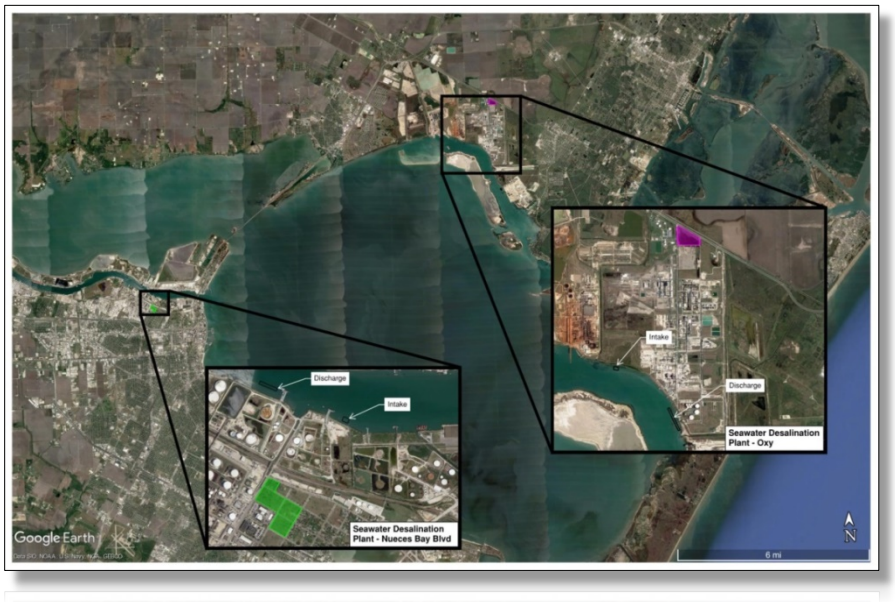
CORPUS CHRISTI SEAWATER DESALINATION PROJECT
CITY OF CORPUS CHRISTI WATER SYSTEM
PROJECT UPDATE

The City of Corpus Christi is the regional water supplier serving directly or indirectly approximately 500,000 customers in Nueces, San Patricio, Aransas, Kleberg and Jim Wells Counties, including all of the major industrial water customers in Nueces and San Patricio Counties.

Applications were submitted in January to the Texas Commission on Environmental Quality (TCEQ) for discharge and water rights permits associated with two desalination plants to supplement the regional water supply. One site is located on the Inner Harbor in Corpus Christi and the other is in the vicinity of La Quinta Channel in San Patricio County. All four permit applications submitted by the City have now been deemed administratively complete by TCEQ. Public notices have been issued for the two discharge permits and comments on these permits are being accepted by TCEQ (https://www.cctexas.com/government/city-secretary/agendas/misc to view permits applications and for information on submitting comments.)



The siting evaluation and permitting phase was funded by a State Water Implementation Fund for Texas (SWIFT) low interest loan. In July 2020, in a second competitive statewide process, the Texas Water Development Board (TWDB) approved additional SWIFT funds for design and construction of the desalination plant on the **Inner Harbor**. This loan has two phases and will provide funding for a plant with an average daily capacity of a 20 mgd (million gallons per day) with intake and outfall structures sufficient to allow for a plant with an ultimate design capacity of the facility of 30 mgd. The water rights permit submitted for the intake and the discharge permit submitted for the outfall correspond to the ultimate design capacity at peak operations.

Moving forward with permitting and with City Council acceptance of the additional SWIFT funding are the next steps in a dynamic and collaborative effort. Following the 2011-2013 drought, a group was formed to investigate potential sources for an uninterruptible water supply as a new water source for this area. The City of Corpus Christi, the Corpus Christi Regional Economic Development Corporation (CCREDC), and the Port Industries of Corpus Christi (PICC), an organization of the major industries in Nueces and San Patricio Counties, provided the funding for the initial phase of investigation. Also included in the group were the San Patricio Municipal Water District (SPMWD) and the Port of Corpus Christi, through its PICC membership. The water, financial and project delivery expertise of these major companies was coupled with that of the City and the selected consultant, Freese and Nichols, Inc. After looking at various new water supply options, the group focused their analysis on seawater desalination.

The strong consensus of the group was that seawater desalination was feasible as a new uninterruptable drought proof water supply for the area using a well vetted financial and project approach plan. It could also meet the directive of the City Council to produce water without rate shock to the City's many water customers. The focus was to meet existing needs but with an eye to possible future demand.

One of the key features was production of potable, or drinking water, to allow for the utilization of existing potable water distribution systems, thus, avoiding the substantial cost to build a new pipeline system. The project will produce public drinking water for the benefit of all customers.

A methodical approach to siting and permitting was developed. The siting/permitting phase, utilizing the SWIFT loan to assist with the funding, began in summer of 2018. This phase will be followed by the ultimate procurement of a third-party contractor to design, construct and potentially operate the Inner Harbor seawater desalination plant.

More than 19 sites were evaluated using a detailed process with two sites ultimately selected. Two of the primary drivers in the site selection were environmental considerations and cost – both construction and operating. Field data collection has been used to supplement existing ecological data in the permit design and modeling.

The envisioned plants will use reverse osmosis technology. Intake of source water and discharge of concentrate will be in the two channels on which the plants are located. The intake water systems will include low velocity, wedge wire screens in order to minimize impingement or entrainment of marine life. Concentrate, which is just a water discharge, will be returned to the channel with high velocity diffusers at the outfall. This will ensure that the concentrated water, which is higher in salinity, is mixed with the background water. The result is that the discharged water returns to near ambient salinity levels in less than 500 feet. NSF 60 food grade chemicals, used for anti-scaling of the membranes, will be the only chemicals in the discharged water. NSF 60 chemicals are commonly used and certified for use in drinking water. Dewatered residual solids will be disposed at the City's regional landfill. The plants would be designed to allow for future expansion with environmental and operational factors considered in terms of the ultimate size.

	Proposed Daily Average Discharge Flow (MGD)	Proposed Daily Max Discharge Flow (MGD)
Inner Harbor Desalination Plant		
Initial Production Capacity – 20 MGD	34	41
Ultimate Production Capacity – 30 MGD	51	62
La Quinta Channel Desalination Plant		
Initial Production Capacity – 20 MGD	34	41
Expanded Production Capacity – 30 MGD	51	62
Ultimate Production Capacity – 40 MGD	69	82

Our effort to methodically plan for a new, uninterruptible water source for the region has included a re-evaluation of the regional water supply, assessment of other potential sources, and development of a "trigger" point methodology to determine when and how much desalinated water will be needed.

Major industrial customers have continued to play an integral role, and in 2018, they made an important financial commitment to this effort. On a voluntary basis, they pay an additional 25-cents/1000-gallon which is "lock boxed" in the City's Long Term Water Supply fund to pay for additional water supply. This rate adjustment is in addition to the 5-cents/1000-gallons already paid by large volume users and all customers of the City's system for development of new water supplies. This fund will be available to pay back the existing SWIFT loan as well as the new SWIFT loan for construction if the City's TWDB application is approved. New major industrial customers will also contribute to this fund.

Outreach efforts to date have included meetings with public officials in communities in or near Corpus Christi Bay, ongoing coordination with water customers, work with various state and federal agencies, and university scientists, as well as meetings and presentations to environmental organizations. Testimony has been provided to the Texas House Committee on Natural Resources. Regular televised updates have been given to City Council throughout the project and covered in local media stories. Appropriate outreach is planned to continue.