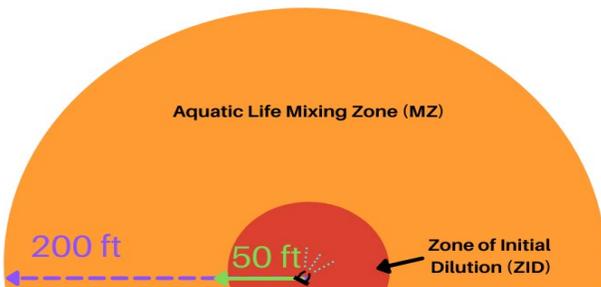


This executive summary provides a high-level overview of the data, science, and modeling that have been compiled to establish regulatory standards for discharge of proposed seawater desalination plant(s) in the Coastal Bend.

Compiled data and research scientifically address salinity dilutions into two zones, 1) *the zone of initial dilution* and, 2) *the aquatic life mixing zone*. Following guidance of environmental agencies and organizations, recommendations are based from experience of existing desalination plants and references of salinity ranges sustained by two specific marine organisms. These two highly sensitive marine organisms are the Mysid Shrimp and the Inland Silverside.

The critical nature of this project requires significant and ongoing cooperation with the Texas Commission on Environmental Quality (TCEQ) and various state and federal regulatory agencies.

How the concentrate will be discharged into the zones is demonstrated in the half moon chart below. The zone of initial dilution (the area in red), establishes criteria for short-term toxicity testing over the course of forty-eight hours. The area in orange, or the aquatic life mixing zone, establishes criteria for long-term toxicity testing beyond forty-eight hours. The proposed levels of salinities are determined at the edge of each zone. The red area, or the *zone of initial dilution* (ZID), is 42 parts per thousand (ppt). While the orange area, or the *aquatic life mixing zone* (MZ) is 35 ppt. Corpus Christi Bay’s average range of salinity continuously varies between 25 ppt to 42 ppt.



The Inner Harbor plant is designed to produce 30 million gallons per day (MGD) of potable water while producing an effluent volume between 36 to 52 MGD (depending on percent recovery).

The La Quinta Channel plant is designed to produce 40 MGD of potable water while producing an effluent volume between 47 to 69 MGD (depending on percent recovery). Table ES-1 provides details about each plant.

Effluent volumes in the table are associated with the proposed production rates of 30 MGD and 40 MGD for the Inner Harbor and La Quinta sites. Initial discharge volumes may be less.

Table ES-1
 Proposed Critical Dilutions for Corpus Christi Seawater Desalination Project

	Inner Harbor		La Quinta Channel	
Water Production (MGD)	30		40	
Percent Recovery ¹	40	50	40	50
Average Daily Effluent Volume (MGD)	51.47 ²	35.17	68.62 ³	46.90
Effluent Salinity (parts per thousand)	49.9 ⁴	58.4 ⁴	50.0 ⁵	58.5 ⁵
Critical Dilution (%) 50 feet from discharge (edge of Zone of Initial Dilution)	56	38	56	38
Salinity (parts per thousand) 50 feet from discharge (edge of ZID) based on critical dilutions	42	42	42	42
Critical Dilution (%) 200 feet from discharge (edge of MZ)	18	13	18	13
Salinity (ppt) 200 feet from discharge (edge of MZ) based on critical dilutions	35	35	35	35

¹ Percent recovery for the reverse osmosis membranes will range from 40% to 50%.

² Inner Harbor - average daily 52 MGD and maximum daily 62 MGD at 40% recovery.

³ La Quinta Channel – average daily 69 MGD and maximum daily 83 MGD.

⁴ Based on ambient average salinity in the Inner Harbor of 31.59 ppt.

⁵ Based on ambient average salinity in the La Quinta Channel of 31.65 ppt.

FINDINGS

Negligible impact to Corpus Christi Bay and aquatic life is achieved using the following proven methodologies.

- Salinity limits.
- Critical dilutions.
- Concentrate dispersion and dilution by way of jet diffusion.
- Environmental sustainability.
- Intake and discharge employing best available technologies beyond regulatory requirements.
- Inclusion of decades of water quality information from *the Bay* for modeling accuracy.