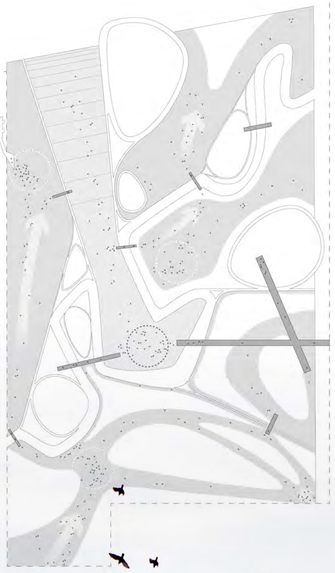
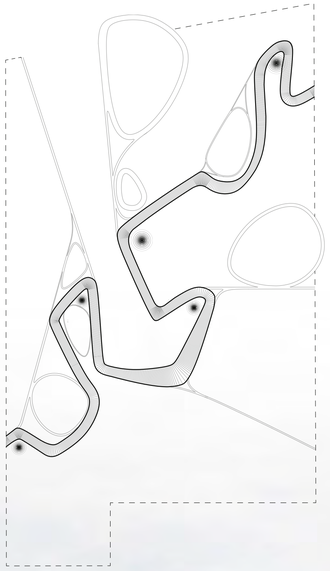
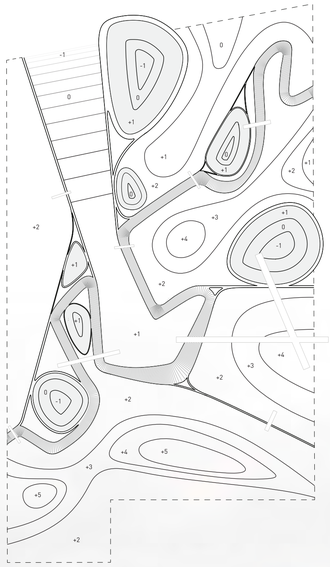
CIRCULATION



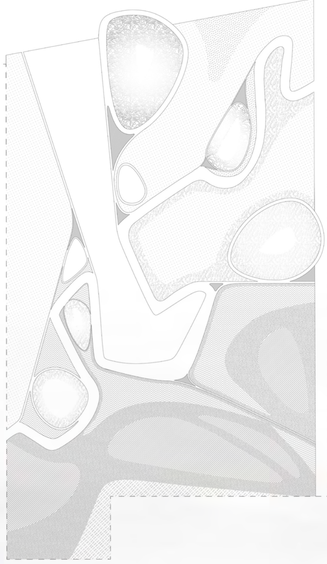
MEMBRANE + TURBINES



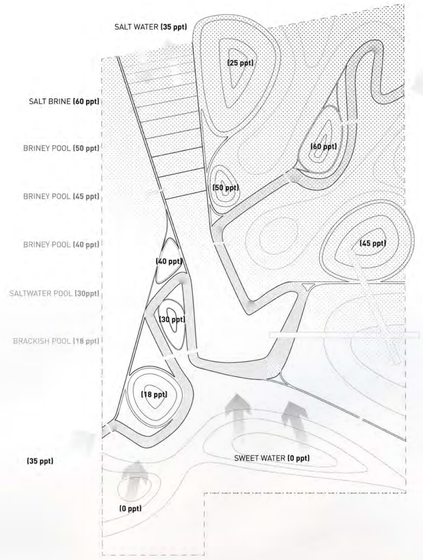
TOPOGRAPHY



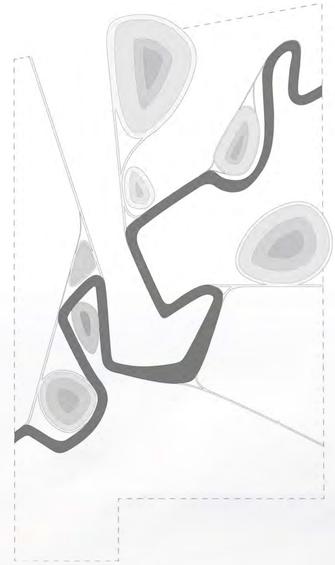
VEGETATION

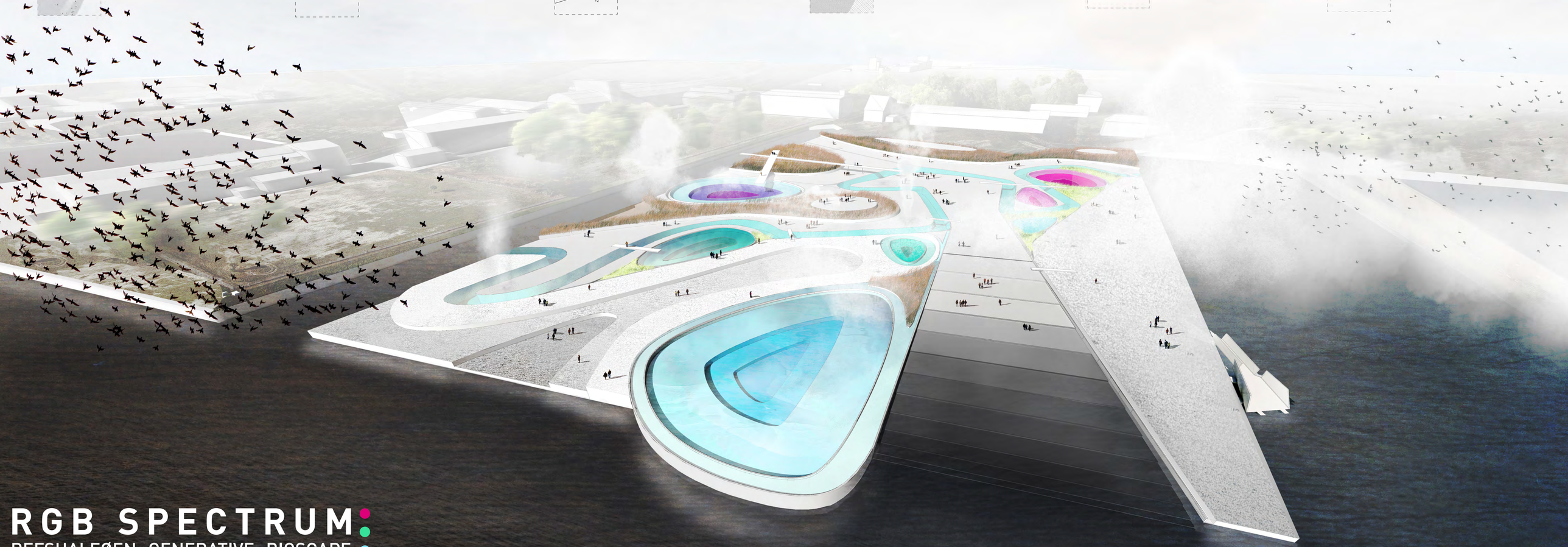


SALINITY



SPECTRUM POOLS





RGB SPECTRUM

REFSHALEØEN GENERATIVE BIOSCAPE

THE CITY AND THE SEA The annexation and construction of islands; the carving of coastal land into fixed geometries; the mounting of walls and dykes to save dry land from saltwater intrusion: these practices issue from the complex and shifting tensions that mark the boundary between the city and the sea, and define the area of Refshaleøen. Viewed allegorically, this behavior conveys feelings of complexity toward the sea. At once inextricable from Danish myth and affluence, the sea is nonetheless estranged - a thing apart, with no place in the grammar of urban design.

Yet, as the seas rise, the barriers between land and sea face a swelling pressure. RGB Spectrum translates this pressure into power, through osmosis, all the while casting a new role for water in urban placemaking.

LADEGÅRDSÅEN A winding, riverine channel courses through the pier, evoking the lost Ladegårdsåen - a stream that once flowed freely from Damhussøen through the city of Copenhagen. The Ladegårdsåen not only replenished The Lakes (Søerne) and supplied the town with water, but functioned as a space to swim, wash, and gather. By the mid-20th century, the Ladegårdsåen was concealed within a pipe beneath the busy streets of Ågade and Åboulevarden, and this unique civic space was lost.

In RGB Spectrum, the Ladegårdsåen is reintroduced as a social catalyst and icon. It doubles as the site's spatial armature and the source of osmotic energy production. The channel is divided by a hyper-thin, densely folded, permeable membrane, which separates ocean-fed saltwater from freshwater. The membrane captures the difference in osmotic pressure as fresh water molecules push through the membrane to dilute the briny solution. RGB Spectrum invokes the Danish tradition of sculpting land along the water's edge while celebrating the confluence of freshwater and the sea.

The lone byproduct of the osmotic energy-making process, brackish water, is cycled into a network of on-site evaporation pools carved into the pier. The evaporation process is accelerated by excess heat from osmotic turbines, in the form of steam. The salinity of these artificial pools supports a rich biota of salt-tolerant algae and microorganisms that dye the pools a spectrum of brilliant hues corresponding to their salinity. When the water is sufficiently briny, it is cycled back into the osmotic artery to augment osmotic pressure and amplify energy production.

A liminal atmosphere of warm steam and luminous water bodies gives way to a sequence of graduated gathering spaces, paths, and cavities shaped by the elbows of the osmotic artery. Sculptural viewing promontories built with the rubble-aggregate subtracted from the pier allow visitors to observe the osmotic process and the gradient pools from above. This cut and fill strategy creates a massing that extends from one meter below sea level to five meters above, while diminishing the amount of foreign material introduced to the site. The site's new depth serves a further function - as retention basins for rainfall. Large surface planes composed of gravel and seeded with native grasses provide a natural filter for the water before it enters the retention basin and, eventually, the osmotic artery.

RGB Spectrum is not defined by a single sculpture or installation, but emerges as a composition of artful subtraction, aggregation, and unification that describes a symbiotic coupling of land and water.