Importance of Mangroves

Management of mangroves at KAUST falls under the responsibility of the Health, Safety and Environment Department. Mangroves are salt-tolerant plants with woody roots that grow in shallow coastal waters. With one "foot" on land and one in the water, these amphibious plants provide food, shelter and nursery habitat for many animals, including birds, crabs, lizards, shrimp, molluscs, stingrays, snails and fish.

KAUST Mangroves

The scientific name for the dominant mangrove species found at KAUST is *Avicennia marina*, also commonly called grey mangrove or white mangrove because the plant's leaves and stalks are often colored with salt crystals. A different species known as Red Mangrove or *Rhizophora mangle* grows in a small area of KAUST near South Beach.

Planning for Mangrove Offsets

Mangrove offsets can be used as direct replacement for mangroves that will be removed due to no alternative design or protection measures. Mangrove offsets may also be created for carbon emissions, such as those related to travel. Key consideration when undertaking mangrove offset include, but are not limited to:

- Eliminating or minimizing emissions;
- Carbon calculation method;
- Carbon sequestration assumptions;
- Suitable planting location (eg. non-eroding, substrate, tidal flushing, permits);
- Safety factors for nursery and field survival;
- Securing seedling supply months in advance;
- Seedling nursery and field acclimatization;
- GIS data acquisition and recording; and
- Post-planting monitoring and supplemental planting (if required) to ensure environmental commitments are achieved.

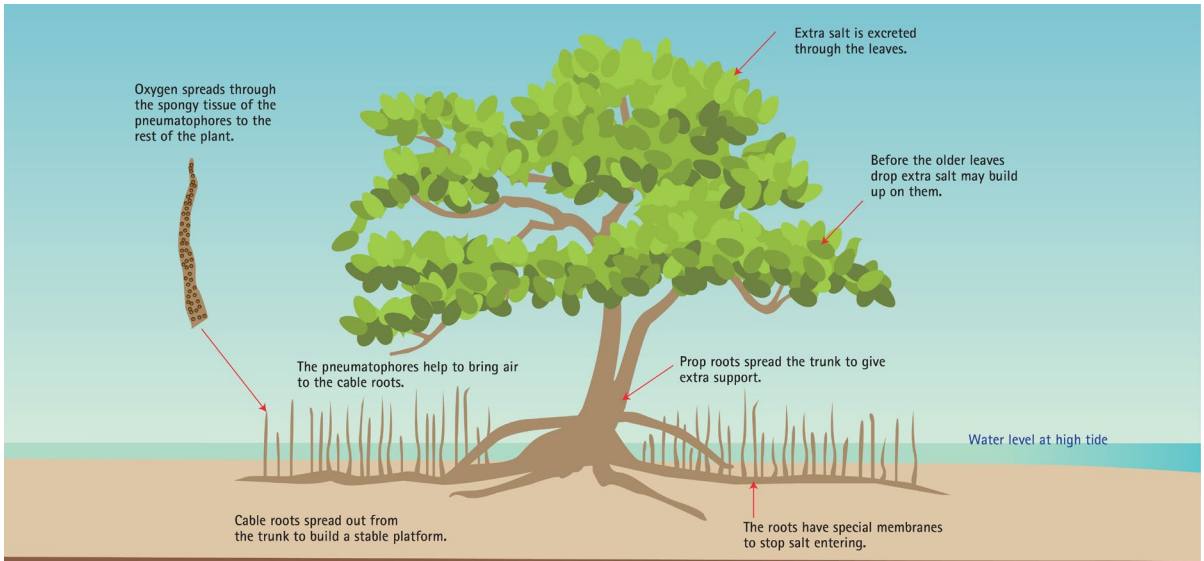

Illustration of a mangrove plant

Travel Emission Offset

Mangroves planted to offset WEP 2022 travel carbon emissions

WEP 2022

The 2022 Winter Enrichment Program at KAUST was held between January 9 to 20, 2022. Dignitaries were invited to attend and present at the hybrid (online and live) event. KAUST not only offset the direct travel emissions, but planted the equivalent of 5 times the calculated travel emissions .

Emissions were calculated using the International Civil Aviation Organization Carbon Emissions Calculator which allows passengers to estimate the emissions attributed to their air travel. The methodology applies the best publicly available industry data to account for various factors such as aircraft types, route specific data, passenger load factors and cargo carried.