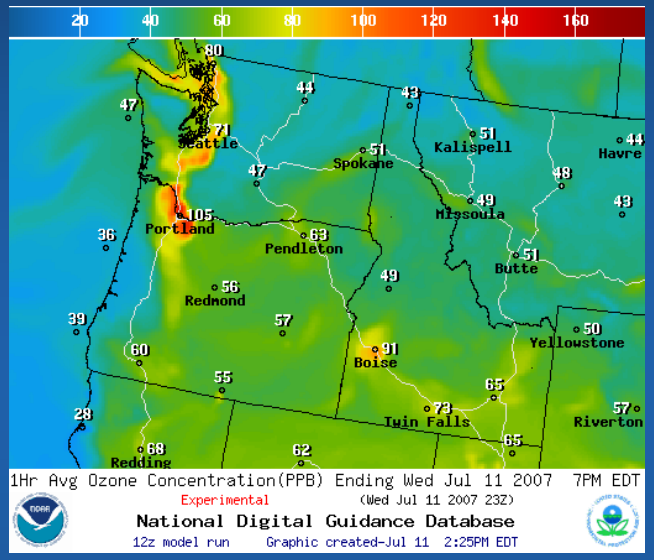
pscleanair.org
Puget Sound Clean Air Agency

Working together for clean air



Air Quality Forecasts serving Puget Sound

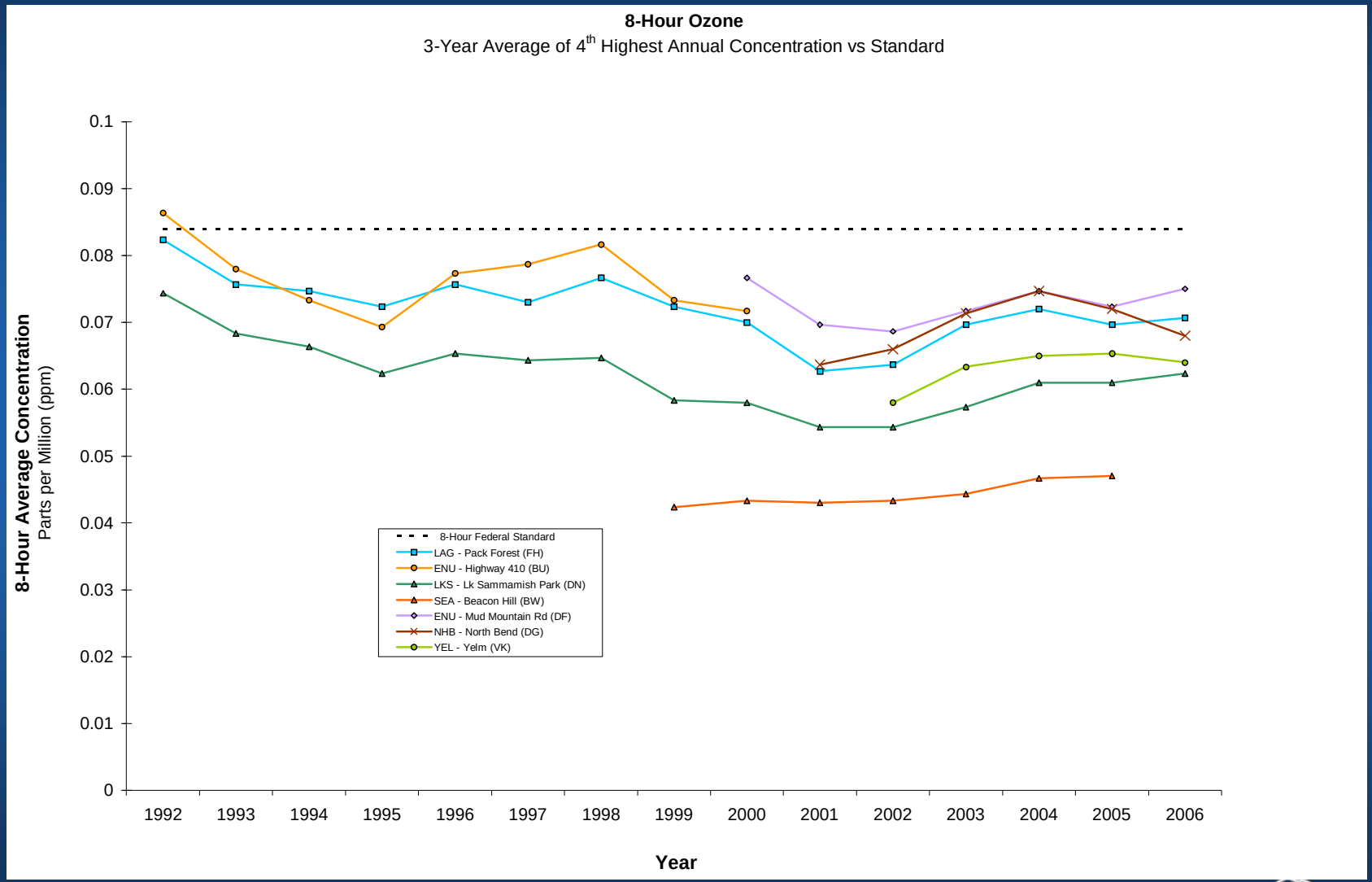
Mike Gilroy

19 Sept 2007

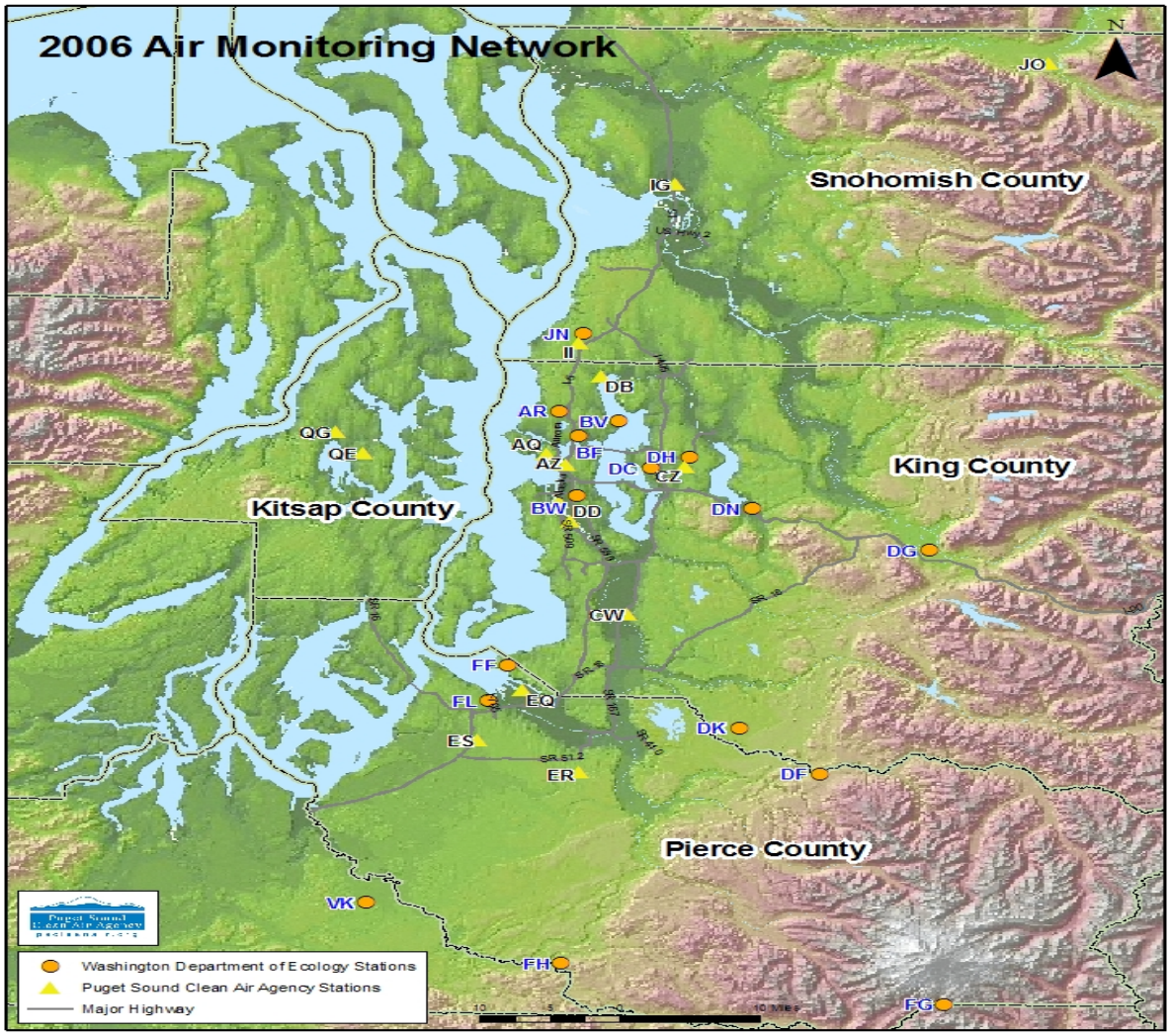
Our Airshed

- ~ 3.5 million population
- Mild Summers with infrequent stagnation
  - Only 3-5 day per season with 90 deg temps
  - Specific synoptic pattern
- Ozone trends are stable and flat
- Normally only 1 to 3 days with ozone approaching the current NAAQS
- Impact areas are south and east of main population core

Puget Sound Ozone Trends-2006



Puget Sound Airshed



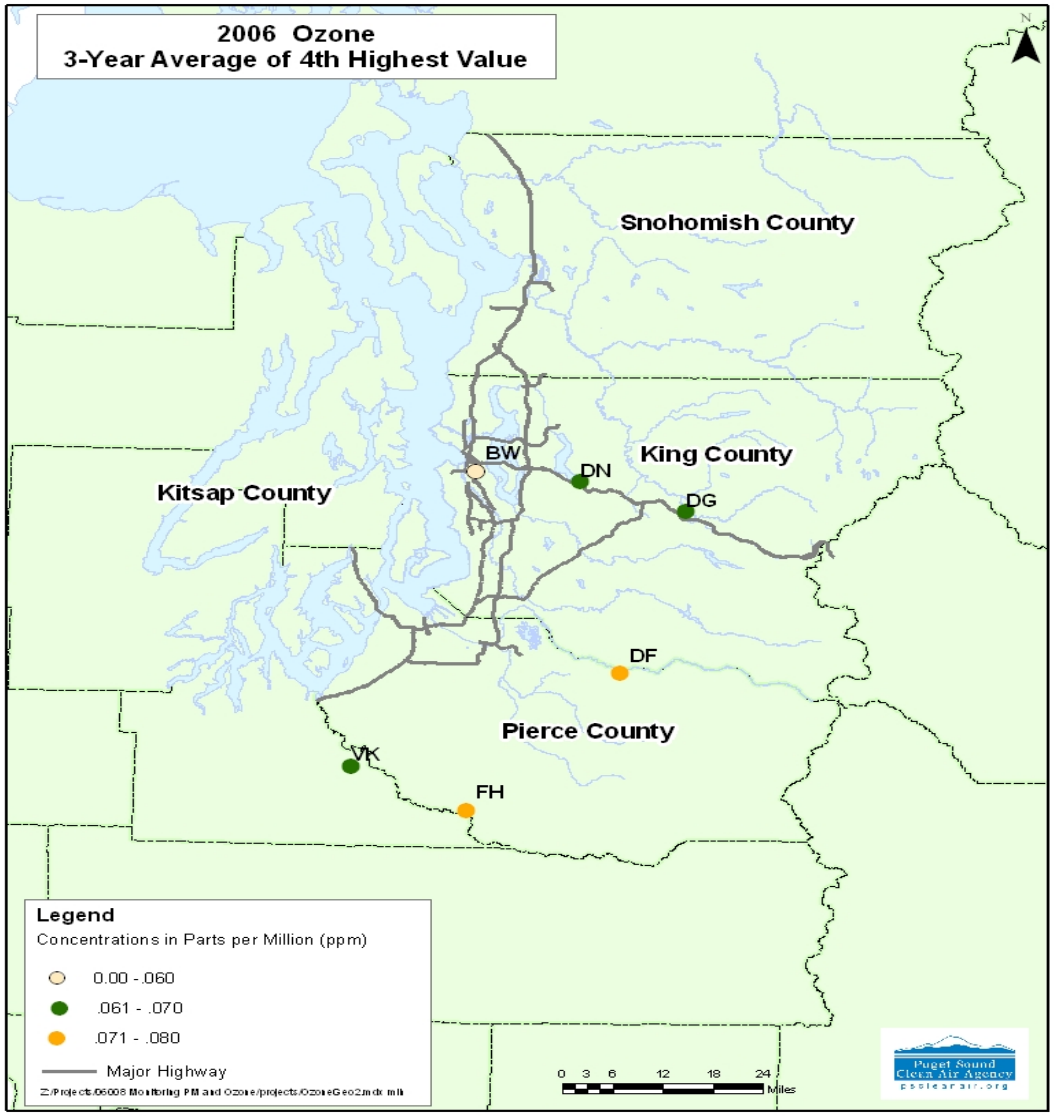
Conducive Synoptic Pattern

- Broad ridge of high pressure w/axis overhead or west of Puget Sound
- Inverted surface thermal trough West of Puget Sound- Surface temperatures 87deg f or greater
- Very warm air aloft >15 deg C-essential
- Northerly "Sound Breeze"
- Offshore wind flow across the region
  - Normal is SW'ly

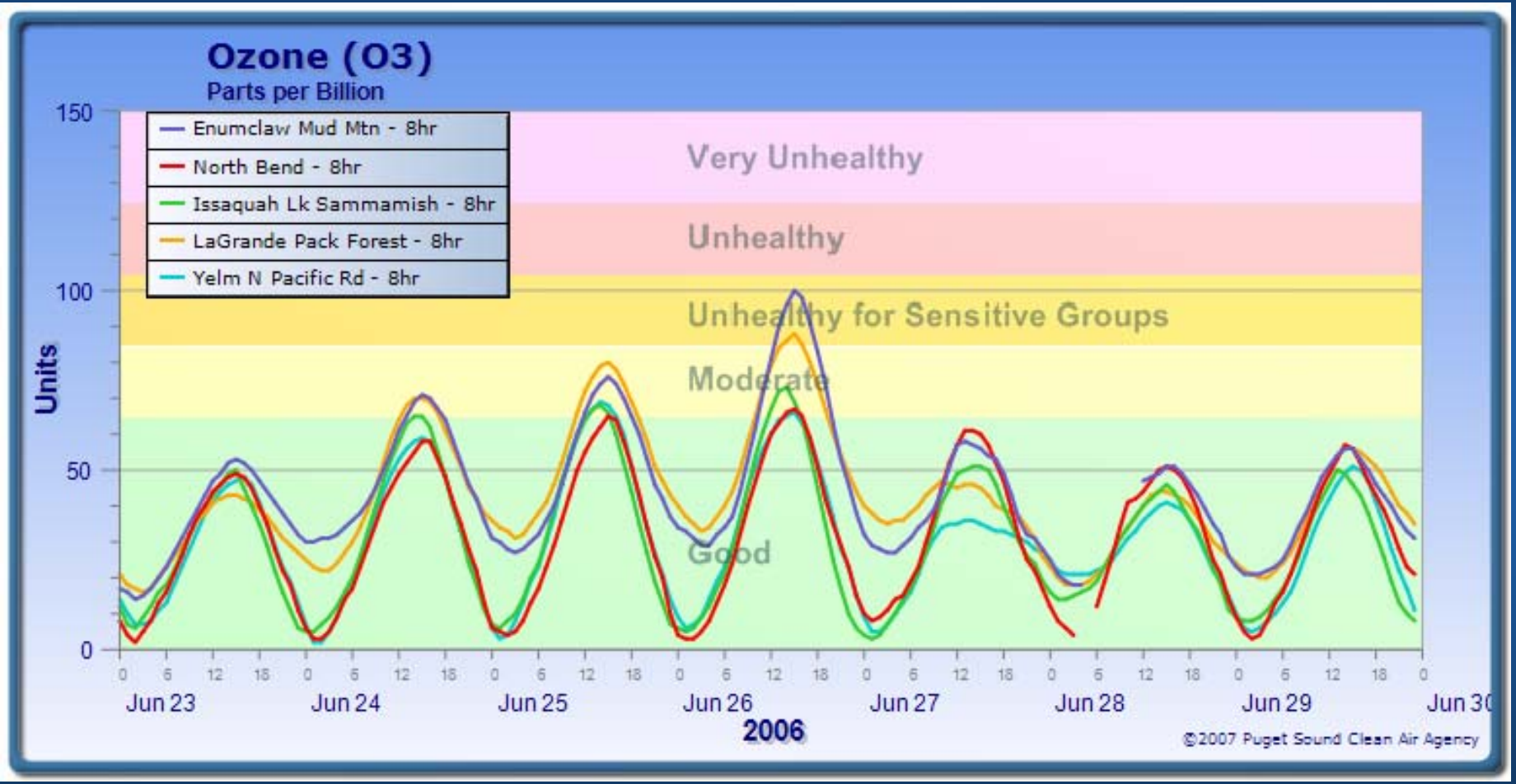
Synoptic Pattern- cont'd

- Surface base inversion
- Time duration >36 hours
- Events end with return to onshore flow as ridge and SFC trough move east.

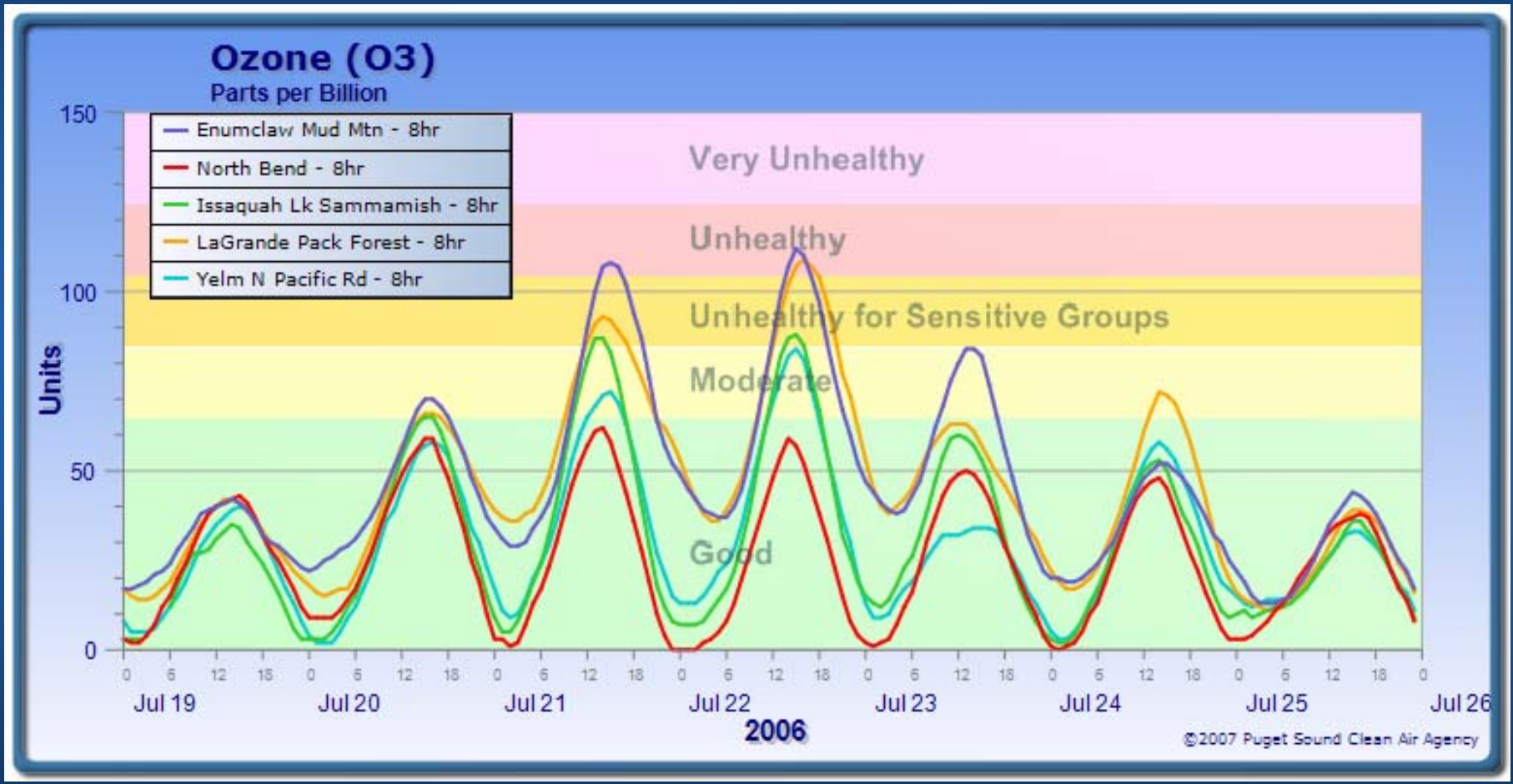
Ozone Monitoring Network



2006 Event


Ozone (O3)
Parts per Billion
Enumclaw Mud Mtn - 8hr
North Bend - 8hr
Issaquah Lk Sammamish - 8hr
LaGrande Pack Forest - 8hr
Yelm N Pacific Rd - 8hr
Very Unhealthy
Unhealthy
Unhealthy for Sensitive Groups
Moderate
Good
Units
150
100
50
0
Jun 23
Jun 24
Jun 25
Jun 26
Jun 27
Jun 28
Jun 29
2006
©2007 Puget Sound Clean Air Agency

Ozone 2006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Moderate
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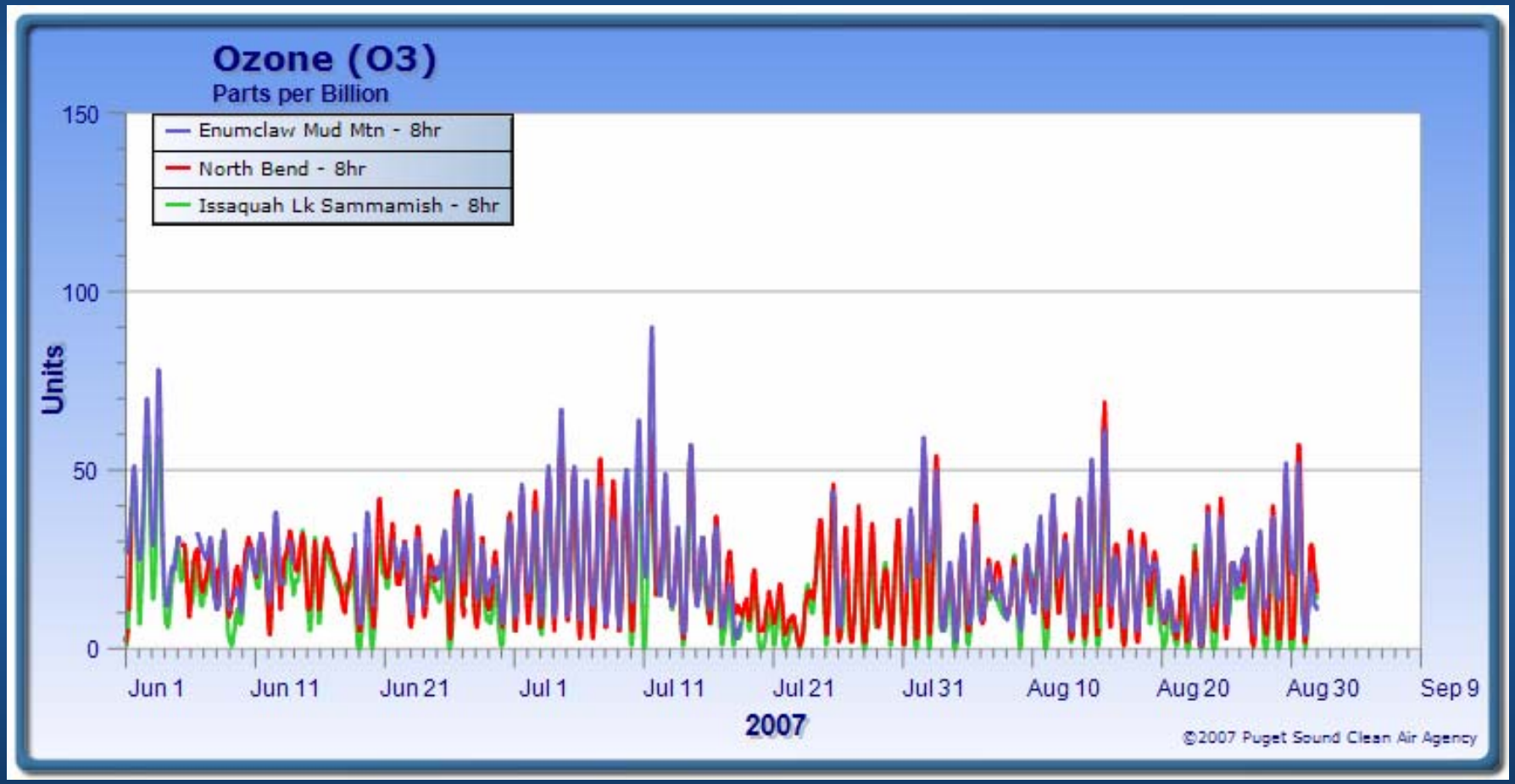
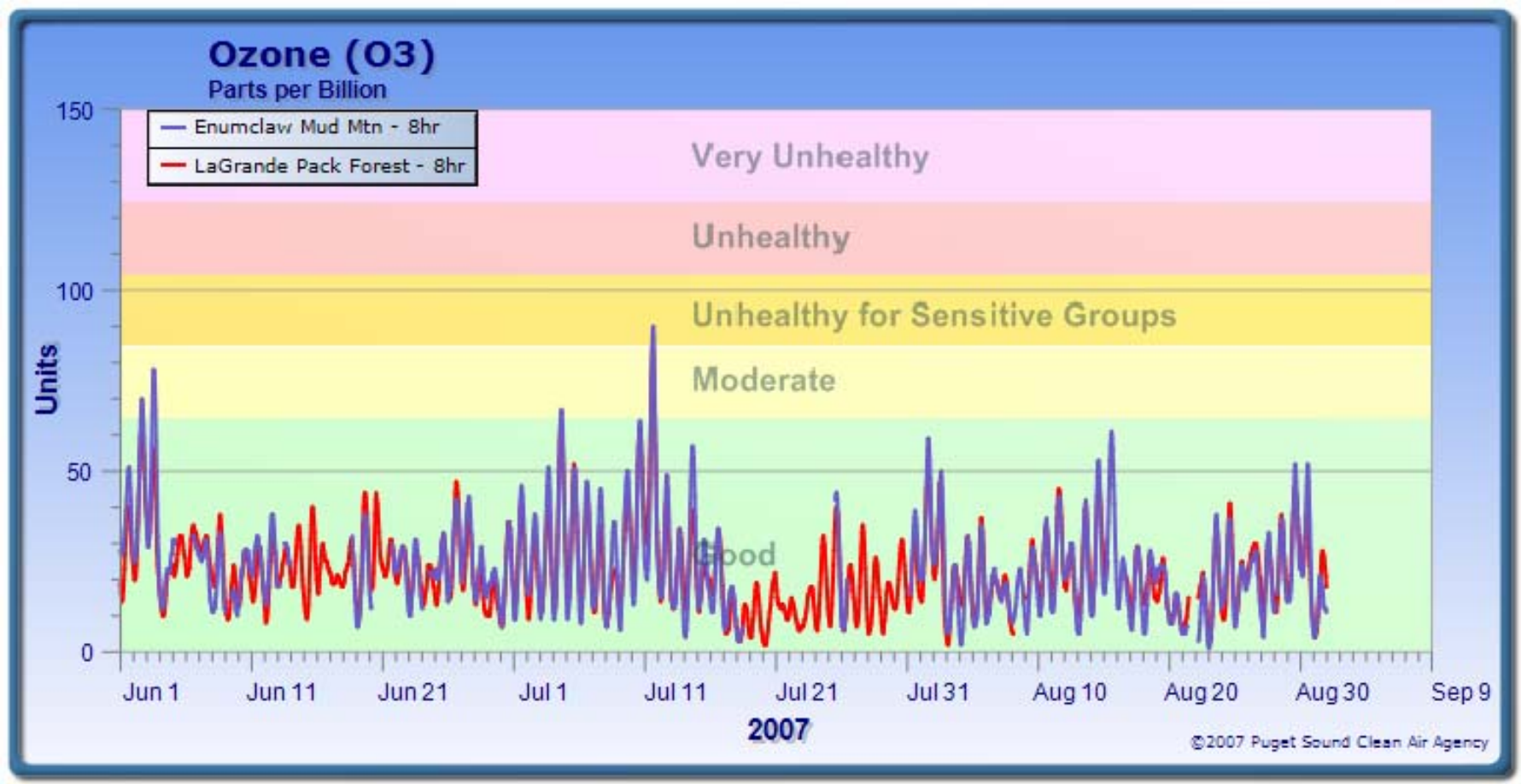
Units
150
100
50
0
Jul 19
Jul 20
Jul 21
Jul 22
Jul 23
Jul 24
Jul 25
Jul 26
2006
©2007 Puget Sound Clean Air Agency

Ozone 2007-


Ozone (O3)
Parts per Billion
Enumclaw Mud Mtn - 8hr
North Bend - 8hr
Issaquah Lk Sammamish - 8hr
150
100
50
0
Units
Jun 1
Jun 11
Jun 21
Jul 1
Jul 11
Jul 21
Jul 31
Aug 10
Aug 20
Aug 30
Sep 9
2007
©2007 Puget Sound Clean Air Agency

Ozone 2007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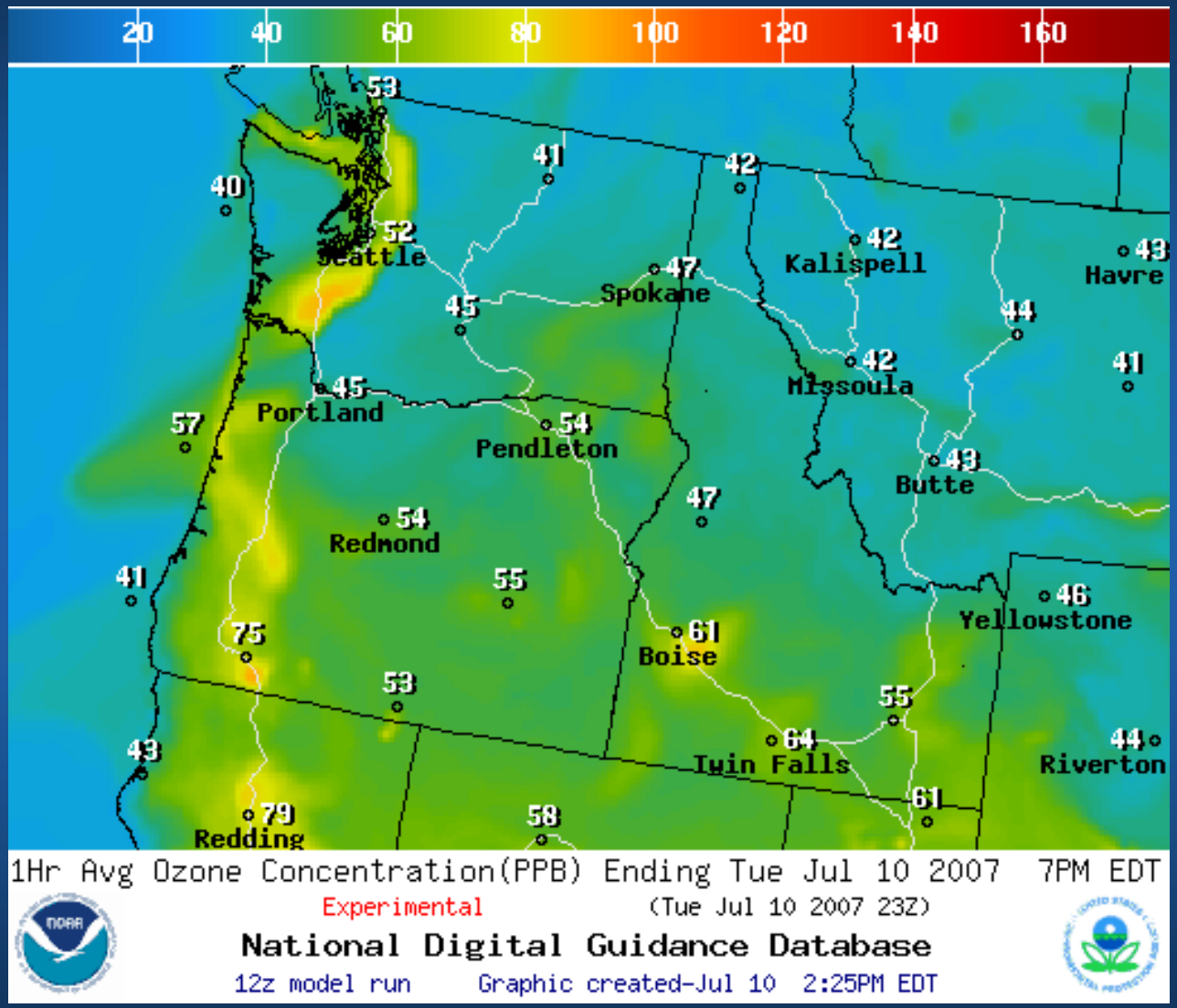
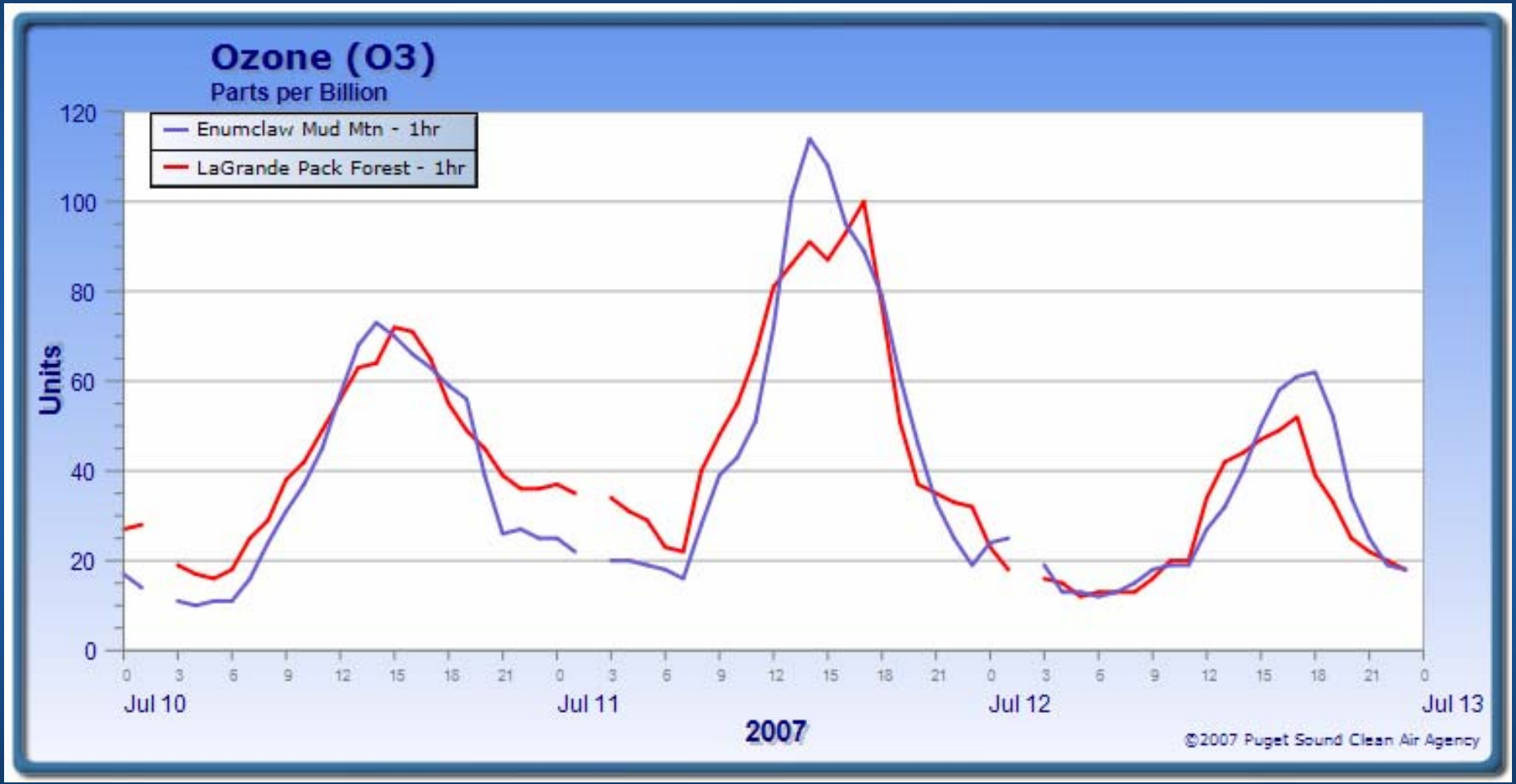
NOAA Guidance- Ozone 2007-day 1



Ozone 1Hr-


Ozone (O3)
Parts per Billion
Enumclaw Mud Mtn - 1hr
LaGrande Pack Forest - 1hr
Units
120
100
80
60
40
20
0
0 3 6 9 12 15 18 21 0 3 6 9 12 15 18 21 0 3 6 9 12 15 18 21 0
Jul 10
Jul 11
Jul 12
Jul 13
2007
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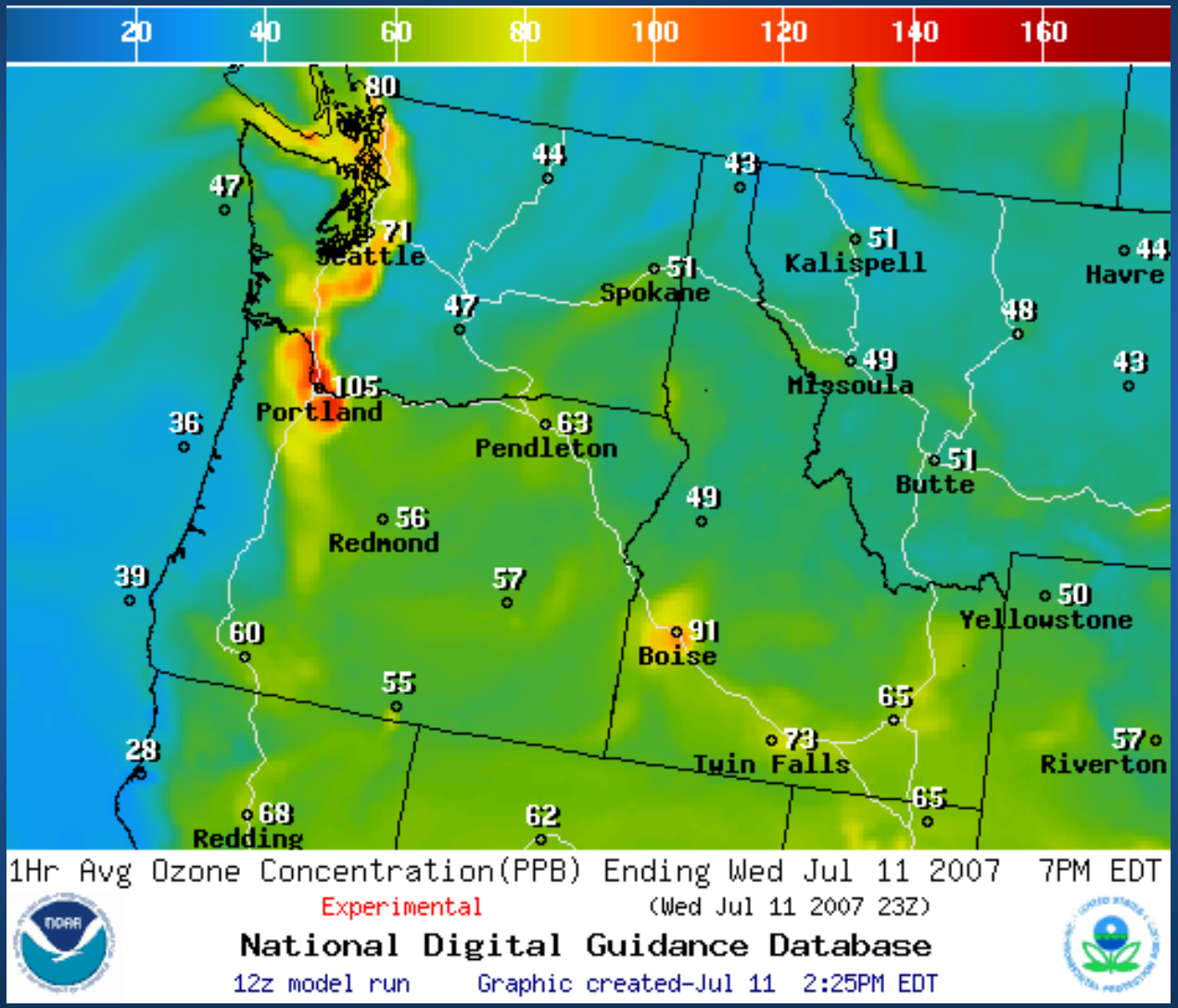
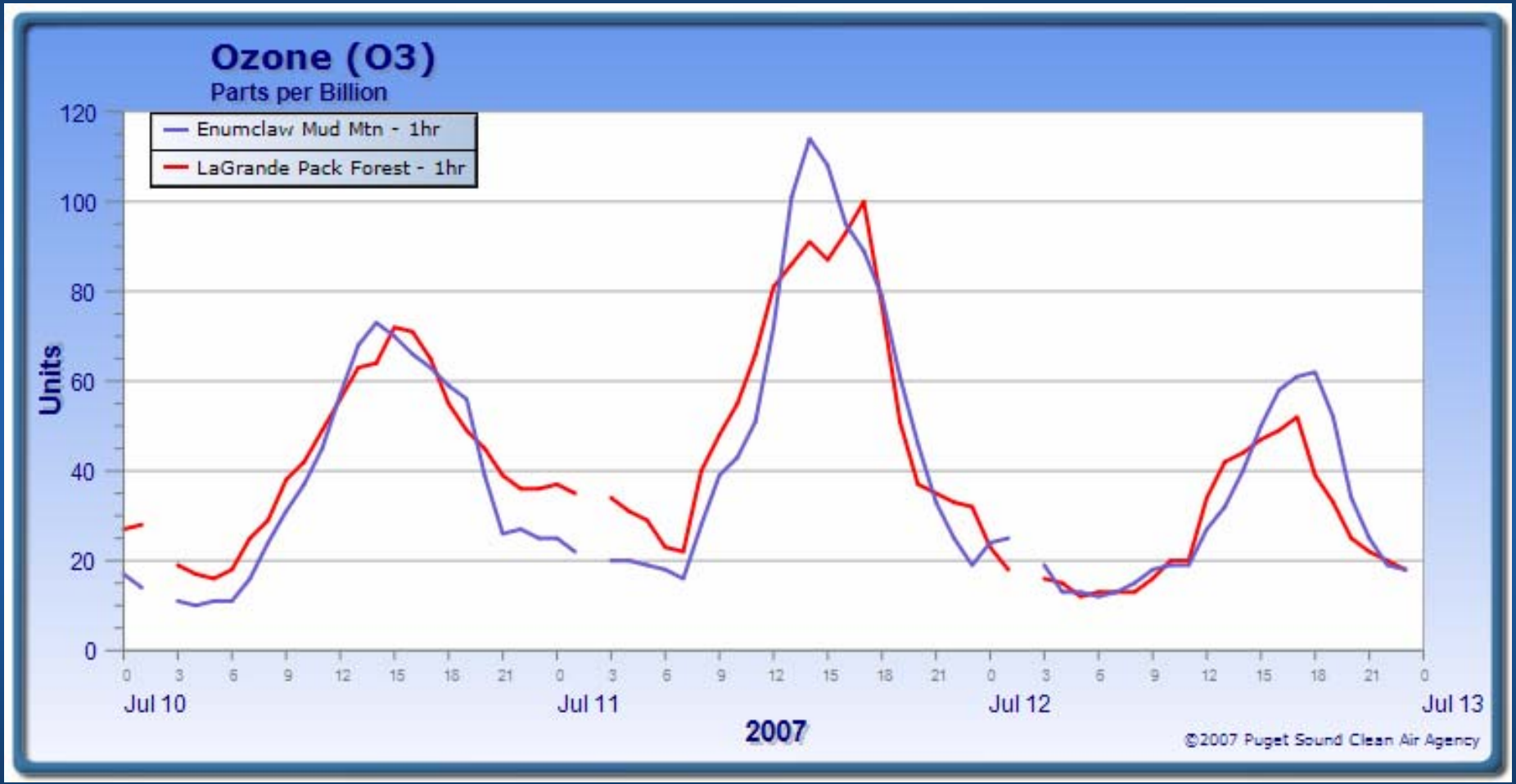
Ozone 2007- Peak day



Ozone 1Hr-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40
20
0
0 3 6 9 12 15 18 21 0 3 6 9 12 15 18 21 0 3 6 9 12 15 18 21 0
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Jul 11
Jul 12
Jul 13
2007
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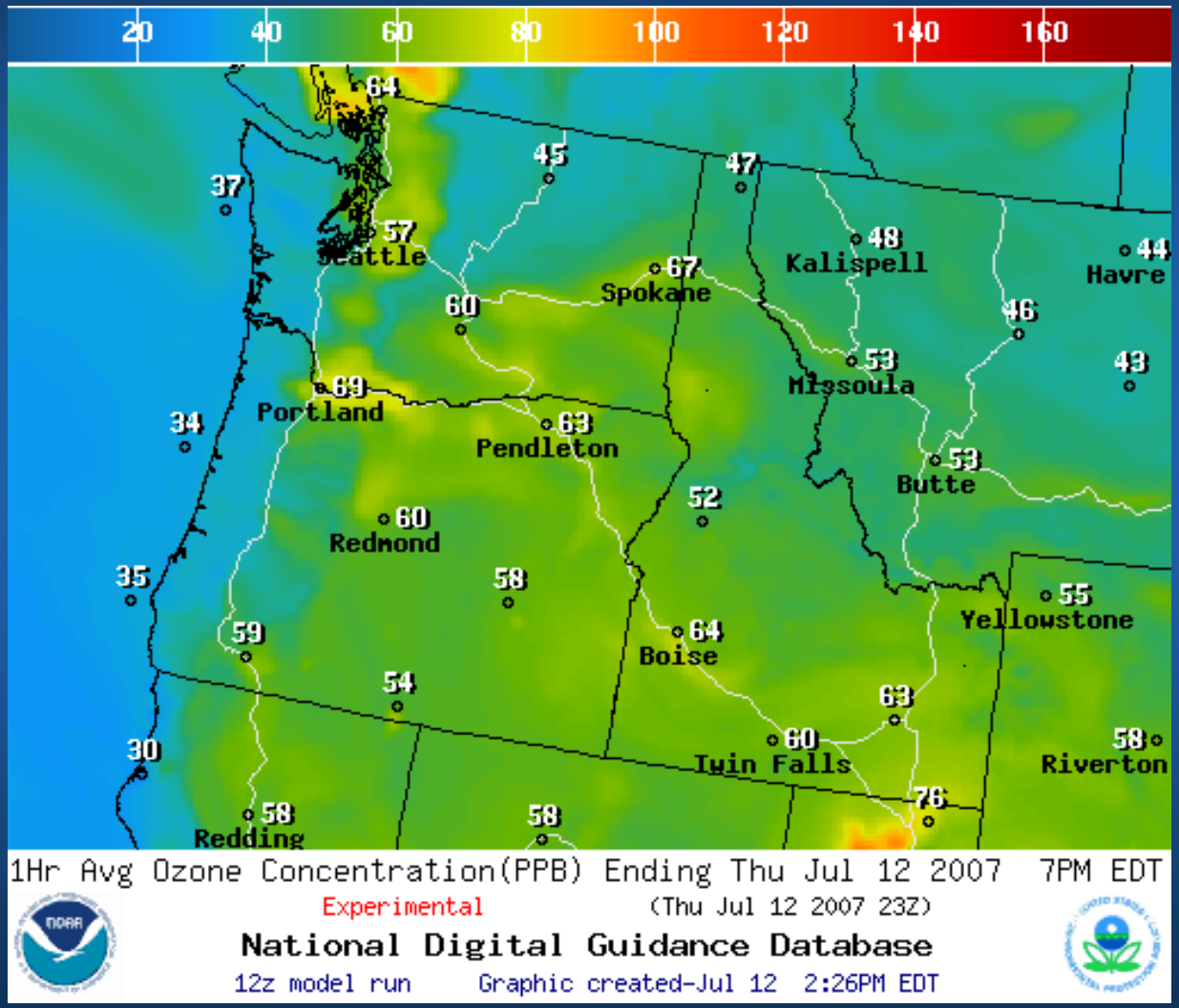
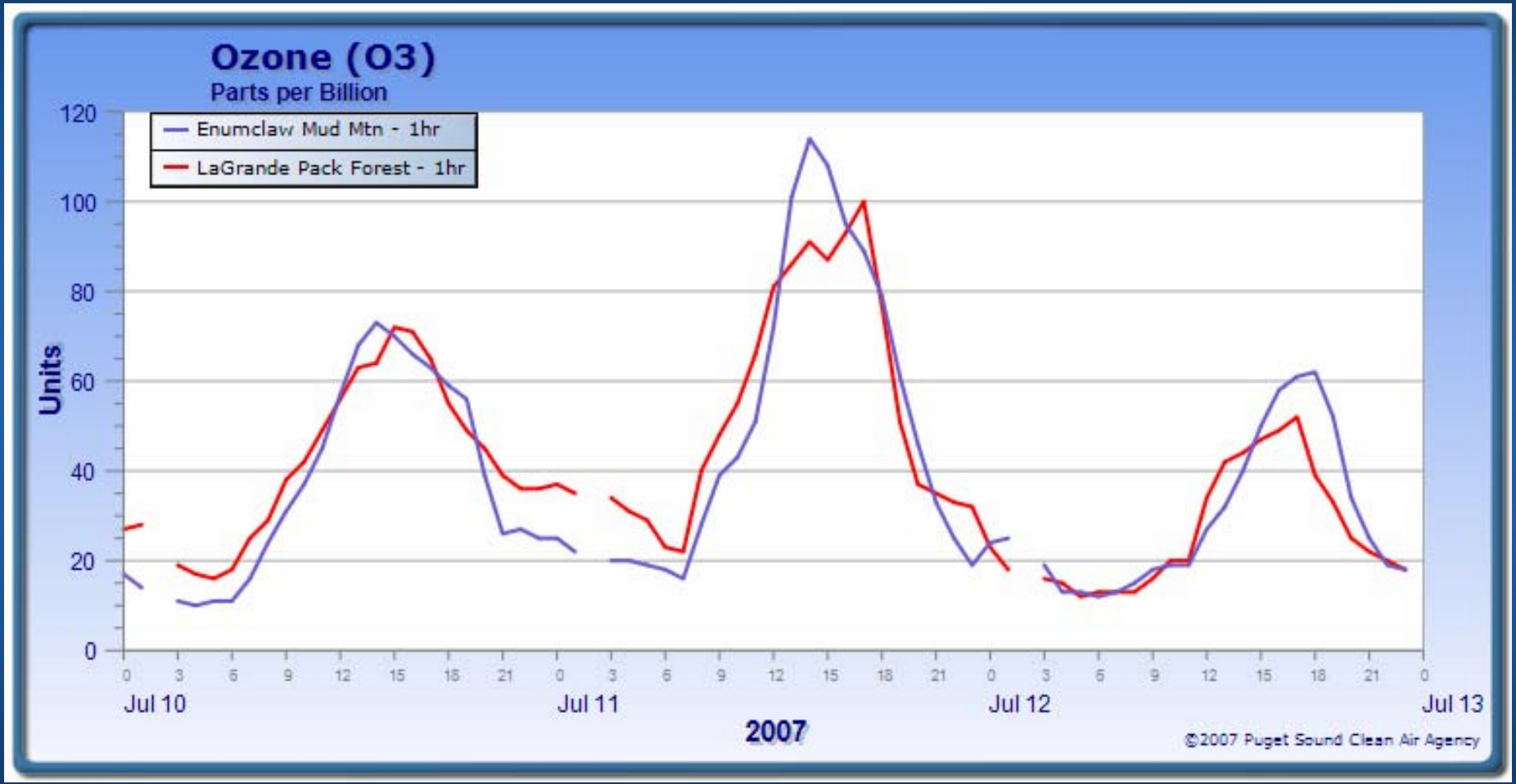
Ozone 2007-day 3



Ozone 1Hr-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Jul 10
Jul 11
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Jul 13
2007
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Bottom Line- Ozone 2007

- NOAA Guidance was very useful in providing input to the operational decisions
  - Both Met and AQ products

NOAA's Product

- Not widely used
  - Marketing
  - Reality of our focus- Smoke
  - Dept of Ecology mobile monitoring effort
- National guidance products provide good medium range synoptic indicators (72-96 hrs)
- Northwest Regional Modeling Consortium
  - Tailored products 36,12,4K
- AIRPACT from Washington State University

NOAA's Product

- Current Graphics are difficult to read predicted Ozone
- To support action programs 48/72 forecasts must be made available
  - Users understand skill issues
- Develop means to add regional (sub-regional) emissions for woodsmoke from heating sources

Recommendations

- Develop based on "Consequence to user decision making"
  - Get the trend right first
- Make PM 2.5 runs acknowledge routine seasonal emissions- (Woodsmoke from stoves and fireplaces)
- Develop user based success metrics to know when we are done
- Develop basis for long term funding
  - Who should pay for this?
  - Wide base of governmental customers