



# Possible Impact of Hurricane Ike on Ozone Observations in HGB

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SETPMTC Meeting  
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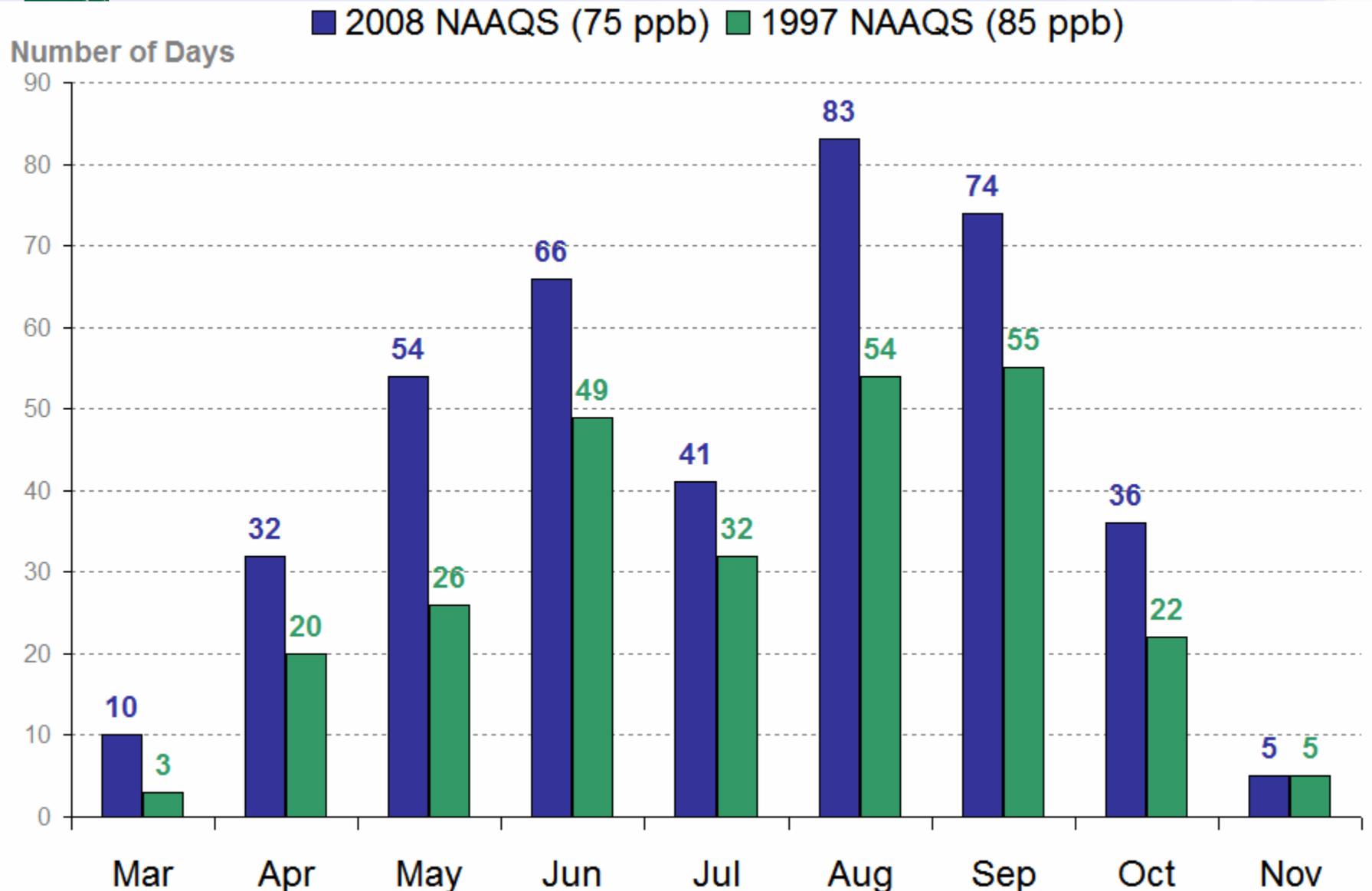
## Effects of Hurricane Ike in HGB

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- The eye of Hurricane Ike approached the Texas coast near Galveston Bay on September 13, 2008.
- Key monitors (e.g., Bayland Park) were down for more than two weeks.



## 8-hour ozone exceedances by month in HGB: 2000-2008



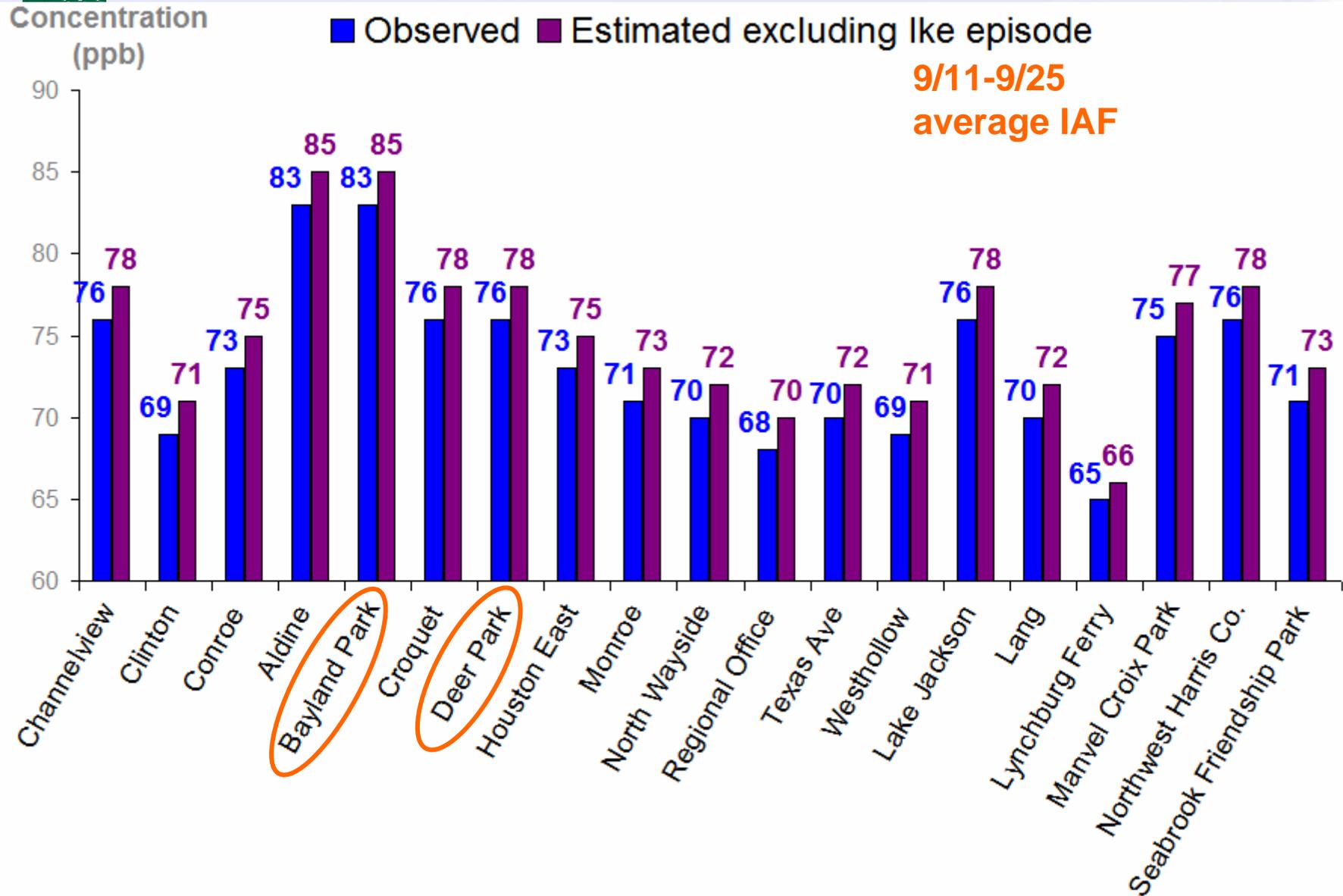


# Approach

- Estimated what might have been the 4th highest 8-hour ozone concentration in 2008 if Ike had not happened.
  - Removed days that monitors were likely affected by Ike.
    - 2-weeks: **9/11-9/25**
    - 1-month: **9/13-10/12**
    - 1-month: **9/6-10/5**
  - Re-calculated the 4th highest 8-hour ozone concentrations for each year at each monitor.
  - Obtained a ratio of the *actual* 4th highest ozone in each year to the *re-calculated* 4th high → "Ike Adjustment Factor" (IAF).
  - Determined average IAF as well as monitor-specific IAF.
  - Multiplied the observed 2008 4th highest by the IAF.



## 4th highest 8-hour ozone concentrations in 2008





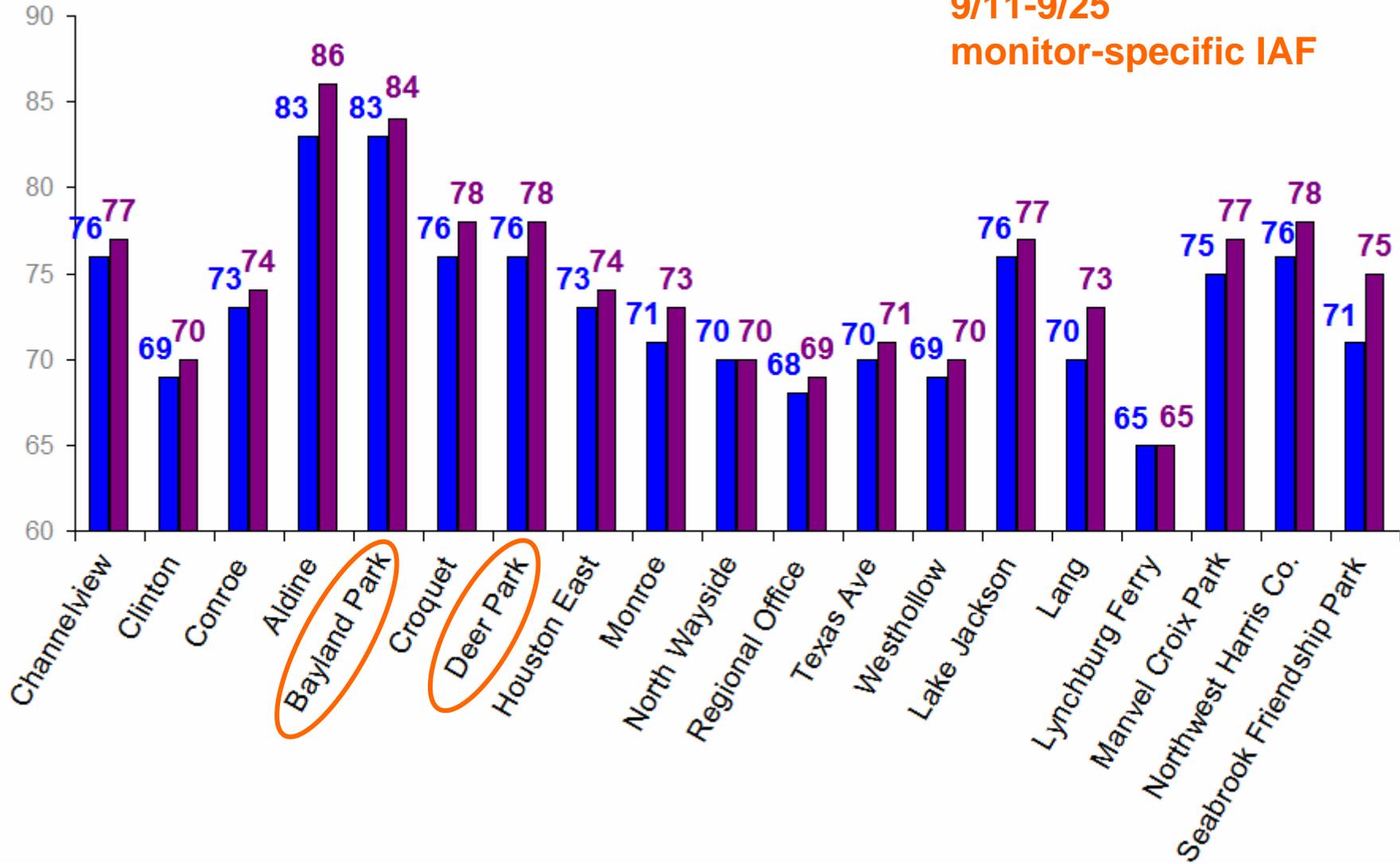
## 4th highest 8-hour ozone concentrations in 2008

Concentration  
(ppb)

■ Observed ■ Estimated excluding Ike episode

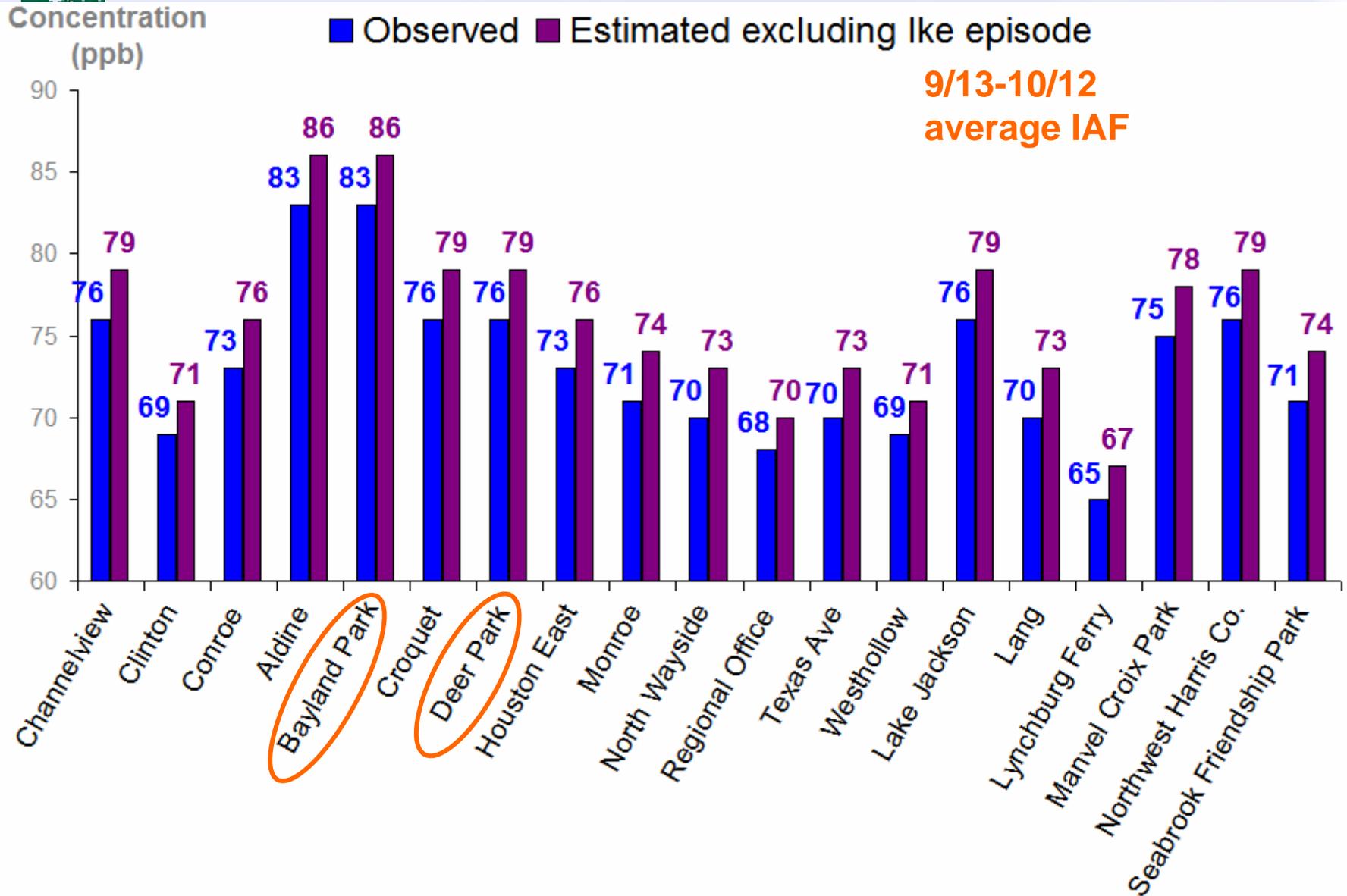
9/11-9/25

monitor-specific IAF



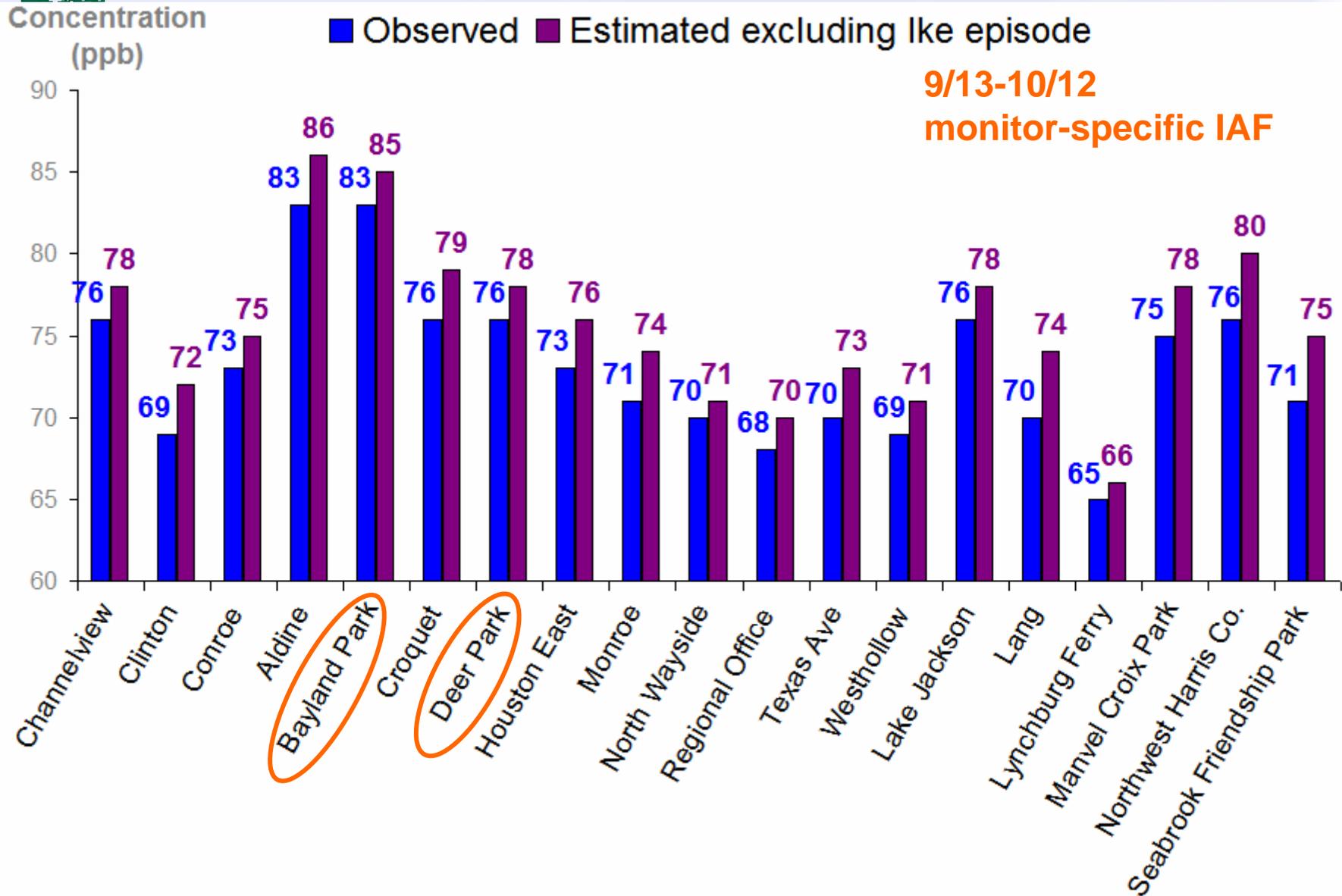


# 4th highest 8-hour ozone concentrations in 2008



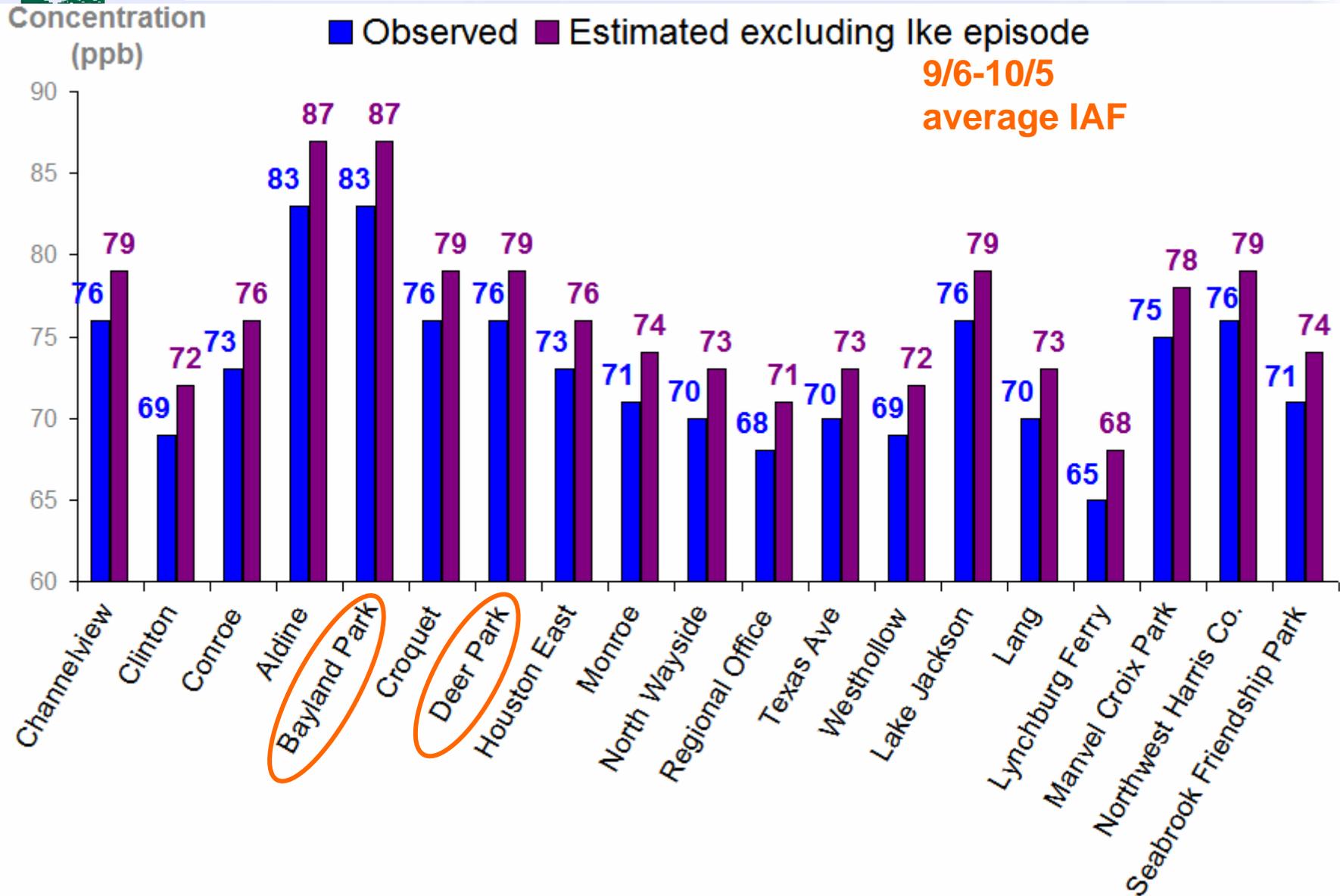


# 4th highest 8-hour ozone concentrations in 2008



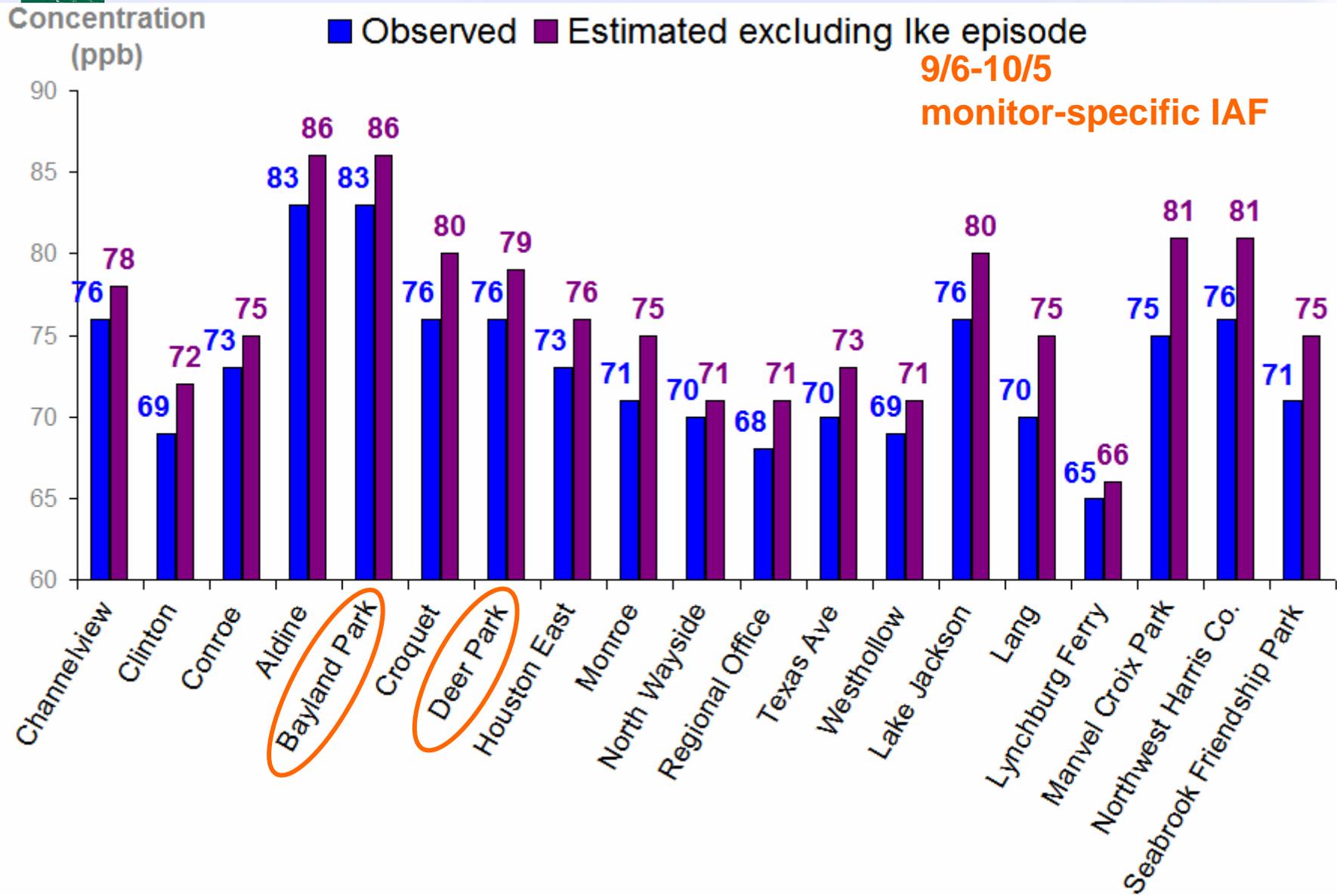


## 4th highest 8-hour ozone concentrations in 2008





## 4th highest 8-hour ozone concentrations in 2008





## Possible effect of Ike on HGB 8-hour ozone Design Value (DV)

- Observed area-wide 8-hour ozone DV in 2008: **91 ppb**.
- Estimated area-wide 8-hour ozone DV in 2008 if Ike had not happened:

Ike Episode	2-weeks <b>9/11-9/25</b>	1-month <b>9/13-10/12</b>	1-month <b>9/6-10/5</b>
Average IAF	91 ppb	92 ppb	92 ppb
Monitor-Specific IAF	92 ppb	91 ppb	92 ppb



### Houston-Galveston-Brazoria

Monitor	First Date Monitor Didn't Report Data	Restart Date	Days Down
<u>Danciger C618</u>	9/12/2008	9/19/2008	7
<u>Mustang Bayou C619</u>	9/12/2008	9/26/2008	14
<u>Manvel Croix Park C84</u>	9/12/2008	9/21/2008	9
<u>Lake Jackson C1016</u>	9/12/2008	9/16/2008	4
<u>Texas City 34th St. C620</u>	9/12/2008	9/18/2008	6
<u>Clear Creek High School C571</u>	9/13/2008	9/15/2008	2
<u>Galveston 99th St. C1034/A320/X183</u>	9/12/2008	11/20/2008	69
<u>Houston Aldine C8/AF108/X150</u>	9/13/2008	9/15/2008	2
<u>Channelview C15/AH115</u>	9/13/2008	9/16/2008	3
<u>Northwest Harris Co. C26/A110/X154</u>	9/13/2008	9/14/2008	1
<u>Houston North Wayside C405</u>	9/12/2008	9/15/2008	3
<u>Lang C408</u>	9/12/2008	9/18/2008	6
<u>Houston Croquet C409</u>	9/12/2008	9/26/2008	14
<u>Houston Bayland Park 9/13/2008C53/A146</u>	9/13/2008	9/29/2008	16
<u>Houston Monroe C406</u>	9/12/2008	9/19/2008	7
<u>Houston Westhollow C410</u>	9/12/2008	9/30/2008	18
<u>Houston Regional Office C81</u>	9/13/2008	9/20/2008	7
<u>Houston Texas Avenue C411</u>	9/12/2008	9/16/2008	4
<u>Park Place C416</u>	9/12/2008	9/15/2008	3
<u>Sheldon C551</u>	9/12/2008	9/22/2008	10
<u>Baytown Wetlands Center C552</u>	9/12/2008	10/31/2008	48
<u>Crosby Library C553</u>	9/13/2008	9/20/2008	7
<u>West Houston C554</u>	9/13/2008	9/14/2008	1
<u>Kingwood Library C555</u>	9/13/2008	9/14/2008	1
<u>Mercer Arboretum C557</u>	9/22/2008	10/8/2008	16
<u>La Porte Sylvan Beach C556</u>	9/12/2008	11/6/2008	55
<u>Tom Bass C558</u>	9/13/2008	9/18/2008	5
<u>Atascocita C560</u>	9/14/2008	9/23/2008	9
<u>Meyer Park C561</u>	9/13/2008	9/15/2008	2
<u>Clear Lake High School C572</u>	9/13/2008	9/14/2008	1
<u>Wallisville Road C617</u>	9/12/2008	9/17/2008	5
<u>Pasadena AAMS C672</u>	9/12/2008	9/22/2008	10
<u>HRM-3 Haden Road C603/A114</u>	9/12/2008	9/22/2008	10
<u>Lynchburg Ferry C1015/A165</u>	9/12/2008	10/16/2008	34
<u>Houston East C1/G316</u>	9/13/2008	9/29/2008	16
<u>Clinton C403/C304/AH113</u>	9/12/2008	9/30/2008	18
<u>Hou.DeerPrk2</u>	9/12/2008	9/22/2008	10
<u>C35/235/1001/AFH139FP239</u>	9/13/2008	9/16/2008	3
<u>Seabrook Friendship Park C45</u>	9/13/2008	9/16/2008	3
<u>Conroe Elementary C794/A321</u>	9/13/2008	9/17/2008	3



## Possible affect on Wallisville Road

- Observed 4<sup>th</sup> highest 8-hour ozone at Wallisville in 2008:  
**85 ppb.**
- 8-hour ozone DV at Wallisville in 2008:  
**90 ppb.**

Ike Episode	2-weeks <b>9/11-9/25</b>	1-month <b>9/13-10/12</b>	1-month <b>9/6-10/5</b>
Estimated 4 <sup>th</sup> highest 8-hr ozone*	87 ppb	88 ppb	89 ppb
Estimated 2008 8-hr ozone DV	90 ppb	91 ppb	91 ppb

\*Using average IAF.



## Ozone Monitors in the HGB Area



This map was created by the Air Quality Division of the TCEQ. No claims are made to the accuracy or completeness of the data or to its suitability for a particular use. For information concerning this map, please contact John Jolly, 239-1491, or Shannon Herriott, 239-6543 Sept 12, 2006