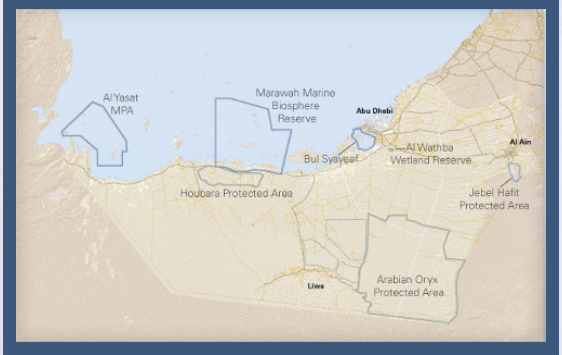
Fossil Fuels in Protected Areas

Case Study

Oil and Gas in the Marawah Biosphere Reserve

UAE

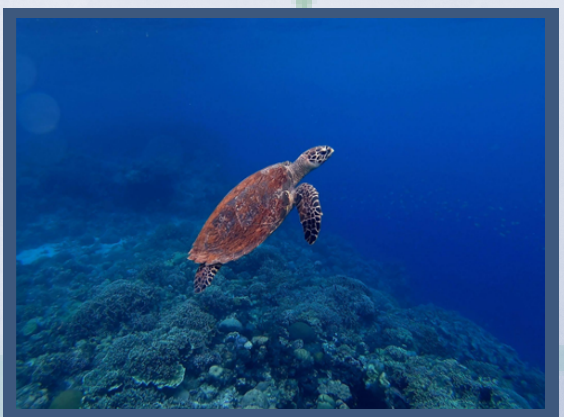
The Hail and Ghasha offshore oil and gas fields in the United Arab Emirates (UAE) lie within the boundaries of an important UNESCO programme site: the Marawah Biosphere Reserve.[1] Existing oil extraction operations in the Hail field are still increasing in capacity and are expected to reach their peak in 2033.[2] In July 2022, an oil and gas development project headed by the Abu Dhabi National Oil Company (ADNOC) started awarding contracts worth $2.7 billion for drilling and technological support.[3] ADNOC expects to begin extraction from Ghasha around 2025.



Protected areas in the UAE, including the Marawah Biosphere Reserve
Image: Environmental Atlas

Importance of the protected area

The Marawah Marine Protected Area (MMPA) is the UAE's first biosphere reserve, established in 2001, and with 4,200 square kms it is the largest Marine Protected Area in the Persian Gulf.[4] Protecting a variety of habitats such as seagrass, mangrove forests and coral reefs, it is of global ecological significance.[5] The reserve provides shelter and feeding grounds to 60% of the second largest dugong (Dugong dugon) population in the world.[3] In addition, the area contains key nurseries and spawning grounds for many fish species, and important regional feeding grounds for the hawksbill sea turtle (Eretmochelys imbrigata) and the green sea turtle (Chelonia mydas).[4]



Hawksbill sea turtle (Eretmochelys imbrigata)
Image: Olga Ga

Bu Tinah, a small cluster of islands that are rich in mangrove forests also lies inside the reserve, not far from Abu Dhabi. The islands provide a nesting ground for local and migratory birds, such as the osprey (Pandion haliaetus). The archipelago is surrounded by a particular set of coral reefs, which have been referred to as a "living laboratory" for their utility in climate change research.[6] The Gulf's waters are one of the warmest and most saline marine environments in the world, which naturally puts the local coral reef communities under stress. Typically, corals survive in water temperatures ranging from 23 to 28°C, however the water temperatures in the UAE can reach up to 35°C.[5] This provides a crucial opportunity to study how these marine communities adapt in the face of high temperatures. Since climate change is causing global sea temperature increases, this research could provide insight into how to protect similar communities in other parts of the world.

Threats from fossil fuels

Currently, oil extraction is happening inside the Mararwah Biosphere Reserve. Existing facilities are expected to extract 128.9 million barrels of oil equivalent (mmboe), producing approximately 54 million tonnes of CO2.[7]

The expansion that is planned within the boundaries of the MMPA is part of the Ghasha mega-project, which is among the world's largest offshore gas extraction projects. It is expected to extract over 1.5 billion cubic feet of fossil gas per day, and over 120,000 barrels of oil per day. This means that once completed, the project will produce over 49.6 million tonnes of CO2 every year. Four foreign companies are involved, besides UAE's ADNOC: Italy's ENI (25%), Germany's Wintershall Dea (10%), Austria's OMV (5%), and Russia's LUKOIL (5%), with a concession term of 40 years as of November 2018.[8,9]

The project was delayed during the COVID-19 pandemic due to lower global oil and gas prices. As of 2022, activities have restarted. So far, 19 wells have been drilled in the Hail and Ghasha fields.[10] Seismic surveys have been conducted, and economical quantities of gas and condensate have been found.

There are numerous concerns about the impact of fossil fuel extraction from the Hail and Ghasha fields on the ecosystems of the MMPA. Pollution from the oil and gas industry has already been identified as a major threat to marine environments in the UAE, which, due to the local currents, tends to wash into the dugong habitats.[10]

Dredging and building artificial islands - an activity associated with oil and gas drilling - poses a great threat to seagrass habitats, which are critical for dugongs and sea turtles.[11] The construction of artificial islands may affect neighboring islands such as Bu Tinah through water quality degradation, erosion, stirring up long-buried contaminants and pollution, which could deteriorate seagrass and coral populations.[12] The construction of 11 artificial islands is planned, 4 of which have already been built.

A dugong (Dugong dugon) feeding on seagrass
Image: Ray Aucott

More information

- *UAE Dugong and Seagrass Hub*
- *Marawah Marine Biosphere Reserve, Natural Wonders of the UAE*

The Leave it in the Ground Initiative (LINGO) is a German-based non-profit, working on accelerating the transition to a world with 100% renewable energy.

References

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