will be felt across Alaska, but particularly in the North Slope and Cook Inlet, two ecologically sensitive regions. These two areas will be linked by the pipeline itself, meaning that environmental and social impacts will not be isolated but distributed along the entire corridor. According to one estimate, the pipeline would permanently affect about 30 km² of wetlands and cross 533 water bodies.[45]

The North Slope is home to Iñupiat communities, many of which rely on subsistence hunting and fishing. Its coastal seas provide habitat for animals such as Polar bears and walruses. In this context, the planned industrial expansion is not only an environmental issue but one that directly affects food systems, cultural practices and long-standing relationships between communities and the land.

Cook Inlet is one of Alaska's most ecologically important marine regions, where large tidal estuaries, mudflats, wetlands, river deltas and coastal waters support a rich mix of species. According to our analysis, the region holds 5,750 km² of Marine and Coastal Protected Areas. Fed by the Susitna and Kenai Rivers, among other major streams of fresh water, the inlet serves as critical habitat for all five species of Pacific salmon found in Alaska, including the king salmon. Its productive waters also support halibut, herring, eulachon, and other species that are critical for subsistence fishing. The region is also rich in seabirds, while surrounding marshes and tidal flats provide feeding and resting grounds for migratory birds along the Pacific Flyway.

The Inlet is notable for its marine mammals. It is home to the endangered Cook Inlet beluga whale, a genetically distinct population that lives year-round in these waters. Our analysis shows that its habitat extends over 8,300 km² in the Cook Inlet. It has declined sharply in recent decades and is currently/at present critically endangered.[46] Harbor seals, sea otters, orcas, humpback whales, and other cetaceans also use the region.

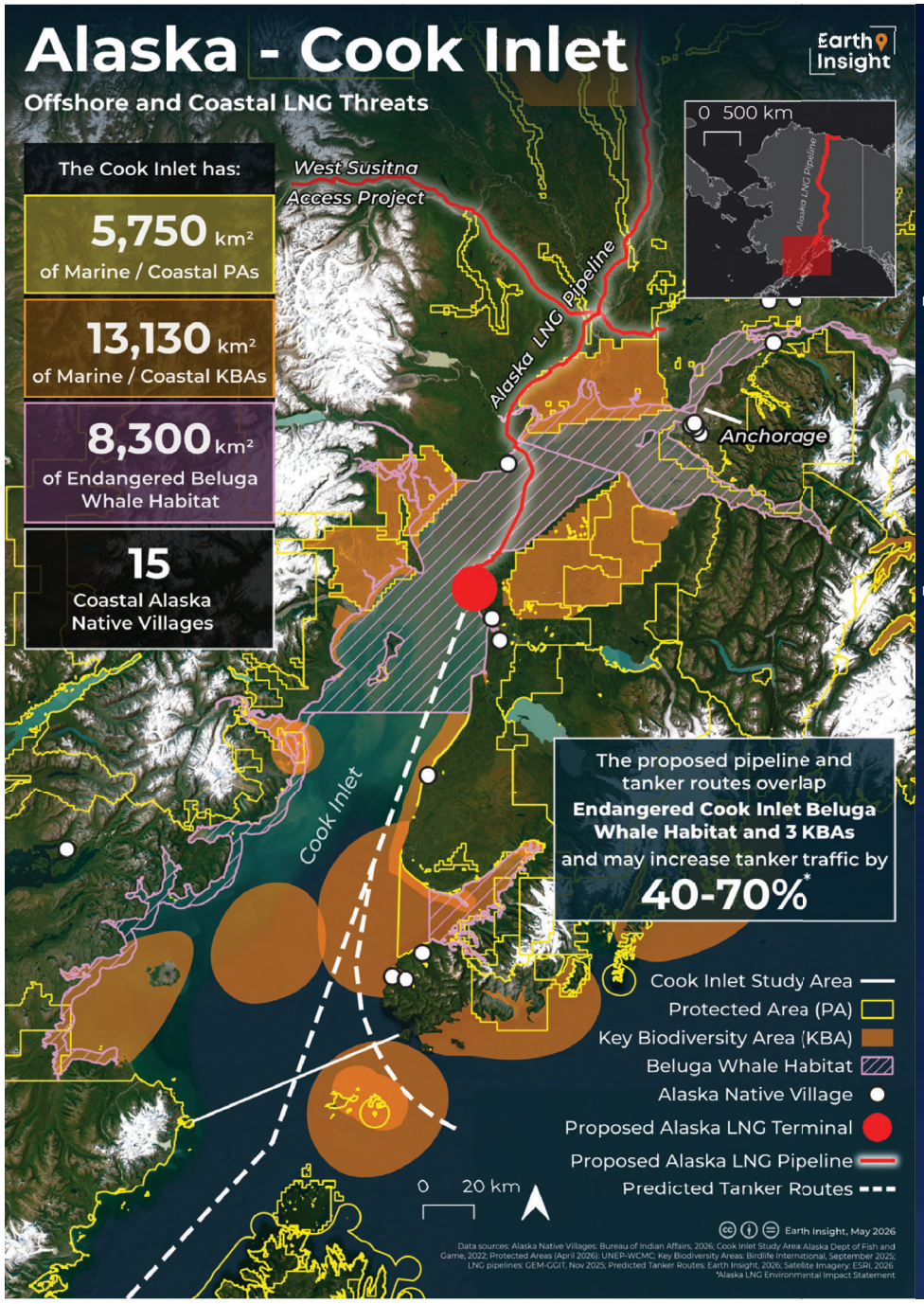
The proposed plan would add major new industrial pressure to Cook Inlet, an ecosystem already heavily affected by decades of oil and gas extraction, aging underwater infrastructure, coastal development, and vessel traffic. According to the project's environmental review, export operations could increase large-vessel traffic in Cook Inlet by 40-70%, adding underwater noise, collision risk, and cumulative stress in a habitat already used by tankers, tugs and industrial shipping.[47] Construction would also involve dredging, pile driving and new marine infrastructure at the LNG terminal in Nikiski and where the pipeline crosses the inlet.

Particularly sensitive areas lie close to the proposed crossing route. Construction would take place near the Susitna River delta, one of the Inlet's most important summer beluga feeding grounds, where whales gather to hunt salmon and where calving may also occur.[48]

Beyond Cook Inlet, the project's 800-mile pipeline would cut across Alaska from the North Slope to the Kenai Peninsula, crossing landscapes that play an important role in caribou migration and Indigenous food systems.[49] Our analysis shows that the pipeline and predicted tanker routes overlap the endangered Cook Inlet beluga whale habitat and three KBAs.

At Nikiski, where the LNG terminal would be built, the new facilities would also affect coastal areas tied to local fishing, including salmon drift-net fisheries, and communities such as the Kenaitze Indian Tribe and Salamatof Tribe.

Local opposition to oil and gas expansion in Alaska has been sustained, especially around Cook Inlet and the proposed Alaska LNG project. Cook Inletkeeper has been one of the most active local groups, arguing that the project is not economically viable, incompatible with climate commitments, and would increase risks to coastal communities and fisheries.[50]



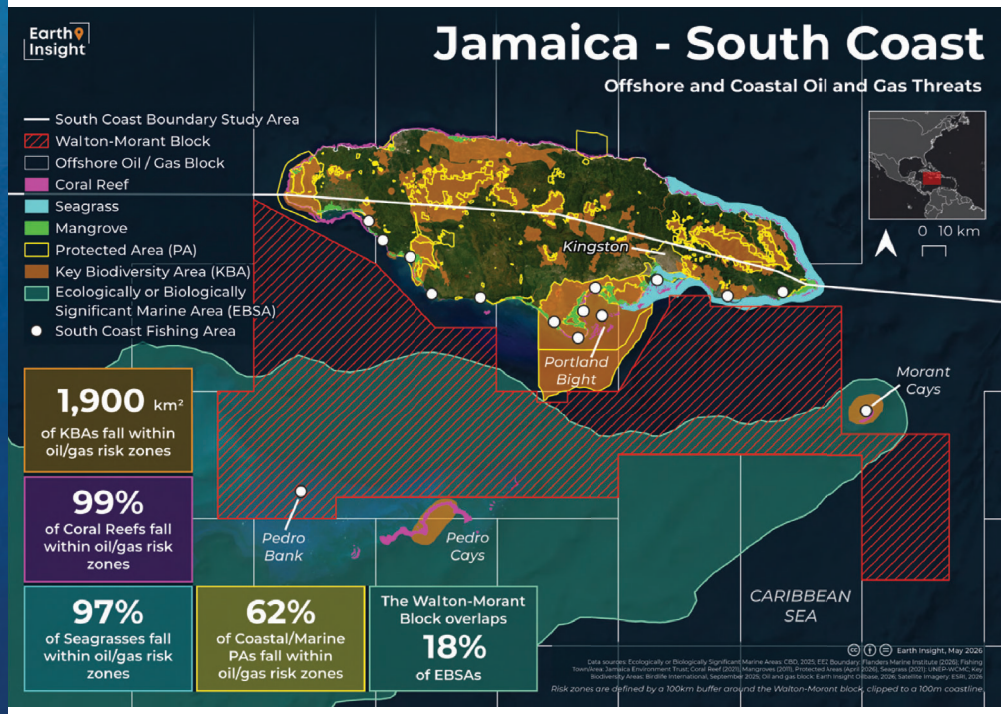
ALASKA (COOK INLET)

UNITED STATES OF AMERICA
DEPARTMENT OF ENERGY
HYDROCARBONS AND GEOTHERMAL ENERGY OFFICE

In The Matter Of:	§	
	§	
Corpus Christi Liquefaction, LLC	§	**Docket No. 26-32-LNG**
Corpus Christi Liquefaction Stage IV, LLC	§	
	§	
Cheniere Marketing, LLC	§	
	§	

MOTION TO INTERVENE AND PROTEST OF INGLESIDE ON THE BAY COASTAL WATCH ASSOCIATION, INC., INDIGENOUS PEOPLES OF THE COASTAL BEND, KARANKAWA TRIBE OF TEXAS, AND CARRIZO/COMECRUDO TRIBE OF TEXAS, LLC

EXHIBIT 8
PART 2



The Walton-Morant block is Jamaica's main offshore oil and gas exploration area, regarded as the country's most prospective hydrocarbon asset. Located in deep waters south of the island, it covers a large maritime zone. While the project is in the exploration stage, our analysis shows that this block alone overlaps with 11,000 km² of EBSAs, an area about the same size as the country itself.

Oil and gas activities in Jamaica would pose direct risks to coastal communities whose livelihoods depend on healthy marine ecosystems, particularly along the south coast, where fishing and tourism are closely connected. Towns such as Port Royal, Old Harbour Bay, Rocky Point, Alligator Pond, and Treasure Beach are key landing sites for artisanal and small-scale fisheries. These communities rely on daily access to nearshore and offshore fishing grounds, and even relatively small disruptions, such as restricted access zones around offshore infrastructure, increased vessel traffic, or pollution, could affect catches and incomes.

The risks extend offshore to some of Jamaica's most important fishing areas. The Pedro Bank, by far the country's main fishing ground,[51] along with the Pedro and Morant Cays and the wider Morant Bank, support a large share of the national fishery, including reef species and pelagic stocks.[52] Oil spills, drilling discharges, or seismic surveys in or near these areas could damage habitats, disrupt fish populations, and contaminate seafood supply chains.

Tourism, another pillar of Jamaica's economy, would also be vulnerable given that south coast destinations such as Port Royal, Hellshire Beach, Treasure Beach and the Black River depend on clean waters and intact ecosystems. Oil pollution or industrialization of the seascape could undermine both high-end resort areas (such as the Whitehouse coast) and community-based tourism models, which are particularly sensitive to environmental degradation.

There are several ecologically important areas along Jamaica's south coast and within the broader Walton-Morant area. One of them is the Portland Bight Protected Area,[53] one of Jamaica's largest marine protected areas. Listed as a wetland of international importance by the Ramsar Convention, the area is home to threatened species such as the Jamaican iguana, the hawksbill turtle, and the American crocodile. It contains mangroves, seagrass beds and coral reefs that support fisheries and protect the coastline. All this biodiversity is currently threatened. Our analysis shows that virtually all the island's coral reefs (99%) and seagrass areas (97%) fall within oil and gas risk zones.

Other sensitive sites include the Palisadoes-Port Royal Protected Area,[54] which is also a Ramsar site, as well as the Pedro and Morant Cays, which host seabird colonies and important marine habitats.

Large areas of these environmentally sensitive regions and protected areas are threatened by fossil fuel expansion. Our analysis shows that about 1,680 km² of PAs (62%) and 1,900 km² of KBAs (62%) fall within oil and gas risk zones.

Civil society groups have called for transparency in exploration activities and stronger safeguards for protected areas such as Portland Bight and the Palisadoes-Port Royal zone. These groups have also questioned[55] whether pursuing oil and gas development is compatible with Jamaica's climate ambitions,[56] particularly given the country's vulnerability[57] as a Small Island Developing State, and the growing impacts of extreme weather events, including Hurricane Melissa that struck the island in October 2025.

The Pedro Cays, a remote coral cay system off Jamaica's south coast, support important marine ecosystems and coastal livelihoods in the Caribbean Sea. Image Credit: Jamacia Environmental Trust

Crude oil along Rockley Bay from an oil spill caused by a capsized ship.
Image Credit: Nandani Bridglal via Shutterstock

Trinidad & Tobago is one of the Caribbean's most established oil and gas producers, with a long history of offshore extraction in the southern Caribbean. Recently, the country has been seeking to reverse declining output by opening new offshore areas and expanding gas developments, including cross-border projects with neighboring Venezuela.

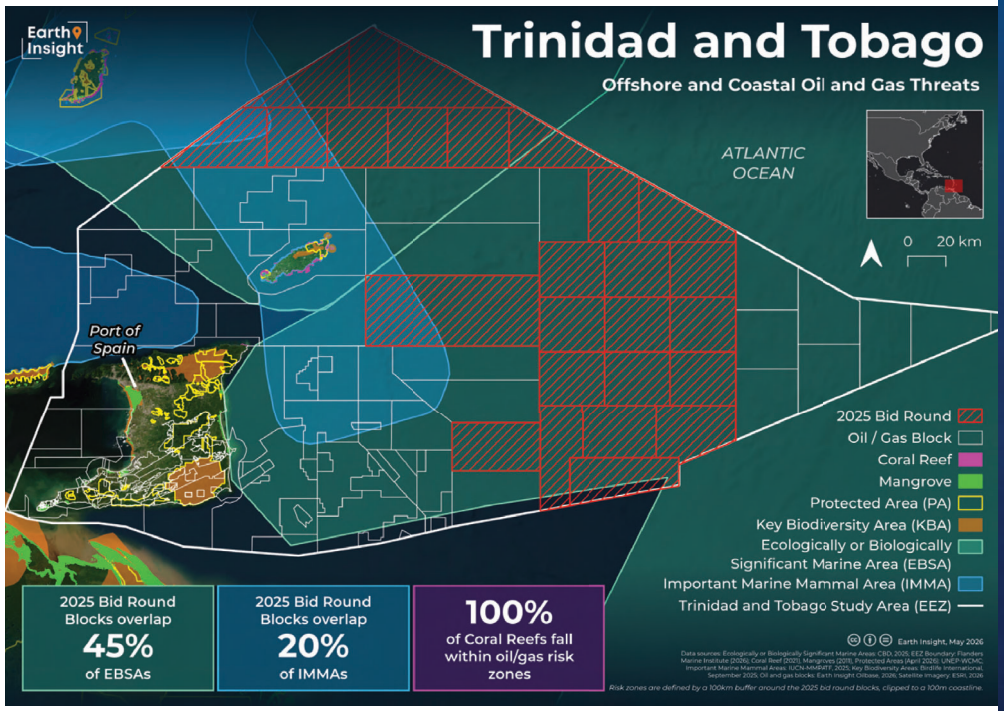
In 2025, a licensing round that offered[58] 26 deepwater offshore blocks for oil and gas exploration ended with bids for only four blocks.[59] More recently, Trinidad & Tobago's government obtained a license from the United States that allows the country to engage in oil and gas activities along the shared maritime border with Venezuela.[60]

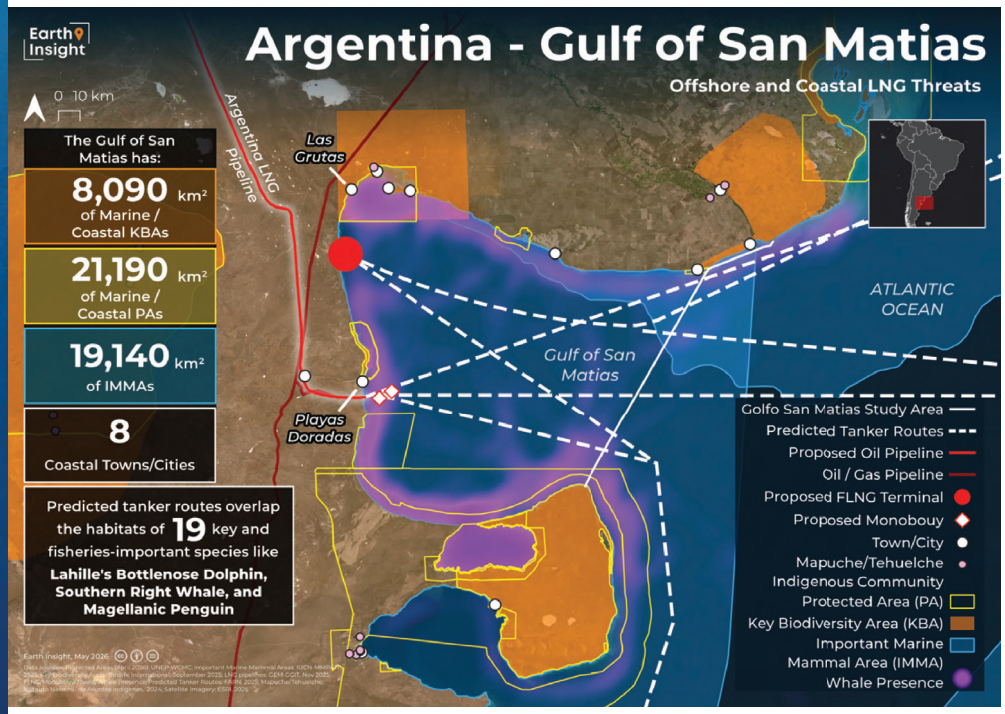
The blocks offered in the last licensing round overlap 3,400 km² of the West Indies Humpback Whale Breeding Ground IMMA,[61] a shallow water coastal area where more than 20 marine mammal species live, and the main breeding ground for the North Atlantic humpback whale. This overlap equals about 20% of the IMMA. Oil and gas blocks also overlap with 45% of EBSAs in the region, equivalent to 28,700 km² – about ten times the size of the country.

Oil and gas expansion would add pressure to coastal communities whose livelihoods already depend heavily on healthy marine ecosystems. For example,[62] research on Speyside and Charlotteville, two villages in north-east Tobago,

found that coral reefs, fishing grounds and coastal ecosystems support local livelihoods and eco-tourism, while pollution, oil spills and other marine impacts threaten fish abundance, biodiversity and fishing communities. Other fishing and tourism dependent communities in Tobago, including Castara, Buccoo, Bon Accord and Black Rock, could also be exposed to the risks of offshore expansion, including oil spills, seismic surveys and associated marine infrastructure. In Trinidad, vulnerable coastal communities include Cedros, Icacos, Moruga and Mayaro, where small-scale fisheries and nearshore ecosystems are important for livelihoods and food security. Our analysis shows that these and all the other coral reefs in the region (100%) fall within oil and gas risk zones. In 2024, an oil spill devastated Tobago's coastline,[63] causing an environmental disaster and major economic losses for fisherfolk[64] and the tourism industry.[65]

Groups like Fishermen and Friends of the Sea (FFOS),[66] have been actively monitoring and documenting oil pollution in Trinidad & Tobago, and taking legal action over energy infrastructure, including a case against the Environmental Management Authority linked to BP's offshore Kapok field and Bombax pipeline project.[67] Alongside FFOS, organizations such as SpeSeas, Save Our Sea Turtles Tobago, the Institute of Marine Affairs and the Caribbean Network for Integrated Rural Development have contributed to public awareness, marine pollution monitoring, policy engagement, and broader ocean governance debates.





Argentina is planning to build a new export corridor to channel gas from the inland shale fields of Vaca Muerta to new export facilities in the Gulf of San Matías. In 2022, the regional government amended a law that banned new hydrocarbon infrastructure in the gulf,[68] removing those restrictions. Three years later, the country granted its first 30-year LNG export permit,[69] aiming to position Argentina as a new global gas supplier.

The expansion will deepen Argentina's dependence on fossil fuel infrastructure for decades. The scale of the projects would also transform the Gulf of San Matías into a long-term fossil fuel export center, with significant risks for the local communities and marine biodiversity.

The Gulf of San Matías is one of Argentina's most ecologically important marine areas.[70] It is part of northern Patagonia's highly productive shelf ecosystem, where nutrient-rich waters support fish, seabirds, sharks, pinnipeds and whales. Its semi-enclosed geography, varied depths and seasonal oceanographic fronts create feeding and breeding habitats for many species.

Our analysis shows that the Gulf of San Matias includes 21,190 km² of marine and coastal PAs, 19,140 km² of IMMAs and 8,090 km² of marine and coastal KBAs.

Many iconic animals live in its waters, including Magellanic penguins, Patagonian seahorses, sea lions, and Lahille's dolphin. The region is also an important socializing and mating area for southern right whales.[71] This marine richness underpins much of the local economy, with tourism and artisanal fishing as two of the main activities.

Large-scale hydrocarbon projects such as pipelines, export terminals and LNG facilities could increase pressure[73] on already scarce freshwater resources in the arid Patagonian region, while raising the risk of pollution, habitat degradation and industrialization of coastal areas.

LNG expansion in the gulf will threaten its unique biodiversity and the way of life of local communities. A recent analysis found that the proposed expansion would increase marine traffic associated with LNG activities in waters used by around 2,000 southern right whales during the breeding and calving season. Whales would also suffer from noise pollution, which can disrupt communication between mothers and calves. Our analysis shows that predicted tanker routes overlap the habitats of 19 key and fisheries-important species.

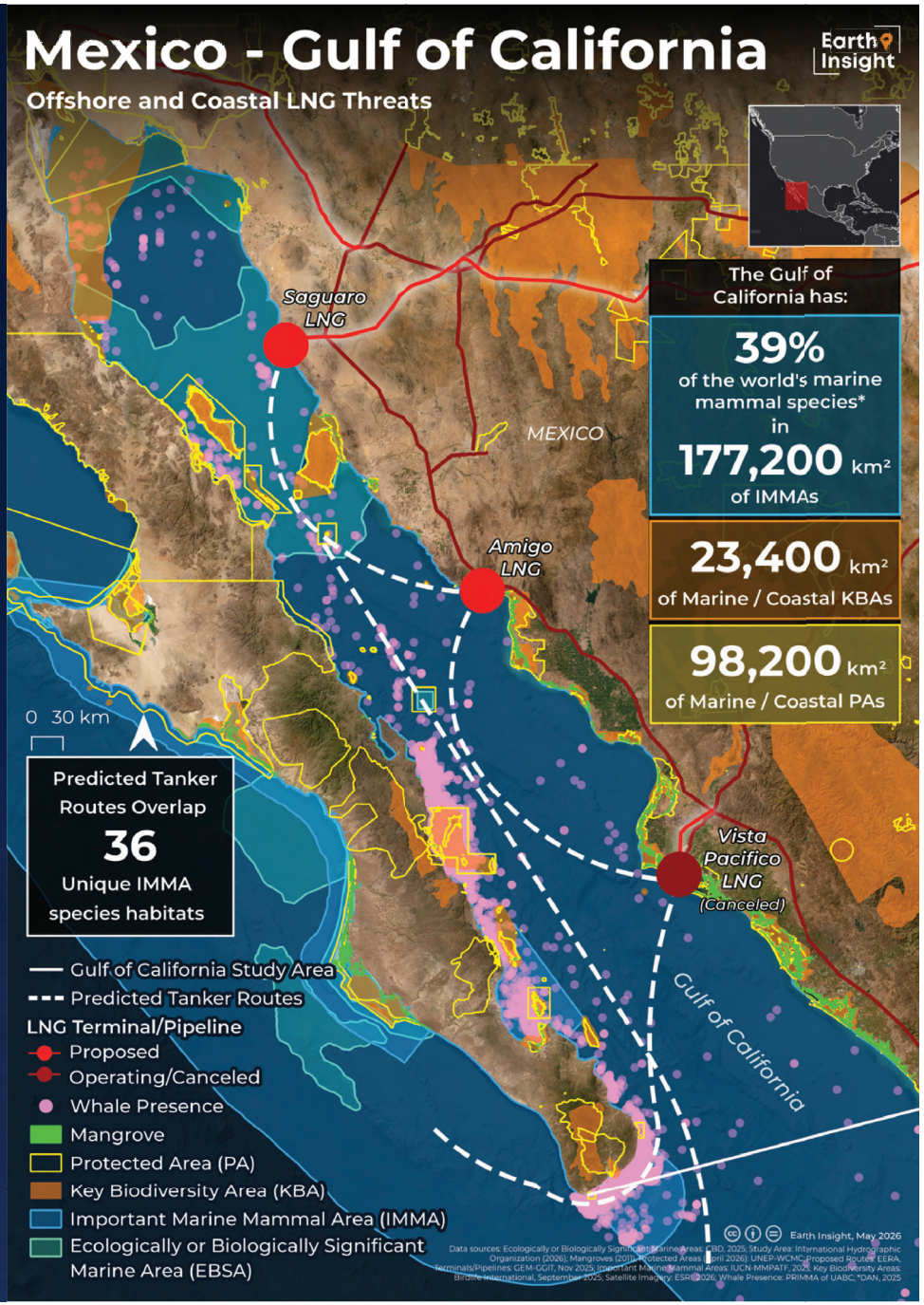
The buildout of fossil fuel infrastructure in the gulf would also have negative consequences for fisheries and tourism. Declining fish stocks will mean smaller catches for fishers and less food for marine mammals that attract visitors.

Many local and international organizations oppose these plans. In recent years, the "Atlanticazo" movement brought thousands of people to the streets in Mar del Plata, Buenos Aires and other coastal cities to protest offshore oil exploration projects in the Argentine Sea, citing concerns over oil spills, marine biodiversity, fisheries and tourism.[74]

Opponents also consider that the project lacked meaningful public participation and transparency in the approval process. Civil society organizations, Indigenous groups, and local communities have argued that public hearings for projects such as Vaca Muerta Oil Sur and the Southern Energy LNG development imposed restrictions on participation, limited access to information and failed to adequately assess cumulative environmental impacts.[75]

During its 2025 World Conservation Congress, the International Union for Conservation of Nature (IUCN) passed a resolution calling on the Argentine government and the province of Río Negro to restore stronger environmental protections for the Gulf of San Matías.[76]

Magellanic Penguins.
Image Credit: William Warby via Flickr (CC BY 4.0)



In Mexico, there are plans to turn the Gulf of California into a major hub for global LNG trade. The proposed terminals in the Gulf of California include both onshore and offshore projects, all of which would lead to a significant increase in vessel traffic, with negative consequences for marine life and the communities that depend on this ecosystem. This expansion would significantly increase pressure on a region known for its high ecological value where there are more than 10 designated protected areas.[77]

Because of the project's scale, the large volume of gas it aims to export, and its potential impact across the entire gulf, the most controversial of these initiatives is Saguaro LNG, led by the company Mexico Pacific.[78] The project would liquefy US gas from the Permian Basin to export it to Asia. If fully developed, it could bring an estimated 632 LNG tanker calls a year[79] into an area that currently has relatively low large-vessel traffic. However, the project is currently on hold due to several lawsuits[80] on environmental and climate grounds, with court-ordered injunctions[81] blocking the construction of the liquefaction plant and restricting LNG tanker traffic linked to the project while the legal challenges are pending. The plaintiffs allege irregularities in the permitting process and violations to environmental human rights.

Another planned LNG development, Vista Pacífico LNG,[82] was recently cancelled.[83] The project had been planned as a mid-scale LNG offshore terminal capable of exporting around 3 million tons per year. Its cancellation is a positive development in the effort to maintain the ecological stability of this region that is vital for Mexico's fisheries, communities, and the vast array of marine species present.

A third project, a floating export facility called Amigo LNG,[84] is still moving ahead. If developed, it would have capacity to export 7.8 million tons per year,[85] becoming the world's largest floating LNG facility.[86]

The Gulf of California is one of Mexico's most ecologically important marine regions and a global hotspot for marine mammals. Often described[87] as "the world's aquarium," it contains a UNESCO World Heritage site and is recognized as an Important Marine Mammal Area because of its importance for endangered and vulnerable whale species. About 40% of all marine mammal species live in this region.[88] Our analysis shows that predicted tanker routes overlap 36 unique IMMA species habitats. Some of the species that live or spend parts of the year in the region include[89] endangered blue whales, whale sharks, orcas, California gray whales, and the vaquita, the world's most endangered marine mammal.[90]

Scientists warn that the projects' vessel routes would overlap with critical habitat for Bryde's, blue, and fin whales near the Midriff Islands and Puerto Libertad, turning key feeding and migration areas into high-risk zones for ship strikes and underwater noise.[91] The same assessment concludes that the project's existing environmental studies do not adequately model collision risk or acoustic impacts. Mexican authorities have even acknowledged the vulnerability of blue[92] and humpback[93] whale populations to increased marine traffic, as well as the need to implement additional protective measures to preserve the essential biological processes of these species.

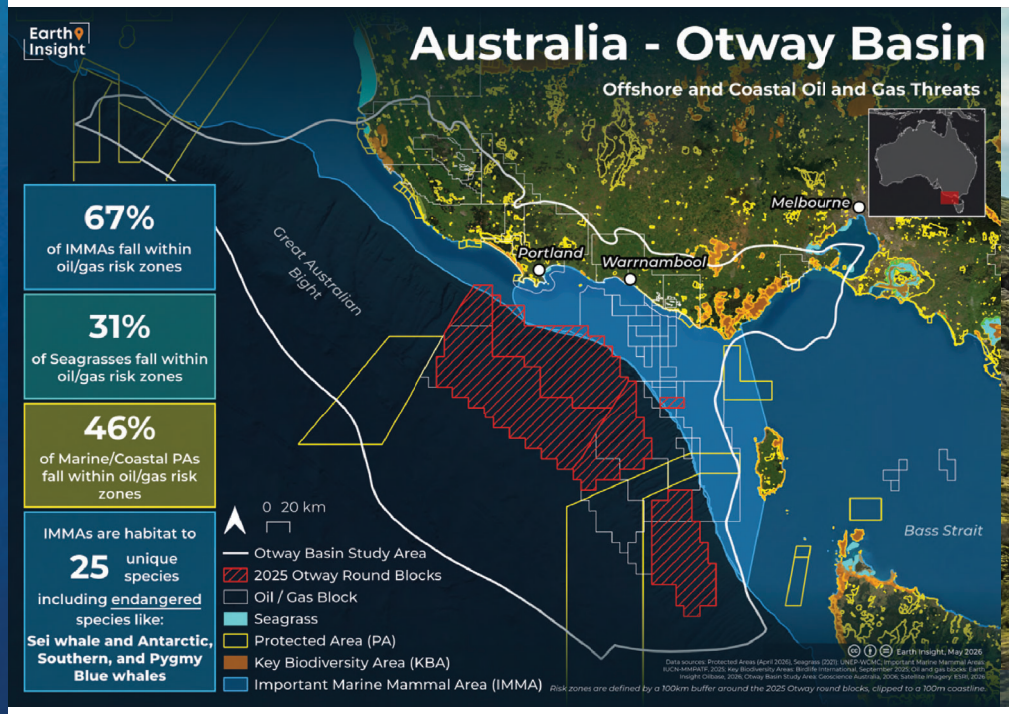
The Gulf of California is also one of Mexico's most important fishing areas, with fisheries that account for over 70% of the country's annual catch and contribute around US$ 900 million per year to the national economy.[94]

Communities bordering the Gulf of California have filed complaints to organizations such as the United Nations, UNESCO, the Inter-American Commission on Human Rights, the Ramsar Convention, and the IUCN.

In response to these alerts, eight United Nations special rapporteurs have issued official communications[97] addressed to companies and governments involved in these projects, expressing serious concerns about the potential impacts on the ecosystem and the rights of the communities.

The Ballenas o Gas (Whales or Gas) campaign was launched by Mexican and international environmental organizations to stop the Saguaro project and other LNG developments in the Gulf.[96] The campaign highlights the threats posed by the LNG industry to air and water pollution, and the increased risks of gas leaks and collisions between whales and tankers. There has also been active campaigning against the banks that are enabling this expansion.[97]

MEXICO (GULF OF CALIFORNIA)



View from Great Otway National Park, where rugged coastlines and rich marine ecosystems meet along southern Australia. Image Credit: VH-MEL34.T via Wikimedia Commons (CC BY-SA 4.0)

As part of its energy strategy, Australia has continued to promote offshore oil and gas exploration in recent years. One of the latest developments in this strategy is the 2025 offshore acreage release in the Otway Basin, located off the southern coast near Victoria and Tasmania.[98] After a four-year pause in offshore petroleum acreage releases, the 2025 release marked a significant setback for groups calling for an end to new fossil fuel expansion in Australian waters. Bidding is open until mid-2026, with many blocks overlapping or adjacent to ecologically important regions, including PAs, IMMAs, KBAs, and coastal habitats that support diverse marine life. According to our analysis, 46% of PAs (10,880 km^2), and 67% of IMMAs (19,870 km^2) fall within oil and gas risk zones, along with 31% of seagrass (31 km^2).

The waters of southern Australia are known for their ecological significance. Seasonal upwellings and productive shelf ecosystems sustain feeding and breeding grounds for marine mammals, such as the pygmy blue whale, which migrates thousands of kilometers from Indonesian waters.[99] These rich waters are also home to orange roughy – a deep-sea fish found along Australia's steep continental slopes and ocean ridges that can live for more than 140 years.[100] The species has a long history of overfishing[101] and is listed as conservation dependent under national environmental law.[102]

Opposition to offshore oil and gas development in Australia has been strong and sustained.

Environmental organizations such as Surfrider Foundation, Australian Marine Conservation Society (AMCS) and the Australian Conservation Foundation have led campaigns against the Otway Basin release and other projects like PEP11.[103] These efforts build on previous high-profile victories, including the successful campaign to halt drilling plans in the Great Australian Bight.[104]

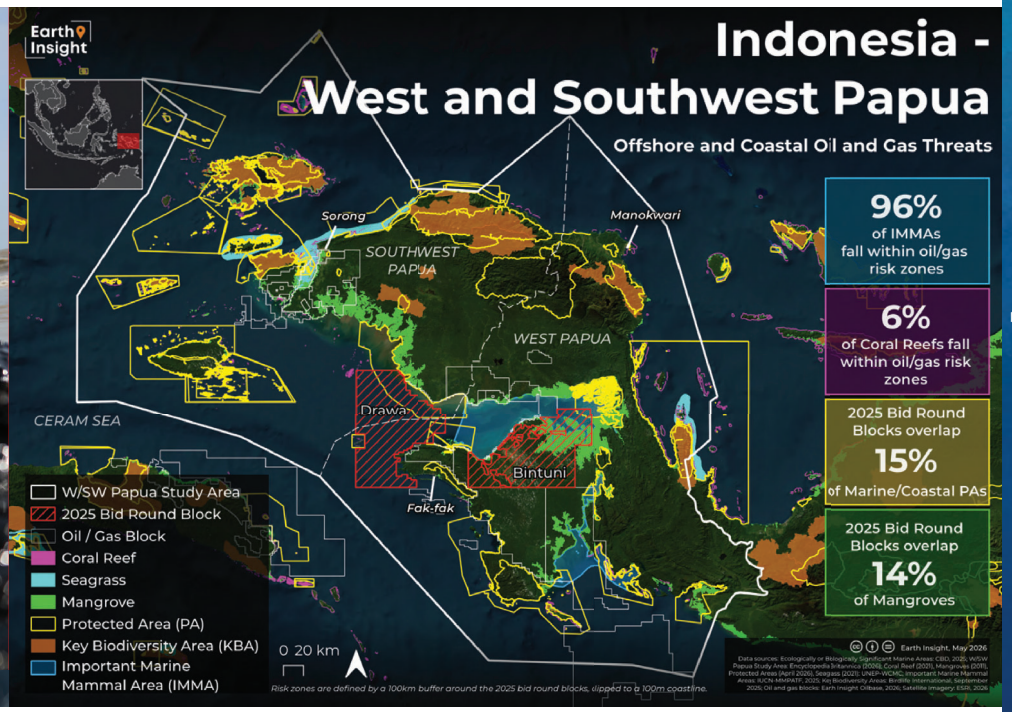
A study conducted by Western Australia government's Department of Primary Industries and Regional Development found that lobsters exposed to seismic airguns showed changes in behavior in the months following exposure.[105] Other research shows that seismic testing harms zooplankton, with airgun blasts causing a two- to threefold increase in mortality among adult and larval specimens, and impacts detected more than a kilometer from the source.[106]

Coalitions of community groups, First Nations organizations and environmental advocates have mobilized against seismic blasting, highlighting risks to marine wildlife and coastal livelihoods.[107]

In 2024, AMCS opposed seismic blasting on the grounds that it would harm threatened and protected marine life, including endangered southern right whales, pygmy blue whales, Australian sea lions, little penguins, plankton communities and species within nearby marine parks.

INDONESIA (WEST/SOUTH-WEST PAPUA)STRAIT)

Workers clean an oil-contaminated shoreline in West Java, Indonesia, following a 2019 spill in the Java Sea that raised concerns about impacts on marine ecosystems and coastal communities.Image Credit: Andrew Gal/NurPhoto via Getty Images



In recent months, Indonesia's oil and gas industry has gained momentum. The country has recently awarded nine new offshore blocks,[108] with additional licensing rounds expected in the short term.[109] The move has been touted by the government as a way of increasing national energy security and reducing reliance on imports.

Eastern Indonesia is part of the Coral Triangle, considered the world's most biodiverse marine region.[110] Western Indonesia is also ecologically important, with the Sunda Shelf and Malacca Strait supporting mangrove, seagrass and coastal ecosystems. Expanding oil activities in the country could increase pressure on areas that are ecologically sensitive and provide a source of food and income for local communities.

Some of the new awarded blocks affect critical protected regions, particularly in West Papua. The Drawa block intersects with both the Seribu Satu Sungai Teoenobikia[111] and the KK Teluk Berau dan Teluk Nusalasi-Van Den Bosch[112] conservation areas. Similarly, the Bintuni blocks overlap with the KKP-10 Teluk Bintuni[113] and with the Bintuni Bay IMMA,[114] which together form one of the largest continuous mangrove habitats in the world. Its estuarine and coastal regions support a wide range of marine species, including the vulnerable Australian humpback dolphin.

The planned oil and gas blocks and the areas around them overlap with environmentally sensitive regions. For example, our analysis shows that 14% or 660 km2 of mangroves are overlapped by Bintuni and Drawa blocks, and 15% or 9,505 km2 of marine and coastal PAs and 96% or 7,430 km2 of IMMAs fall within oil and gas risk zones.

An oil spill in the region could have severe consequences for coastal communities. In 2019, a leak from a well in the Java Sea affected 13 villages in Karawang, north of Jakarta, threatening the health and livelihoods of almost 8,000 people.115 The oil reached nearby beaches and thousands of polluted sand and rocks had to be cleared.

Indonesian and international civil society groups are challenging new gas expansion. In February 2026, 72 organizations called on Japanese public finance institutions not to support the expansion of the Tangguh LNG project in West Papua. 116 They cite environmental, social and human-rights impacts on Indigenous peoples, suppression of civic space in Papua, inconsistency with the Paris Agreement, and the risk of prolonging fossil-fuel dependence.

CONCLUSION
WHAT'S AT STAKE

This report and its case studies show that offshore and coastal oil and gas expansion is advancing across some of the world's most ecologically important marine regions. The affected areas include whale migration corridors in the Barents Sea, endangered beluga habitat in Cook Inlet, mangroves and Key Biodiversity Areas in Tanzania and Kenya, coral reefs and seagrass meadows in Jamaica and Trinidad & Tobago, and protected coastal ecosystems in Cameroon, Indonesia and Australia.

Diver in the Gulf of California.
Image Credit: Courtesy of © Kip Evans / Mission Blue via IUCN/Flickr (CC BY-NC-SA 4.0)

An LNG tanker near the Nikiski Terminal in Alaska's Cook Inlet.
Image Credit: Inletkeeper

Fisheries
Sustaining food security and livelihoods for millions.

Mangroves
Protecting coastlines, storing carbon and supporting biodiversity.

Coral Reefs & Seagrasses
Supporting marine life, tourism and coastal resilience.

Coastal Communities
Protecting health, culture and ocean-dependent livelihoods.

Indigenous Peoples
Safeguarding rights, traditions and ocean connections.

Many of the proposed blocks and their risk zones overlap with large portions of PAs, IMMAs, KBAs and EBSAs. All these planned fossil fuel activities pose threats for fisheries, coastal livelihoods, Indigenous peoples, marine mammals, coral reefs, mangroves, seagrasses and ecosystems that are already under pressure from climate change.

These findings reinforce the need for governments, financial institutions and companies to stop funding and supporting offshore oil and gas expansion, particularly in or near protected and ecologically sensitive areas. High-value marine and coastal areas should instead be prioritized for protection, restoration and a just energy transition, including through Fossil Free Zones and 30x30 implementation that excludes new fossil fuel infrastructure.

Protecting these areas also means safeguarding the rights and livelihoods of coastal and Indigenous communities, redirecting investment toward clean energy and coastal resilience, and strengthening legal frameworks that support a fair phase-out of fossil fuel production.

KEY RECOMMENDATIONS

The case studies in this report show that oil, gas and LNG expansion is moving into marine and coastal regions that are already under severe ecological and social pressure. These projects threaten critical habitats, undermine climate goals, and place coastal and Indigenous communities at risk. Governments, financial institutions and companies should treat these regions not as new fossil fuel frontiers, but as priority areas for protection, restoration and a just energy transition.

01

Stop new offshore and coastal fossil fuel expansion.

Governments should stop granting new licenses, permits, extensions and approvals for offshore and coastal oil, gas and LNG projects, especially in or near PAs, KBAs, IMMAs, EBSAs, coral reefs, mangroves, seagrass meadows and other ecologically sensitive regions. Existing unassigned oil and gas blocks in these areas should be permanently retired from national planning frameworks.

02

Create Fossil Free Zones in high-value marine and coastal areas.

Governments should establish Fossil Free Zones[117] in places of high ecological, cultural and social importance. These should be legally defined areas where fossil fuel exploration, extraction, processing, export infrastructure and related activities are permanently prohibited. This approach would translate broad climate commitments into concrete, place-based protections for regions such as whale breeding grounds, mangrove forests, coral reef systems, Indigenous territories, small-island coastal zones and other areas where fossil fuel development is incompatible with biodiversity protection and community wellbeing.

03

Align ocean protection with Target 3 of the Global Biodiversity Framework (30x30).

Countries should ensure the that implementation of the target to protect at least 30% of terrestrial, inland water, coastal, and marine areas by 2030. This protection should include areas that are important for biodiversity and ecosystem services. New oil, gas and LNG infrastructure in these regions would undermine the purpose of 30x30 and risks creating areas that are protected in name but exposed to industrial fossil fuel activity.

04

Protect community rights and livelihoods.

All decisions affecting coastal and offshore areas should be based on meaningful public participation, access to information, and the free, prior and informed consent of Indigenous peoples and affected communities. Governments should protect fishing, tourism, food security, cultural practices and other ocean-dependent livelihoods from the risks of spills, seismic blasting, vessel traffic, pollution, dredging, port construction and coastal industrialization. Communities should have access to independent environmental information, legal remedies, and compensation where harm has already occurred.

05

End finance for offshore oil, gas and LNG expansion.

Banks, insurers, export credit agencies, development finance institutions and public investors should stop offering financial support for new offshore and coastal fossil fuel projects. Continued finance for oil and gas expansion locks countries into long-lived infrastructure, increases climate risk, and diverts capital away from renewable energy, resilience and ecosystem restoration. Financial institutions should also require clients to disclose risks to biodiversity, human rights, Indigenous peoples, fisheries, tourism and coastal economies before supporting any existing fossil fuel activity.

06

Redirect investment toward clean energy and coastal resilience.

Governments and investors should redirect public subsidies, infrastructure planning and private finance toward renewable energy, energy efficiency, grid modernization, storage and locally appropriate clean-energy systems. Investment should also support coastal resilience, including mangrove restoration, coral reef protection, sustainable fisheries, locally led conservation and climate adaptation. This is especially urgent for small island states and coastal communities that are highly exposed to sea-level rise, storms, warming waters and fossil fuel pollution.

07

Strengthen legal and international frameworks.

Governments should strengthen national laws, regional agreements and international mechanisms to prevent new offshore and coastal fossil fuel expansion in sensitive areas. Countries should also support international efforts such as the Fossil Fuel Treaty, which seeks a fair phase-out of fossil fuel production and a just transition away from fossil fuel dependence.

Methodology

Report Creation and Validation

This report would not have been possible without the guidance, input, and validation provided by our regional partners: Ajemalebu Self Help (AJESH) (Cameroon), Auriga Nusantara (Indonesia), Climate Tracker Caribbean (Trinidad and Tobago), Cook Inletkeeper (Alaska), Defensa Ambiental del Noroeste (DAN) (Mexico), Foundation for Environmental Management and Campaign Against Poverty (FEMAPO) (Tanzania), Fundación Ambiente y Recursos Naturales (FARN) (Argentina), Gran Caribe Libre de Fósiles (Caribbean), Jamaica Environment Trust (Jamaica), Kenya Oil and Gas Working Group (KOGWG) (Kenya), Nuestro Futuro (Mexico), World Wildlife Fund Norway (WWF Norway) (Norway). Case studies were reviewed and validated by partners.

Data Disclaimer:

The geospatial analyses in this report are an attempt to capture potential threats to ecosystems using the most recently available, most accurate and precise data and methods available. As such, the results of these analyses may change between reports as data and/or methods are updated. The World Database of Key Biodiversity Areas (WDKBA) releases regular updates based on national assessment processes. The World Database on Protected Areas (WDPA) has known data inconsistencies due to national government data reporting. We have accounted for these inconsistencies wherever possible. The Important Marine Mammals Area (IMMA) dataset contains regions that have not yet been assessed, such as the South East Atlantic Ocean. Consequently, the current analysis may not encompass all IMMAs within that region.

Oil and gas blocks data used in the analyses in this report include only the most recent, current, and upcoming oil and gas blocks as of the start date of our analysis, February 2026. Case study maps show all oil and gas blocks in the study area, including blocks already in production and exploration. These blocks are not used in the threat analysis.

Value Layer Processing

Before calculating the areas of value layers, Protected Areas, Key Biodiversity Areas, Important Marine Mammal Areas, Ecologically or Biologically Significant Marine Areas, coral reefs, seagrasses, mangroves, and Particularly Valuable and Vulnerable Areas, duplicate and overlapping features were removed.

Oil and Gas Risk Zone Definition

Oil and gas risk zones were defined by a 100 kilometer buffer around study oil and gas blocks, and clipped to a 100 meter coastline. The 100km buffer was selected based on three studies which show that oil spills can travel over 100km. The 100m coastline was selected based on a study which shows that oiling events occurred more than 100m inland after the Deepwater Horizon oil spill. Coastlines were manually corrected in Kenya and Indonesia using Planet satellite imagery from March, 2026. This methodology is not a defined international standard and was created for the purpose of quantifying potential threats from oil spills, tanker traffic, and pollution in the neighboring area around oil and gas blocks.

Oil and Gas Threat Analysis

The areas of value layers under oil and gas blocks were calculated by intersecting the respective value layer with the oil and gas blocks and then summing the resulting areas. This analysis was then repeated using the oil and gas block risk zones. Analysis outputs were clipped to each respective study area boundary.

Marine and Coastal Protected Areas and Key Biodiversity Areas

The analysis includes only marine and coastal Protected Areas (PAs) and Key Biodiversity Areas (KBAs). Marine and coastal PAs were defined using the WDPA criteria. Marine and coastal KBAs were defined using the Birdlife International's criteria, then manually corrected to include KBAs located entirely in the ocean or intersecting the 100m coastal buffer.

Predicted Tanker Routes

Predicted tanker routes were drawn based on historical tanker traffic in the study area using the Global Maritime Traffic Density Service dataset.

Study Areas

Case study study areas were defined using the following sources.

Alaska Study Area (Cook Inlet): The Barrens Island District boundary from: Alaska Department of Fish and Game (2022). Subdistricts of the Lower Cook Inlet Salmon Management Area, was combined with the coastlines dataset.

Argentina Study Area (Golfo San Matias): Flanders Marine Institute (2018). Internal Waters, version 3. Available online at https://www.marineregions.org/. https://doi.org/10.14284/323.

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Jamaica South Coast Study Area: This study area was created by drawing a line from the northern and western most points of the Jamaican coastline, and connecting them to the Jamaican EEZ. Flanders Marine Institute (2023). Maritime Boundaries Geodatabase, version 12. Available online at https://www.marineregions.org/. https://doi.org/10.14284/628

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Tanzania Study Area (Lindi District): Database of Global Administrative Areas (GADM 4.1), and manually adjusted to include marine areas.

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