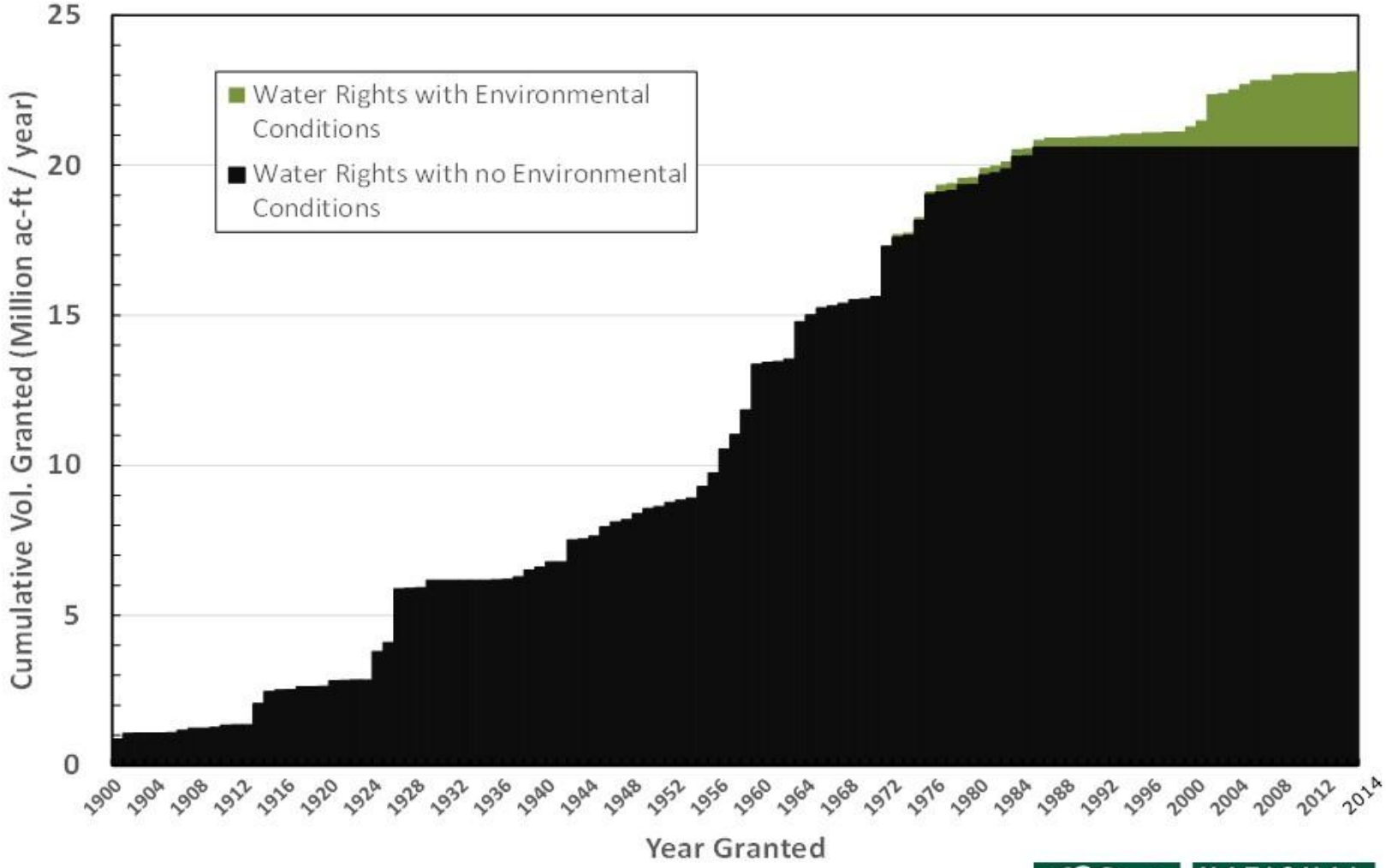
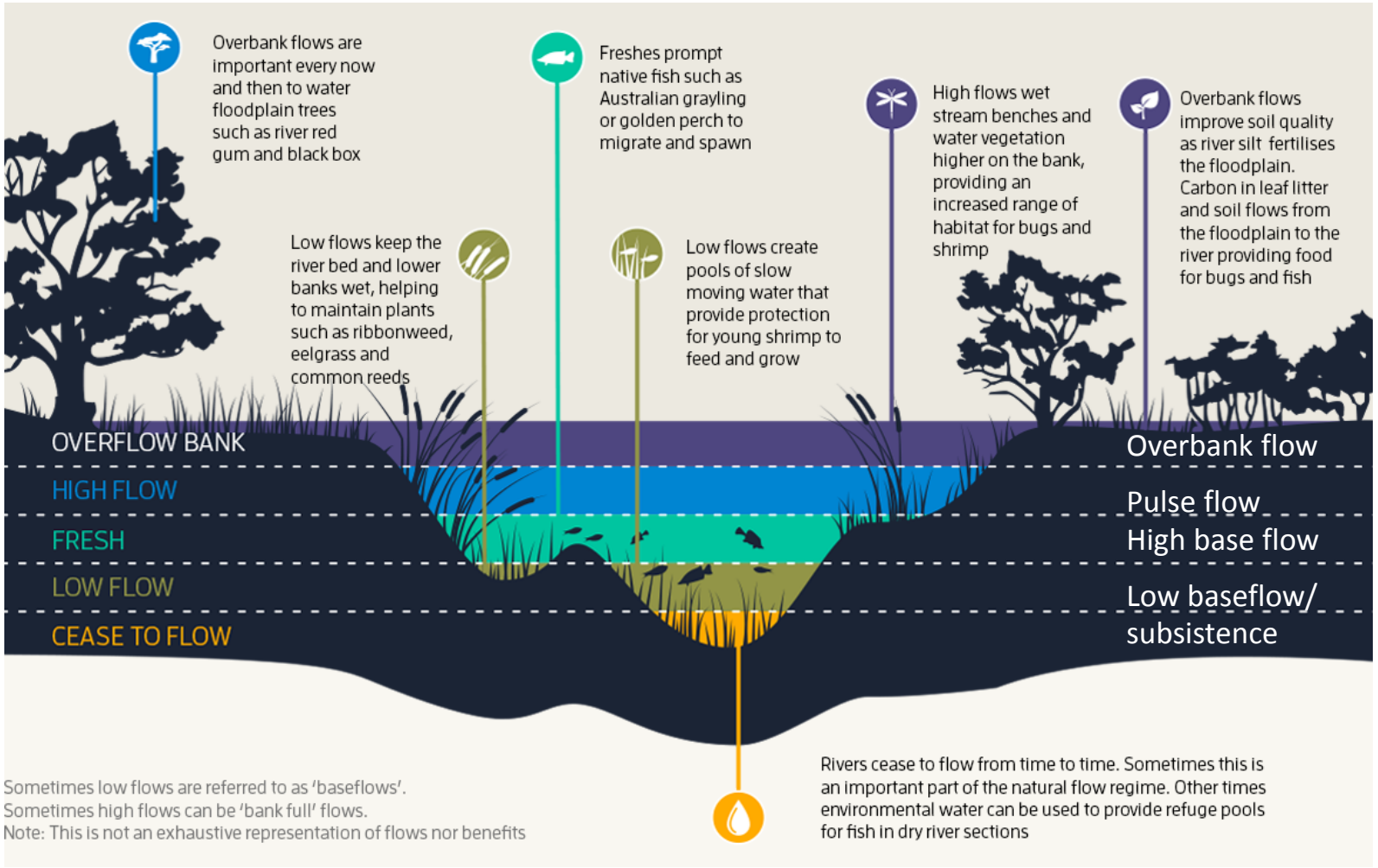
Timeline of Texas Water Rights, 1900-2014



Note: Only consumptive water rights included
Source: National Wildlife Federation analysis of data provided by the Texas Commission on Environmental Quality

NATIONAL WILDLIFE FEDERATION

ROLE OF INSTREAM FLOWS



ROLE OF FRESHWATER INFLOWS

- Supply nutrients
- Supply sediments
- Maintain salinity balance

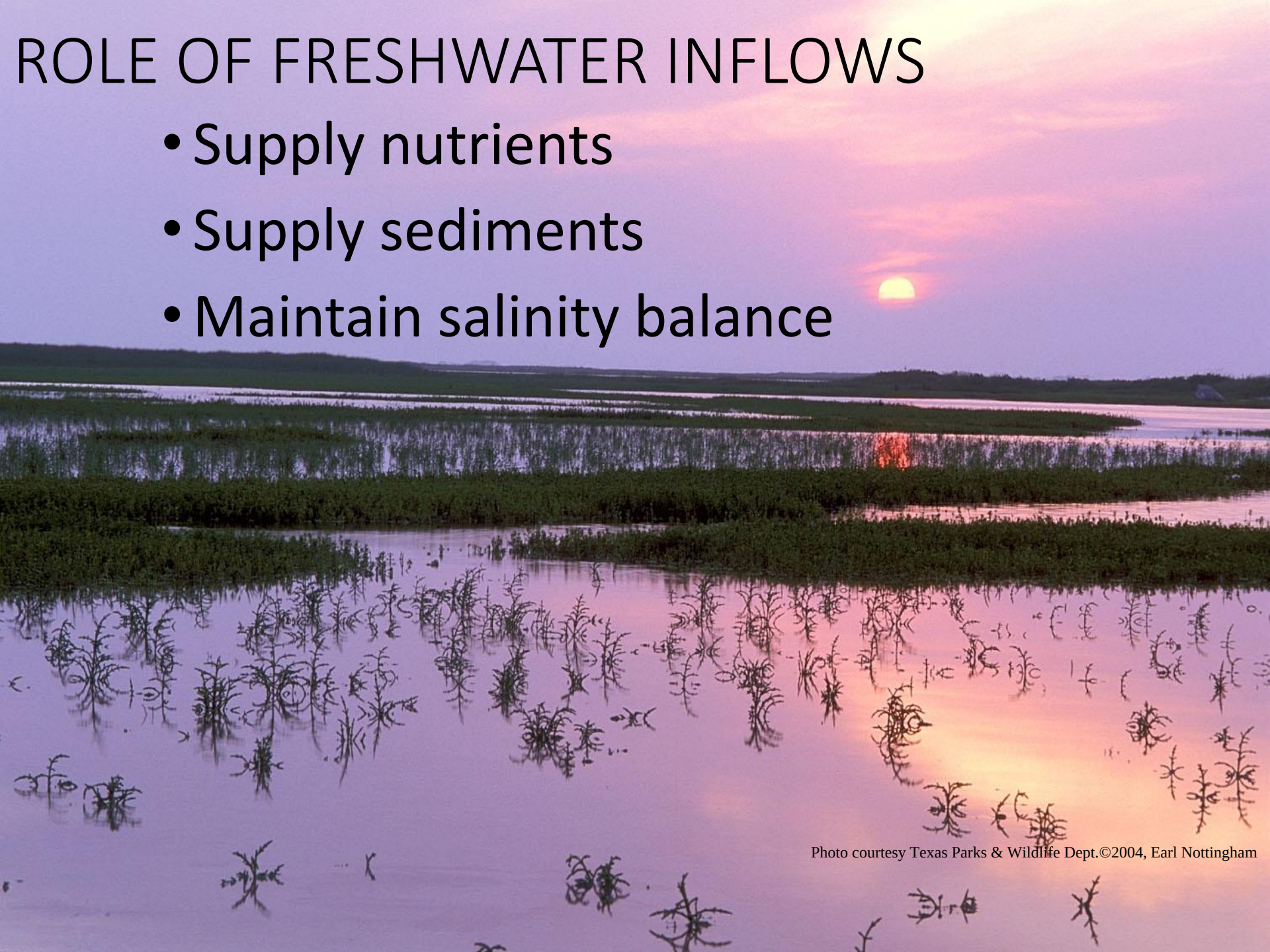
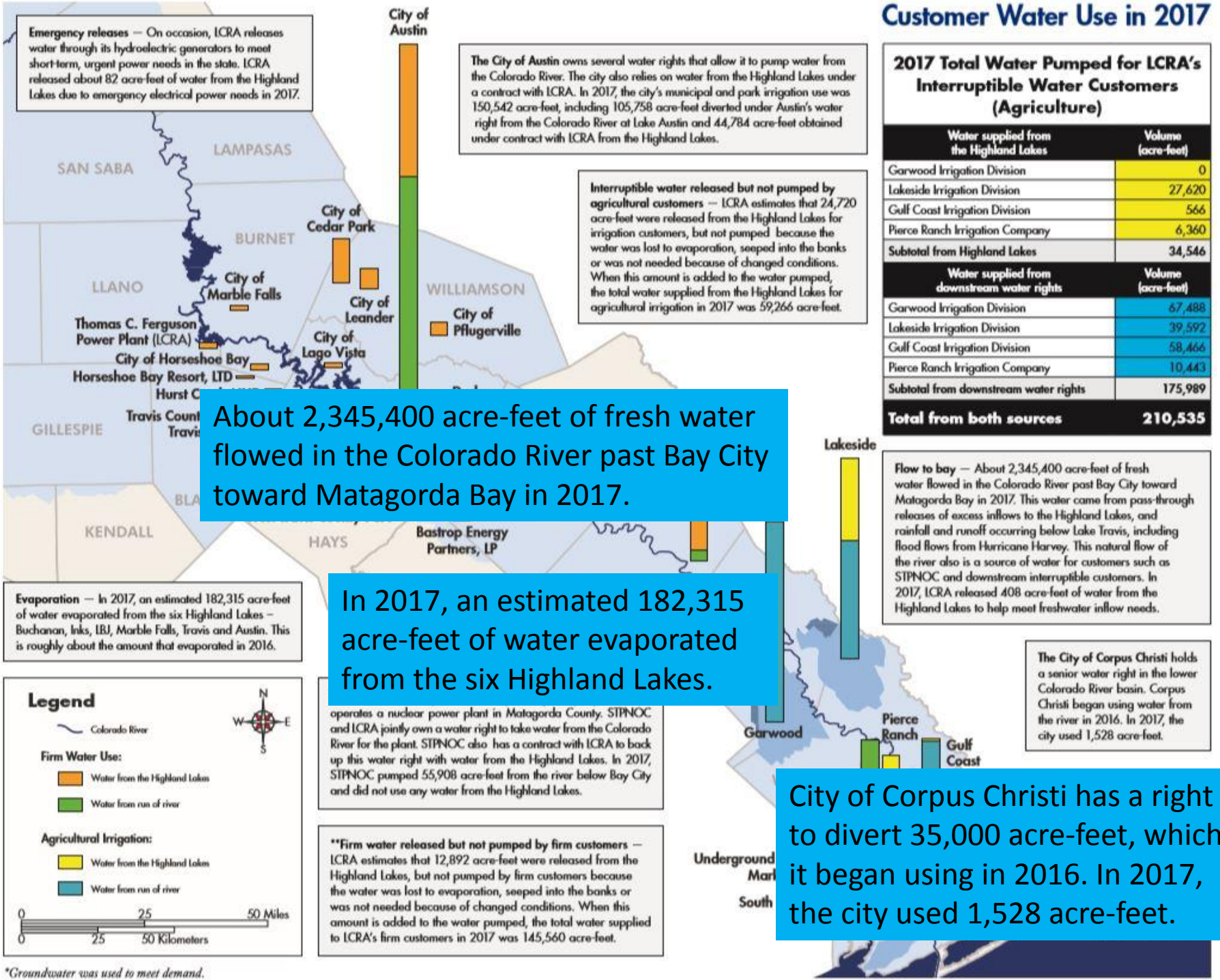


Photo courtesy Texas Parks & Wildlife Dept.©2004, Earl Nottingham

Customer Water Use in 2017



Emergency releases — On occasion, LCRA releases water through its hydroelectric generators to meet short-term, urgent power needs in the state. LCRA released about 82 acre-feet of water from the Highland Lakes due to emergency electrical power needs in 2017.

The City of Austin owns several water rights that allow it to pump water from the Colorado River. The city also relies on water from the Highland Lakes under a contract with LCRA. In 2017, the city's municipal and park irrigation use was 150,542 acre-feet, including 105,758 acre-feet diverted under Austin's water right from the Colorado River at Lake Austin and 44,784 acre-feet obtained under contract with LCRA from the Highland Lakes.

Interruptible water released but not pumped by agricultural customers — LCRA estimates that 24,720 acre-feet were released from the Highland Lakes for irrigation customers, but not pumped because the water was lost to evaporation, seeped into the banks or was not needed because of changed conditions. When this amount is added to the water pumped, the total water supplied from the Highland Lakes for agricultural irrigation in 2017 was 59,266 acre-feet.

2017 Total Water Pumped for LCRA's Interruptible Water Customers (Agriculture)

Water supplied from the Highland Lakes	Volume (acre-feet)
Garwood Irrigation Division	0
Lakeside Irrigation Division	27,620
Gulf Coast Irrigation Division	566
Pierce Ranch Irrigation Company	6,360
Subtotal from Highland Lakes	**34,546**
Water supplied from downstream water rights	**Volume (acre-feet)**
Garwood Irrigation Division	67,488
Lakeside Irrigation Division	39,592
Gulf Coast Irrigation Division	58,466
Pierce Ranch Irrigation Company	10,443
Subtotal from downstream water rights	**175,989**
Total from both sources	**210,535**

About 2,345,400 acre-feet of fresh water flowed in the Colorado River past Bay City toward Matagorda Bay in 2017.

Flow to bay — About 2,345,400 acre-feet of fresh water flowed in the Colorado River past Bay City toward Matagorda Bay in 2017. This water came from pass-through releases of excess inflows to the Highland Lakes, and rainfall and runoff occurring below Lake Travis, including flood flows from Hurricane Harvey. This natural flow of the river also is a source of water for customers such as STPNOC and downstream interruptible customers. In 2017, LCRA released 408 acre-feet of water from the Highland Lakes to help meet freshwater inflow needs.

In 2017, an estimated 182,315 acre-feet of water evaporated from the six Highland Lakes.

Evaporation — In 2017, an estimated 182,315 acre-feet of water evaporated from the six Highland Lakes – Buchanan, Inks, LBJ, Marble Falls, Travis and Austin. This is roughly about the amount that evaporated in 2016.

The City of Corpus Christi holds a senior water right in the lower Colorado River basin. Corpus Christi began using water from the river in 2016. In 2017, the city used 1,528 acre-feet.

City of Corpus Christi has a right to divert 35,000 acre-feet, which it began using in 2016. In 2017, the city used 1,528 acre-feet.

Legend

- Colorado River
- **Firm Water Use:**
  - Water from the Highland Lakes
  - Water from run of river
- **Agricultural Irrigation:**
  - Water from the Highland Lakes
  - Water from run of river

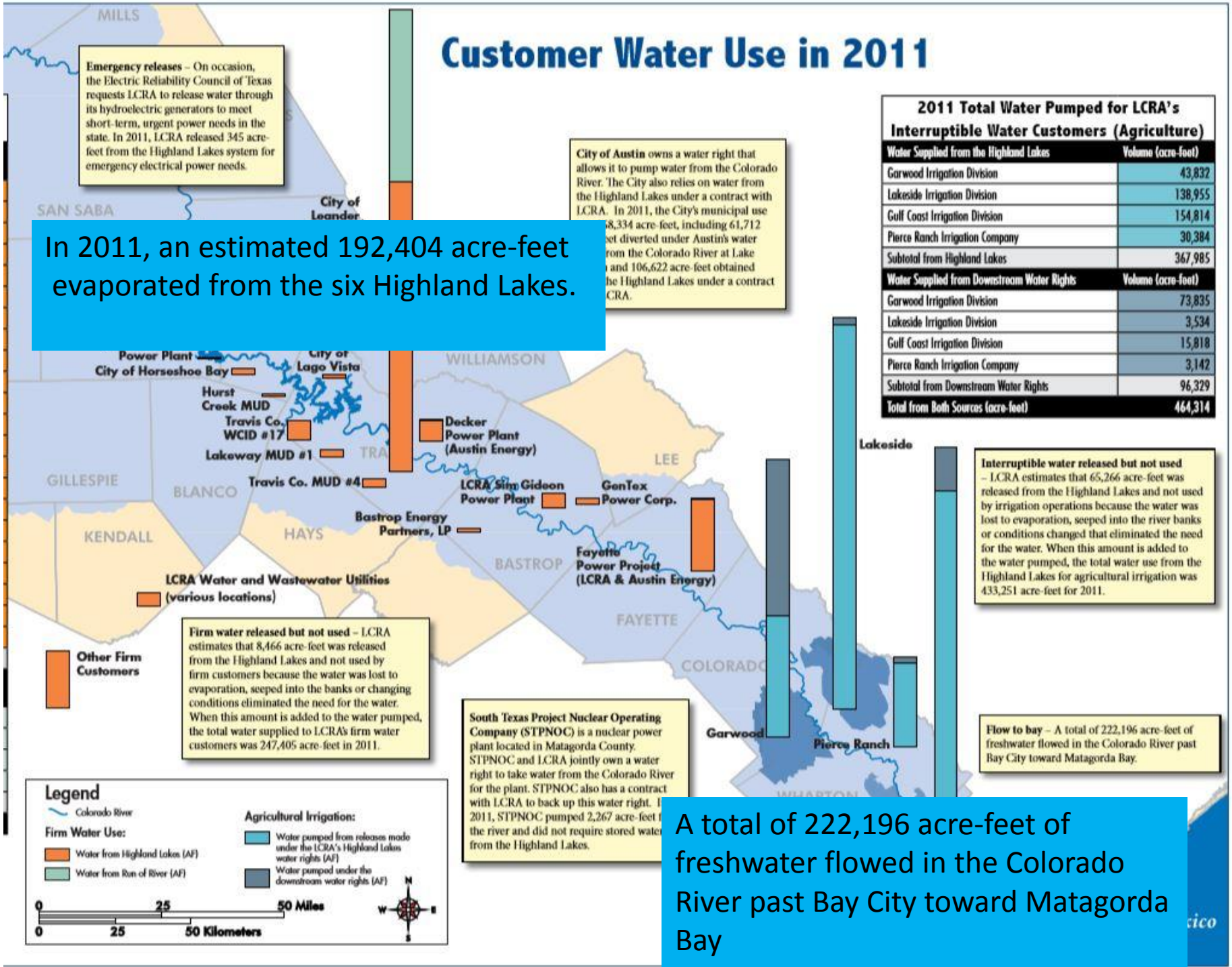
0 25 50 Miles
0 25 50 Kilometers

operates a nuclear power plant in Matagorda County. STPNOC and LCRA jointly own a water right to take water from the Colorado River for the plant. STPNOC also has a contract with LCRA to back up this water right with water from the Highland Lakes. In 2017, STPNOC pumped 55,908 acre-feet from the river below Bay City and did not use any water from the Highland Lakes.

**Firm water released but not pumped by firm customers — LCRA estimates that 12,892 acre-feet were released from the Highland Lakes, but not pumped by firm customers because the water was lost to evaporation, seeped into the banks or was not needed because of changed conditions. When this amount is added to the water pumped, the total water supplied to LCRA's firm customers in 2017 was 145,560 acre-feet.

*Groundwater was used to meet demand.

Customer Water Use in 2011



Emergency releases – On occasion, the Electric Reliability Council of Texas requests LCRA to release water through its hydroelectric generators to meet short-term, urgent power needs in the state. In 2011, LCRA released 345 acre-feet from the Highland Lakes system for emergency electrical power needs.

City of Austin owns a water right that allows it to pump water from the Colorado River. The City also relies on water from the Highland Lakes under a contract with LCRA. In 2011, the City's municipal use [illegible]8,334 acre-feet, including 61,712 [illegible]et diverted under Austin's water [illegible]rom the Colorado River at Lake [illegible] and 106,622 acre-feet obtained [illegible]he Highland Lakes under a contract [illegible]CRA.

In 2011, an estimated 192,404 acre-feet evaporated from the six Highland Lakes.

2011 Total Water Pumped for LCRA's Interruptible Water Customers (Agriculture)

Water Supplied from the Highland Lakes	Volume (acre-feet)
Garwood Irrigation Division	43,832
Lakeside Irrigation Division	138,955
Gulf Coast Irrigation Division	154,814
Pierce Ranch Irrigation Company	30,384
Subtotal from Highland Lakes	367,985
Water Supplied from Downstream Water Rights	**Volume (acre-feet)**
Garwood Irrigation Division	73,835
Lakeside Irrigation Division	3,534
Gulf Coast Irrigation Division	15,818
Pierce Ranch Irrigation Company	3,142
Subtotal from Downstream Water Rights	96,329
Total from Both Sources (acre-feet)	**464,314**

Interruptible water released but not used – LCRA estimates that 65,266 acre-feet was released from the Highland Lakes and not used by irrigation operations because the water was lost to evaporation, seeped into the river banks or conditions changed that eliminated the need for the water. When this amount is added to the water pumped, the total water use from the Highland Lakes for agricultural irrigation was 433,251 acre-feet for 2011.

Firm water released but not used – LCRA estimates that 8,466 acre-feet was released from the Highland Lakes and not used by firm customers because the water was lost to evaporation, seeped into the banks or changing conditions eliminated the need for the water. When this amount is added to the water pumped, the total water supplied to LCRA's firm water customers was 247,405 acre-feet in 2011.

South Texas Project Nuclear Operating Company (STPNOC) is a nuclear power plant located in Matagorda County. STPNOC and LCRA jointly own a water right to take water from the Colorado River for the plant. STPNOC also has a contract with LCRA to back up this water right. [illegible] 2011, STPNOC pumped 2,267 acre-feet [illegible] the river and did not require stored wate[illegible] from the Highland Lakes.

Flow to bay – A total of 222,196 acre-feet of freshwater flowed in the Colorado River past Bay City toward Matagorda Bay.

A total of 222,196 acre-feet of freshwater flowed in the Colorado River past Bay City toward Matagorda Bay

Table 7.7-1

Comparison of BBEST Recommendations for Matagorda Bay Inflows from Colorado River Basin to WAM Run3 Values		
Regime Title	BBEST Recommended Value	WAM Run3 Calculated Value
Attainment Frequency for Threshold Regime	100%	65.5%
Attainment Frequency for MBHE 1 Regime	90%	35.6%
Attainment Frequency for MBHE 2 Regime	75%	16.9%
Attainment Frequency for MBHE 3 Regime	60%	11.9%
Attainment Frequency for MBHE 4 Regime	35%	8.5%
Long-Term Average Volume	1.4 to 1.5 million acre-feet	877,000 acre-feet
Coefficient of Variation for long-term volume	Above 0.8	1.3

FROM ENVIRONMENTAL FLOWS RECOMMENDATION REPORT, THE COLORADO AND LAVACA BASIN AND BAY AREA STAKEHOLDER COMMITTEE, AUGUST 2011, p. 119.

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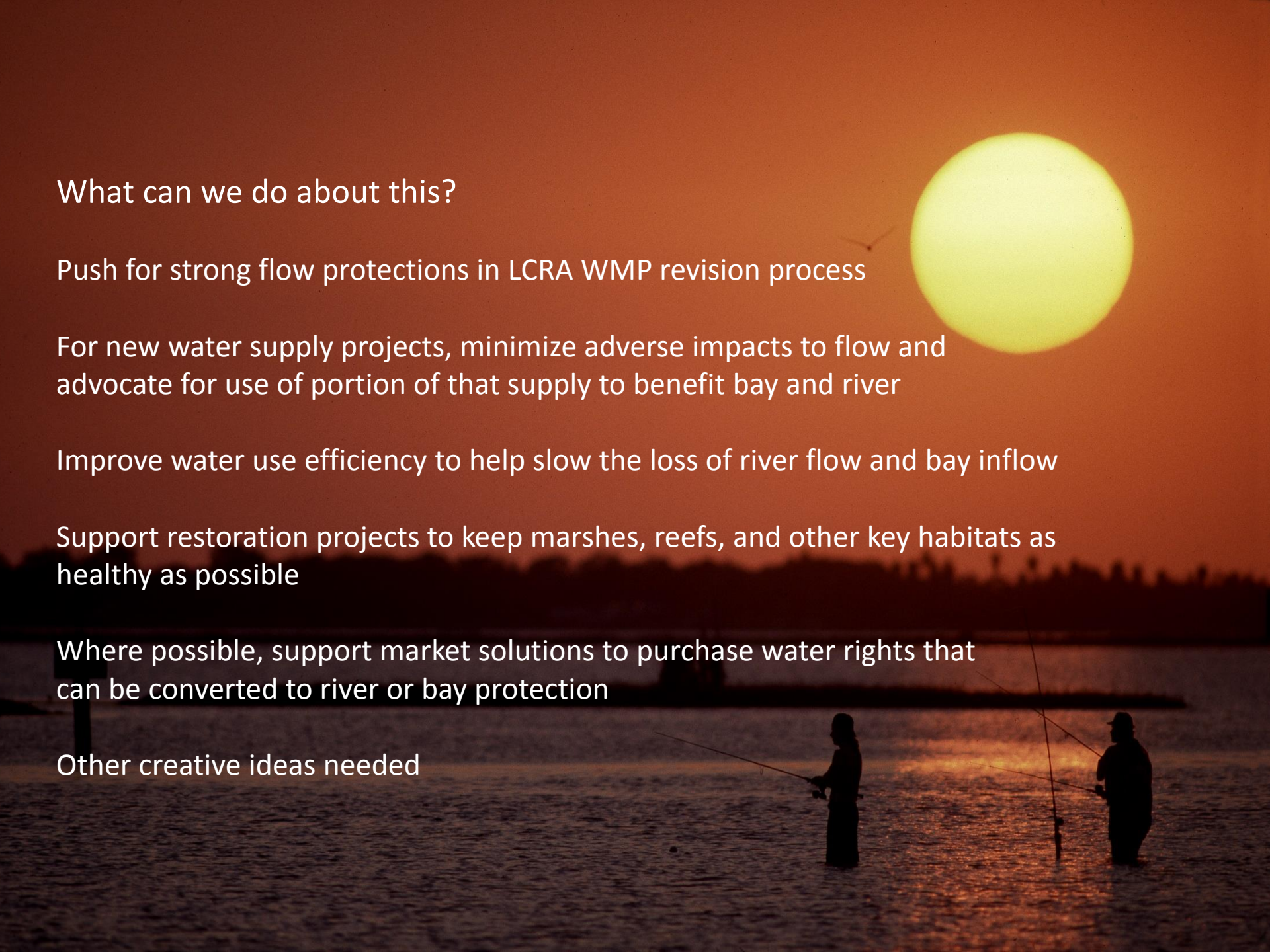
Regime Title	BBEST Recommended Value	Draft 2019 WMP
Attainment Frequency for Threshold Regime	100%	95%
Attainment Frequency for MBHE 1 Regime	90%	69%
Attainment Frequency for MBHE 2 Regime	75%	55%
Attainment Frequency for MBHE 3 Regime	60%	43%
Attainment Frequency for MBHE 4 Regime	35%	38%
Long-Term Average Volume	1.4 to 1.5 million acre-feet	
Coefficient of Variation for long-term volume	Above 0.8	

FROM ENVIRONMENTAL FLOWS RECOMMENDATION REPORT, THE COLORADO AND LAVACA BASIN AND BAY AREA STAKEHOLDER COMMITTEE, AUGUST 2011, p. 119.

Table 7.7-1

Comparison of BBEST Recommendations for Matagorda Bay Inflows from Colorado River Basin to WAM Run3 Values			
Regime Title	BBEST Recommended Value	Draft 2019 WMP	2015
Attainment Frequency for Threshold Regime	100%	95%	94%
Attainment Frequency for MBHE 1 Regime	90%	69%	73%
Attainment Frequency for MBHE 2 Regime	75%	55%	61%
Attainment Frequency for MBHE 3 Regime	60%	43%	47%
Attainment Frequency for MBHE 4 Regime	35%	38%	39%
Long-Term Average Volume	1.4 to 1.5 million acre-feet		
Coefficient of Variation for long-term volume	Above 0.8		

FROM ENVIRONMENTAL FLOWS RECOMMENDATION REPORT, THE COLORADO AND LAVACA BASIN AND BAY AREA STAKEHOLDER COMMITTEE, AUGUST 2011, p. 119.



What can we do about this?

Push for strong flow protections in LCRA WMP revision process

For new water supply projects, minimize adverse impacts to flow and advocate for use of portion of that supply to benefit bay and river

Improve water use efficiency to help slow the loss of river flow and bay inflow

Support restoration projects to keep marshes, reefs, and other key habitats as healthy as possible

Where possible, support market solutions to purchase water rights that can be converted to river or bay protection

Other creative ideas needed