



Showcasing the effectiveness of Ocean Multi-use practices in the North Sea and Baltic Sea.



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 SCAN ME

## ULTFARMS Danish Pilot Anholt

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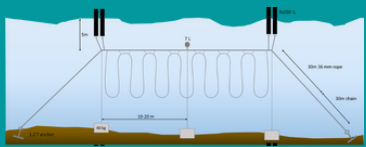


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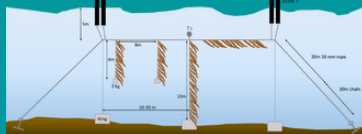
# About the pilot

Located 11 nautical miles from Anholt Island and 19 nautical miles from Grenaa port, the Anholt Offshore Wind Farm (OWF) is exposed to strong currents (max. 3 knots, average 1.5 knots) and high wind conditions (max wave height 5.7 m). With 111 fully developed windmills, the main objectives of the Anholt OWF pilot are:

- **Blue Mussels & Seaweed Cultivation:** Demonstrating the potential for producing blue mussels, sugar kelp, and dulse.
- **System Configurations:** Testing different production system configurations.
- **Biodiversity Impact:** Assessing the effects of these production systems on mobile epifauna and surrounding biodiversity.



Production systems for seaweed and mussels at Anholt OWF



# Main Achievements

- **Licenses & Production:** Blue mussel and seaweed production licenses granted (spring 2023 & early 2024). Production systems deployed for both species.
- **Seaweed:** Production lines (autumn 2023) yielded low biomass (0.4 kg/m) but a clean, fouling-free product.
- **Blue Mussels:** Good recruitment on “fuzzy rope” collectors (Sept. 2024), poor on nylon bands. Barnacle settlement observed.
- **Monitoring & Data:** A monitoring system (ADCP, CTD, loggers) is in place. Pre-deployment footage of mobile epifauna captured, with follow-up planned in 2025.

# Main Challenges



- **Co-Management:** Difficulty in co-management due to boats used by the OWF operator Ørsted being unsuitable for aquaculture operations and liability requirements of operating near OWF infrastructure.



- **Weather Conditions:** Adverse weather limits operational windows. Winter storms (2023-24) caused equipment loss, reducing the number of production lines to two. Access restrictions also hinder monitoring, leading to depleted batteries or fouled sensors.



- **Seaweed Production:** Low production compared to inshore locations, but the crop is clean and valuable.



- **Mussels:** Low production compared to inshore waters, heavy barnacle fouling in first production season.



- **Design Adjustments:** Changes to mooring designs and upcoming adjustments to spat collector designs for the next mussel farming season.

## Application

ANHOLT  
DK BALTIC SEA



Sectors covered:



Mussels aquaculture



Seaweed aquaculture



Renewables

## Scientific



- **Mooring Solutions:** Adapted to production setups for offshore aquaculture.



- **Monitoring Systems:** Successful deployment and operation in challenging offshore environments and environmental monitoring.



- **Seaweed Production:** Potential for various species in offshore conditions.



- **Mussel Production:** Identified potential and challenges in mussel farming.



- **Submersible Systems:** Development of systems for offshore use.



- **Seaweed Handling:** Methods focused on producing clean, high-quality crops.



- **Spore Line Production:** Optimized for remote offshore deployment.

## Commercial