



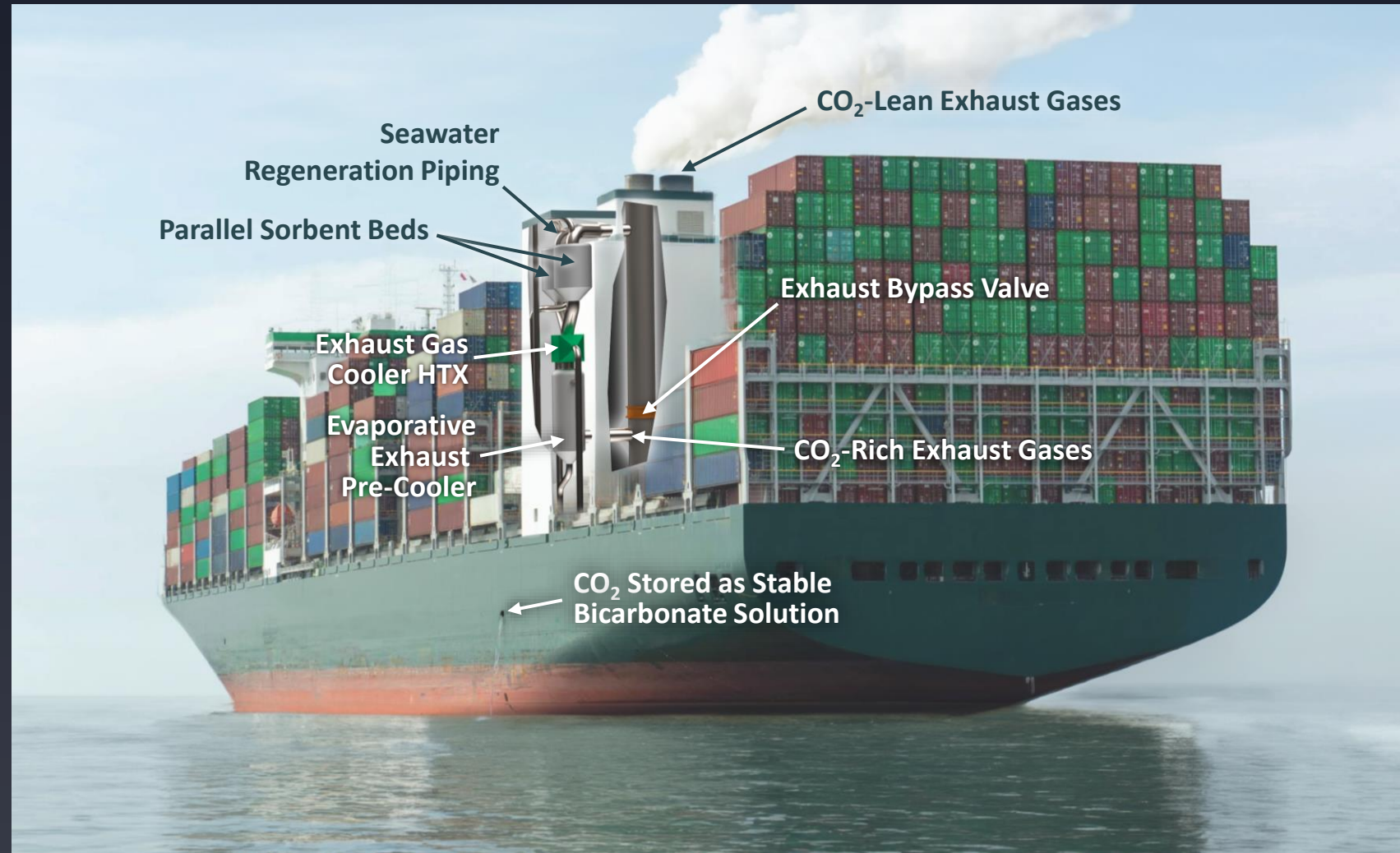
Long-range Marine Transport Carbon Capture with Seawater Sequestration

Ion-Exchange CO₂ Capture

Jeevan Technology's novel DeCarbonHIX sorbent captures CO₂ from the marine exhaust (~4.5% CO₂).

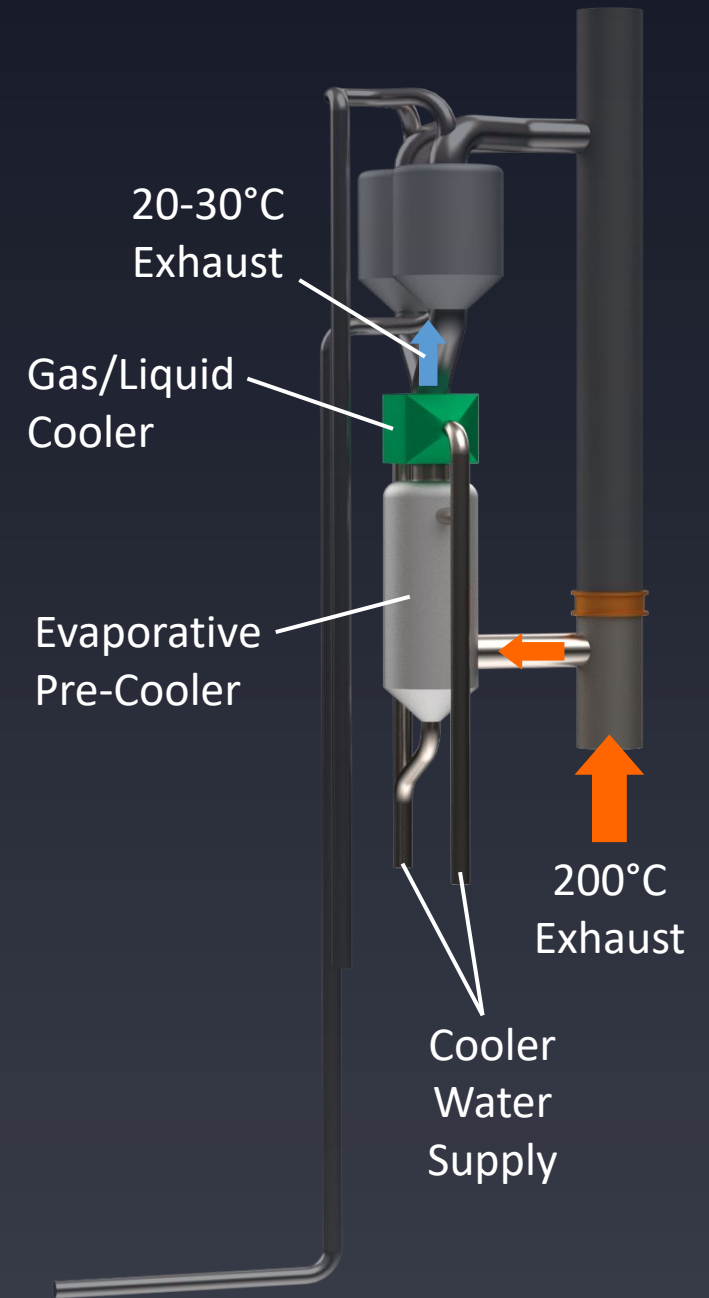
CO₂ is released from the DeCarbonHIX into seawater as stable alkalinity (bicarbonate solution).

The released seawater/bicarbonate solution is stored long-term in the world's Oceans – eliminating on-ship CO₂ storage.



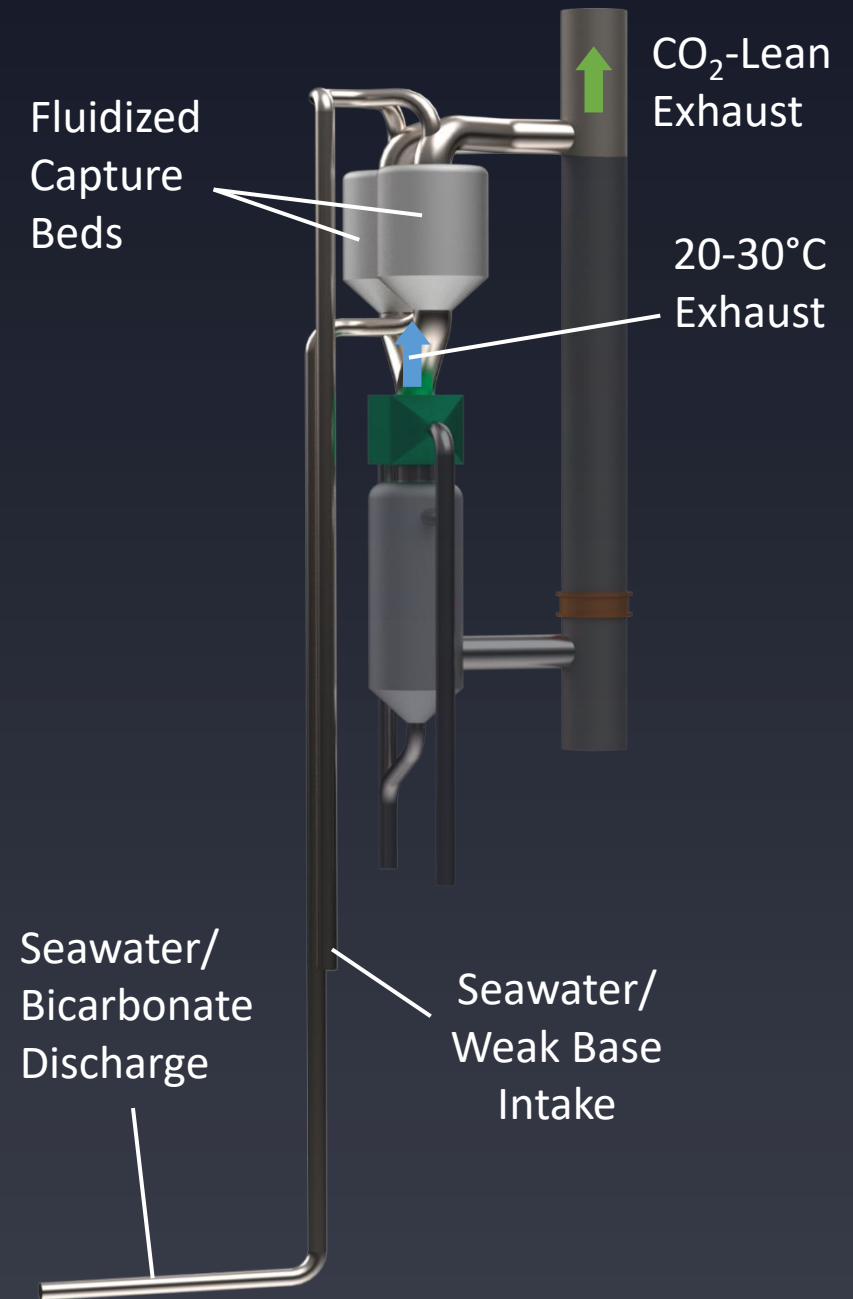
Exhaust Gas Cooling

1. The exhaust gas must be cooled to $<30^{\circ}\text{C}$ before entering the sorbent bed.
2. An evaporative pre-cooler first cools the gases to $\sim 100^{\circ}\text{C}$.
3. A gas/liquid cooler lowers the gases to the target bed temperature.



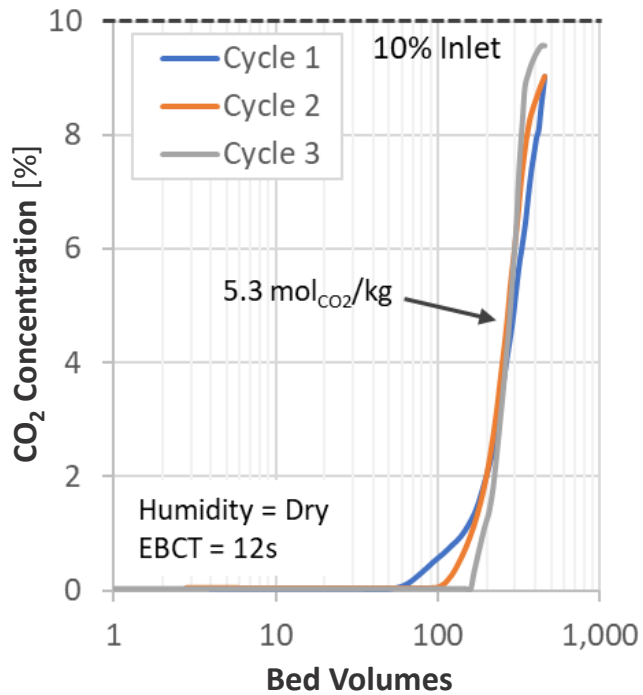
CO₂ Capture

1. Cooled flue gases enter the parallel ion exchange resin capture beds.
2. Seawater passed through the sorbent, removes CO₂ from the resin, storing it as a chemically-stable bicarbonate in seawater.
3. A weak base wash returns OH⁻ groups to the sorbent before the next capture process.

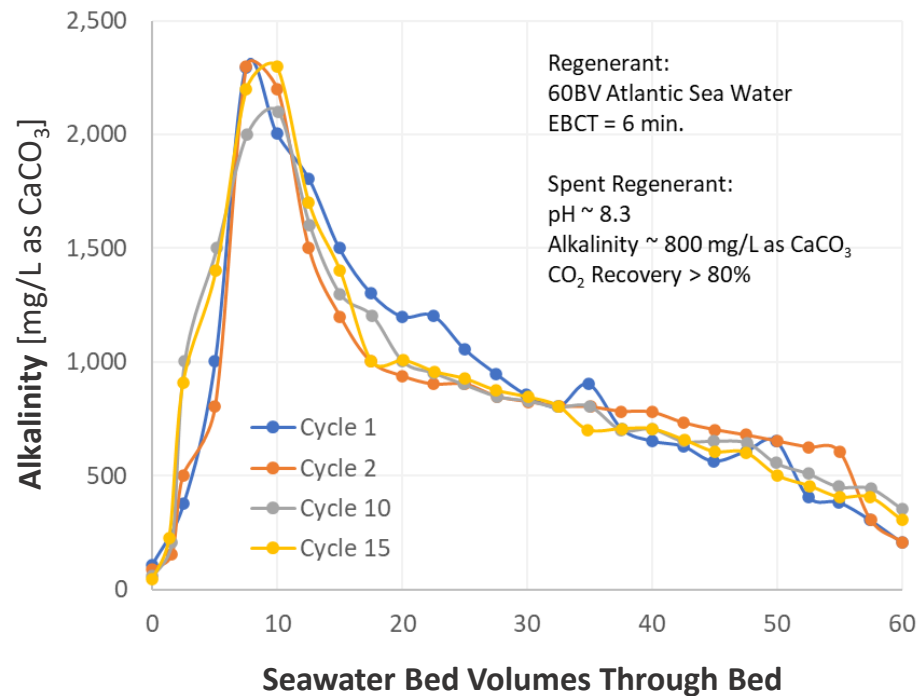


DeCarbonHIX Sorbent

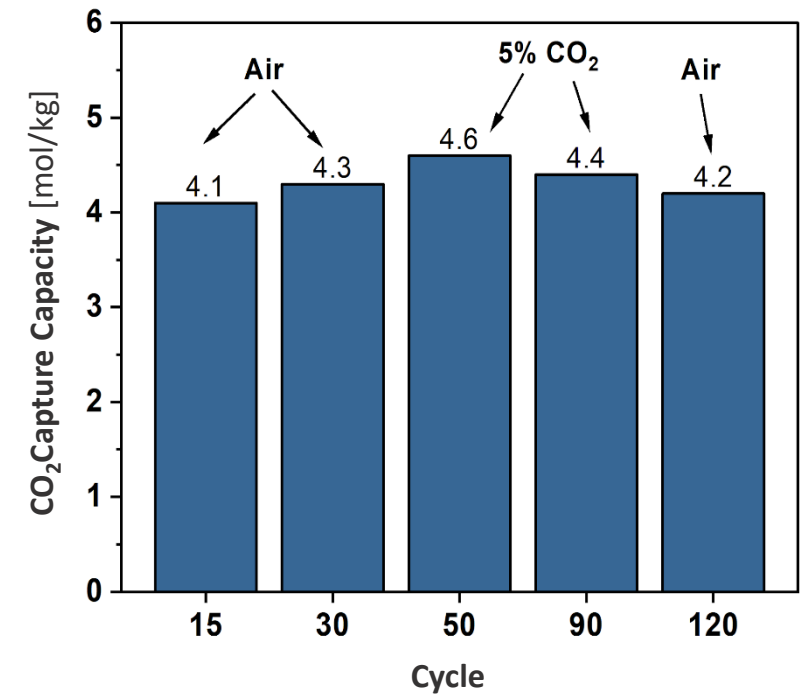
CO₂ Capture Process



Seawater Regeneration & CO₂ Storage as Bicarbonate in Seawater



Sorbent Stability During Fluidized Bed Capture/Regen Cycles



THANK YOU

