City of Corpus Christi

1201 Leopard Street
Corpus Christi, TX 78401
cctexas.com

Meeting Minutes

City Council

Tuesday, July 15, 2025 | **11:30 AM** | **Council Chambers**

Addendums may be added on Friday.

A. Mayor Paulette Guajardo to call the meeting to order.

Mayor Guajardo called the meeting to order at 11:40 a.m.

B. Invocation to be given by Chaplin Rodney Appleby with the Corpus Christi Fire Department.

Chaplin Rodney Appleby with the Corpus Christi Fire Department gave the invocation.

C. Pledge of Allegiance to the Flag of the United States and to the Texas Flag to be led by Hewett Williams, 2nd grader at Annapolis Christian Academy.

Hewett Williams, 2nd grader at Annapolis Christian Academy, led the Pledge of Allegiance to the Flag of the United States of America and to the Texas Flag.

D. City Secretary Rebecca L. Huerta to call the roll of the required Charter Officers.

City Secretary Rebecca Huerta called the roll and verified that a quorum of the City Council and the required Charter Officers were present to conduct the meeting.

Charter Officers: City Manager Peter Zanoni, City Attorney Miles Risley and City Secretary Rebecca Huerta

Present: 9 - Council Member Roland Barrera,Council Member Carolyn Vaughn,Council Member Gil Hernandez,Council Member Sylvia Campos,Mayor Paulette Guajardo,Council Member Eric Cantu,Council Member Mark Scott,Council Member Kaylynn Paxson, and Council Member Everett Roy

E. PUBLIC COMMENT

F. BOARD & COMMITTEE APPOINTMENTS: (ITEM 1)

1. 25-1033 Airport Board
Planning Commission
Airport Zoning Commission

Airport Board:
Appointed: Mark Almaguer

Planning Commission and Airport Zoning Commission:
Reappointed: Mike A. Munoz and Trey Teichelman
Appointed: Matthew Evan Teifke II

G. EXPLANATION OF COUNCIL ACTION:

H. CONSENT AGENDA: (ITEMS 2 - 15)

Approval of the Consent Agenda

Mayor Guajardo referred to the Consent Agenda. Item 2 was pulled for individual consideration.

Council Member Paxson moved to approve the consent agenda with the exception of Item 2, seconded by Council Member Hernandez. The motion carried by the following vote:

Aye: 9 - Council Member Barrera, Council Member Vaughn, Council Member Hernandez, Council Member Campos, Mayor Guajardo, Council Member Cantu, Council Member Scott, Council Member Paxson and Council Member Roy

Abstained: 0

2. 25-1017 Approval of the May 8, 2025 Workshop Meeting Minutes, June 17, 2025 and June 24, 2025 Regular Meeting Minutes.

Council Member Paxson pulled this item to correct Item 33 on the June 17, 2025 minutes as follows: "Mayor and council comments and discussion be mindful of intentionality to hold more effective meetings."

Council Member Paxson moved to approve the minutes as corrected, seconded by Council Member Hernandez. The Minutes were approved with the following vote:

Aye: 9 - Council Member Barrera, Council Member Vaughn, Council Member Hernandez, Council Member Campos, Mayor Guajardo, Council Member Cantu, Council Member Scott, Council Member Paxson and Council Member Roy

Abstained: 0

Consent - Second Reading Ordinances

3. 25-0822 Ordinance authorizing acceptance of a grant from the Executive Office of the President, Office of National Drug Control Policy, for overtime for two sworn officers and lease payments on two vehicles for identification and disruption of narcotics trafficking as part of the FY 2025 Texas Coastal Corridor High Intensity Drug Trafficking Area Initiative in an amount of $41,800.00; and appropriating $41,800.00 in the Police Grants Fund.

This Ordinance was passed on second reading on the consent agenda.

Enactment No: 033681

4. 25-0923 Ordinance ratifying the acceptance of an amendment in the amount of $6,329 increasing the HOME Investment Partnerships Program - American Rescue Plan (HOME-ARP) grant M-21-MP-48-0502 from the U.S. Department of Housing and Urban Development; and amending the Fiscal Year 2025 budget by appropriating $6,329 into Grant Fund 9045.

This Ordinance was passed on second reading on the consent agenda.

Enactment No: 033682

Consent - Contracts and Procurement

5. 25-0426 Motion authorizing execution of a one-year cooperative purchase agreement, with two one-year options, with Fastenal Company, of Winona, Minnesota, with an office in Corpus Christi, through the Sourcewell Cooperative, in an amount up to $600,000.00, with a potential up to $1,800,000.00, for the purchase of operational supplies and personal protective equipment through a managed inventory program for Corpus Christi Water, with FY 2025 funding of $600,000.00 from the Water Fund.

This Motion was passed on the consent agenda.

Enactment No: M2025-082

6. 25-0766 Motion authorizing execution of a one-year supply agreement, with two one-year options, with Ferguson Enterprises, LLC, in an amount up to $280,745.42, with a potential up to $842,236.26 if options are exercised, for the purchase of meter boxes and lids for Corpus Christi Water, with FY 2025 funding of $280,745.42 from the Water Fund.

This Motion was passed on the consent agenda.

Enactment No: M2025-083

7. 25-1022 Motion authorizing a three-month service agreement with April L. Trejo, dba Alice Lawn Care, of Orange Grove in the amount of $129,474.50 for replacement of fencing at the Garcia Softball Complex, adjacent to Salinas Park located in City Council District 3, for the Parks & Recreation Department, with FY 2025 funding from CDBG Funds.

This Motion was passed on the consent agenda.

Enactment No: M2025-084

8. 25-1023 Resolution authorizing a six-month service agreement with Progressive Commercial Aquatics, LLC, dba Landmark Aquatic, of Austin, through the BuyBoard Cooperative, in an amount not to exceed $239,875.00 for completion of the Greenwood Pool Filter Renovation project for the Parks & Recreation Department, with FY 2025 funding from CDBG Funds.

This Resolution was passed on the consent agenda.

Enactment No: 033683

9. 25-1052 Motion authorizing execution of a three-month service agreement with Clearfield Construction, LLC, dba Alamo Decks and Fence, of San Antonio, in the amount of $208,845.00 for the New Bayview Cemetery Fence for the Parks & Recreation Department, with FY 2025 funding from CDBG Funds.

This Motion was passed on the consent agenda.

Enactment No: M2025-085

Consent - Capital Projects

10. 25-0862 Motion authorizing a professional services contract with HDR, Inc. of Corpus Christi to provide preliminary design services (Phase 1) for the South Side Water Transmission Grid Completion project to plan and prioritize interconnections between multiple water transmission mains to enhance the system's redundancy, improve chlorine residuals, and more effectively transport potable water around the City in an amount up to $285,716.00, located Citywide, with FY 2025 funding available from the Water Capital Fund.

This Motion was passed on the consent agenda.

Enactment No: M2025-086

Consent - First Reading Ordinances

11. 25-0646 Ordinance authorizing the appropriation of $40,000.00 in grant program income under the Motor Vehicle Crime and Prevention Authority grant in the Police Grants Fund; and authorizing the appropriation of $11,863.63 in insurance claim proceeds into the Police Grants Fund; and amending the FY 2025 Police Grants Fund Budget by a total amount of $51,863.63.

This Ordinance was passed on first reading on the consent agenda.

12. 25-0737

Ordinance authorizing submission of reimbursement requests to the Texas Department of Emergency Management, Coastal Bend Regional Advisory Council, Texas A&M University-Extension Service, and the Texas Emergency Medical Task Force; and, upon receipt of funds, accepting and appropriating in the Emergency Management Grants Fund for budgeting and accounting purposes; and execution of all necessary documents.

This Ordinance was passed on first reading on the consent agenda.

13. 25-0981 Ordinance authorizing the acceptance of $30,000.00 from the American Society for the Prevention of Cruelty to Animals, under the FY 2025 National Shelter Initiative Grant - Rescue Effect Campaign, for use by the Animal Care Services

Department for make-ready costs including adoption fees, microchips, vaccinations, testing, and spay/neuter surgery; and appropriating in the Animal Care Services Grant Fund.

This Ordinance was passed on first reading on the consent agenda.

14. 25-0990 One-Reading ordinance authorizing execution of a construction contract with Southern Trenchless Solutions, LLC of La Feria, Texas, for the Defense Economic Adjustment Assistance Grant-Naval Air Station Corpus Christi Wastewater collection lines and Manholes Replacement Project in an amount up to $4,562,499.62 for the Total Base Bid Plus Additive Alternate No. 1; appropriating $2,951,340.62 from the U.S Department of the Navy; and amending the FY 2025 Operating and Capital Budgets, located in Council District 4, by $1,611,159.00 with FY 2025 funding available from the Community Development Grant Fund.

This Ordinance was passed on emergency on the consent agenda.

Enactment No: 033684

15. 25-0572 Ordinance authorizing the acceptance of $15,000.00 from the National Recreation & Park Association for use by the Parks & Recreation Department for the Heart Your Park Volunteer Days and appropriating $15,000.00 in the Parks & Recreation Grants Fund.

This Ordinance was passed on first reading on the consent agenda.

I. RECESS FOR LUNCH

Mayor Guajardo recessed the Council meeting for lunch at 1:31 p.m. Executive Session Item 32 was held during the lunch recess. Mayor Guajardo reconvened the meeting at 2:35 p.m.

J. PUBLIC HEARINGS: (ITEMS 16 - 18)

16. 25-0564 Ordinance abandoning, vacating, and closing 2.5193 acres of improved and unimproved public right-of-way identified as sections of Washington Street, Williams Avenue, Hatch Street, Summers Street, John Street, Dempsey Street, Priour Avenue, Nueces Street and Coke Street for no fee as provided in the Harbor Bridge Replacement Project Four Party Agreement.

Mayor Guajardo referred to Item 16.

Interim Assistant City Manager Ernie De La Garza presented information on the following topics: ordinance; background; overview; proposed street closures and connectivity; recommended street closures and connectivity; and recommendation.

Mayor Guajardo opened the public hearing.

Jim Klein, Corpus Christi, TX, spoke.

Mayor Guajardo closed the public hearing.

Council Member Roy moved to approve the ordinance, seconded by Council Member Barrera. This Ordinance was passed on first reading and approved with the following vote:

Aye: 7 - Council Member Barrera, Council Member Vaughn, Council Member Hernandez, Mayor Guajardo, Council Member Scott, Council Member Paxson and Council Member Roy

Nay: 2 - Council Member Campos and Council Member Cantu

Abstained: 0

17. 25-0263 Zoning Case No. ZN8534, Port of Corpus Christi Authority (District 1). Ordinance rezoning various properties along Lexington Avenue, located south of Minton Street and north of Martin Luther King Drive, from the “RS-6” Single-Family 6 District to the “IL” Light Industrial District; providing for a penalty not to exceed $2,000 and publication. (Planning Commission and Staff recommend approval).

Mayor Guajardo referred to Item 17.

Director of Development Services Michael Dice presented information on the following topics: zoning and land use; public notification; and staff analysis and recommendation.

Mayor Guajardo opened the public hearing.

Jim Klein, Corpus Christi, TX, spoke.

Mayor Guajardo closed the public hearing.

Council Member Barrera moved to approve the ordinance, seconded by Council Member Scott. This Ordinance was passed on first reading and approved with the following vote:

Aye: 6 - Council Member Barrera, Council Member Vaughn, Mayor Guajardo, Council Member Scott, Council Member Paxson and Council Member Roy

Nay: 3 - Council Member Hernandez, Council Member Campos and Council Member Cantu

Abstained: 0

18. 25-0787 Zoning Case No. ZN8553, Port of Corpus Christi Authority (District 1). Ordinance rezoning various properties at or near 1901 through 2202 Nueces Street, located north of Interstate Highway 37 (IH 37), along with portions of West Broadway Street, Washington Street, Williams Avenue, Hatch Street, Summers Street, John Street, Dempsey Street, Priour Street, Nueces Street and Coke

Street, from the “RM-1” Multifamily District and the “CN-1” Neighborhood Commercial District to the “IL” Light Industrial District; providing for a penalty not to exceed $2,000 and publication. (Staff recommends approval) (Planning Commission recommends denial of requested IH and a change to “IL” Light Industrial District in lieu of IH. Requires 3/4 favorable vote to overrule Planning Commission).

Mayor Guajardo referred to Item 18.

Director of Development Services Michael Dice presented information on the following topics: zoning and land use; public notification; and staff analysis and recommendation.

Mayor Guajardo opened the public hearing. The following individuals spoke:

Jason Hale, Corpus Christi, TX, Lamont Taylor, Corpus Christi, TX, Michael Miller, Corpus Christi, TX, James Klein, Corpus Christi, TX, Alex Flucke, Corpus Christi, TX, Tina Butler, Corpus Christi, TX, and Mariah Boone, Corpus Christi, TX.

Mayor Guajardo closed the public hearing.

Council Member Roy moved to approve the ordinance, seconded by Council Member Vaughn. This Ordinance was passed on first reading and approved with the following vote:

Aye: 8 - Council Member Barrera, Council Member Vaughn, Council Member Hernandez, Mayor Guajardo, Council Member Cantu, Council Member Scott, Council Member Paxson and Council Member Roy

Nay: 1 - Council Member Campos

Abstained: 0

K. INDIVIDUAL CONSIDERATION ITEMS: (ITEMS 19 - 22)

19. 25-0867 Consideration and approval of an ordinance authorizing the issuance of “City of Corpus Christi, Texas Combination Tax and Limited Pledge Revenue Certificates of Obligation, Taxable Series 2025B” for solid waste improvements approved by City Council in the FY 2025 CIP Budget in an amount not to exceed $4,480,000, within set parameters and according to the plan of finance set by the City’s financial advisors; providing for the payment of said certificates by the levy of an ad valorem tax upon all taxable property within the City and further securing said certificates by a lien on and pledge of the pledged revenues of the solid waste system; delegating authority to the City Manager, Assistant City Manager over Finance, Director of Finance and Procurement and certain other authorized officials to approve and execute documents relating to the issuance, sale and delivery of the certificates; enacting other provisions incident and related thereto; and providing an effective date.

Mayor Guajardo referred to Item 19.

Director of Finance Sergio Villasana presented information on the following topics: financing of capital projects; Bond 2022 voter authorization; Proposition A-streets; summary of financial transaction-tax exempt CO's; Certificates of Obligation; projects funded by CO's; summary of financial transactions-GO's; tax notes; and steps for issuance.

Mayor Guajardo opened public comment.

Rachel Caballero, Corpus Christi, TX, spoke.

Mayor Guajardo closed public comment.

Council Member Barrera move to approve the ordinance, seconded by Council Member Scott. This Ordinance was passed on first reading and approved with the following vote:

Aye: 6 - Council Member Barrera, Council Member Vaughn, Mayor Guajardo, Council Member Cantu, Council Member Scott and Council Member Roy

Nay: 2 - Council Member Hernandez and Council Member Paxson

Abstained: 1 - Council Member Campos

20. 25-0868 Consideration and approval of an ordinance authorizing the issuance of “City of Corpus Christi, Texas, General Improvement and/or Refunding Bonds, Series 2025”, for the second issuance of bonds from the Bond 2022 authorization for projects approved by the voters in November 2022 in an amount not to exceed $30,000,000 and or refinancings in an amount not to exceed $35,785,000 for the refunding, within set parameters and according to the plan of finance set by the City’s financial advisors; levying a continuing direct annual ad valorem tax for the payment of the bonds; delegating authority to the City Manager, Assistant City Manager over Finance, Director of Finance and Procurement , and certain other authorized officials to approve and execute documents relating to the issuance, sale, and delivery of the bonds; enacting other provisions incident and related thereto; and providing for an effective date.

Mayor Guajardo referred to Item 20.

Mayor Guajardo opened public comment.

There were no comments from the public.

Mayor Guajardo closed public comment.

Council Member Paxson moved to approve the ordinance, seconded by Council Member Barrera. This Ordinance was passed on first reading and approved with the following vote:

Aye: 9 - Council Member Barrera, Council Member Vaughn, Council Member Hernandez, Council Member Campos, Mayor Guajardo, Council Member Cantu, Council Member Scott, Council Member Paxson and Council Member Roy

Abstained: 0

21. 25-0869 Consideration and approval of ordinance authorizing the issuance of City of Corpus Christi, Texas combination tax and limited pledge revenue certificates of obligation, series 2025A" for capital improvements to streets, public health and safety facilities, parks, public facilities, and storm water infrastructure approved by City Council in the FY 2025 CIP Budget in an amount not to exceed $38,720,000, within set parameters and according to the plan of finance set by the City's financial advisors; providing for the payment of said certificates by the levy of an ad valorem tax upon all taxable property within the City and further securing said certificates by a lien on and pledge of the pledged revenues of the solid waste system; delegating authority to the City Manager, Assistant City Manager over Finance, Director of Finance and Procurement and certain other authorized officials to approve and execute documents relating to the issuance, sale, and delivery of the certificates; enacting other provisions incident and related thereto; and providing an effective date.

Mayor Guajardo referred to Item 21.

Director of Finance Sergio Villasana stated these projects were approved in the 2025 CIP budget.

Mayor Guajardo opened public comment.

Rachel Caballero, Corpus Christi, TX, spoke.

Mayor Guajardo closed public comment.

Council Member Barrera moved to approve the ordinance, seconded by Council Member Scott. This Ordinance was passed on first reading and approved with the following vote:

Aye: 8 - Council Member Barrera, Council Member Vaughn, Council Member Campos, Mayor Guajardo, Council Member Cantu, Council Member Scott, Council Member Paxson and Council Member Roy

Nay: 1 - Council Member Hernandez

Abstained: 0

22. 25-1006 Consideration and approval of an ordinance authorizing the issuance of "City of Corpus Christi, Texas Limited Tax Notes, Series 2025", for public safety, vehicles and streets approved by City Council in the FY 2025 CIP Budget in an amount not to exceed $11,120,000; levying an annual ad valorem tax, within the limitations prescribed by law, for the payment of the obligations; delegating

authority to the City Manager, Assistant City Manager over Finance, Director of Finance and Procurement to execute documents relating to the sale of the notes; enacting other provisions incident and related thereto; and providing an effective date.

Mayor Guajardo referred to Item 22.

Director of Finance Sergio Villasana stated this item is to authorize tax notes.

Mayor Guajardo opened public comment.

There were no comments from the public.

Mayor Guajardo closed public comment.

Council Member Roy moved to approve the ordinance, seconded by Council Member Barrera. This Ordinance was passed on first reading and approved with the following vote:

Aye: 9 - Council Member Barrera, Council Member Vaughn, Council Member Hernandez, Council Member Campos, Mayor Guajardo, Council Member Cantu, Council Member Scott, Council Member Paxson and Council Member Roy

Abstained: 0

L. BRIEFINGS: (ITEMS 23 - 25)

23. 25-0919 Briefing on City Proposed London AreaTax Increment Reinvestment Zone (TIRZ) #7

Mayor Guajardo referred to Item 23.

Director of Economic Development Arturo Marquez presented information on the following topics: vision of TIRZ #7; process for creation of TIRZ; proposed TIRZ #7 boundary; proposed TIRZ #7 London Area; potential TIRZ #7 sub-zones; TIRZ #7 financing plan; TIRZ board composition; proposed timeline; and next steps after creation.

24. 25-1119 Briefing on the news released by the Department of Justice (DOJ) related to the former Global Spectrum, LP, d/b/a Oak View Group (OVG) Chief Executive Officer (CEO), Timothy Leiweke.

Mayor Guajardo referred to Item 24.

City Attorney Miles Risley provided a briefing on the news released by the Department of Justice related to the former Chief Executive Officer of Oak View Group, Timothy Leiweke.

25. 25-0953 Briefing on the Inner Harbor Water Treatment Campus Update, including results from the Inner Harbor Ship Channel Near and Far Field Study

Mayor Guajardo referred to Item 25.

Inner Harbor Desalination Program Management Office Director Brett Van Hazel, Aquatic/Coastal Ecologist Environmental Scientist Dave Buzan, Executive Vice President of Water Operations Kiewit Eric Sprinkle, and Principal of Environmental Engineer GHD Christopher Benjamin presented information on the following topics: presentation overview; 6/24/25 council action review; current project status update; project timeline; demonstration plant; future council topics; near and far field modeling; modeling results; modeling basis-software comparison; modeling basis-facility list; modeling basis; Inner Harbor permitted mixing zones; Near Field-diffuser design optimization; modeling salinity; Far Field-intake salinity; Far Field-model results at Harbor Bridge; modeling basis-mass balance evaluation; Far Field assessments summary; and modeling conclusions.

M. COUNCIL REQUESTED ITEMS: (ITEM 26 - 30)

26. 25-1111 Reconsideration of "Ordinance amending the Roadway Master Plan Map and the Urban Transportation Plan Map of Mobility CC, transportation elements of the Comprehensive Plan of the City of Corpus Christi, by modifying County Road 22 between SH286 and County Road 43 from an A2 Arterial to a C1 Collector, modifying County Road 22 between County Road 43 and a proposed P1 Parkway from a C3 Collector to a C1 Collector, and modifying a planned road between County Road 22 and County Road 20A from a C3 Collector to a C1 Collector; amending related elements of the Comprehensive Plan of the City; and providing for publication," **as submitted by Mayor Paulette Guajardo and Councilman Roland Barrera.**

Mayor Guajardo referred to Item 26.

Mayor Guajardo moved to reconsider the second reading of the ordinance, seconded by Council Member Barrera and passed unanimously.

Council Member Hernandez moved to amend the ordinance to modify County Road 22 from SH286 and County Road 43 to a C1 Collector in sections 2 and 3, seconded by Council Member Cantu and passed unanimously.

Council Member Hernandez moved to approve the ordinance as amended, seconded by Council Member Vaughn. This Ordinance was passed as amended and approved with the following vote:

Aye: 9 - Council Member Barrera, Council Member Vaughn, Council Member Hernandez, Council Member Campos, Mayor Guajardo, Council Member Cantu, Council Member Scott, Council Member Paxson and Council Member Roy

Abstained: 0

Enactment No: M2025-087

27. 25-1121 Consider and act on amending public comment policy to allow each member of the public who desires to address the body regarding an item on an agenda or any other city related item at the 5:30 p.m. public comment period, **as requested by Council Members Kaylynn Paxson, Gil Hernandez, Carolyn Vaughn.**

Mayor Guajardo referred to Item 27.

City Secretary Rebecca Huerta presented information on the following topics: background; Texas Open Meetings Act; changes to order of business; and administrative process.

Mayor Guajardo opened public comment.

Rachel Caballero, Corpus Christi, TX, spoke.

Mayor Guajardo closed public comment.

Council Member Paxson moved to approve the motion, seconded by Council Member Cantu. This Motion was passed and approved with the following vote:

Aye: 9 - Council Member Barrera, Council Member Vaughn, Council Member Hernandez, Council Member Campos, Mayor Guajardo, Council Member Cantu, Council Member Scott, Council Member Paxson and Council Member Roy

Abstained: 0

Enactment No: M2025-088

28. 25-1123 Consider and act on having no requirement to sign up in advance to speak on an item on an agenda and allowing each member of the public who desires to speak to have three minutes time to speak, **as requested by Council Members Kaylynn Paxson, Gil Hernandez, and Carolyn Vaughn.**

Mayor Guajardo referred to Item 28.

Mayor Guajardo opened public comment.

Rachel Caballero, Corpus Christi, TX, spoke.

Mayor Guajardo closed public comment.

Council Member Paxson moved to approve the motion, seconded by Council Member Scott. This Motion was passed and approved with the following vote:

Aye: 8 - Council Member Barrera, Council Member Hernandez, Council Member Campos, Mayor Guajardo, Council Member Cantu, Council Member Scott, Council Member Paxson and Council Member Roy

Absent: 1 - Council Member Vaughn

Abstained: 0

Enactment No: M2025-089

29. 25-1124 Consider and act on amending the decorum of public comment to allow commentors the ability to ask questions with the understanding that the mayor, council and staff shall not answer any questions during the public comment period, **as requested by Council Members Kaylynn Paxson, Gil Hernandez, and Carolyn Vaughn.**

Mayor Guajardo referred to Item 29.

Council Member Barrera moved to approve the motion, seconded by Council Member Hernandez. This Motion was passed and approved with the following vote:

Aye: 9 - Council Member Barrera, Council Member Vaughn, Council Member Hernandez, Council Member Campos, Mayor Guajardo, Council Member Cantu, Council Member Scott, Council Member Paxson and Council Member Roy

Abstained: 0

Enactment No: M2025-090

30. 25-1125 Consider and act on allowing each member of the public who desires to address the body regarding an item on an agenda or any other city related item to have the ability to sign up for public comment starting the day before the meeting at 8:00 am and ending the day of the meeting at 4:00 pm, **as requested by Council Members Kaylynn Paxson, Gil Hernandez, and Carolyn Vaughn.**

Mayor Guajardo referred to Item 30.

Council Member Paxson moved to amend the cut off time to sign up for public comment from 5:00 p.m. to 4:00 p.m., seconded by Council Member Hernandez and passed unanimously.

Council Member Barrera moved to approve the motion as amended, seconded by Council Member Scott. This Motion was passed as amended and approved with the following vote:

Aye: 9 - Council Member Barrera, Council Member Vaughn, Council Member Hernandez, Council Member Campos, Mayor Guajardo, Council Member Cantu, Council Member Scott, Council Member Paxson and Council Member Roy

Abstained: 0

Enactment No: M2025-091

N. CITY MANAGER'S COMMENTS / UPDATE ON CITY OPERATIONS: (ITEM 31)

31. 25-1081 Update on Alternative Water Supply Projects

This Item was withdrawn.

O. EXECUTIVE SESSION: (ITEM 32)

32. 25-1120 **Executive session pursuant to Texas Government Code § 551.071** and Texas Disciplinary Rules of Professional Conduct Rule 1.05 to consult with attorneys concerning legal issues related to Global Spectrum, L.P., dba OVG360.

This E-Session Item was discussed in executive session.

P. GENERAL PUBLIC COMMENT

Mayor Guajardo opened public comment. The following individuals spoke:

Gail Anderson, Corpus Christi, TX, Samuel Aundra Fryer, Corpus Christi, TX, Taylor Garcia, Corpus Christi, TX, David Rowsey, Corpus Christi, TX, Jason Hale, Corpus Christi, TX, Wendell Williams, Corpus Christi, TX, Mark Muenster, Corpus Christi, TX, Eric Gonsoulin, Corpus Christi, TX, Judy Arnold, Corpus Christi, TX, David Gonsoulin, Corpus Christi, TX, Dale Switalla, Corpus Christi, TX, Rachel Caballero, Corpus Christi, TX, Lucas Comiskey, Corpus Christi, TX, Rocky Guerra, Corpus Christi, TX, Melissa Zamora, Corpus Christi, TX, Sage Jimenez, Corpus Christi, TX, Maggie Peacock, Corpus Christi, TX, Amanda Breland, Corpus Christi, TX, Beatriz Alvarado, Corpus Christi, TX, Madelyn Chapman, Corpus Christi, TX, Laramie Fain, Corpus Christi, TX, Genesis Bustamante, Corpus Christi, TX, Brittni Young, Corpus Christi, TX, Parker Holt, Austin, TX, John Blaha, Rockport, TX, Brian Donovan, Rockport, TX, JR Bockerstette, Corpus Christi, TX, David Loeb, Corpus Christi, TX, Susie Luna Saldana, Corpus Christi, TX, Chloe Torres, Corpus Christi, TX, Jake Hernandez, Corpus Christi, TX, Pamela Brouillard, Corpus Christi, TX, Emily Karlson, Corpus Christi, TX, Mark Muenster, Corpus Christi, Peter Moore, Corpus Christi, TX, Ruben Butler, Corpus Christi, TX, Alfred Williams, Corpus Christi, TX, Frank Ayala, Corpus Christi, TX, Isabel Araiza, Corpus Christi, TX, Lia Araiza Ortiz, Corpus Christi, TX, Becky Moeller, Corpus Christi, TX, Tina Butler, Corpus Christi, TX, Jessica Palitza, Corpus Christi, TX, Carol Lowe, Corpus Christi, TX, Armon Alex, Corpus Christi, TX, Aracely Martinez, Corpus Christi, TX, Monna Lytle, Corpus Christi, TX, Amanda Breland, Corpus Christi, TX, Beatriz Alvarado, Corpus Christi, TX, Madelyn Chapman, Corpus Christi, TX, Laramie Fain, Corpus Christi, TX, Genesis Bustamante, Corpus Christi, TX, Brittni Young, Corpus Christi, TX, Daniel Pena, Corpus Christi, TX, Tobin Strickland, Corpus Christi, TX, Elena Martinez, Corpus Christi, TX, Michael Miller, Corpus Christi, TX, Jim Klein, Corpus Christi, TX, Adam Rios, Corpus Christi, TX, and Eli McKay, Corpus Christi, TX.

The following individuals submitted a written public comment which is attached to the minutes: Ronald Fontenot Jr., Seabrook, TX, Jeremy Mandel, Falls City, TX, Mike Sheehan, Katy, TX, Mark Thompson, Cypress, TX, Eric Roberts, Helotes, TX, Mike Englert, Corpus Christi, TX, Jeb Borches, League City, TX, Tobin Strickland, Corpus Christi, TX, Peter Kaple, Corpus Christi, TX, Shawn Flanagan, Corpus Christi, TX, Seth Chesser, Utopia, TX, Will Chesser, Rockport, TX, Alyrose Manahan, San Antonio, TX,

Regina Gonzales, Corpus Christi, TX, Cassidy Chesser, San Antonio, TX, Caleb Chesser, Boise, ID, Robin Chesser, San Antonio, TX, Shannon Chesser, Utopia, TX, Cathy Chesser, San Antonio, TX, Omar Guerra, Edinburg, TX, Matthew Zander, Houston, TX, David Alexander, Austin, TX, Micah McCandless, Corpus Christi, TX, Mac Elliott Howard, Corpus Christi, TX, Wes McNew, Rockport, TX, Seth Winkelmann, Dallas, TX, Witton Ley, Kingsville, TX, Jack Howard, Corpus Christi, TX, Darren Jones, La Vernia, TX, Riley Elliott, Houston, TX, Robert Read, Plano, TX, Mason Moore, Houston, TX, Kerri McDonnel, Corpus Christi, TX, Margot Moczygemba, Corpus Christi, TX, Sara Dolson, Corpus Christi, TX, Clark Weaver, Missouri City, TX, Joanna Rockwood, Lockhart, TX, Brad Higginbotham, Austin, TX, Steven Bradshaw, Houston, TX, Lori Walker, Robstown, TX, Merida Forrest, Corpus Christi, TX, Chris Perry, League City, TX, Davin Topel, Austin, TX, Ethan Getz, Corpus Christi, TX, Elizabeth Dodds, Kingsville, TX, Elida Castillo, Taft, TX, and Danae Moreno, Corpus Christi, TX.

Q. ADJOURNMENT

There being no further business, Mayor Guajardo adjourned this meeting at 11:41 p.m.

Public Comment 7-15-2025

Date of Meeting	7/15/2025
Name	Ronald Fontenot Jr
Address	Street Address: 4406 Spoonbill Dr City: SEABROOK State / Province: TX Postal / Zip Code: 77586-2552
Please select the Board:	City Council
Are you a resident of Corpus Christi?	No
Topic	Desalination Discharge into Baffin Bay
Agenda Item Number	25-1081
Describe Feedback:	Dear Corpus Christ City Council Members, I strongly oppose the discharge of any reverse osmosis reject water to any tributary of Baffin Bay. The bay is a unique water body in Texas that brings millions of dollars of revenue to your city and county thru recreational and commercial fishing and hunting. There has not been enough study on the impact of the discharge to determine what effect that it will have on Baffin Bay and the LM at large. The statements of a for-profit entity looking for the least expensive manner of disposal is not sufficient to make that determination. The ecological impact could be very detrimental to all flora and fauna in Baffin Bay and the LM. As a result, the economic loss to the greater Corpus Christi area would undoubtedly be substantial. Other options, regardless the expense, should absolutely be considered to preserve what is one of the last pristine natural environments on the Texas Coast. Baffin Bay does not need help from businessmen in suits!
Provide an email.	ron@toplineinv.com

Date of Meeting	7/15/2025
Name	Jeremy Mandel
Address	Street Address: 717 W Cheryl City: Falls City State / Province: TX Postal / Zip Code: 78113
Please select the Board:	City Council
Are you a resident of Corpus Christi?	No
Topic	Desalination Plant
Agenda Item Number	25-1081
Describe Feedback:	I hold a class A TCEQ water license and am well versed in RO treatment plants and some of the by products of treatment. While I'm not the authority on desalination, I know the main discharge is brine. Other by products from RO plants include acids and highly chlorinated water or neutralized with other chemicals. I am an avid angler of Baffin and Alazan bay systems. Both are eco systems that do not experience the tidal movements that other bay systems experience. Before the city jumps into a deal with this firm I would like to see data provided on how these types of discharge will affect a bay system, long term, with the lack of tidal movement. I personally spend, on average, $8000 annually in the Corpus Christi area. Lodging, food, bait, fishing gear/tackle, fuels, etc. if this project moves forward, without consideration for the tourism and fisher, I will never return to this bay system. I am one of a very large population that feels this way.
Provide an email.	Jmandel@fallscity.biz

Date of Meeting	7/15/2025
Name	Mike Sheehan
Address	Street Address: 5019 Barstow Bend Ln City: Katy State / Province: TX Postal / Zip Code: 77449
Please select the Board:	City Council
Are you a resident of Corpus Christi?	No
Topic	Desalination Plant
Agenda Item Number	25-1081
Describe Feedback:	Councilmembers. My name is Mike Sheehan, a Texan who cares deeply about our coast — even if some of you seem more concerned with appeasing industry than protecting the people and ecosystems that actually make this region thrive. Let's be clear: Corpus Christi Bay supports over $1.5 billion in tourism and thousands of working families. Your plan to dump concentrated brine into shallow, slow-moving water is reckless. You're gambling with jobs, fisheries, and the long-term health of this bay for a short-term industrial fix. This isn't visionary leadership — it's environmental negligence dressed up as progress. And Texans are watching. If you care at all about your legacy, about public trust, or about protecting the very economy you claim to serve, you'll demand real science, real transparency, and a better option. Thank you."
Provide an email.	mike@victorymetalstx.com

Date of Meeting	7/15/2025
Name	Mark Thompson
Address	Street Address: 20634 Longenbaugh Rd City: Cypress State / Province: TX Postal / Zip Code: 77433
Please select the Board:	City Council
Are you a resident of Corpus Christi?	No
Topic	Discharge of desalinatoin plant water into Baffin Bay
Agenda Item Number	N/A
Describe Feedback:	Dear Corpus Christ City Council Member. I strongly oppose the discharge of any reverse osmosis reject water to any tributary of Baffin Bay. Baffin Bay is a unique water body in Texas that brings millions of dollars of revenue to your city and Nueces county thru recreational and commercial fishing and hunting. I personally grew up fishing the Laguna Madre and Baffin Bay, and have had many amazing experiences with the incredible fishery that is present in those bodies of water. If the untested water that is proposed to be dumped into the bay system, I will consider taking my business elsewhere because of the potential for contaminated water, as well as if the fishery begins to decline. If the fishery does decline because of the dumping water, me and many others will take our business elsewhere with no hesitation. In the end, if the bay gets degraded by the discharge, my family will go elsewhere and we will encourage others to leave as well.

Date of Meeting	7/11/2025
Name	Eric Roberts
Address	Street Address: 17203 Clovis City: Helotes State / Province: TX Postal / Zip Code: 78023
Please select the Board:	City Council
Are you a resident of Corpus Christi?	No
Topic	Desalination discharge into Baffin Bay
Agenda Item Number	n/a
Describe Feedback:	I am writing to oppose the discharge from desalination plants into Baffin Bay. Anglers and outdoor enthusiasts travel from across the region to fish and hunt in Baffin Bay and the Upper Laguna Madre, contributing significantly to the local economy through spending on guides, lodging, equipment, food, and repairs in Nueces County and Corpus Christi. If the quality of fishing and hunting in these areas declines, visitors and residents alike will be forced to take their business elsewhere, resulting in economic loss for the region. Local guides and residents warn that they would relocate to other coastal destinations like Port Mansfield or South Padre Island if conditions deteriorate. The group strongly urges that RO (reverse osmosis) water not be discharged into tributaries leading to Baffin Bay, and recommends exploring alternative disposal methods, such as deep-well injection, to protect the area's ecological and economic future.
Provide an email.	fourroberts92@gmail.com

Date of Meeting	7/15/2025
Name	Mike Englert
Address	Street Address: 3617 Scarlet Oak Drive City: Corpus Christi State / Province: TX Postal / Zip Code: 78418
Please select the Board:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 4
Topic	Discharge of Brine Water
Agenda Item Number	1
Describe Feedback:	Dear Corpus Christ City Council, I strongly oppose surface discharge of any reverse osmosis reject water to any tributary of our region including Baffin Bay. As you know our local resources bring millions of dollars of revenue to your city and Nueces county thru recreational and commercial fishing and hunting. It's very apparent that not enough research has been completed on the possible effects of surface discharge. We have been told that the impact of the discharge could be positive but we cannot confirm that impact without proper testing and research. If approved and the impacts of the discharge are indeed negative it will be too late and have a negative impact on our local economy as well. I strongly feel that deep well injection should be prioritized. I know that it is not the cheapest solution, however, we must take into full consideration the possible impacts and protect our natural resources. Thank You, Mike Englert
Provide an email.	mike.englert@gmail.com

Date of Meeting	7/22/2025
Name	Jeb Borches
Address	Street Address: 2824 Pickett Dr. City: League City State / Province: Tx Postal / Zip Code: 77573
Please select the Board:	City Council
Are you a resident of Corpus Christi?	No
Topic	Desalination Plant
Agenda Item Number	1
Describe Feedback:	Dear Corpus Christi City Council Member I oppose any revers osmosis drainage into any tributary of Baffin Bay. Actually the whole Tx coast. Drain it into the gulf of America. You were elected to a position that can make a change in society for the better. I think desalination can be a good thing if done right. Might cost a bit more draining into the gulf, so charge more. Let's not make Baffin Bay a test site. I've spent my whole life in Tx. I like to think that Tx is one of the front runners that all other states fallow. I'm sure you didn't run for this position just to be a top dog in your community. Deep down we all want to make a difference, so please do the right thing. Thanks
Provide an email.	josephborches@gmail.com

Date of Meeting	7/11/2025
Name	Tobin Strickland
Address	Street Address: 6118 Coralridge Dr City: Corpus Christi State / Province: Tx Postal / Zip Code: 78413
Please select the Board:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 3
Topic	Proposed Driscoll Reverse Osmosis Reject Water Discharge to Baffin Bay
Agenda Item Number	25
Describe Feedback:	I am concerned regarding the proposed discharge of reverse osmosis (RO) reject water into a Baffin Bay tributary. At the heart of this issue is the absence of scientific research or precedent supporting the discharge into a hypersaline estuary. We do not understand its long-term ecological impact on Baffin Bay. BB is not a typical Texas bay. It is a hypersaline estuary, with avg salinity levels ranging between 35–60 parts per thousand (ppt). The flora and fauna uniquely adapted to high salinity—is vulnerable to sustained changes in water quality. This could disrupt sensitive habitats and species, such as its seagrass population which is a nursery habitat for spotted sea trout. Potential public-private partnerships could help mitigate costs. Tesla's upcoming lithium refinery in Robstown, located just miles from the Driscoll plant, will utilize an RO system. Tesla could potentially benefit from the reject water as a source, or could share the cost and capacity of a disposal well.
Provide an email.	tobin.rocks@gmail.com

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Peter Kaple
Address	7206 Lands End Dr Corpus Christi, Texas, 78414
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 5
Topic	South Texas Water Alliance - Driscoll Desalination Plant
Agenda Item Number	General Public Comment

Comment

Baffin Bay is home to world-class trout fishing and a unique ecosystem found nowhere else in Texas. It has evolved over millennia to handle its natural hypersalinity, but that balance is now at risk. The proposed discharge of briny, chemical-laden water from the Driscoll desalination plant threatens to damage this fragile bay and the communities that depend on it. The plant has not applied for a TCEQ discharge permit, and no environmental studies have been done. I am not against desalination. This area needs water solutions, and we've worked with the City before to find environmentally sound options, like on Harbor Island. Please do not move forward with a contract with STWA until safer disposal methods are considered, such as deep well injection or brine reuse for geothermal energy. I also ask the City to rethink its strategy of relying on heavy industry and instead invest in sustainable tourism, clean infrastructure, and preserving what makes the Coastal Bend special.

Provide an email to receive a copy of your submission.	peter.kaple.2011@gmail.com

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Shawn Flanagan
Address	4218 herndon st, Herndon St CORPUS CHRISTI, TX, 78411
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 2
Topic	Contract with South Texas Water Authority
Agenda Item Number	25

Comment

I urge you sign a contract to give us access to this source of water-the STWA project. We have no up front cost. The initial water cost is significantly cheaper than inner harbor desal, there is no capital investment required, there is no maintenance or operation costs for us beyond electricity and it is available sooner than inner harbor desal. This gives us water without precluding us getting other water sources such as inner harbor desal or Angelina because of this lack of cost. If they can not deliver water in the future we are not out anything. We pay only if we get water. We need water now and not just a single source. Please sign a contract to get this water.

Provide an email to receive a copy of your submission.	Sflanagan55@gmail.com

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Seth Chesser
Address	167 FM 1796 Utopia, Texas, 78884
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Dumping brine water into the Baffin Bay Ecosystem
Agenda Item Number	0

Comment

Baffin Bay is home to world-class trout fishing and a unique ecosystem found nowhere else in Texas. It has evolved over millennia to handle its natural hypersalinity, but that balance is now at risk. The proposed discharge of briny, chemical-laden water from the Driscoll desalination plant threatens to damage this fragile bay and the communities that depend on it. The plant has not applied for a TCEQ discharge permit, and no environmental studies have been done. I am not against desalination. This area needs water solutions, and anglers have worked with the City before to find environmentally sound options, like on Harbor Island. Please do not move forward with a contract with STWA until safer disposal methods are considered, such as deep well injection or brine reuse for geothermal energy. And please work with Harte Research to study the effects this discharge will have. Get the science before moving forward.

Provide an email to receive a copy of your submission.	s_chesser09@rocketmail.com

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Will Chesser
Address	2400 FM 2165, 5105 Rockport, TX, 78382
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Baffin Bay Desalination Project
Agenda Item Number	General Public

Comment

Baffin Bay is home to world-class trout fishing and a unique ecosystem found nowhere else in Texas. It has evolved over millennia to handle its natural hypersalinity, but that balance is now at risk. The proposed discharge of briny, chemical-laden water from the Driscoll desalination plant threatens to damage this fragile bay and the communities that depend on it. The plant has not applied for a TCEQ discharge permit, and no environmental studies have been done. I am not against desalination. This area needs water solutions, and anglers have worked with the City before to find environmentally sound options, like on Harbor Island. Please do not move forward with a contract with STWA until safer disposal methods are considered, such as deep well injection or brine reuse for geothermal energy. And please work with Harte Research to study the effects this discharge will have. Get the science before moving forward.

Provide an email to receive a copy of your submission.	caveman.outdoorco@gmail.com

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Alyrose Manahan
Address	7427 Scordato Dr San Antonio, Texas, 78266
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Baffin Bay
Agenda Item Number	N/a

Comment

Baffin Bay is home to world-class trout fishing and a unique ecosystem found nowhere else in Texas. It has evolved over millennia to handle its natural hypersalinity, but that balance is now at risk. The proposed discharge of briny, chemical-laden water from the Driscoll desalination plant threatens to damage this fragile bay and the communities that depend on it. The plant has not applied for a TCEQ discharge permit, and no environmental studies have been done. I am not against desalination. This area needs water solutions, and anglers have worked with the City before to find environmentally sound options, like on Harbor Island. Please do not move forward with a contract with STWA until safer disposal methods are considered, such as deep well injection or brine reuse for geothermal energy. And please work with Harte Research to study the effects this discharge will have. Get the science before moving forward.

Provide an email to receive a copy of your submission.	alyrose.chesser@att.net

Monday, July 14, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Regina Gonzales
Address	2202 Aquila St Corpus Christi,, TX, 78414
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	I don't know
Topic	Rezoning/Water/Hillcrest/ Desalinization /JUSTICE
Agenda Item Number	Items 16,17

Comment

No DESAL
Don't rezone Hillcrest to heavy industrial
People OVER PROFITS.

Provide an email to receive a copy of your submission.	reggieg24@gmail.com

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Cassidy Chesser
Address	17023 Ashbury Oaks San antonio, TX, 78247
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Baffin Bay
Agenda Item Number	General public comment

Comment

Baffin Bay is home to world-class trout fishing and a unique ecosystem found nowhere else in Texas. It has evolved over millennia to handle its natural hypersalinity, but that balance is now at risk. The proposed discharge of briny, chemical-laden water from the Driscoll desalination plant threatens to damage this fragile bay and the communities that depend on it. The plant has not applied for a TCEQ discharge permit, and no environmental studies have been done. I am not against desalination. This area needs water solutions, and anglers have worked with the City before to find environmentally sound options, like on Harbor Island. Please do not move forward with a contract with STWA until safer disposal methods are considered, such as deep well injection or brine reuse for geothermal energy. And please work with Harte Research to study the effects this discharge will have. Get the science before moving forward.

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Monday, July 14, 2025
Name	Caleb Chesser
Address	4085 w plum street Boise, Id, 83703
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Discharge of brine water into Baffin bay
Agenda Item Number	0

Comment

Baffin Bay is home to world-class trout fishing and a unique ecosystem found nowhere else in Texas. It has evolved over millennia to handle its natural hypersalinity, but that balance is now at risk. The proposed discharge of briny, chemical-laden water from the Driscoll desalination plant threatens to damage this fragile bay and the communities that depend on it. The plant has not applied for a TCEQ discharge permit, and no environmental studies have been done. I am not against desalination. This area needs water solutions, and anglers have worked with the City before to find environmentally sound options, like on Harbor Island. Please do not move forward with a contract with STWA until safer disposal methods are considered, such as deep well injection or brine reuse for geothermal energy. And please work with Harte Research to study the effects this discharge will have. Get the science before moving forward.

Provide an email to receive a copy of your submission.	calebchesser7@gmail.com

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Sunday, July 13, 2025
Name	Robin Chesser
Address	17023 Ashbury Oaks SanAntonio, TX, 78247
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Water Desalination Plant
Agenda Item Number	0

Comment

Baffin Bay is home to world-class trout fishing and a unique ecosystem found nowhere else in Texas. It has evolved over millennia to handle its natural hypersalinity, but that balance is now at risk. The proposed discharge of briny, chemical-laden water from the Driscoll desalination plant threatens to damage this fragile bay and the communities that depend on it. The plant has not applied for a TCEQ discharge permit, and no environmental studies have been done. I am not against desalination. This area needs water solutions, and anglers have worked with the City before to find environmentally sound options, like on Harbor Island. Please do not move forward with a contract with STWA until safer disposal methods are considered, such as deep well injection or brine reuse for geothermal energy. And please work with Harte Research to study the effects this discharge will have. Get the science before moving forward.

Provide an email to receive a copy of your submission.	rbnchesser@sbcglobal.net

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Shannon Chesser
Address	167 FM 1796 Utopia, Texas, 78884
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Dumping Brine Water in Baffin Bay
Agenda Item Number	0

Comment

Baffin Bay is home to world-class trout fishing and a unique ecosystem found nowhere else in Texas. It has evolved over millennia to handle its natural hypersalinity, but that balance is now at risk. The proposed discharge of briny, chemical-laden water from the Driscoll desalination plant threatens to damage this fragile bay and the communities that depend on it. The plant has not applied for a TCEQ discharge permit, and no environmental studies have been done. I am not against desalination. This area needs water solutions, and anglers have worked with the City before to find environmentally sound options, like on Harbor Island. Please do not move forward with a contract with STWA until safer disposal methods are considered, such as deep well injection or brine reuse for geothermal energy. And please work with Harte Research to study the effects this discharge will have. Get the science before moving forward.

Provide an email to receive a copy of your submission.	shannonkw93@gmail.com

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Cathy Chesser
Address	17023 Ashbury Oaks San Antonio, TX, 78247
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Desalination plant in Baffin bay
Agenda Item Number	0

Comment

I do not agree either with discharging brine water back into Baffin Bay without further environmental study,

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Omar Guerra
Address	22075 FM-490 Edinburg, TX, 78541
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Discharging freshwater into Baffin Bay
Agenda Item Number	10

Comment

Baffin Bay is home to world-class trout & redfish fishing and a unique ecosystem found nowhere else in Texas. It has evolved over millennia to handle its natural hypersalinity, but that balance is now at risk. The proposed discharge of briny, chemical-laden water from the Driscoll desalination plant threatens to damage this fragile bay and the communities that depend on it. The plant has not applied for a TCEQ discharge permit, and no environmental studies have been done. I am not against desalination. This area needs water solutions, and anglers have worked with the City before to find environmentally sound options, like on Harbor Island. Please do not move forward with a contract with STWA until safer disposal methods are considered, such as deep well injection or brine reuse for geothermal energy. And please work with Harte Research to study the effects this discharge will have. Get the science before moving forward.

Provide an email to receive a copy of your submission.	omar140810@icloud.com

Monday, July 14, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Thursday, July 17, 2025
Name	Matthew Zander
Address	12414 Huntingwick Houston, Texas, 77024
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Reverse Osmosis Discharge into Baffin Bay
Agenda Item Number	general public comment

Comment

I am strongly opposed to the proposed reverse osmosis discharge plant in Driscoll, Texas. Baffin Bay is an incredible unique eco system. I spend thousands of dollars every year traveling to CC and fishing, lodging and all that goes with it.

Matthew Zander

Provide an email to receive a copy of your submission.	mzander@crewlandresearch.com

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	David Alexander
Address	5508 Coventry Ln Austin, Texas, 78723
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Baffin Bay
Agenda Item Number	Public Comment

Comment

I am a person who frequents the Baffin Bay fishery many times a year. Baffin Bay is home to world class trout fishing and unique ecosystem found nowhere else in Texas. It has evolved over millennia to handle its natural hyper salinity, but that balance is now at risk. The proposed discharge of briny, chemical-laden water from Driscoll desalination plant threatens to damage this fragile bay and communities that depend on it. This plant has not applied for a TCEQ discharge permit, and no environmental studies have been done. I am not against desalination. This area needs water solutions, and anglers have worked with the city before to find environmentally sound options, like on Harbor Island. Please do not move forward with the contract with STWA until safer disposal methods are considered, such as a deep well injection or brine reuse for geothermal energy. Please work with Harte Research to study the effects this discharge will have. get the science before moving forward. Thank you

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Micah McCandless
Address	501 Catalina Pl Corpus Christi, TX, 78411
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 2
Topic	Desalination Plant & Rezoning
Agenda Item Number	18

Comment

Elected Leaders,

I am AGAINST the rezoning of the Hillcrest neighborhood to Heavy Industrial or Light Industrial. This is a neighborhood already beset by the pollutants blasted by the current level of industry and bears the brunt of negative health effects. These families are being asked to give up their homes, community, and a part of their identity. In many cases these are the least able to relocate, with limited resources.

Regards,

Micah McCandless, PharmD

Provide an email to receive a copy of your submission.	mtmtwo@gmail.com

Monday, July 14, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Micah McCandless
Address	501 Catalina Pl Corpus Christi, TX, 78411
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 2
Topic	Desalination Plant & Rezoning
Agenda Item Number	25

Comment

Elected Leaders,

I am AGAINST the desalination plant planned for Corpus Christi. The current plan for the plant is reckless and insulting. This plant would only provide water to industry and would not relieve the city's water supply issue. The engineering plan to pump the highly salinated sludge and concentrated pollutants back into the bay is criminal. The increase in salinity would kill the ecosystem and the exponential increase in the pollutants, already in the bay from our current industry, would ensure that nothing thrives in the future as well, including the residents of this city. Saying yes to the desalination plant, as it stands, is to hand over this city to heavy industry, providing wealth for a very few, at the staggering cost of the wildlife, tourism, fishing/gaming industry, and the people of this community.

Regards,

Micah McCandless, PharmD

Monday, July 14, 2025

Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Mac Elliott Howard
Address	1701 Ennis Joslin Rd, Apt 317 Corpus Christi, TX, 78412
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 4
Topic	Keep Baffin Bay Hypersaline!
Agenda Item Number	General Public Comment

Comment

What makes Baffin Bay so incredibly special and valuable as a fishery is its hypersaline environment. Baffin Bay is home to world class Trout and Redfish fishing, boosting our economy and putting south Texas on the map. I am not against desalination, but our sensitive Baffin Bay system should not be put at risk without considering the impact that this discharge will have on the fish, wildlife and outdoor industries that call Baffin home. Please work together with the Harte Research Institute and CCA to study the effects a desalination plant will have on this sensitive coastal environment. Give the coastal community of south Texas an opportunity to voice our concerns over destroying some of the finest fishing in the region. I want my future children and grandchildren to enjoy the bounty and treasures of Baffin Bay one day.

-Mac Elliott Howard
Outdoor Industry Photographer

Provide an email to receive a copy of your submission.	elliottmacala@gmail.com

Monday, July 14, 2025

Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Wes McNew
Address	1702 FM 3036, Apt 4204 Rockport, TX, 78382
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Desal
Agenda Item Number	General Public Comment

Comment

Baffin Bay is home to world-class trout fishing and a unique ecosystem found nowhere else in Texas. It has evolved over millennia to handle its natural hypersalinity, but that balance is now at risk. The proposed discharge of briny, chemical-laden water from the Driscoll desalination plant threatens to damage this fragile bay and the communities that depend on it. The plant has not applied for a TCEQ discharge permit, and no environmental studies have been done. I am not against desalination. This area needs water solutions, and anglers have worked with the City before to find environmentally sound options, like on Harbor Island. Please do not move forward with a contract with STWA until safer disposal methods are considered, such as deep well injection or brine reuse for geothermal energy. And please work with Harte Research to study the effects this discharge will have. Get the science before moving forward. These matters impact more than just Corpus residents.

Provide an email to receive a copy of your submission.	onioncreekflyco@gmail.com

Monday, July 14, 2025

Public Comment & Input Form

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Seth Winkelmann
Address	1742 LOREE DR Dallas, TX, 75228
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Baffin Desal Dump
Agenda Item Number	1

Comment

Please find other water solutions other than destroying a World Class fishery.

Provide an email to receive a copy of your submission.	seth_winkelmann@hotmail.com

Monday, July 14, 2025

Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Witton Ley
Address	104 south county road 1060 Kingsville, Tx, 78363
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Discharge into Baffin Bay
Agenda Item Number	P

Comment

My name is Witton Ley I'm 18 years old and I have been fishing in Baffin Bay my whole life. I just wanted to say I'm strongly against the discharge of salt water brine into are bay system and the impacts that could follow with doing such things. I ask y'all to find different means in disposal of this salt water so this beautiful bay system can prosper for many many more years to come. Once again please think about the impact this discharge can have on our bay system and not only the impact on the wildlife but the people who make there livelihood in this bay system as well.

Provide an email to receive a copy of your submission.	leywitton@gmail.com

Monday, July 14, 2025

Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Jack Howard
Address	626 Delaine Dr. Corpus Christi, Texas, 78411
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 4
Topic	Driscoll desalination plant
Agenda Item Number	Generally public comment

Comment

Some of my most cherished memories have been in Baffin Bay. I want my future children to be able to experience the same world class sights I have experienced in the last year. Baffin Bay is home to world-class trout fishing and a unique ecosystem found nowhere else in Texas. It has evolved over millennia to handle its natural hypersalinity, but that balance is now at risk. The proposed discharge of briny, chemical-laden water from the Driscoll desalination plant threatens to damage this fragile bay and the communities that depend on it. I am not against desalination. This area needs water solutions, and anglers have worked with the City before to find environmentally sound options, like on Harbor Island. Please do not move forward with a contract with STWA until safer disposal methods are considered, such as deep well injection or brine reuse for geothermal energy. And please work with Harte Research to study the effects this discharge will have. Get the science before moving forward.

Provide an email to receive a copy of your submission.	howarjc681@gmail.com

Monday, July 14, 2025

Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Darren Jones
Address	557 Rose Branch Dr La Vernia, TX, 78121
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Seven Seas Desalination Plant in Bishop
Agenda Item Number	Public Comment

Comment

Good afternoon, my name is Darren Jones, I am Corpus Christi Native, Business Owner, Veteran and a fisherman. I grew up on Baffin and spend well over 100 days per year fishing and hunting this legendary, very unique bay system.
To begin, I am for using desalinated water to feed our industry in the coastal bend. I was stationed in Guantanamo Bay Cuba and we survived on desalinated water. I am vehemently against dumping up to 30 million gallons of brine water(per day) into an already hyper saline, closed loop Baffin Bay system. The public has not been made aware of any environmental impact studies and this endeavor has thus far not been made public until now. You (city council) have the opportunity for a win/win. Go forward with the desalination plant and find one of the many other ways to dispose of the brine responsibly(offshore, deep well injection, etc.). The other win, saving Baffin from being destroyed . We are counting on you.
Respectfully ,
Darren Jones

Provide an email to receive a copy of your submission.	feralconceptsllc@gmail.com

Monday, July 14, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Monday, July 14, 2025
Name	Riley Elliott
Address	9231 Merna Drive Houston, TX, 77040
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Keep Baffin Bay Hypersaline
Agenda Item Number	General Public Comment

Comment

Baffin Bay's hypersaline environment is what makes it one of the most special fisheries and bays on the Gulf Coast. Baffin Bay is a world class fishery that is already healthy and thriving. Please work with the Harte institute and CCA to study the effects a desalinization plant would have on the bay and the negative impacts it may have. I have had the privilege of spending lots of time in the upper Laguna Madre and want my kids and grandkids to experience the beauty and fishing of Baffin Bay for years to come.

- Riley Elliott

Monday, July 14, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Robert Read
Address	6400 WINDCREST DR Plano, TX, 75024
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Desal Discharge in Baffin Bay
Agenda Item Number	N/a

Comment

The discharge of desalination brine into Baffin Bay is nothing short of a disaster for the bay. This bay is vital to the many species that call the Texas coast home. I personally spend thousands of dollars a year coming to stay and chase the incredible sport fish that populate this ecosystem. The future of your community earning those dollars, as well as the hard earned money of many other like me, will not exist with the proposed discharges. The discharges will only harm the people who elected you to your positions, all while lining the pockets of a corporation. That doesn't sound American to me. I very much understand the need for the these desal plants, but not at the expense of the community and environment that makes your area so special and so unique. I would love to continue to spend my money on hotels and guides and meals 6-10 times a year, but that future depends on your decisions. Please listen to your constituents, and show what true leadership means. Thank you.

Provide an email to receive a copy of your submission.	tread10@gmail.com

Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Mason Moore
Address	3514 Silvercreek Dr, None Houston, TX, 77578
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Baffin Bay
Agenda Item Number	General Public Comment

Comment

Although not a resident of Corpus Christi, I spend time frequently around the area and even a little further south. Baffin Bay has always been one of my favorite places to go. Baffin Bay is a world class fishery and home to many people. Desalination is sure to ruin the Bay. The discharge from these desal plants creates a brine that can quickly ruin surrounding areas. Being that Baffin Bay is a closed system, the discharge would deplete the environment quickly. Next, the amount of energy that is required for these plants to operate is ridiculous. The energy spent is not worth the amount of water that is produced. While I support the idea of creating more water opportunities, I feel that there are better ways to do it. Many people rely on the Baffin Bay ecosystem as their livelihood. It is not right to ruin it with the discharge of these desalination plants.

Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Kerri McDonnel
Address	6838 Everhart Rd, Apt 1905 Corpus Christi, TX, 78413
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 5
Topic	Rezoning/Water/Hillcrest/Desalination/Justice
Agenda Item Number	16, 17, 18

Comment

Do not rezone Hillcrest to heavy industrial
No desal plant

Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Margot Moczygemba
Address	6105 Jessica Drive Corpus Christi, TX, 78414
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 5
Topic	Changing Hillcrest andWashington- Cole district intoLight/Heavy Industrial zones
Agenda Item Number	10 and 11

Comment

I am concerned about rezoning in Agenda items 10 and 11 that the council is voting on today. I am against rezoning these areas. This will bring heavy-polluting industries closer to schools and thousands of our residents.

Increased pollution can lead to respiratory issues, especially in children and the elderly, who are more vulnerable to air quality changes.
Instead of rezoning, the council should consider investing in green spaces and parks that promote a healthier environment. Additionally, developing clean energy projects in these areas can provide jobs while minimizing pollution.
Implementing stricter pollution controls on existing industries could also be an effective way to improve air quality without compromising economic growth.

Additionally, exposure to pollutants can exacerbate conditions such as asthma and allergies, significantly impacting the overall health of the community. Protecting our residents from these risks should be a top priority for the council.

Tuesday, July 15, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Sara Dolson
Address	512 Ohio Ave. Corpus Christi, TX, 78404
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 2
Topic	General
Agenda Item Number	General

Comment

Please don't move forward with the desalination plant. Residents only use a small portion of the water when compared to industry, so residents should not have to take on the financial burden. The bay, the air, and the land we live on should be respected.

Please don't rezone the Hillcrest neighborhood to heavy industrial. That once again only benefits the big industry people at the top, not the people who live here.

Let's put the people of Corpus Christi over the profits of big oil by putting an end to the desalination plant already please and thank you.

Tuesday, July 15, 2025

Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Clark Weaver
Address	4710 Arrowhead Lake Drive Missouri City, TX, 77459
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Driscoll water discharge into Baffin Bay
Agenda Item Number	12345

Comment

Dear Corpus Christ City Council Member.

I strongly oppose the discharge of any reverse osmosis reject water to any tributary of Baffin Bay. Baffin Bay is a unique water body in Texas that brings millions of dollars of revenue to your city and Nueces county thru recreational and commercial fishing and hunting.

Although not a resident of Corpus Christi, I am an avid fisherman of the Texas bay systems. Baffin Bay is a unique bay system that is fragile and the large discharge of water from the Driscoll project should absolutely be stopped unless peer reviewed scientific studies unequivocally show that such discharge will not harm the bay ecosystem.

I spent a large amount of time and money on outdoor recreation in the bay systems which will go elsewhere if Baffin Bay is negatively impacted.

Thanks for your consideration
Clark Weaver

Tuesday, July 15, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Joanna Rockwood
Address	603 S Blanco St Lockhart, TX, 78644
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Diesel Plant - Alice City
Agenda Item Number	P

Comment

Baffin Bay is a very important fishing and wildlife area for the state of Texas. I am against the Alice City desal plant harmfully discharging into Baffin Bay. Please, please seek out other environmentally friendly plans.

Provide an email to receive a copy of your submission.	leajoanna@gmail.com

Tuesday, July 15, 2025

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For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Brad Higginbotham
Address	1103 Cherico St Unit 4 Austin, TX, 78702
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Desal Plant
Agenda Item Number	P

Comment

Please do not discharge desal plant emissions into any of the bays. As someone who travels to recreate in your bays several times a year I can tell you the bays are worth more to you as healthy eco systems. Please route desal emissions offshore, it makes much more sense.

Provide an email to receive a copy of your submission.	bhiggs87@gmail.com

Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Monday, July 14, 2025
Name	Steven Bradshaw
Address	10050 Cedardale Houston, Texas, 77055
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Desal Plant
Agenda Item Number	0000

Comment

Dear Corpus Christ City Council,

I strongly oppose the discharge of any reverse osmosis reject water to any tributary of Baffin Bay. Baffin Bay is like a second home to me and many other outdoor enthusiast up and down the Texas coast. It has adapted over the years to the high salinity - and discharging the water will disrupt the ecosystem and has high potential to damage the great fishery and habitat Baffin is.

I come all the way from Houston several times a year to fish Baffin. I am sure hundreds if not thousands of other people do. This brings a good economic impact to the community from lodging, fishing guides, bait shops, restaruants, etc. If Baffin bay is degraded I - along with others - will start taking our business to other areas of the Texas Coast.

Baffin bay is one of the last untouched treasures of the coast that is not suffering a major human impact. Lets keep it that way.

Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Lori Walker
Address	5502 Covey Place Robstown, Texas, 78380
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Water Supply Projects Update/Desalination
Agenda Item Number	31

Comment

My name is Lori Jo Walker and I am a property owner in Corpus Christi as well as Riviera, Texas. I urge the council to reject any water projects that include the disposal method of discharging into our natural water sources such as creeks, tributaries, or bays. Any industrial discharge will upset the balance of fragile ecosystems and possibly cause irreparable damage to the valuable asset that is our coastal waters.
I am not against desalination as long as it is done in a way that creates the least environmental impact on our natural water resources and environment. Furthermore, I respectfully request that the City of Corpus Christi pursue water contracts that assess costs in a fair and equitable manner between all partners. In other words, residents should only bear the costs for the percentage of water they receive. If city residents use only 20% of water produced while industry receives 80%- the financial responsibility should reflect this ratio.

Sincerely,
Lori Jo Walker

Provide an email to receive a copy of your submission.	lorijowalker@aol.com

Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Merida Forrest
Address	7114 Grape Arbor Drive Corpus Christi, TX, 78414
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 5
Topic	Items 16, 17, and 18-rezoning Hillcrest and Washington-Coles residential neighborhoods to light industrial and heavy industrial zones and closing off streets in the neighborhoods
Agenda Item Number	16, 17, 18

Comment

Regarding the zoning case for the Hillcrest and Washington-Coles neighborhoods - please stop the proposal from the Port of Corpus Christi from rezoning the area to industrial use. Please deny the proposed street closures in their neighborhood as this will make it harder for residents to get into their homes or get away from danger. Their neighborhood has seen enough displacement due to industry.

Per the planning commission's recommendation they denied it of heavy industrial and favored for the property to be light industrial - at the least vote with their side - not heavy industrial.

I urge Corpus Christi City Council members to reject Case ZN8534 and Case ZN8553 and the accompanying street closure ordinance. I hope I can count on your support for this.

Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Merida Forrest
Address	7114 Grape Arbor Drive Corpus Christi, TX, 78414
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 5
Topic	Public Comment Procedures
Agenda Item Number	27, 28, 29, 30

Comment

Thank you for your advocacy in making steps in positive changes to public comment. Today's new changes I'm not a fan of but will remain open minded to see how it flows.
I am happy to see items 27, 28, 29 & 30 as these are in the correct direction - I ask you to vote in favor of each of these.
*Item 27 - 5:30 public comment should be for both general & for an agenda item (perhaps one day the 5:30pm comment portion can happen before the City Council meeting - not after)
*Item 28 - let's go back to the old way where we didn't have to sign up to speak on an agenda item at the City Council meeting.
*Item 29 - we know & you know it's a rhetorical question per policy, let us ask, no need to reply, no need for City attorney to rebuttal & we are aware you won't be replying.
*Item 30 - please extend the window to sign up for public comment to 5pm on day of city council meetings - not 10:30am.

Thank you!

Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Chris Perry
Address	2798 Spring Moss Dr League City, TX, 77573
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Baffin Bay to Receive Reverse Osmosis Reject Water
Agenda Item Number	N/A

Comment

Dear Corpus Christ City Council Member.

I strongly oppose the discharge of any reverse osmosis reject water to any tributary of Baffin Bay. Baffin Bay is a unique water body in Texas that brings millions of dollars of revenue to your city and Nueces county thru recreational and commercial fishing and hunting.
I travel many miles to fish Baffin and the ULM for spotted sea trout and black drum. I spend money in Nueces County and Corpus Christi Texas for fishing and hunting guides, tackle, equipment, lodging, food, and other related cost such as truck, boat, or trailer repair.
If Baffin Bay or the Upper Laguna Madre fishing and hunting is degraded I won't come there and will be forced to go spend my money elsewhere.

Provide an email to receive a copy of your submission.	ch_perry@live.com

Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Davin Topel
Address	5020 Patagonia Pass Austin, TX, 78738
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Desalination plant
Agenda Item Number	NA

Comment

I've heard that the desalination plant is looking to ramp up the dumping of waste water into bath and Bay up to 30,000,000 gallons per day.
I am wanting to express that I am against this and would like to see more environmentally friendly options before we start irresponsibly dumping into a closed system bay.
Thank you ,
Davin Topel

Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Ethan Getz
Address	13613 Moro Ln Corpus Christi, TX, 78418
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 4
Topic	Desalination Discharge into Baffin Bay
Agenda Item Number	31

Comment

I would like to express my concern with the proposed plan to discharge brine from the desalination plant into Petronilla creek. This discharge will eventually reach Baffin Bay and affect the hydrology of the system. As an avid angler and someone who cherishes Baffin Bay as one of the most unique ecosystems on the Texas coast, I believe this discharge will be harmful to the bay. As a hypersaline estuary that supports economically valuable fisheries, including a world-renowned trophy spotted seatrout fishery, the hydrology of this bay should not be tampered with. The natural flow levels into Baffin Bay have created a flourishing ecosystem that we should seek to protect, not alter. I hope that the desalination plant and city officials realize what is as risk here, and seek alternative solutions for the discharge.

Provide an email to receive a copy of your submission.	ethangetz4@gmail.com

Tuesday, July 15, 2025

Public Comment & Input Form

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To continue submitting a **written public comment** click Next below.

Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Elizabeth Dodds
Address	PO BOX 1120 Kingsville, Texas, 78364
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Seven Seas / STWA water Discahrge
Agenda Item Number	31

Comment

Rudy Madrid stood in front of this council on 7/10/2025, & proposed a water solution that would not only provide additional water to the region, but would "refresh Baffin Bay". It was a reckless, untruthful message made with zero marine biology experience, & directly contradicts statements made by both Harte Research Institute & CCA. I attended the Kleberg County Commissioners Meeting on 07/14/25, during which Rudy Madrid said (in reference to the need for an oversight committee) - & I quote - "I am not one to ask scientific questions". Rudy Madrid & the STWA have sold you a lie, & completely mislead their audience into believing that this saline discharge will be beneficial to our bays. I ask that you vote NOT TO ENTER into an agreement with STWA & explore alternative options for the discharge of saline waste that do not discharge into our local bays - to do otherwise, would be simply negligent, & wreak havoc onto our precious Bays & ecosystems. (FULL STATEMENT ATTACHED BELOW)

Upload supporting images or documents.	PDF EAD - Written Statement.pdf
Provide an email to receive a copy of your submission.	lizzie.monroe92@yahoo.com

Rudy Madrid stood in front of this council on June 10th, 2025, and proposed to you a water solution that would not only provide additional water to the region, but would "refresh Baffin Bay", which "has been needed for years". It was a reckless, untruthful message made by an individual with zero marine biology experience, and directly contradicts statements made by both Harte Research Institute and CCA. I attended the Kleberg County Commissioners Meeting on 07/14/25, during which Rudy Madrid said (in reference to the need for an oversight committee) - and I quote - "I am not one to ask scientific questions". This is who you're considering to enter an agreement with? Somebody with no scientific studies to present, and self admittedly no scientific background or expertise? Rudy Madrid and the STWA have sold you a lie, and completely mislead their audiences into believing that this saline discharge will be beneficial to our bays despite the DIRECT input of local and national environmental scientific entities. With this in mind, I ask that you vote NOT TO ENTER into an agreement with STWA and explore other options for discharge of saline waste that do not discharge into our local bays - to do otherwise I fear would be simply negligent, and wreak havoc onto our precious Bays and ecosystems.

IN WITNESS THEREOF, the Parties have caused this Agreement to be executed by its duly authorized signatory, effective as provided herein

PORT OF CORPUS CHRISTI AUTHORITY

John P. LaRue
Executive Director

Dated 12-16-15

CITY OF CORPUS CHRISTI

Ronald L. Olson
City Manager

Dated 16 Dec. 2015

ATTEST: REBECCA HUERTA
CITY SECRETARY

TEXAS DEPARTMENT OF TRANSPORTATION

LtGen J.F. Weber, USMC (Ret)
Executive Director

Dated 12/17/2015

CORPUS CHRISTI HOUSING AUTHORITY

Gary Allsup
President and Chief Executive Officer

Dated 12-16-15

Approved as to form 12-16-15

Assistant City Attorney
For City Attorney

RES. 030705 AUTHORIZED
BY COUNCIL 12/15/15
SECRETARY

the strategic abandonment of rights of way that maintains the efficient contiguity of travel in and through the Neighborhood. Accordingly, the City acknowledges that the City Council may exercise its powers under Section 1(a)(11) of Article X of the City's Charter to close or alter the public streets, alleys, or other public ways within its jurisdiction in pursuit of said objective. The City acknowledges and agrees that where streets, alleys or other public ways abut Acquired Property, in order to facilitate the Port's use of the Acquired Property for Port Purposes, the closure or alteration of those streets, alleys, or ways may become necessary.

The City agrees that for purposes of closing or altering streets, alleys or other public ways pursuant to the Neighborhood Acquisition Plan, including a closure or alteration under Section 49-12 of the City's Code of Ordinances pursuant to such Plan, the City, by action of its City Council, may find that:

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(ii) such closure or alteration is considered to be required for the proper completion of the Harbor Bridge, which is a public improvement project; and

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The City maintains the discretion to abandon, close, alter, or retain a street, alley or other public way in response to a request or petition in a manner that maintains the efficient contiguity of travel in and through the Neighborhood.

Notwithstanding any other provision of this Agreement, if the City closes any streets (or other public ways) in the Neighborhood (or portions thereof) at the request of the Port, the City, by action of its City Council, hereby finds the Port will not be required to pay any additional amounts to the City for the property it acquires in connection with these street closures.

Community Advisory Board. The City's Liaison will attend TxDOT's quarterly meetings of the Community Advisory Board described in the Two Party Agreement.

Provide an email to receive a copy of your submission. ecastillo@lcv.org

units for the designated low income groups over the next two years utilizing a combination of incentives from the Federal Home Loan Bank Board and low income housing tax credits through the Texas Department of Housing and Community Affairs. Although advance commitments for this type of funding cannot be obtained, the City has a strong track record in obtaining competitive awards of low-income housing tax credits for projects each year, and local banks have made arrangements with the Federal Home Loan Bank Board for technical assistance in securing competitive awards through its programs. Federal fair housing laws would prohibit the restriction of any such developments only to persons from the Northside neighborhoods, but adequate capacity should be available to meet the needs of all Northside residents interested in relocating to new apartments in other areas.

3. "Affordable housing programs provided by developers in different parts of the City that will provide new housing options available for purchase.

4. "Banks offering low down payment mortgage products, including loans that require as little as a $500 down payment. As an example of a local bank program, BBVA Compass Bank has indicated that it has a low interest loan program that pays most closing costs and only requires a $500 down payment. BBVA has stated that credit scores as low as 620 are currently acceptable.

5. "Homeownership counseling through nonprofit agencies, including, but not limited to, Catholic Charities, Texas State Affordable Housing Corporation, TexasVeterans.com, and GreenPath.

6. "Local landlords.

7. The Corpus Christi Housing Authority. Additionally, the City will declare its support for the Neighborhood Acquisition Plan described in Exhibit C. This support is expected to enable the Corpus Christi Housing Authority to provide a preference for residents who have been displaced under the Plan.

"The City has not conducted an investigation to verify or guarantee statements made by third parties or the present or future availability of services provided by third parties. The City will not provide the services identified as being provided or facilitated by any entity other than the City.

Compliance with Record Keeping and Reporting Requirements Under Section 5 of the Agreement. In compliance with the requirements of Section 5, the City will submit to TxDOT quarterly reports. Written progress reports will contain, but are not limited to, a summary of all activities related to the performance of the Lessons duties for that reporting period, as described in the Exhibit D.

Assemblage of tracts for Port Purposes. The City desires to encourage the assemblage of property for Port Purposes pursuant to the Neighborhood Acquisition Plan through:

Exhibit D – City of Corpus Christi

City support of Project, Neighborhood Acquisition Plan, Voluntary Restrictive Covenant Program. The City fully supports the Project and the Port's acquisition of property in the Neighborhood pursuant to the Neighborhood Acquisition Plan and Voluntary Restrictive Covenant Program, and agrees that the Acquired Property may be used for Port Purposes.

The City acknowledges and agrees that the representations and agreements made by the City in this Exhibit D have been made as a material inducement to the Port to enter into this Agreement, that the Port is relying on the City's representations and agreements, and that the Port would not have entered into this Agreement without the City's representations and agreements.

Use of eminent domain in a manner that is beneficial to Neighborhood residents. The City understands that the Port's use of eminent domain may be necessary to enable some sellers who have non-resident partial interest Owners to provide good and complete title to the Port and thereby participate in the Neighborhood Acquisition Plan. Also, Texas law assists residents by providing increased eligibility for relocation assistance if their properties are purchased by an entity with eminent domain authority, and the City desires to assist participants in the Neighborhood Acquisition Plan in their desire to receive relocation benefits. Therefore, pursuant to Texas Water Code §62.105(d), the City hereby consents to the Port's use of eminent domain authority in the acquisition of property in the Neighborhood. The City understands that, during the Effective Period, the Port will only use eminent domain when requested by the Owner or purported Owner of a property interest in the property being sold to the Port pursuant to the Neighborhood Acquisition Plan. As between the Port and the City only, this consent will survive the suspension or termination of this Agreement.

Transfer of priority ad hoc paving liens and demolition liens. For any property that the Port purchases under the Neighborhood Acquisition Plan and agrees to maintain pursuant to agreement between the City and Port, the City agrees to permanently transfer to the Port its rights to its Weedy Lot Liens, Paving Liens, and Demolition Liens on the basis of a City determination that the value of such obligations approximates or exceeds the value of the lien rights. The transfer of such rights will effectively constitute a release of such liens in favor of the Port, giving the Port additional flexibility in negotiating the purchase of property under the Neighborhood Acquisition Plan.

Maintenance of T.C. Ayer's Park and Williams Memorial Park (Parks). To satisfy the requirements specified in the Two Party Agreement, the City will maintain the Parks for 24 months from the Effective Date.

Comment

Dear Mayor Guajardo and Honorable Members of the Council,

Ordinance
ZN8534
ZN8553

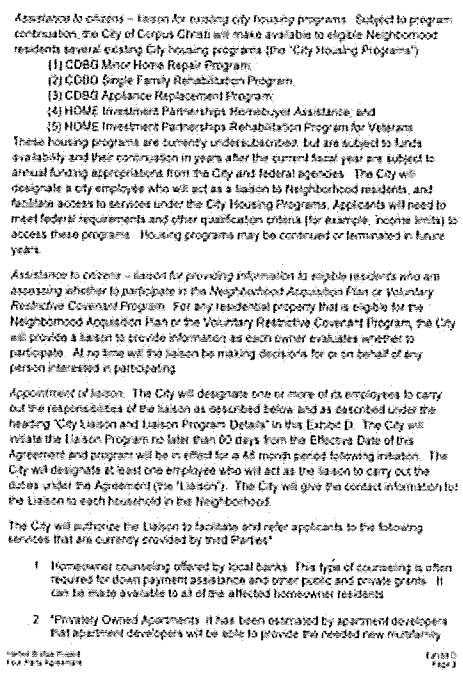
I am writing to express my concerns with the Rezoning and street closures being requested by the Port of Corpus Christi. They want you to believe that this request should be granted due to a Four Party Agreement, but the agreement to the Port was no longer applicable once the first car passed the new Harbor Bridge.

The Port is not a taxpaying entity to the city, but residents of Hillcrest and Washington-Coles are. They pay their taxes despite the reduced services and support from the City of Corpus Christi. They have been through so much, and now their safety and quality of life is being further compromised by the proposed Rezoning and Street closures.

Think of the safety of the community. Think of the City's future land use map. Think of the promises that were made but haven't been upheld.

The City Council should represent the best interest of the constituents. Please deny the Port's requests.

Upload supporting images or documents.



Assistance to citizens – liaison for existing city housing programs. Subject to program continuation, the City of Corpus Christi will make available to eligible Neighborhood residents several existing City housing programs (the "City Housing Programs")

(1) CDBG Minor Home Repair Program;
(2) CDBG Single Family Rehabilitation Program;
(3) CDBG Appliance Replacement Program;
(4) HOME Investment Partnerships Homebuyer Assistance; and
(5) HOME Investment Partnerships Rehabilitation Program for Veterans

These housing programs are currently undersubscribed, but are subject to funds availability and their continuation in years after the current fiscal year are subject to annual funding appropriations from the City and federal agencies. The City will designate a city employee who will act as a liaison to Neighborhood residents, and facilitate access to services under the City Housing Programs. Applicants will need to meet federal requirements and other qualification criteria (for example, income limits) to access these programs. Housing programs may be continued or terminated in future years.

Assistance to citizens – liaison for providing information to eligible residents who are assessing whether to participate in the Neighborhood Acquisition Plan or Voluntary Restrictive Covenant Program. For any residential property that is eligible for the Neighborhood Acquisition Plan or the Voluntary Restrictive Covenant Program, the City will provide a liaison to provide information as each owner evaluates whether to participate. At no time will the liaison be making decisions for or on behalf of any person interested in participating.

Appointment of liaison. The City will designate one or more of its employees to carry out the responsibilities of the liaison as described below and as described under the heading "City Liaison and Liaison Program Details" in the Exhibit D. The City will initiate the Liaison Program no later than 60 days from the Effective Date of this Agreement and program will be in effect for a 48 month period following initiation. The City will designate at least one employee who will act as the liaison to carry out the duties under the Agreement (the "Liaison"). The City will give the contact information for the Liaison to each household in the Neighborhood.

The City will authorize the Liaison to facilitate and refer applicants to the following services that are currently provided by third Parties*

1 Homeowner counseling offered by local banks. This type of counseling is often required for down payment assistance and other public and private grants. It can be made available to all of the affected homeowner residents.

2 *Privately Owned Apartments.* It has been estimated by apartment developers that apartment developers will be able to provide the needed new multifamily

Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Elida Castillo
Address	131 Lerdo St Taft, TX, 78390
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	No
Topic	Rezoning & Street Closures
Agenda Item Number	16-18

Exhibit D – City of Corpus Christi

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IN WITNESS THEREOF, the Parties have caused this Agreement to be executed by its duly authorized signatory, effective as provided herein.

PORT OF CORPUS CHRISTI AUTHORITY

John P. LaRue
Executive Director

Dated: 12-16-15

CITY OF CORPUS CHRISTI

Ronald L. Olson
City Manager

Dated: 16 Dec. 2015

ATTEST: Rebecca Huerta
REBECCA HUERTA
CITY SECRETARY

TEXAS DEPARTMENT OF TRANSPORTATION

LtGen J.F. Weber, USMC (Ret)
Executive Director

Dated: 12/17/2015

CORPUS CHRISTI HOUSING AUTHORITY

Gary Allsup
President and Chief Executive Officer

Dated: 12-16-15

Approved as to form: 12-16-15
Assistant City Attorney
For City Attorney

Res. 030705
AUTHORIZED
BY COUNCIL 12/15/15
SECRETARY

Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Danae Moreno
Address	3922 Brushwood Ln Corpus Christi, TX, 78415
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 3
Topic	Rezoning and Desalination
Agenda Item Number	Item 16, 17

Comment

DO NOT rezone Washington Coles and Hillcrest neighborhoods for desalination. People must be prioritized over profits, and man-made brine must be kept out of our bays. Rezoning these neighborhoods means polluting our air and water which would lead to an increase of Corpus Christians developing respiratory conditions such as asthma, and directly create habitat loss and mortality for wildlife in our ocean.

According to the Coastal Conservation Association and a study by the Science of Total Environment a desalination plant (I have uploaded both below) while seeming like a needed solution, would create environmental problems for our people and our wildlife.

Upload supporting images or documents.

CCA Texas Position Statement on Brackish Groundwater and Saline Surface Water Desalination

As coastal communities in Texas increasingly turn to desalination of both brackish groundwater and saline surface water to meet growing freshwater demands, CCA Texas supports responsible, science-based practices that protect the health of our state's coastal ecosystems, fisheries, and water quality.

Background

Desalination is becoming more common across the Texas coast, using technologies like reverse osmosis to remove salts and produce freshwater from two main sources:

- Brackish groundwater, drawn from deep aquifers with moderate salinity levels (typically 1,000–10,000 mg/L TDS), and
- Saline surface water, such as seawater from bays, estuaries, or the Gulf (typically 10,000 – 35,000 mg/L TDS)

While desalination can provide much-needed water for municipal and industrial uses, it also produces a concentrated byproduct known as brine, a high-salinity waste stream that must be carefully managed to avoid environmental harm.

Disposal of this brine, particularly through discharge into rivers, streams, or estuaries, raises significant environmental concerns that have not been adequately addressed in Texas.

Environmental Concerns

Scientific evidence shows that surface discharge of concentrated brine, from either brackish or marine desalination facilities, can disrupt salinity, oxygen levels, and water quality in sensitive coastal systems. These changes can:

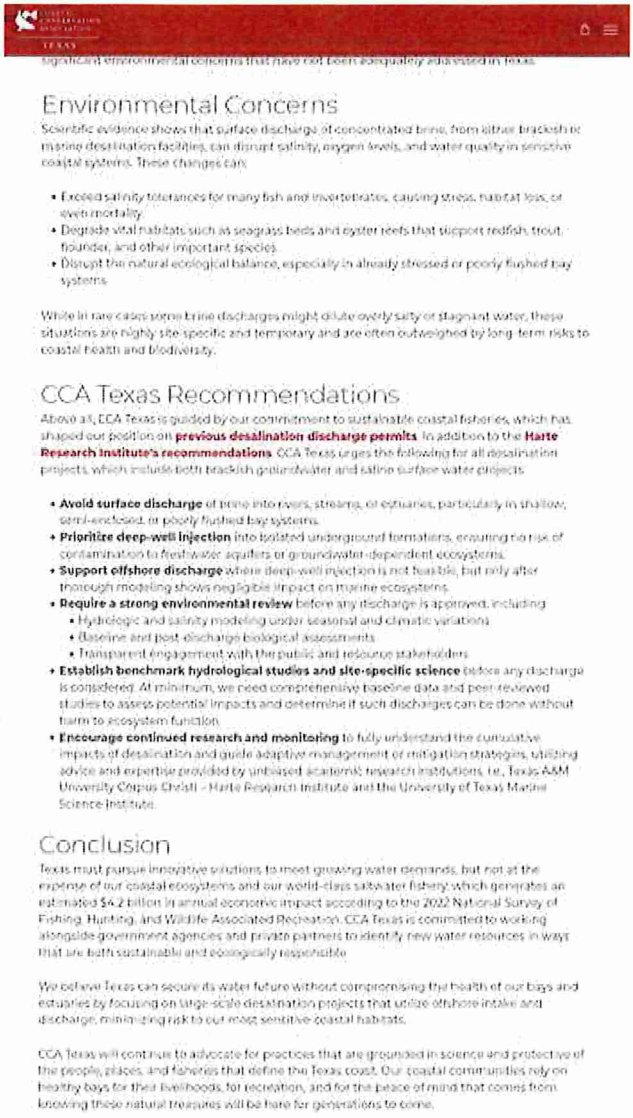
- Exceed salinity tolerances for many fish and invertebrates, causing stress, habitat loss, or even mortality.
- Degrade vital habitats such as seagrass beds and oyster reefs that support redfish, trout, flounder, and other important species.
- Disrupt the natural ecological balance, especially in already stressed or poorly flushed bay systems.

While in rare cases some brine discharges might dilute overly salty or stagnant water, these situations are highly site-specific and temporary, and are often outweighed by long-term risks to coastal health and biodiversity.

CCA Texas Recommendations

Above all, CCA Texas is guided by our commitment to sustainable coastal fisheries, which has shaped our position on **previous desalination discharge permits**. In addition to the **Harte Research Institute's recommendations**, CCA Texas urges the following for all desalination projects, which include both brackish groundwater and saline surface water projects:

- **Avoid surface discharge** of brine into rivers, streams, or estuaries, particularly in shallow, semi-enclosed, or poorly flushed bay systems.
- **Prioritize deep-well injection** into isolated underground formations, ensuring no risk of contamination to freshwater aquifers or groundwater-dependent ecosystems.
- **Support offshore discharge** where deep-well injection is not feasible, but only after thorough modeling shows negligible impact on marine ecosystems.
- **Require a strong environmental review** before any discharge is approved, including



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- **Prioritize deep-well injection** into isolated underground formations, ensuring no risk of contamination to freshwater aquifers or groundwater-dependent ecosystems.
- **Support offshore discharge** where deep-well injection is not feasible, but only after thorough modeling shows negligible impact on marine ecosystems.
- **Require a strong environmental review** before any discharge is approved, including:
  - Hydrologic and salinity modeling under seasonal and climatic variations.
  - Baseline and post-discharge biological assessments.
  - Transparent engagement with the public and resource stakeholders.
- **Establish benchmark hydrological studies and site-specific science** before any discharge is considered. At minimum, we need comprehensive baseline data and peer-reviewed studies to assess potential impacts and determine if such discharges can be done without harm to ecosystem function.
- **Encourage continued research and monitoring** to fully understand the cumulative impacts of desalination and guide adaptive management or mitigation strategies, utilizing advice and expertise provided by unbiased academic research institutions, i.e., Texas A&M University Corpus Christi - Harte Research Institute and the University of Texas Marine Science Institute.

Conclusion

Texas must pursue innovative solutions to meet growing water demands, but not at the expense of our coastal ecosystems and our world-class saltwater fishery which generates an estimated $4.2 billion in annual economic impact according to the 2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. CCA Texas is committed to working alongside government agencies and private partners to identify new water resources in ways that are both sustainable and ecologically responsible.

We believe Texas can secure its water future without compromising the health of our bays and estuaries by focusing on large-scale desalination projects that utilize offshore intake and discharge, minimizing risk to our most sensitive coastal habitats.

CCA Texas will continue to advocate for practices that are grounded in science and protective of the people, places, and fisheries that define the Texas coast. Our coastal communities rely on healthy bays for their livelihoods, for recreation, and for the peace of mind that comes from knowing these natural treasures will be here for generations to come.

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CCA Texas Position Statement on Brackish Groundwater and Saline Surface Water Desalination

As coastal communities in Texas increasingly turn to desalination of both brackish groundwater and saline surface water to meet growing freshwater demands, CCA Texas supports responsible, science-based practices that protect the health of our state's coastal ecosystems, fisheries, and water quality.

Background

Desalination is becoming more common across the Texas coast, using technologies like reverse osmosis to remove salts and produce freshwater from two main sources:

- Brackish groundwater, drawn from deep aquifers with moderate salinity levels (typically 1,000–10,000 mg/L TDS), and
- Saline surface water, such as seawater from bays, estuaries, or the Gulf (typically 10,000 – 35,000 mg/L TDS).

While desalination can provide much-needed water for municipal and industrial uses, it also produces a concentrated byproduct known as brine, a high-salinity waste stream that must be carefully managed to avoid environmental harm.

Disposal of this brine, particularly through discharge into rivers, streams, or estuaries, raises significant environmental concerns that have not been adequately addressed in Texas.

Environmental Concerns

Scientific evidence shows that surface discharge of concentrated brine, from either brackish or marine desalination facilities, can disrupt salinity, oxygen levels, and water quality in sensitive coastal systems. These changes can:

- Exceed salinity tolerances for many fish and invertebrates, causing stress, habitat loss, or even mortality.
- Degrade vital habitats such as seagrass beds and oyster reefs that support redfish, trout, flounder, and other important species.
- Disrupt the natural ecological balance, especially in already stressed or poorly flushed bay systems.

While in rare cases some brine discharges might dilute overly salty or stagnant water, these situations are highly site-specific and temporary and are often outweighed by long-term risks to coastal health and biodiversity.

CCA Texas Recommendations

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CCA Texas Recommendations

Above all, CCA Texas is guided by our commitment to sustainable coastal fisheries, which has shaped our position on **previous desalination discharge permits**. In addition to the **Harte Research Institute's recommendations**, CCA Texas urges the following for all desalination projects, which include both brackish groundwater and saline surface water projects:

- **Avoid surface discharge** of brine into rivers, streams, or estuaries, particularly in shallow, semi-enclosed, or poorly flushed bay systems.
- **Prioritize deep-well injection** into isolated underground formations, ensuring no risk of contamination to freshwater aquifers or groundwater-dependent ecosystems.
- **Support offshore discharge** where deep-well injection is not feasible, but only after thorough modeling shows negligible impact on marine ecosystems.
- **Require a strong environmental review** before any discharge is approved, including:
  - Hydrologic and salinity modeling under seasonal and climatic variations
  - Baseline and post-discharge biological assessments
  - Transparent engagement with the public and resource stakeholders
- **Establish benchmark hydrological studies and site-specific science** before any discharge is considered. At minimum, we need comprehensive baseline data and peer-reviewed studies to assess potential impacts and determine if such discharges can be done without harm to ecosystem function.
- **Encourage continued research and monitoring** to fully understand the cumulative impacts of desalination and guide adaptive management or mitigation strategies, utilizing advice and expertise provided by unbiased academic research institutions, i.e., Texas A&M University Corpus Christi – Harte Research Institute and the University of Texas Marine Science Institute.

Conclusion

Texas must pursue innovative solutions to meet growing water demands, but not at the expense of our coastal ecosystems and our world-class saltwater fishery, which generates an estimated $4.2 billion in annual economic impact according to the 2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. CCA Texas is committed to working alongside government agencies and private partners to identify new water resources in ways

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Review

The state of desalination and brine production: A global outlook

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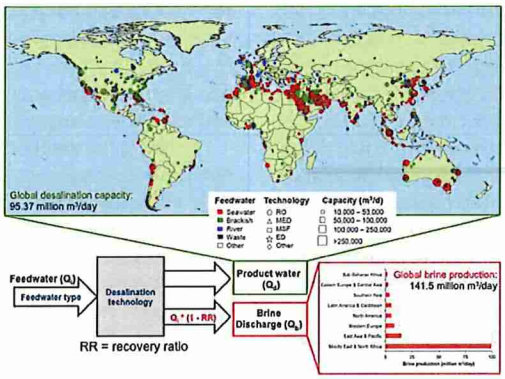
HIGHLIGHTS

- Unconventional water resources are key to support SDG 6 achievement.
- Desalinated water production is 95.37 million m^3/day.
- Brine production and energy consumption are key barriers to desalination expansion.
- Brine production is 141.5 million m^3/day, 50% greater than previous estimates.
- Innovation and developments in brine management and disposal options are required.

GRAPHICAL ABSTRACT



ABSTRACT

Rising water demands and diminishing water supplies are exacerbating water scarcity in most world regions. Conventional approaches relying on rainfall and river runoff in water scarce areas are no longer sufficient to meet human demands. Unconventional water resources, such as desalinated water, are expected to play a key role in narrowing the water demand-supply gap. Our synthesis of desalination data suggests that there are 15,906 operational desalination plants producing around 95 million m^3/day of desalinated water for human use, of which 48% is produced in the Middle East and North Africa region. A major challenge associated with desalination technologies is the production of a typically hypersaline concentrate (termed 'brine') discharge that requires disposal, which is both costly and associated with negative environmental impacts. Our estimates reveal brine production to be around 142 million m^3/day, approximately 50% greater than previous quantifications. Brine production in Saudi Arabia, UAE, Kuwait and Qatar accounts for 55% of the total global share. Improved brine management strategies are required to limit the negative environmental impacts and reduce the economic cost of disposal, thereby stimulating further developments in desalination facilities to safeguard water supplies for current and future generations.

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Contents

1. Introduction

Rising water demands associated with population growth, increased water consumption per capita and economic growth, coupled with diminishing water supplies due to climate change and contamination, are exacerbating water scarcity in most world regions (Richter et al., 2013; Djuma et al., 2016; Damania et al., 2017). Recent estimates suggest that 40% of the global population faces severe water scarcity, rising to 60% by 2025 (Schewe et al., 2014). Furthermore, 66% of the global population (4 billion) currently lives in conditions of severe water scarcity for at least one month per year (Mekonnen and Hoekstra, 2016). These statistics demonstrate that "conventional" sources of water such as rainfall, snowmelt and river runoff captured in lakes, rivers, and aquifers are no longer sufficient to meet human demands in water-scarce areas. This is in direct conflict with Sustainable Development Goal (SDG) 6, aimed at ensuring the availability of clean water for current and future generations.

Water-scarce countries and communities need a radical re-think of water resource planning and management that includes the creative exploitation of a growing set of viable but unconventional water resources for sector water uses, livelihoods, ecosystems, climate change adaptation, and sustainable development (Qadir, 2018). Whilst water demand mitigation approaches such as water conservation and improved efficiencies can somewhat close the water demand and supply gap, these approaches must be combined with supply enhancement strategies in order to combat water scarcity (Gude, 2017). Such water resources conservation and supply enhancement strategies are already practiced in some water-scarce areas. However, expansion is required, particularly in areas where water scarcity and water quality deterioration is intensifying (van Vliet et al., 2017; Jones and van Vliet, 2018).

Among the water supply enhancement options, desalination of seawater and highly brackish water has received the most consideration and is increasingly seen as a viable option to meet primarily domestic and municipal needs. Desalination is the process of removing salts from water to produce water that meets the quality (salinity) requirements of different human uses (Darre and Toor, 2018). Seawater desalination can extend water supplies beyond what is available from the hydrological cycle, providing an "unlimited", climate-independent and steady supply of high-quality water (Elimelech and Phillip, 2011). Brackish surface and groundwater desalination offers reductions in the salinity levels of existing terrestrial freshwater resources below sectoral thresholds (Gude, 2017).

The uptake of desalination has been substantial, but limited predominantly to high income countries (e.g. Saudi Arabia, UAE, Kuwait) and small island nations (e.g. Malta, Cyprus) with highly limited 'conventional' water resources (e.g. rainfall, snowmelt). However, reductions in the economic cost of desalination associated with technological advances, coupled with rising costs and the diminishing supply and security of "conventional" water resources, have made desalination a cost-competitive and attractive water resources management option around the globe (Ghaffour et al., 2013; Sood and Smakhtin, 2014; Caldera and Breyer, 2017; Darre and Toor, 2018). Nowadays, an estimated 15,906 desalination plants are currently operational, located in 177 countries and territories across all major world regions.

Realising the vast potential of desalinated water remains a challenge due to specific barriers, predominantly associated with the relatively high economic costs and a variety of environmental concerns (e.g. Einav et al., 2002; Roberts et al., 2010; Richter et al., 2013; Darre and Toor, 2018). Continued improvements in membrane technologies, energy recovery systems and coupling desalination plants with renewable energy sources provide opportunities for reducing the economic costs of desalination (Elimelech and Phillip, 2011; Pinto and Marques, 2017; Darre and Toor, 2018), whilst trends towards stricter environmental guidelines and permitting factors may cause the falling trend in desalination costs to slow, level off or reverse (Pinto and Marques, 2017). Regardless, continued reductions in the economic costs of desalination will be required for desalination to be considered a viable option for addressing SDG 6 in low income countries. Detailed evaluations of the challenges and opportunities associated with the economics of desalination are provided by Ghaffour et al. (2013) and Pinto and Marques (2017).

The safe disposal of effluent produced in the desalination process remains a particular concern and a major technical and economic challenge (Roberts et al., 2010). The desalination process separates intake water into two different streams – a freshwater stream (product water) and a concentrate waste stream (Wenten et al., 2017). The salinity of the concentrate stream depends on the salinity of the feedwater. As the vast majority of concentrate is produced from saline water (>95% from SW and BW sources), the term 'brine' is used throughout this paper. However, it should be noted that desalination plants operating with low saline feedwater types (e.g. RW, FW) produce concentrate with a lower salinity than typically associated with the term 'brine'.

A desalination plant water recovery ratio (RR), defined as the volumetric processing efficiency of the purification process (Harvey, 2008), indicates the proportion of intake water that is converted into high quality (low salinity) water for sectoral use. The remaining water (calculated as (1 — RR)) is the proportion of intake water being converted into a waste (brine) stream, which requires management. For example, a desalination plant operating with a recovery ratio of 0.4 means that 40% of intake water is converted into product water, and by extension 60% of intake water is converted into brine. The RR of a desalination plant is dependent on and controlled by a number of factors (Xu et al., 2013). Different desalination technologies are associated with variations in RR, with membrane technologies typically associated with a much higher RR

than possible with thermal technologies (Xu et al., 2013). The feedwater quality is also important, with it being much more difficult (and expensive) to operate desalination plants at a high level of water recovery when the feedwater salinity is high (Harvey, 2008).

With the aim of providing a global assessment of the research and practice around desalination, the objectives of this study are to: (1) share an insight into the historical development of desalination; (2) provide a state-of-the-art outlook on the status of desalination, considering the number of desalination facilities and their associated treatment capacity with regards to aspects such as geographical distribution, desalination technologies, feedwater types and water uses; and (3) assess brine production from desalination facilities and the management implications of the produced brine. This study therefore seeks to update the literature on the state of desalination in both research and practice, which is outdated. Furthermore, this study makes the first comprehensive quantification of the volume of brine produced by desalination facilities, employing a novel methodology that considers the efficiency of desalination plants based on both their operating technology and the feedwater type.

2. Methodology

2.1. Global status of desalination: research and practice

2.1.1. Desalination in research

A bibliometric analysis was conducted to evaluate the major research trends in the field of desalination. The Science Citation Index Expanded (SCI-EXPANDED) from the Web of Science Core collection was used for the time period 1980 to 2018. This study firstly categorises desalination publications based on major research theme ('technology', 'environment', 'economic and energy' and 'social interests'). Subsequently, considering the 'technology' category, trends in research on specific technologies ('Reverse Osmosis', 'Multi-Effect Distillation', 'Multi-Stage Flash', 'Electrodialysis', 'Emerging' and 'Other') were examined. 'Emerging' refers to technologies largely in the R&D phase (Forward Osmosis, Membrane Distillation and Nanofiltration) whereas older, less prevalent technologies were categorised as 'other' (Humidification-Dehumidification, Solar Stills and Vapour Compression). The precise methodology adopted for the bibliometric study is presented in the Supplementary material.

2.1.2. Desalination in practice

A global database containing information on approximately 20,000 desalination plants (version of 2018) was obtained from Global Water Intelligence (GWI) (https://www.desaldata.com). The database contains information on the plant status, operational year, plant capacity, geographic location (region, country, coordinates), customer type, desalination technology and feedwater type of each individual desalination plant. The precise geographic location of each desalination plant was plotted in ArcGIS using latitude and longitude data. The rest of the data was tabulated using pivot tables in Microsoft Excel to assess statistics of multiple desalination plants per region, technology and other categories. Desalination data (number and capacity of plants) was subsequently analysed at the global, regional and national scale. The specifics within each category by which the global state of desalination was analysed are as follows.

Plant status was categorised as either 1) Online; 2) Presumed online; 3) Construction; 4) Presumed offline; or 5) Offline. In this study, desalination plants were considered 'Operational' if they were classified as either 'Online', 'Presumed online' or 'Construction'. Operational year refers to the year in which the desalination plant opened, assigned unanimously as 2020 for all plants currently in construction. Plant desalination capacity, or the volume of high quality product water produced for human use, is provided in m^3/day for each desalination plant.

Eight geographic regions were identified: 1) East Asia & Pacific; 2) Eastern Europe & Central Asia; 3) Latin America & Caribbean; 4) Middle East & North Africa; 5) North America; 6) Southern Asia; 7) Sub-Saharan Africa; and 8) Western Europe. Country data was used to assign each desalination plant to one of four economic levels based on the 2018 World Bank Income groups, whereby GNI per capita ($) is estimated using the World Bank Atlas method. Countries are assigned to one of four economic classifications: 1) High income (>$12,056 GNI per capita); 2) Upper middle income ($3896 to $12,055); 3) Lower middle income ($966 to $3895); and 4) Low income (<$995).

The sector (or 'customer type') for each desalination plant was separated into six categories: 1) Municipal (including tourist drinking water facilities); 2) Industry; 3) Power stations; 4) Irrigation; 5) Military; and 6) Other. 'Other' comprises uses of Demonstration, Process and Water Injection, which are not considered separately as they account for <0.2% of total desalinated water use.

Feedwater type is separated into six categories in DesalData (2018) expressed in ppm Total Dissolved Solids (TDS): 1) Seawater (SW) [20,000–50,000 ppm TDS]; 2) Brackish water (BW) [3000–20,000 ppm TDS]; 3) River water (RW) [500–3000 ppm TDS]; 4) Pure water (PW) [<500 ppm TDS]; 5) Brine (BR) [>50,000 ppm TDS]; and 6) Wastewater (WW). Despite having a typically high base quality (low salinity), desalination of RW is practiced for a range of different sectoral uses (e.g. drinking water, irrigation) to reduce water salinity below specific sectoral thresholds. PW as a feedwater source is typically used for industrial applications which require very high quality (low salinity) water, such as the pharmaceutical and food production industries.

Desalination technology was separated into seven categories: 1) Reverse Osmosis (RO); 2) Multi-Stage Flash (MSF); 3) Multi-Effect Distillation (MED); 4) Nanofiltration (NF); 5) Electrodialysis/Electrodialysis Reversal (ED); (6) Electrodeionization (EDI); and 7) Other. 'Other' included a variety of technologies such as 1) Forward Osmosis (FO); 2) Hybrid (HYB); 3) Membrane distillation (MD); 4) Vapour compression (VP); and 5) Unknown. As the technologies grouped together under the 'Other' category contribute a total of <1% of the total desalinated water produced, these technologies were not considered individually.

2.2. Brine production

The volume of brine produced was determined at each individual (operational) desalination plant using three factors contained in DesalData (2018) - feedwater type, desalination technology and treatment capacity (m^3/day). We consider the water recovery ratios associated with different feedwater-desalination technology combinations and calculate the brine production based on this recovery ratio and the plant capacity using Eq. (1).

$$Qb = \frac{Qd}{RR} * (1 - RR) \tag{1}$$

whereby Qb is the volume of brine produced (m^3/day); Qd is the desalination plant treatment capacity (m^3/day) and; RR is the recovery ratio.

In total, 41 different feedwater type and desalination technology combinations are currently operational. The recovery ratio associated with each of these feedwater-technology combinations was determined using two methods. Firstly, a literature study was conducted in order to identify values of recovery ratios (or % water efficiency) for different technologies and feedwater types reported in existing studies. When recovery ratios were expressed as a range, the midpoint was used. In total, 89 recovery ratios were found in the literature across a range of feedwater-technology combinations. Secondly, influent and effluent salinity data from individual desalination plants operating with membrane technologies was used to estimate recovery ratios using Eqs. (2) and (3) (Bashitialshaaer et al., 2009).

$$Sb = \frac{Sf}{1 - RR} \tag{2}$$

$$RR = 1 - \frac{Sf}{Sb} \tag{3}$$

whereby Sb is the brine salinity and Sf is the feedwater salinity, with both salinities expressed in the same units (e.g. mS/cm for EC, mg/l for TDS).

We obtained 30 additional recovery ratios using this method, which were combined with recovery ratios identified in the literature to produce 119 records. From this, average recovery ratios could be identified for 18 of the 41 technology-feedwater. Whilst this coverage might seem low, desalination-technology combinations are not all equally prevalent in terms of number of plants and desalination capacity. These 14 combinations account for >80% of the total desalinated water produced globally, with the top three combinations (seawater (SW)-RO, brackish water (BW)-RO and SW-MSF) accounting for 70% of the produced desalinated water alone. In order to determine recovery ratios for the remaining feedwater-technology combinations, a number of assumptions and estimations were made (Table 1).

Latitude and longitude data was used to calculate the distance of each desalination plant from the nearest coastline using the Spatial Analyst tool in ArcGIS. Combined with the estimated brine production for each desalination plant, we calculated the volume of brine produced at different distances from the coastline to consider the implications for brine management.

3. Results

3.1. Research trends in desalination

Trends in the research history of desalination are displayed in Fig. 1. Approximately 16,500 publications were found to have been produced on the topic of desalination since 1980. Research in desalination has grown exponentially, with the total number of publications approximately doubling with each five-year period (e.g. ~5000 in 2010 to ~11,000 in 2015). The large majority of publications focus on technological aspects of desalination (e.g. 75% in 2005). As such, desalination literature focusing on technological aspects has driven the overall trend in desalination research. Whilst the proportion of desalination literature covering technological aspects is still high (72%), there has been an emergence of literature covering alternative aspects of desalination, particularly related to economics and energy and environmental concerns. The number of publications considering economic aspects of desalination has increased dramatically in recent decades, from <400 in 2000 to >5000 in 2018. Historically, the environmental impacts of desalination were severely neglected, with just 118 publications before 2000. However, literature published in this category is now increasing at the fastest rate, with an additional ~2000 publications since 2000. The number of publications addressing socio-political aspects of desalination is relatively low. Desalination is not typically associated with social opposition and conflict associated with other water supply schemes such as river regulation (e.g. dam buildings) and water transfers (March et al., 2014), which may in part explain the lack of publications. Furthermore, desalination operations are not typically associated with the gender issues and community-based factors associated with other unconventional water resources, such as fog water harvesting (Qadir et al., 2018; Lucier and Qadir, 2018). However, desalinated operations are associated with some important (and under-researched) policy-related aspects, such as the lack of specific water standards for desalinated water for both the municipal (Chen et al., 2015) and agricultural sectors (Martinez-Alvarez et al., 2016). As desalination continues to become a more prevalent water resources management technology in the future, the number of publications across all categories, and especially environmental and socio-political themes, is expected to increase rapidly.

Publications addressing technological aspects have dominated the research history of desalination (Fig. 1). Fig. 2 further explores this trend by categorising 'technological' publications by specific technology. RO is the most researched technology throughout the entire time period, with the number of publications approximately doubling each five-year period. Research into 'emerging' technologies (FO, MD and NF) is increasing at the most rapid pace with increasing recognisation of their potential advantages over existing commercial technologies. These include factors such as operating at higher water recovery ratios and requiring less and/or sustainable energy (Subramani and Jacangelo, 2015). Thermal technologies (MED and MSF), despite accounting for a significant share in the amount of desalinated water produced, have received comparatively little attention in recent literature. Whilst publications addressing MSF and MED accounted for a significant proportion of research in the 1980s and 1990s, they are now the overall least researched technologies. Concerns over the energy costs, efficiency and environmental impacts of thermal processes, and the development of more efficient membrane technologies and techniques (particularly RO), likely explain this trend.

3.2. Global state of desalination

There are 15,906 operational desalination plants with a total desalination capacity of approximately 95.37 million m^3/day (34.81 billion m^3/year), constituting 81% and 93% of the total number and capacity of desalination plants ever built respectively (Fig. 3a). Early desalination plants predominantly utilised thermal technologies, located in oil-rich but water scarce regions, especially in the Middle East. For example, prior to the 1980s, 84% of all global desalinated water was being produced by the two major thermal technologies (MSF, MED). The rise in the use of membrane technologies post-1980, in particular RO, gradually shifted the dominance away from thermal technologies. In 2000, the volumes of desalinated water produced by thermal technologies (dominated by MSF) and RO were approximately equal at 11.6 million m^3/day and 11.4 m^3/day respectively, together accounting for 93% of the total volume of desalinated water produced (Fig. 3b). Since 2000, both the number and capacity of RO plants has risen exponentially, whilst thermal technologies have only experienced marginal increases (Fig. 3b). The current production of desalinated water from reverse osmosis now stands at 65.5 million m^3/day, accounting for 69% of the volume of desalinated water produced.

The spatial distribution, size and customer type of desalination facilities (>1000 m^3/day) are displayed in Fig. 4. Large numbers of desalination facilities are located in the United States, China and Australia and across the regions of Europe, North Africa and the Middle East. Relatively few desalination facilities are located in South America and Africa, with existing facilities predominantly designed to produce desalinated water for the industrial sector. Desalination plants globally are concentrated on and around the coastline, with coastal desalination plants also tending to be larger than inland desalination plants. Plants producing municipal water are located worldwide, but are particularly dominant in the Middle East & North Africa region. Comparatively,

Table 1
Assumptions and estimations used determining the recovery ratios of feedwater-technology combinations used in operational desalination plants.

	Assumption
1	When brackish water (BW) recovery is known, the water recovery ratio of brine (BR) (TDS >50,000 ppm), seawater (SW) (TDS 20,000–50,000 ppm), river water (RW) (TDS 500–3000 ppm) and pure water (PW) (TDS <500 ppm) is assumed to be the 95th, 90th, 10th and 5th percentiles of brackish water technologies respectively.
2	When brackish water (BW) recovery is unknown but seawater water (SW) recovery is known, the water recovery ratio of brine water (BR), brackish water (BW), river water (RW) and pure water (PW) is assumed to be the 90th, 25th, 10th and 5th percentiles of seawater technologies respectively.
3	The recovery rate of wastewater (WW) for each technology is assumed to be equal to the recovery rate of brackish water for the same technology.
	Estimation
1	Other technologies cover a range of different technologies. An estimated 40% water recovery ratio was assigned for highly saline water (above 20,000 ppm) and 60% recovery for brackish and slightly saline water sources (below 20,000 ppm).

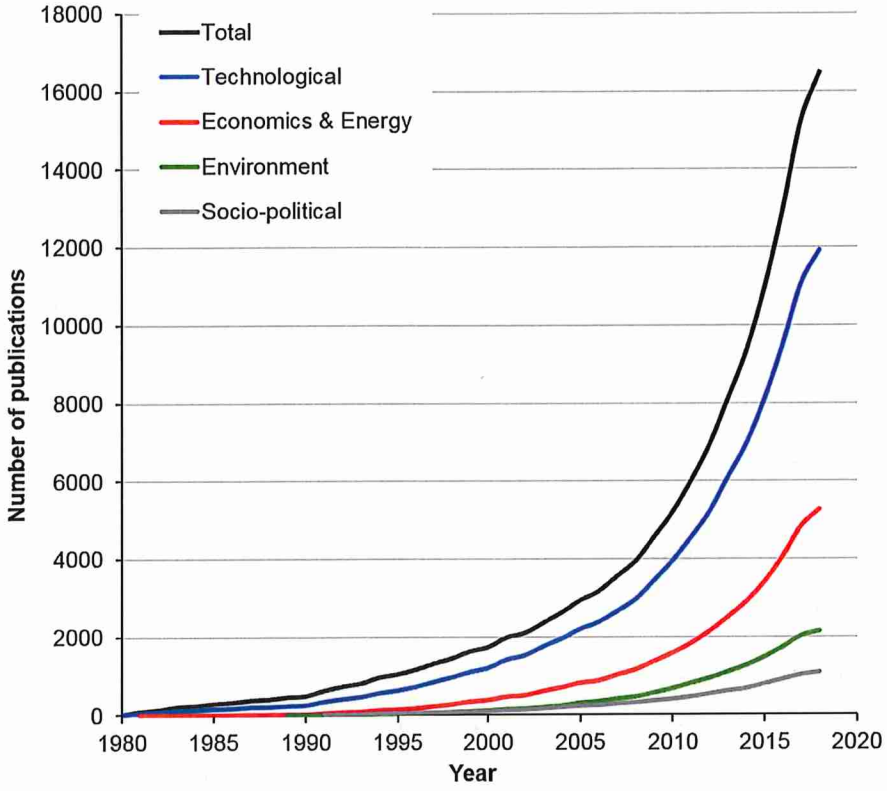

Fig. 1. Number of desalination publications by categorisation (total, technical, social, environment, energy & economic).

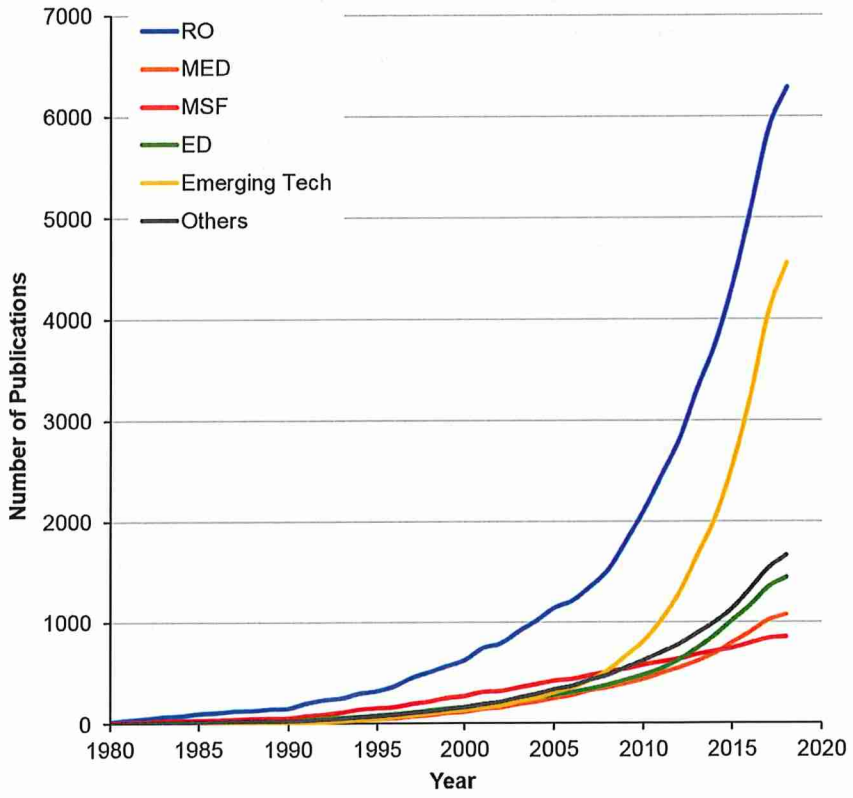

Fig. 2. Number of publications by type of desalination technology (Reverse Osmosis [RO], Multi-Effect Distillation [MED], Multi-Stage Flash [MSF], Electrodialysis [ED]), emerging technologies (Nanofiltration [NF], Forward Osmosis [FO] and Membrane Distillation [MD]) and other (Humidification-Dehumidification [HDH], Solar Stills [SS] and Vapour Compression [VC]).

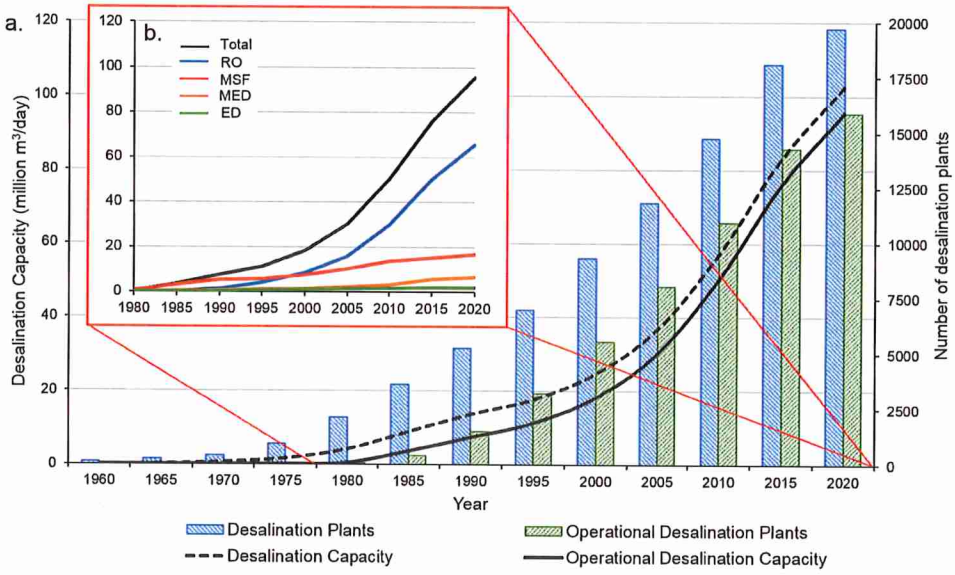

Fig. 3. Trends in global desalination by (a) number and capacity of total and operational desalination facilities and (b) operational capacity by desalination technology.

there is a far greater proportion of desalination plants producing water for non-municipal purposes in North America, Western Europe and East Asia and Pacific regions, whereby generation of water for industrial and power applications also command large market shares (Fig. 4).

The number and capacity of desalination plants by geographic region, country income level and sectoral use of desalinated water (Table 2) reveal that almost half of the global desalination capacity is located in the Middle East and North Africa region (48%), with Saudi Arabia (15.5%), the United Arab Emirates (10.1%) and Kuwait (3.7%) being both the major producers in the region and globally. East Asia and Pacific and North America regions produce 18.4% and 11.9% of the global desalinated water, primarily due to large capacities in China (7.5%) and the USA (11.2%). The widespread use of desalination in Spain (5.7%) accounts for over half of the total desalination in Western Europe (9.2%). The global share in desalination capacity is lower for Southern Asia (3.1%), Eastern Europe and Central Asia (2.4%) and Sub-Saharan Africa (1.9%), where desalination is primarily restricted to small facilities for private and industrial applications. The majority of desalination facilities are located in high income countries (67%), accounting for the majority of the global desalination capacity (71%). Conversely, very few desalination plants are located in low income countries, which contribute a negligible proportion (<0.1%) of the global desalination capacity.

Whilst almost half of the total number of desalination plants produce water for the industrial sector, the municipal sector is the largest user of desalinated water in terms of capacity. 62.3% of desalinated water is produced for human consumption (municipal sector), compared to 30.2% for industrial applications. This pattern occurs due to the (typically) smaller capacity of industrial desalination facilities, which average 3712 m^3/day, compared to desalination plants producing municipal water that average 12,126 m^3/day. Whilst the municipal and industrial sectors account for the vast majority of the global desalination capacity, the power (4.8%) and irrigation (1.8%) sectors consume a small but significant proportion of produced desalinated water.

Of the desalination technologies, RO is by far the most dominant process, accounting for 84% of the total number of operational desalination plants, producing 69% (65.5 million m^3/day) of the total global desalinated water (Fig. 5a). The two major thermal technologies, MSF and

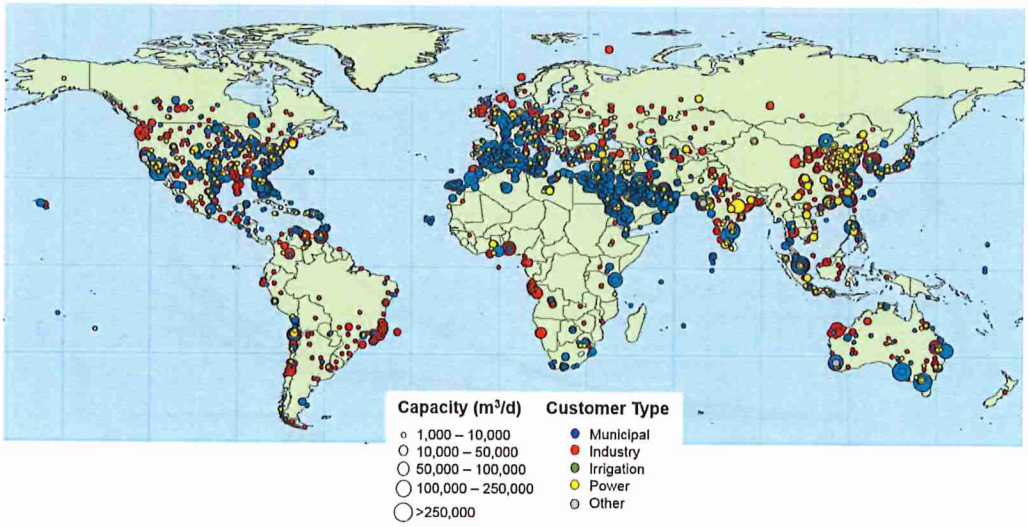

Fig. 4. Global distribution of operational desalination facilities and capacities (>1000 m^3/day) by sector user of produced water.

Table 2
Number, capacity and global share of operational desalination plants by region, country income level and sector use.

	Number of desalination plants	Desalination capacity	
		(million m^3/day)	(%)
Global	15,906	95.37	100
Geographic region			
Middle East and North Africa	4826	45.32	47.5
East Asia and Pacific	3505	17.52	18.4
North America	2341	11.34	11.9
Western Europe	2337	8.75	9.2
Latin America and Caribbean	1373	5.46	5.7
Southern Asia	655	2.94	3.1
Eastern Europe and Central Asia	566	2.26	2.4
Sub-Saharan Africa	303	1.78	1.9
Income level			
High	10,684	67.24	70.5
Upper middle	3075	19.16	20.1
Lower middle	2056	8.88	9.3
Low	53	0.04	0.0
Sector use			
Municipal	6055	59.39	62.3
Industry	7757	28.80	30.2
Power	1096	4.56	4.8
Irrigation	395	1.69	1.8
Military	412	0.59	0.6
Other	191	0.90	0.4

MED, despite being relatively few in number, produce the majority of the remaining desalinated water, with market shares of 18% and 7% respectively (Fig. 5a). In total, these three technologies account for 94% of the total desalinated water produced, with plants using NF (3%), ED (2%) and EDI (<1%) technologies producing smaller volume of desalinated water (Fig. 5a).

In terms of feedwater source, which is indicative of feedwater quality, SW desalination accounts for 61% of produced water (Fig. 5b). Desalination of BW and RW produce the next largest volumes of desalinated water, with market shares of 21% and 8% respectively (Fig. 5b). In total, these three sources account for 90% of the total volume of desalinated water produced, with the remainder being produced from WW (6%), PW (4%) and BR (<1%).

Whilst Fig. 5 clearly demonstrates the relative dominance of RO, MSF and MED in terms of desalination technology, and SW, BW and RW in terms of feedwater source, the combination of both these factors is important. Desalination technologies can be considered semi-specialised in that they operate most efficiently when using particular source water types, or that their economic viability is dependent on source water type, and hence some feedwater-technology combinations are significantly more prevalent than others.

RO is a process that is economically viable across a range of feedwater types, and hence the feedwater type used is dependent on local availability (Fig. 5). 50% and 27% of the desalinated water that is produced from RO desalination plants, accounting for 34% and 19% of the global desalination capacity, originates from SW and BW water, respectively. RO of RW (7%) and WW (5%) also contributes a significant proportion of the global desalination capacity. Comparatively, thermal technologies are used almost exclusively for low quality (highly saline) feedwater types. 96% of MSF plants and 80% of MED plants use feedwater with >20,000 ppm TDS, the vast majority of which use sea water. SW accounts for 99.9% and 92% of the total volume of desalinated water produced by MSF and MED respectively, representing global market shares of 18% and 6%. Conversely, plants operating with ED as the desalination technology typically require water of a higher base quality (lower salinity). 60% and 20% of the desalinated water produced by ED originates as BW and RW respectively, contributing a small but significant proportion of the total global volume of desalinated water. In total, eight feedwater-technology combinations (SW-RO, BW-RO, SW–MSF, SW–MED, RW-RO, WW-RO, BW-ED, RW-ED) are responsible for the production of over 90% of the global desalinated water.

Fig. 6 reveals the spatial distribution and size of large (>10,000 m^3/day) desalination plants operating under different feedwater-technology combinations. Thermal desalination technologies (MED, MSF) operating with sea water as the feedwater type are dominant in the Middle East, with the exception of a large number of BW-RO plants located in inland Saudi Arabia. Outside of this region, very few large thermal plants exist, with RO being the dominant technology across a range of feedwater types. For example, large desalination plants in Australia operate almost exclusively using RO technology, but with a variety of feedwater types including SW, BW and WW. RO is also the dominant technology across the United States, although the vast majority of desalination plants operate using BW and RW, with only a small number of seawater plants located in California and Florida. Western Europe, and in particular Spain, is dominated by RO using a variety of feedwater sources, although there is also a significant number of desalination plants operating using alternative technologies such as ED and NF. Lastly, SW-RO dominates desalination in the coastal areas of Asia, although a significant number of BW- and RW-RO plants are located inland.

3.3. Brine production

The water recovery efficiency of desalination operations depends on both the type of desalination technology and the quality of feedwater used, and therefore both of these factors must be considered when quantifying brine production (Xu et al., 2013). Table 3 displays the water recovery ratios associated with the major feedwater-technology combinations in operation.

For all technologies, the recovery ratio increases as the feedwater quality increases (salinity decreases), with BR associated with the lowest water recovery ratios and PW associated with the highest recovery ratios. Feedwater type is a substantial determinant of the recovery ratio associated with a particular technology. For example, SW-RO operates at a substantially lower recovery ratio (0.42) compared to BW-RO (0.65) and RW-RO (0.85). Similarly, BW-NF (0.83) is substantially more efficient than SW-NF (0.69). Individual desalination technologies are also associated with vastly different recovery ratios. Thermal technologies (e.g. MSF, MED) are typically associated with much lower recovery ratios than membrane technologies (e.g. RO, NF). For example, the recovery ratio of MSF across all feedwater types is approximately half that of RO. The water recovery ratio of other membrane technologies (NF, ED, EDI, EDR) is substantially higher than RO across all feedwater types.

Energy requirements, and hence economic costs, vary depending on feedwater type. For membrane technologies, low salinity feedwater types (e.g. RW) require less applied pressure than high salinity feedwater types (e.g. SW) for desalination, causing lower energy consumption per unit water produced (Ghaffour et al., 2013). This results in substantially lower investment costs (Ghaffour et al., 2013). However, highly efficient membrane technologies are rarely used for desalination of highly saline feedwater types, with a total of just 0.01% desalinated water being produced by SW or BR in combination with NF, ED, EDI and EDR. For highly saline feedwater types, RO and thermal processes (e.g. MSF, MED) dominate. Whilst thermal technologies (particularly MED) are associated with higher energy consumption, the economic cost of desalting SW is comparable to RO due to lower investment costs (Ghaffour et al., 2013).

Current global brine production stands at 141.5 million m^3/day, totaling 51.7 billion m^3/year (Table 4). This value is approximately 50% greater than the total volume of desalinated water produced globally. Global brine production is concentrated in the Middle East and North Africa, which produces almost 100 million m^3/day of brine, accounting for 70.3% of global brine production. This value is approximately double the volume of desalinated water produced, indicating that desalination plants in this region operate at an (very low) average water recovery

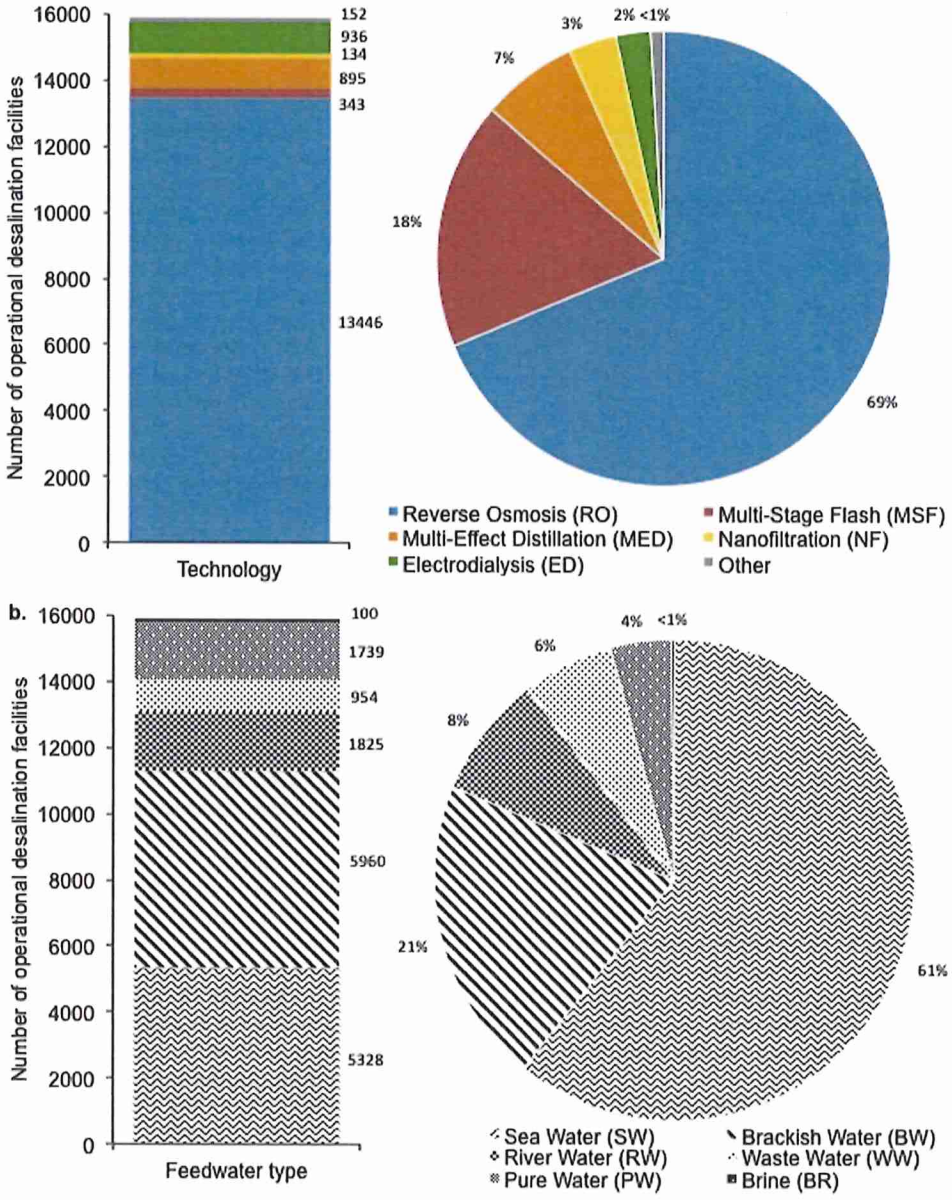

Fig. 5. Number and capacity of operational desalination facilities by (a) technology and (b) feedwater type.

ratio of 0.25. Comparatively, all other regions produce substantially lower volumes of brine, with East Asia and Pacific (10.5%), Western Europe (5.9%) and North America (3.9%) having the next largest shares. Interestingly, these regions produce a substantially lower volume of brine than the amount of desalinated water they produce, indicating that recovery ratios are generally high. This is particularly apparent for North America, which produces a substantially lower volume of brine than it does desalinated water, suggesting that desalination facilities operate at an average recovery ratio of 0.75. In other geographical regions, brine production is approximately equivalent to desalinated water production (i.e. RR = 0.5).

As with desalinated water production, high income countries produce the vast majority of global brine (77.9%). It should be noted that 'high income' includes both countries from both highly developed world regions (e.g. North America, Western Europe), whose brine production tends to be smaller relative to the desalinated water production, and the oil-rich Gulf nations who typically employ thermal desalination technologies with low recovery ratios, hence high brine production. For example, Saudi Arabia alone produces 31.53 million m^3/day brine, accounting for 22.2% of the global share. The next three largest producers of brine are also oil-rich countries, with the UAE, Kuwait and Qatar having 20.2%, 6.6% and 5.8% shares in global brine production respectively. Together, these four nations produce 32% of global desalinated water and 55% of the total brine. Comparatively, the USA produces 10.91 million m^3/day of desalinated water (11.4% global share) but produces just 5.28 million m^3/day of brine (3.7% global share). Upper middle income, lower middle income and low income countries tend to produce quantities of brine similar to that of their respective desalination capacities.

Water produced for the municipal sector is by far the largest producer of both desalinated water and brine, although the quantity of brine produced is much greater. This pattern arises primarily due to the vast quantity of desalinated drinking water produced for the Gulf nations, whereby thermal technologies operating with SW dominate. Both the industrial and agricultural sectors produce lower quantities of brine than desalinated water, indicating desalinated water for these sectors is produced by feedwater-technology combinations with higher water recovery ratios. This is particularly pronounced in the agricultural

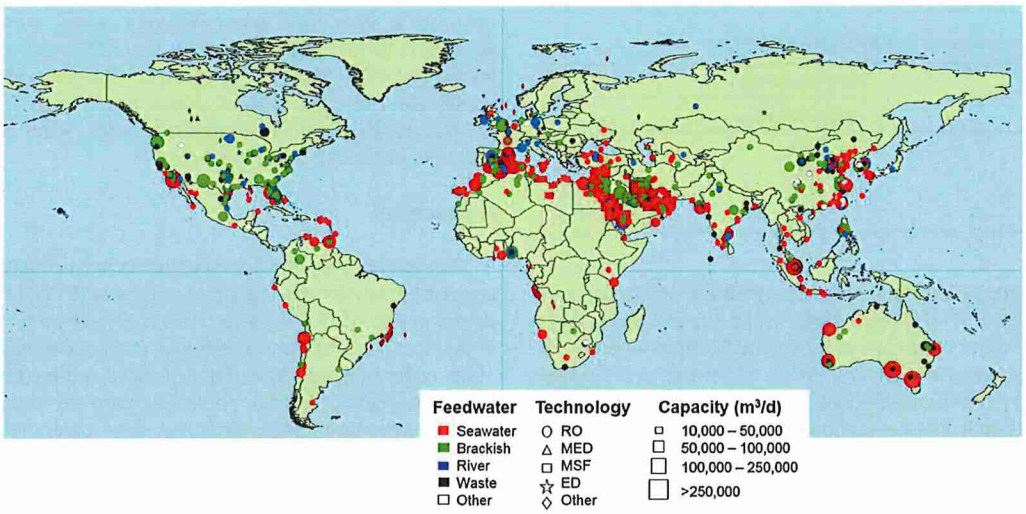

Fig. 6. Global distribution of large desalination plants by capacity, feedwater type and desalination technology.

sector due to the dominance of high-quality (low salinity) feedwater sources used for producing desalinated water for use in agriculture sector.

The geographical location of brine production influences the economic and technical viability of different methods of brine disposal (Arnal et al., 2005). Desalination plants located near the shoreline often discharge untreated brine directly into saline surface water bodies (e.g. oceans, seas) (Arnal et al., 2005). As almost half of brine is produced within 1 km of the coastline, rising to almost 80% produced within 10 km, ocean disposal is assumed to be the dominant brine disposal method worldwide (Table 5). The countries producing large volumes of brine (>1 million m^3/day) in coastal locations are largely concentrated in the Middle East and North Africa (e.g. UAE, Saudi Arabia) and South-East Asia (China, India), and in the USA and Australia (Fig. 7a). The volume of brine produced in many of these countries far exceeds 1 million m^3/day, particularly in the Middle East. In this region, the four largest brine producers (UAE, Saudi Arabia, Qatar, Kuwait) account for 72.2 million m^3/day of the brine that is produced within 10 km of the coastline.

Whilst brine disposal into saline surface water bodies raises some important environmental concerns, this option is extremely economical (Arnal et al., 2005). However, this option is often not available for inland desalination plants, which account for a smaller yet significant proportion of the volume of brine being produced. Almost 22 million m^3/day of brine is produced at a distance of >50 km from the nearest coastline (Table 5). Despite the large volume of brine produced inland, very few economically viable and environmentally sound brine management options exist (Arnal et al., 2005). Brine produced inland poses an important problem for many countries located in all world regions, with 64 countries producing >10,000 m^3/day of brine in inland locations (Fig. 7b). Whereas the volume of brine produced in coastal locations is largely concentrated in the Middle East, inland brine production is a particular issue in other locations such as China (3.82 million m^3/day), USA (2.42 million m^3/day) and Spain (1.01 million m^3/day) (Fig. 7b).

Whilst Fig. 5 considered the production of desalinated water by technology and feedwater type separately, Fig. 8a combines these two elements, displaying the 6 major feedwater-technology combinations by volume of desalinated water produced. As displayed in Fig. 5, RO is

Table 3
Recovery ratio of different feedwater-technology combinations producing desalinated water.

Feedwater type	Technology							
	RO	MSF	MED	NF	ED	EDI	EDR	Other
Seawater (SW)	0.42	0.22	0.25	0.69	0.86	0.90		0.40
Brackish (BW)	0.65	0.33	0.34	0.83	0.90	0.97	0.90	0.60
River (RW)	0.81		0.35	0.86	0.90	0.97	0.96	0.60
Pure (PW)[a]	0.86	0.35		0.89	0.90	0.97	0.96	0.60
Brine (BR)	0.19	0.09	0.12		0.85			0.40
Wastewater (WW)[b]	0.65	0.33	0.34	0.83	0.90	0.97		0.60

Based on data from: Ahmed et al. (2001), Allison (1993), Almulla et al. (2003), Bashitialshaaer et al. (2007), Belatoui et al. (2017), Bleninger et al. (2010), Costa and De Pinho (2006), DesalData (2018), Efraty and Gal (2012), Fernández-Torquemada et al. (2005), Garcia et al. (2011), Gomez and Cath (2011), Greenlee et al. (2009), Hajbi et al. (2010), Harvey (2008), Kelkar et al. (2003), Khawaji et al. (2007), Korngold et al. (2009), Kurihara et al. (2001), Macedonio and Drioli (2008), Mohamed et al. (2005), Mohsen and Gammoh (2010), Pilat (2001), Pearce et al. (2004), Qiu and Davies (2012), Qurie et al. (2013), Singh (2009), Stover (2013), Valero and Arbós (2010), Von Gottberg et al. (2005), Voutchkov (2011), Wilf and Klinko (2001), Xu et al. (2013), Younos (2005) and Zhou et al. (2015).

[a] PW refers to water of a high base quality (low salinity), but that is desalinated primarily for industrial applications requiring very low salinity water (e.g. food processing, pharmaceutical manufacturing).

[b] WW refers to reject water from municipal and industrial sources undergoing desalination in specific WW desalination facilities.

Table 4
Brine production and share of global total by region, income level and sector use.

	Brine production	
	(million m^3/day)	(%)
Global	141.5	100
Geographic region		
Middle East & North Africa	99.4	70.3
East Asia & Pacific	14.9	10.5
North America	5.6	3.9
Western Europe	8.4	5.9
Latin America & Caribbean	5.6	3.9
Southern Asia	3.7	2.6
Eastern Europe & Central Asia	2.5	1.8
Sub-Saharan Africa	1.5	1.0
Income level		
High	110.2	77.9
Upper middle	20.7	14.6
Lower middle	10.5	7.4
Low	0.03	0.0
Sector use		
Municipal	106.5	75.2
Industry	27.4	19.3
Power stations	5.8	4.1
Irrigation	1.1	0.8
Military	0.5	0.3
Other	0.3	0.2

Table 5
Brine production and share of global total by distance to coastline.

Distance to coastline	Brine production	
	(million m^3/day)	(%)
<1 km	69.0	48.8
1 km–10 km	43.2	30.5
10 km–50 km	7.3	5.2
>50 km	22.0	15.5

the dominant desalination technology, with significant additional contributions from MSF and MED technologies (Fig. 8a). However, large volumes of desalination water are produced by RO from a variety of feedwater sources (SW, BW, RW and WW), whilst the two thermal technologies almost exclusively use SW. The share in brine production from each desalination feedwater-technology combination is displayed in Fig. 8b. The vast majority of brine, 124.5 million m^3/day (87.9%), comes from SW desalination plants. Comparatively, brine production from desalination plants operating with other feedwater types is much smaller, with BW, RW and WW plants producing 10.23 (7.2%), 1.80 (1.3%) and 3.57 (2.5%) million m^3/day, respectively. Individually, SW-MSF accounts for the largest volume of brine production (43%), with SW-RO (31%), SW-MED (12%) and BW-RO (7%) accounting for the vast majority in the remainder of the global share (Fig. 8b).

Clear discrepancies exist when comparing the volume of desalinated water produced to the volume of brine water produced by different feedwater-technology combinations (Fig. 8c). These differences are directly related to the different water recovery ratios associated with desalination plants operating with different feedwater-technology combinations. The greater the volumetric processing efficiency of the desalination process, the smaller the proportion of brine produced relative to the volume of desalinated water produced. For example, RW-RO operates at very high water recovery ratios, therefore producing 6.8 million m^3/day of desalinated water (7.1% global share) whilst producing just 1.6 million m^3/day of brine (1.1% global share). Conversely, whilst SW-MSF desalination plants produce 16.7 million m^3/day (17.6% global share) of desalinated water, brine production totals 60.1 million m^3/day (43% global share).

4. Discussion

Owing to recent, rapid developments in desalination research, the last comprehensive assessment (Tanaka and Ho, 2011) available in the academic literature is outdated. This study presents statistical analysis of the scientific literature covering an array of desalination topics since 1980, addressing a diverse range of social and technical aspects with respect to publication date, revealing patterns in publishing trends. Our findings suggest that research in desalination has increased exponentially over the last 40 years, coinciding with the more widespread recognition of the value of these technologies for water resources management. Research has particularly considered the technological aspects of desalination, with the vast number of publications addressing RO and novel ('emerging') techniques that can produce desalinated water at lower economic costs and with less negative environmental implications (Arnal et al., 2005). Developments in novel desalination techniques, membrane materials and modules dominate the technological literature (Greenlee et al., 2009). Publications addressing economic, environmental and socio-political aspects of desalination are rapidly increasing with expansions in desalination. In particular, the environmental impacts associated with hypersaline brine discharges from desalination plants have received increased attention in recent research, coinciding with water scarcity intensification and the resultant expansion in desalination operations in the USA, Europe and Australia (Roberts et al., 2010).

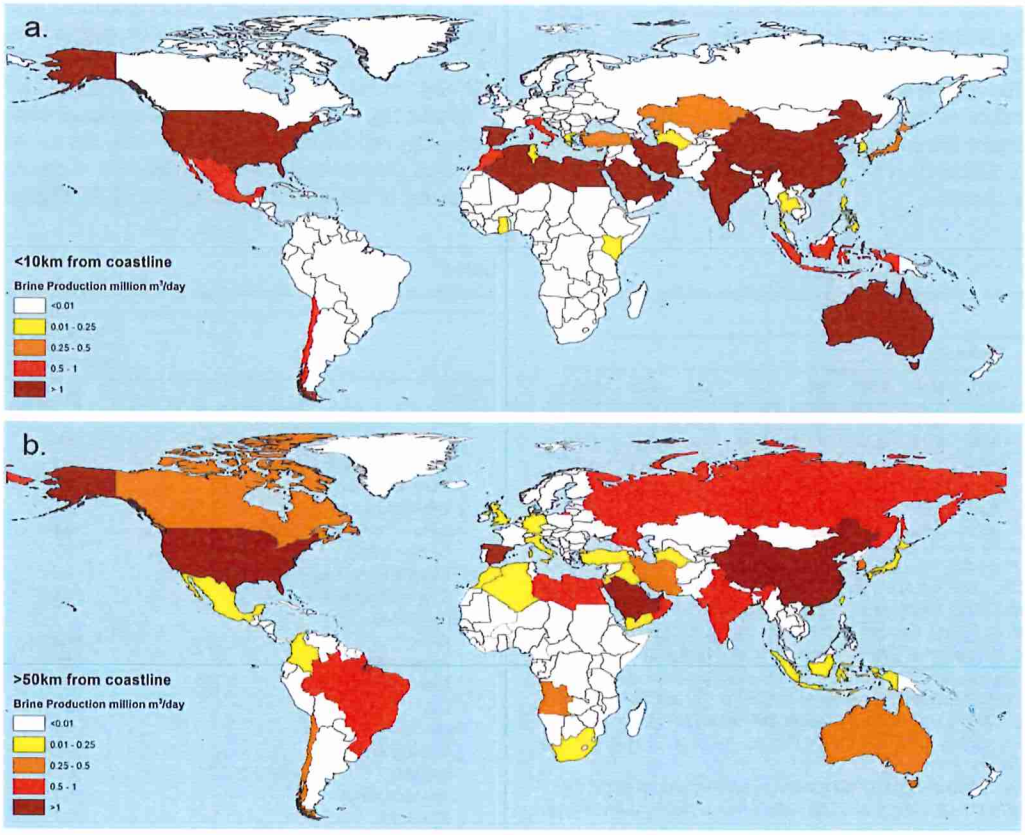

Fig. 7. Volume of brine produced per country at a distance of a) <10 km and b) >50 km from the coastline.

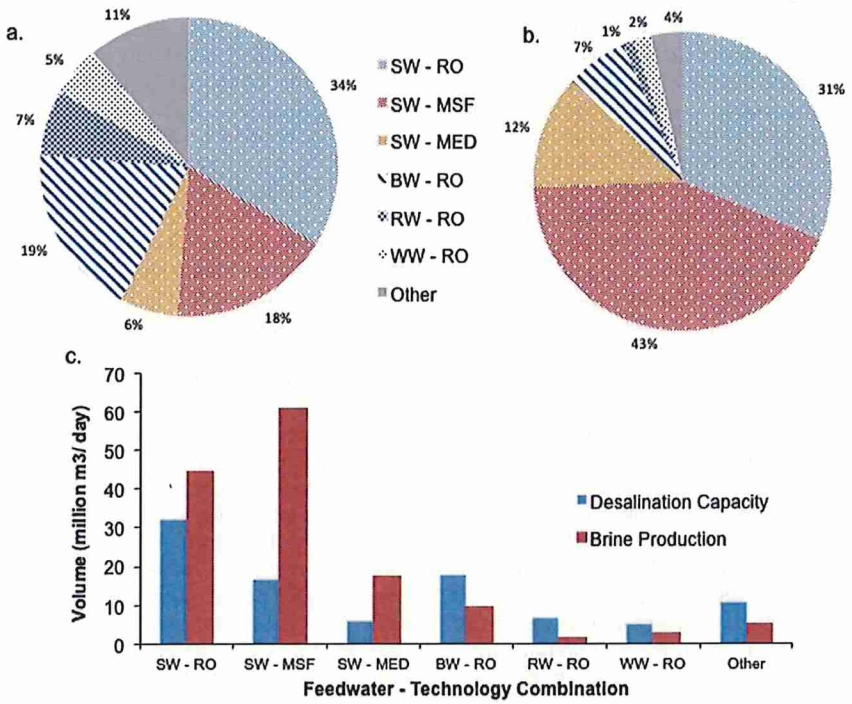

Fig. 8. Major desalination feedwater-technology combinations by (a) global share in the desalinated water production (%), (b) global share in brine production (%) and (c) total desalination capacity and volume of brine produced (million m^3/day).

With regards to desalination in practice, the current state-of-the-art in the global desalination situation in existing academic literature is either a) severely outdated or b) derived from incomplete sources. This study uses the largest and the most complete desalination dataset available (DesalData, 2018) to comprehensively analyse the global state of desalination with respect to desalination geographical distribution, sector use, technology and feedwater type. Our findings demonstrate that the global desalination capacity far exceeds values frequently cited in the literature, due to both the vast expansion in desalination operations that have taken place across the globe in the last decade and the coverage of the dataset used. The major uncertainty related to these results is due to the completeness of the desalination database, which was minimised by using a very high-quality dataset (DesalData, 2018).

Accurate quantifications of the volume of desalinated water produced for human use at different spatial scales is associated with a range of management implications. For example, in order to more representatively assess the degree of water scarcity, unconventional water resources and management practices must be included (Vanham et al., 2018; Jones and van Vliet, 2018). The exclusion of desalination from quantifications of water scarcity is identified as a major shortcoming of SDG 6.4.2 (Vanham et al., 2018), and hence accurate data on the volume of desalinated water produced is important for assessing the actual status of water availability. This is particularly important as water scarcity has been identified as a key challenge, which is expected to intensify in the future (Richter et al., 2013).

The importance of desalination for alleviating water scarcity and safeguarding water resources for human use should not be underestimated. Based on FAO AQUASTAT water withdrawal data (http://www.fao.org/nr/water/aquastat/water_res/index.stm) and desalination capacity data from DesalData (2018), eight countries produce more desalination water than they withdraw for human use (The Maldives, Singapore, Qatar, Malta, Antigua and Barbuda, Kuwait, The Bahamas and Bahrain). A further six countries meet over 50% of their water withdrawals through desalination (Equatorial Guinea, UAE, Seychelles, Cape Verde, Oman and Barbados). As demonstrated through these countries, desalination is an essential technology in the Middle East and for small island nations which typically lack renewable water resources.

Whilst there are demonstrated benefits from desalinated water, there are concerns related to the volume and salinity of brine produced as a waste of desalination process. It poses some of the biggest constraints to more widespread development of desalination operations, in addition to representing a significant proportion of the economic costs of the process (5–33%) (Ahmed et al., 2001). Therefore, quantifying the volume of brine produced by desalination plants operating with different feedwater types and technologies is essential for considering the potential environmental and economic costs associated with desalination.

The volume of brine being produced from desalination plants globally is largely unknown, with the only estimates available in the literature assuming that the volume of brine is equivalent to the volume of desalinated water produced (Liu et al., 2016; Akinaga et al., 2018), regardless of the feedwater type or desalination technology. Our study considers the influence of both feedwater type and desalination technology on the water recovery ratio, deriving values for the vast majority of feedwater-technology combinations producing desalinated water. This information is applied with respect to the treatment capacity of individual desalination plant to determine the volume of brine production, thus representing a first comprehensive attempt to accurately quantify brine production.

Our findings also indicate that the volume of brine produced far exceeds the volume of desalinated water produced (by ~50%), and hence that the current quantifications of volume of brine produced are gross underestimations. However, the uncertainties associated with our method should be considered. In our brine assessment methodology, we assigned recovery ratios based solely on the feedwater type and desalination technology producing desalinated water at each plant, with no consideration of local conditions in these plants. Evidence suggests that site-specific local conditions may also influence a desalination plants recovery ratio (Xu et al., 2013). For example, the effect of variations in feedwater salinity within each 'feedwater type' categorisation (e.g. seawater) on the recovery ratio is overlooked as a result of using

the average. Other factors that may influence the specific recovery of each individual desalination plant include specific plant design (e.g. type of membrane used in desalination process), product water quality requirements (e.g. salinity), energy source and brine disposal methodology. Furthermore, whilst desalination plant recovery ratios are available in the literature, the number of values used for determining recovery ratios for some feedwater-technology combinations was low. For some feedwater-technology combinations, no values were found in the literature, and therefore a number of assumptions and estimations had to be made (Table 1). This uncertainty was minimised as recovery ratios were found in the literature for all major feedwater-technology combinations, capturing the vast majority of the total desalination capacity (>80%).

With increasing water demands coupled with water scarcity intensification, desalination is expected to expand rapidly in the future. The expected expansion in desalination capacity will be commensurate with an increase in the volume of brine produced. Management of the reject brine is the still a major problem of desalination (Roberts et al., 2010; Elimelech and Phillip, 2011; Mezher et al., 2011; Wenten, 2016), containing both elevated salinity (relative to feedwater type) and chemicals used during pre- and post-treatment phases in the desalination operation (Wenten et al., 2016). Traditionally, a variety of brine disposal methods have been used, including direct discharge into oceans, surface water or sewers, deep well injection and brine evaporation ponds (Morillo et al., 2014). The geographical location at which brine is produced influences the brine disposal method – desalination plants located near to large surface saline water bodies (ocean, seas) often discharge untreated waste brine directly into these water bodies (Arnal et al., 2005). Conversely, desalination plants located inland may not have a surface water discharge option available, and hence alternative brine disposal methods are required, of which there are few economically viable options (Arnal et al., 2005; Brady et al., 2005; Morillo et al., 2014).

Whilst the majority of brine is produced near to the coastline (Fig. 7a), with almost 80% of brine produced within 10 km (Table 5), a substantial volume of brine is produced in geographic locations where surface water discharge is likely not possible (Fig. 7b, Table 5). In addition, there are a variety of environmental concerns associated with the discharge of hypersaline brine into surface water bodies (Einav et al., 2002; Roberts et al., 2010; Palomar and Losada, 2011). Major concerns are related to the ecological effects associated with physio-chemical alterations (e.g. increased salinity) to seawater around brine discharge outlets and the discharge of toxic chemicals used in water pre-treatment or as anti-scalants and anti-foulants in the desalination process (Einav et al., 2002; Roberts et al., 2010; Ketsetzi et al., 2008). When continually discharged to surface waters, these factors pose risks to ocean life and marine ecosystems (Gacia et al., 2007; Palomar and Losada, 2011; Meneses et al., 2010). The high salinity of brine causes elevated density in comparison to the salinity of the receiving waters, which can form "brine underflows" that deplete dissolved oxygen (DO) in the receiving waters. High salinity and reduced DO levels can have profound impacts on benthic organisms, which can translate into ecological effects observable throughout the food chain (Rabinowitz, 2016; Frank et al., 2017). A combination of these factors necessitates the development of new brine management strategies that are both economically feasible and environmentally sound.

Recent efforts have focused on ways to treat or use brine in order to minimise or eliminate the negative environmental impacts associated with brine disposal (Morillo et al., 2014; Wenten et al., 2017) and/or to partially or fully offset the economic costs associated with brine disposal (Kesieme et al., 2013; Morillo et al., 2014). These efforts cover a range of techniques with variable levels of complexity and cost. For example, mixing brine with alternative water sources of a lower salinity (e.g. treated wastewater, power-plant cooling water) can reduce brine salinity by dilution (Giwa et al., 2017). Pressurised dispersion nozzles can promote mixing of brine waters with receiving waters, restricting bottom ponding (Roberts, 2015). Techniques such as bipolar membrane electrodialysis (BMED) can convert brine into acid and base products for reuse, such as NaOH and HCl (Ibáñez et al., 2013; Morillo et al., 2014). Metal recovery from brine offers a valuable source of many scarce metals (e.g. uranium), whilst potentially reducing environmental impacts associated with mining (Morillo et al., 2014; Loganathan et al., 2017). The high economic costs and energy demands of brine treatment and mineral recovery methods remain a significant barrier to more widespread application (Kaplan et al., 2017). Comprehensive reviews of the recent techniques, technologies and innovations in brine management are provided by Morillo et al. (2014) and Giwa et al. (2017).

Other potential economic opportunities associated with brine production have also sparked a wave in innovation in brine management that seeks to turn an environmental problem into an economic opportunity (Sánchez et al., 2015). For example, Blackwell et al. (2005) identified sequential biological concentration (SBC) of saline drainage streams creating a number of financial opportunities, whilst concentrating the waste stream into a manageable volume. Qadir et al. (2015) suggested that integrating agriculture and aquaculture systems based on the SBC system using saline drainage water sequentially has the potential for commercial, social and environmental gains. Reject brine has been used for aquaculture, with increases in fish biomass of 300% achieved (ICBA, 2018). Reject brine has also been successfully used for Spirulina cultivation and the irrigation of halophytic forage shrubs and crops although this method was unable to prevent progressive land salinisation (Sánchez et al., 2015).

Aside from treating or using reject brine, a method to reduce the volume of brine produced is to improve the water recovery ratio of desalination plants. Desalination plants operating with a high RR are favourable in that they both maximise the use of (often scarce) water resources as in the case of river and brackish water desalination plants and create a lower volume of concentrate for disposal (Harvey, 2008), reducing the economic costs associated with brine disposal. High recovery rates can also reduce the cost of pre-treatment prior to desalination and post-treatment of brine (Lachish, 2002). However, attaining higher RRs generally increases energy demands and hence treatment costs (Lachish, 2002), increasing greenhouse gas emissions if the desalination plant is powered by fossil fuels (Martin-Gorriz et al., 2014; Darre and Toor, 2018). Whilst the reduced volume of brine associated with higher RRs might have positive environmental implications, the brine salt concentration will be increased (Ahmed et al., 2001) which could potentially pose harmful risks to the aquatic environment following disposal (Bashitialshaaer et al., 2009). Determining the optimal recovery ratio for desalination plants is therefore an economic, environmental and technical challenge, requiring consideration on a site-by-site basis.

5. Conclusions & outlook

Against the backdrop of increasing global water scarcity, desalinated water is increasingly becoming a viable option to narrow the water demand-supply gap, particularly in addressing domestic and municipal needs. Desalinated water can substantially extend the volume of high-quality water supplies available for human use. A steady and assured supply of high-quality water is crucially important in an era when the world at large is embarking on the Sustainable Development Agenda to ensure access to safe water for all by 2030, and for the achievement of SDG 6 to safeguard water supplies for current and future generations. In addition to SDG 6, a variety of other SDGs are inextricably linked with water resources management, such as SDG 2 aiming at zero hunger, SDG 3 ensuring healthy lives, SDG 8 promoting sustainable economic growth, SDG 11 making cities and human settlements inclusive, and SDG 13 combating climate change. These SDGs have water-related targets that must be achieved before their ultimate realisation is possible.

Although desalination can provide an unlimited, climate-independent and steady supply of high-quality water, there are specific challenges to harness the vast potential of desalinated water, such as relatively high

economic costs and a variety of environmental concerns. A major environmental concern arises from the large volume of brine produced in the desalination process that requires management. Brine management is both economically expensive and technically difficult, and hence most desalination plants discharge untreated brine directly into the environment. Addressing these challenges, research studies have demonstrated that there are economic opportunities associated with brine, such as commercial salt and metal recovery and use of brine in fish and halophyte production systems. There is a need to translate such research to convert an environmental problem into an economic opportunity. This is particularly important in countries producing large volumes of brine with relatively low efficiencies, such as Saudi Arabia, UAE, Kuwait and Qatar.

Although smaller amounts of desalinated water are used for the power and irrigation sectors, water is desalinated primarily for municipal and industrial purposes. In this regard, desalinated water provides a safe and sustainable source of good-quality water for domestic purposes. Such potable water supplies are critically important in water scarce areas where water quality deterioration is also on the increase. The use of desalinated water in producing high-value crops and crop commodities would be another avenue whilst considering expansion of desalinated water to other sectors (Silber et al., 2015).

Due primarily to the relatively high economic costs, desalination is currently concentrated in high income and developed countries. There is a need to make desalination technologies more affordable and extend them to low income and lower middle income countries, increasing the viability of desalination for addressing SDG 6 in areas that developments have previously been limited by high economic costs. To do this, technological refinement for low environmental impacts and economic costs, along with innovative financial mechanisms to support the sustainability of desalination schemes, will likely be required. The expansion pattern and economics of desalination facilities in recent decades suggest a positive and promising outlook for expansion in desalination facilities around the world.

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Conflicting interests

The authors declare no conflict of interest.

Appendix A. Supplementary information

Supplementary data to this article can be found online at https://doi.org/10.1016/j.scitotenv.2018.12.076.

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Tuesday, July 15, 2025

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Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Julie Rogers
Address	710 Furman Ave, Corpus Christi, TX Corpus Christi, TX, 78404
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 1
Topic	Public Comment
Agenda Item Number	N/A

Comment

Attachment is from March 2018 hoping that it is a reminder of a few things. I still love Corpus Christi and we are still very committed to our City which drives my advocacy for quality-of-life issues. There was a goal to become the "Best City in Texas" which we can still reach if we could all just work together and learn from each other and respect each other. The new public comment process does not allow this to happen. It is very constraining and seems to walk a fine line of violating Texas Government Code 551.007. The agenda is very fluid so a speaker cannot always wait for an agenda item. Testifying after agenda items in an evening public comment period does no good for the City or democracy. Written comments are not shared publicly so the public misses out on learning from each other. Some cities post the comments electronically so that everyone can read them. People are skeptical because of the lack of trust and respect we have for each other. Use your leadership effectively.

Upload supporting images or documents.

PDF Budget Comment 032018.pdf

8_4PM_2021_Public_Participation_HILL.pdf

Provide an email to receive a copy of your submission. rogersjuliet@gmail.com

We are recent new homebuyers in the city. We decided to make a commitment to the city we love, and I'm here today to ask you to do the same by taking a different approach to solving the projected shortfall for the upcoming budget. I realize that the budget process has just begun, and I've already heard discussion of pursuing a cuts only budget. In last year's adopted budget, it was stated that we had a goal of becoming the "Best City in Texas". That distinction will be hard to achieve by making across the board cuts to all services, including health, arts, culture, learning and recreational services.

Before we purchased our historic home, we researched its history by using the archive room at the Central Library. We've used that resource many other times to discover more about Corpus Christi's unique history. We also based our decision on not only access to the Library but access to Parks and Recreation, including Whataburger Field, the Museums, the Art Center, the weekly Downtown Farmer's Market, and small local businesses. Many other folks use the same kind of criteria to make decisions not only about where they will live but IF they will live in Corpus Christi. A cuts only budget has a negative impact on the future of our City because such an approach affects everyone's quality of life.

Take the Corpus Christi Public Libraries as an example. Our Public Libraries are already constrained as a result of chronic and substantial

underfunding, ranging anywhere from 8% to 67% below that available to public libraries in communities of comparable size throughout Texas. The operating revenues are 54% below average of operating revenues per capita for all public libraries in Texas. The underfunded character of our libraries has negative impact like smaller collections, fewer hours of operation and smaller staffing and lower compensation which affects delivery of services and deters from the mission of promoting literacy and building community.

There's an old proverb that says, "You don't know where you're going until you know where you've been." In 2011, there were drastic cuts to the Libraries that affected the Corpus Christi Public Library's accreditation from the Texas State Library & Archives Commission. The Library System had to make an appeal twice to maintain accreditation. The probation was finally lifted in 2016. THEN, the next year there was a reduction of staff. Please don't put us on another dangerous downward spiral of not being accredited again.

There is literally no more to cut from the Libraries. The Library accounts for just 1.7% of the General Fund and is one of the least funded services, along with health services. Amongst such challenges, the Library, its Staff and other City Employees have still come through for us. It's time we come through for them, the People and the future of Corpus

Christi. One way might be to stop basing our City Budget on an ideology that there must be large cuts in services and jobs. Going forward, we could raise revenue from other sources by not offering such rich tax abatements and economic development incentives to the wealthy and corporations. Our quality of life and a desire to enrich our community should be enough of a draw. We need a better budget and better economic development for the People and not the few, otherwise we are destined to continually take money from Community Services and City Staff, along with an increase in fees and taxes for the People. Worse, we can never be the Best City in Texas. I truly think that's what you all want, that's what we all want. I understand that we didn't get to this point through this Council only, but this Council can be the ones who put us on a different path.

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ATTORNEY GENERAL *of* TEXAS

Public Participation During Open Meetings

William "Bill" Hill
Assistant Attorney General
Opinion Committee

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Tex. Gov't Code § 551.007

- Texas Government Code section 551.007 was enacted in 2019.
- Entitled "Public Testimony," it authorizes a member of the public to address the governmental body at its meetings.
- It is more commonly known as "public comment."

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Presentation Outline

- Public comment under the Open Meetings Act before 2019
- Section 551.007's requirements (2019)
- Public comment practices during the Governor's emergency orders applicable to public meetings
- Post-emergency order practices (the present)

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Public Comment Before 2019

- The Open Meetings Act did not entitle the public to speak at public meetings prior to the enactment of section 551.007.

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Original Purpose of the Act

- "The Open Meetings Act was enacted in 1967 for the purpose of assuring that the public has the opportunity to be informed concerning the transactions of public business."

- "Our citizens are entitled to more than a result. They are entitled not only to know what government decides but to observe how and why every decision is reached."

--Texas Supreme Court, in *Acker v. Tex. Water Comm'n* (1990)

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Prior Interpretation of the Act

- Courts and the Attorney General interpreted the Act to give the public the right to attend and watch open meetings, but not to speak.

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Constitutional Limitations

- Prior to the enactment of section 551.007, the main limitation on rules regulating public comment was constitutional, allowing only rules that (1) do not discriminate against speech on the basis of viewpoint, and (2) are reasonable in light of the purpose served by the forum.

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Public Comment Circa 2019

- Open Meetings Act said little about public comment.
- Governmental bodies were not required to allow public comment for most types of meetings, although most did.
- Governmental bodies had wide discretion to regulate such matters as when public comment would be allowed, the length of presentations, and the number of speakers.
- The main requirements were that rules be viewpoint neutral and reasonable under the circumstances.

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Enactment of Section 551.007

- One motivating concern was the practice of conducting public comment at the end of the meeting. Thus, a governmental body might act on an agenda item before the public had the opportunity to provide input.

- The 86th Legislature added section 551.007, entitled "Public Testimony," effective September 1, 2019.

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Overview

- Tex. Gov't Code § 551.007:

  (a) Specifies to whom the statute applies

  (b) Establishes the public's right to speak

  (c) Allows reasonable rules, including time limits

  (d) Time allowed when public testimony is translated

  (e) Governmental body must not prohibit criticism

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Applies to Most Local Bodies

- Subsection (a): "This section applies only to a governmental body described by Sections 551.001(3)(B)-(L)."

- Does not apply to State level governmental bodies

- Does apply to all other local government bodies listed in section 551.001(3), including:
  - Commissioners courts
  - City councils
  - Other city and county deliberative bodies
  - School boards
  - Special districts
  - Certain nonprofits

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Public Given the Right to Speak

- Tex. Gov't Code § 551.007(b):
  - "A governmental body shall allow each member of the public who desires to address the body regarding an item on an agenda for an open meeting of the body to address the body regarding the item at the meeting before or during the body's consideration of the item."

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Scope of the Right to Speak

- Because a "governmental body shall allow each member of the public who desires to address the body" to do so, anyone who wants to speak must be allowed to speak.
- The right to speak is limited to agenda items.
- The right to speak is "at the meeting."
- Public comment must occur "before or during the body's consideration of the item."

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Reasonable Rules

- Tex. Gov't Code § 551.007(c):
  - "A governmental body may adopt reasonable rules regarding the public's right to address the body under this section, including rules that limit the total amount of time that a member of the public may address the body on a given item."

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What Rules are Reasonable?

- Under the Constitution, rules must be viewpoint neutral and be reasonable in light of the meeting's purpose.

- Current First Amendment precedent would allow rules that restrict speakers to the subject of the meeting, impose time limits on speakers, and prevent disruptions of the meeting.

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Reasonable Time Limits

- Subsection 551.007(c) expressly allows rules "that limit the total amount of time that a member of the public may address the body on a given item."
- What is a reasonable time limit?
- Three minutes is a common limitation, but whether a time limitation is reasonable may depend on the particular circumstances.

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Consolidated Public Comment Session

- Section 551.007(b) calls for an opportunity to address the governmental body "before or during" consideration of an item.

- Thus, a governmental body might adopt a rule consistent with "subsection 551.007(b)'s requirements by having a single public comment period at the beginning of an open meeting to address all items on the agenda."

- Can limit total speaker time only if "reasonable."

--Tex. Att'y Gen. Op. No. KP-0300 (2020)

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Governmental Body's Response

- Section 551.007 authorizes a member of the public to address the governmental body about agenda items only. The governmental body members may, but are not required, to respond to a section 551.007 address.
- If a member of the public making a section 551.007 address raises a non-agenda item, section 551.042 of the Act still applies to require the governmental body to limit its comments about non-agenda items.

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Rules for Orderly Procedure

- "A governmental body may adopt reasonable rules to maintain order at a meeting."

--Tex. Gov't Code § 551.023(b).

- Section 551.007 likely allows rules that promote orderly procedure provided they do not unreasonably frustrate the public's right to speak.

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Criticism

- "(e) A governmental body may not prohibit public criticism of the governmental body, including criticism of any act, omission, policy, procedure, program, or service. This subsection does not apply to public criticism that is otherwise prohibited by law."

- Rules must be viewpoint neutral, but as the U.S. Supreme Court has said, "Giving offense is a viewpoint."

- "[P]ublic criticism that is otherwise prohibited by law" is a narrow exception.

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Consequences

- Section 551.007 does not state consequences for noncompliance.
- An agenda item passed without an opportunity for public comment may be voidable.

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Emergency Order and Suspension List

- Governor declared disaster on March 13, 2020
- Suspension letter issued March 16, 2020

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Public Comment Under Emergency Order

- The suspension list included subsection 551.007(b) as a statute "that may be interpreted to require face-to-face interaction between members of the public and public officials."

- The list suspended subsection 551.007(b), "provided, however, that governmental bodies must offer alternative methods of communicating with their public officials."

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Video Conference

- Suspended the video conference rules requiring a member of the governmental body to be present at a physical location
- Suspended public's right to address the governmental body face-to-face at a physical meeting
- Did not suspend the public's right to address the governmental body at the meeting

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Telephonic Meetings Section 551.125

- For emergency or public necessity when convening a quorum in one place is difficult or impossible.

- Notice should explain rules and procedures explaining how a member of the public may address the governmental body under section 551.007.

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Advance Notice of Rules

- The agenda notice should clearly inform the public about all rules, procedures, and special instructions concerning participation in a section 551.007 public comment.

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Lifting of Post Emergency Order

- Effective September 1, 2021, all Open Meetings Act requirements are again fully in effect.

- What practices developed during the emergency may continue?

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Public Comment by Video Conference Call

- Videoconference call meetings are not limited to emergencies but must strictly comply with section 551.127, requiring presence of one or more members of the governmental body.

- Although not entirely clear, section 551.007 likely entitles a member of the public to appear in person at the meeting for public comment.

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Testimony from Remote Location Authorized

- A governmental body may still offer a member of the public the option to participate remotely.

- Subsection 551.127(k) allows a for members of the public to "testify" from a remote location by videoconference call.

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Advance Registration

- Some governmental bodies have had rules requiring a member of the public wishing to speak to register in advance of the meeting and identify the agenda item the speaker wishes to address.

- If otherwise reasonable, such rules might be justified as a regulation to provide for an orderly meeting.

- As implemented, the rules must not unreasonably infringe on the speaker's right to address the governmental body about any agenda item.

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Written Public Comment

- Some governmental bodies have required members of the public to submit written comments to be read by an officer or member of the governmental body at the meeting.

- Limiting public comment to submitted written comments may be inconsistent with the right of a member of the public to address the governmental body at the meeting.

- The governmental body may give the option to submit written public comment, but it does not supplant the right to appear in person for public comment.

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Open Forum

- Some governmental bodies provide for both public comment for agenda items under section 551.007 and an open forum for non-agenda subjects.

- An open forum for non-agenda items is not governed by section 551.007. The governmental body has more latitude to regulate an open forum provided its rules are viewpoint neutral and otherwise reasonable.

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Overflow Rooms

- Some governmental bodies have limited seating capacity in the meeting room and provide overflow rooms with audio/video equipment. Rules must be reasonable and comply with the core purposes of TOMA.

- It is an open question whether a member of the public can be required to address the governmental body from the overflow room.

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Final Thoughts

- Section 551.007 gives a member of the public the right to participate in a meeting by addressing the governmental body about items on the meeting's agenda.

- A governmental body may offer additional or alternative ways for a member of the public to participate in the meeting, but it remains the member's choice.

- A member of the public may always reject suggested alternatives and insist on the right to address the governmental body under section 551.007 as written.

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ATTORNEY GENERAL of TEXAS

Open Government Hotline

Toll Free

1 (877) OPEN TEX

1 (877) 673-6839

Website

www.texasattorneygeneral.gov

Tuesday, July 15, 2025

Public Comment & Input Form

For City Council Meetings, Board Meetings, & Commission Meetings

To submit a service request, ask a question, report a violation, browse city-required permit forms or access services online, click here:

Access Online Services

To continue submitting a **written public comment** click Next below.

Public Comment & Input Form

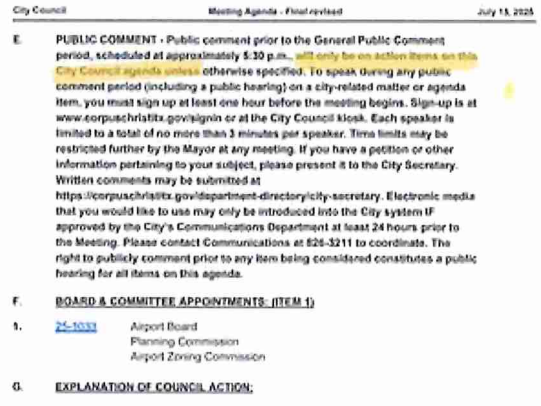
For City Council Meetings, Board Meetings, & Commission Meetings

Date of Meeting	Tuesday, July 15, 2025
Name	Pat Craig
Address	5925 Tapestry Dr Corpus Christi, TX, 78414
Please select the Board, Committee, or governing body that your comments are directed to:	City Council
Are you a resident of Corpus Christi?	Yes
What district do you reside in?	District 5
Topic	Limiting Public Comment
Agenda Item Number	25

Comment

Changing agenda items to "Briefing Items" and not being allowed to comment in public does not look transparent. Please adjust this so we can come and comment on such items.

Upload supporting images or documents.



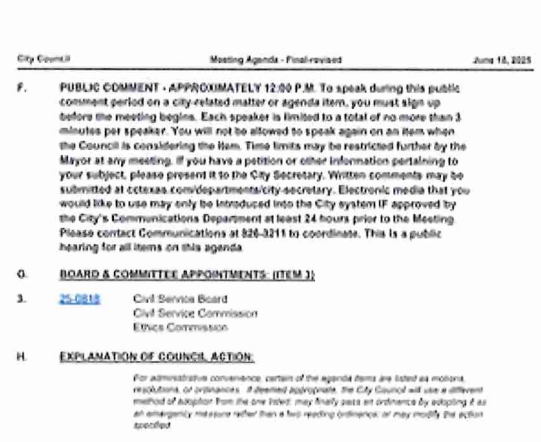
City Council | Meeting Agenda - Final-revised | July 15, 2025

E. **PUBLIC COMMENT** - Public comment prior to the General Public Comment period, scheduled at approximately 5:30 p.m., will only be on action items on this City Council agenda unless otherwise specified. To speak during any public comment period (including a public hearing) on a city-related matter or agenda item, you must sign up at least one hour before the meeting begins. Sign-up is at www.corpuschristitx.gov/signin or at the City Council kiosk. Each speaker is limited to a total of no more than 3 minutes per speaker. Time limits may be restricted further by the Mayor at any meeting. If you have a petition or other information pertaining to your subject, please present it to the City Secretary. Written comments may be submitted at https://corpuschristitx.gov/department-directory/city-secretary. Electronic media that you would like to use may only be introduced into the City system IF approved by the City's Communications Department at least 24 hours prior to the Meeting. Please contact Communications at 826-3211 to coordinate. The right to publicly comment prior to any item being considered constitutes a public hearing for all items on this agenda.

F. **BOARD & COMMITTEE APPOINTMENTS: (ITEM 1)**

1. 25-1033 Airport Board
Planning Commission
Airport Zoning Commission

G. **EXPLANATION OF COUNCIL ACTION:**



City Council | Meeting Agenda - Final-revised | June 18, 2025

F. **PUBLIC COMMENT - APPROXIMATELY 12:00 P.M.** To speak during this public comment period on a city-related matter or agenda item, you must sign up before the meeting begins. Each speaker is limited to a total of no more than 3 minutes per speaker. You will not be allowed to speak again on an item when the Council is considering the item. Time limits may be restricted further by the Mayor at any meeting. If you have a petition or other information pertaining to your subject, please present it to the City Secretary. Written comments may be submitted at cctexas.com/departments/city-secretary. Electronic media that you would like to use may only be introduced into the City system IF approved by the City's Communications Department at least 24 hours prior to the Meeting. Please contact Communications at 826-3211 to coordinate. This is a public hearing for all items on this agenda.

G. **BOARD & COMMITTEE APPOINTMENTS: (ITEM 3)**

3. 25-0818 Civil Service Board
Civil Service Commission
Ethics Commission

H. **EXPLANATION OF COUNCIL ACTION:**

For administrative convenience, certain of the agenda items are listed as motions, resolutions, or ordinances. If deemed appropriate, the City Council will use a different method of adoption from the one listed; may finally pass an ordinance by adopting it as an emergency measure rather than a two reading ordinance; or may modify the action specified.

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