2020 Water Management Plan

Water Operations Committee Meeting
May 19, 2021
LCRA’s Water Management Plan

- Operations plan for supplying water from lakes Buchanan and Travis to users throughout the lower Colorado River basin
- Allows for supply of interruptible water provided we don’t impair our ability to meet the needs of our firm customers
- Developed with significant input from participants, and approved by the Texas Commission on Environmental Quality
2020 Water Management Plan

• WMP substantially revised in 2015, with further updates in 2020
  – Hydrology through 2016
  – Firm demand projections through 2025

• WMP has safeguards and is responsive to:
  – Inflows
  – Storage conditions
  – Actual operations and demands
  – Possible future conditions
  – Increased firm demands
WMP Safeguards – Responsive to Inflow and Storage Conditions

- Storage in the Highland Lakes and recent inflows are evaluated when allocating interruptible supply.
- Separate evaluation dates before first and second seasons factor in the most recent conditions.
- Water supply conditions determined based on storage and inflows.
WMP Safeguards – Water Supply Conditions

• Enter Less Severe Drought if:
  – Storage below 1.5 million acre-feet and three-month inflows less than 50,000 a-f; or
  – Storage below 1.4 million a-f and three-month inflows below 33rd percentile
• Extraordinary Drought if:
  – Storage below 1.3 million a-f, drought duration since full at least 18 months, and inflows worse than drought intensity curve; or
  – Storage below 1.4 million a-f and storage dropped 300,000 a-f between March 1 and July 1
WMP Safeguards – Reduced Agricultural Supply and Operational Considerations

• Allocations for agricultural supply reduced or cut off based on conditions at beginning of season
  – Curtailment curves for Normal or Less Severe Drought
  – Cut off if in Extraordinary Drought
• Agricultural supply can be cut off midseason:
  – If diversions exceed allocations;
  – If releases from Highland Lakes exceed release caps; or
  – If storage falls to 1 million a-f
WMP Safeguards – Possible Future Conditions

• Look-Ahead Test – additional curtailment of agricultural supply if necessary:
  – 12 months: Stay above 600,000 a-f
  – Upcoming season: Stay above 900,000 a-f
WMP Safeguards – Possible Future Conditions (Continued)

• Drought Worse Than Drought of Record
  – If storage below 600,000 a-f, drought at least 24 months and inflows worse than historic drought

• WMP firm demands based on year 2025 projections
  – Will begin revision process ahead of demands being realized
Municipal, Industrial, Recreation and Firm Irrigation Use From Lakes Buchanan and Travis and Colorado River

Water Use (a-f)

- Municipal
- Industrial
- Recreation and Firm Irrigation

Projected 2025 high/max demands
Projected 2025 normal/average demands
Use of Interruptible Stored Water and Run-of-River at the Four Downstream Agricultural Operations

Projected total agricultural demands high-use year
Projected total agricultural demands average-use year
# First Season Interruptible Stored Water Availability

<table>
<thead>
<tr>
<th>First Season – Normal</th>
<th></th>
<th>First Season – Less Severe Drought</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined storage on March 1 (million a-f)</td>
<td>Interruptible stored water (a-f)*</td>
<td>Combined storage on March 1 (million a-f)</td>
</tr>
<tr>
<td>Above 1.3</td>
<td>178,000</td>
<td>Above 1.5</td>
</tr>
<tr>
<td>1.1 to 1.3</td>
<td>107,100 to 178,000</td>
<td>1.1 to 1.499</td>
</tr>
<tr>
<td>Below 1.1</td>
<td>0</td>
<td>Below 1.1</td>
</tr>
</tbody>
</table>

*Anytime cutoff if storage drops to or below 1 million a-f*
First Season Interruptible Stored Water Availability (Continued)
Environmental Flows During First Season

• Instream flow criteria at Subsistence* level
• Bay inflow criteria at OP-3* level
  ▪ Two-month bay inflow target of 164,000 a-f
• Limitations on bay obligation:
  ▪ Limited to storable inflows into Highland Lakes
  ▪ Maximum release as a percentage of storable inflows
  ▪ Maximum monthly release

*Subsistence, OP-3, OP-2 and other levels of instream flows and freshwater inflows are defined in the 2020 WMP
Applying 2020 WMP to 2021 Second Season

• July 1 evaluation date
  – Projected combined storage:
    ▪ Median about 1.29 million a-f
    ▪ 99th percentile exceedance projection of about 1.15 million a-f
Applying 2020 WMP to 2021 Second Season (Continued)

- Agricultural supply
  - For storage just above 1.3 million a-f, would be significantly curtailed
  - If storage below 1.3 million a-f and low inflows continue, likely cut off under Extraordinary Drought

- Environmental flow criteria
  - For storage between 1.3 and 1.5 million a-f, would reduce criteria to OP-2
  - If agricultural supply is cut off, bay criteria reduces to Threshold only
## Second Season Interruptible Stored Water Availability

<table>
<thead>
<tr>
<th>Second Season – Normal</th>
<th>Second Season – Less Severe Drought</th>
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</thead>
<tbody>
<tr>
<td><strong>Combined storage on July 1 (million a-f)</strong></td>
<td><strong>Combined storage on July 1 (million a-f)</strong></td>
</tr>
<tr>
<td><strong>Interruptible stored water (a-f)</strong></td>
<td><strong>Interruptible stored water (a-f)</strong></td>
</tr>
<tr>
<td>Above 1.4</td>
<td>66,000</td>
</tr>
<tr>
<td>1.1 to 1.4</td>
<td>39,700 to 66,000</td>
</tr>
<tr>
<td>Below 1.1</td>
<td>0</td>
</tr>
</tbody>
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<tr>
<td>Above 1.5</td>
<td>N/A</td>
</tr>
<tr>
<td>1.1 to 1.499</td>
<td>39,700 to 55,000</td>
</tr>
<tr>
<td>Below 1.1</td>
<td>0</td>
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</tbody>
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*Anytime cutoff if storage drops to or below 1 million a-f*
Summary of Current Status

First season:

- Normal water supply condition
- Instream flows = Subsistence; bay inflows = OP-3

Second season:

- Look at July 1st combined storage and inflows
- Current projections indicate greatly reduced or completely curtailed interruptible water allocation under the WMP
- Instream flows = Subsistence; bay inflows = OP-2
Key Takeaway – the 2020 WMP is Protective and Responsive

- To lake storage
- To inflows
- To actual operations
- To possible future conditions
- To firm demands