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Libby Dam 2006 in Review

Cindy Henriksen

Corps of Engineers

Water Management Division

September 6, 2006

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January through March

- The Corps prepares volume inflow forecasts for Libby Dam.
- January through March water supply forecasts were near average and Libby operated to its end of month draft requirements.

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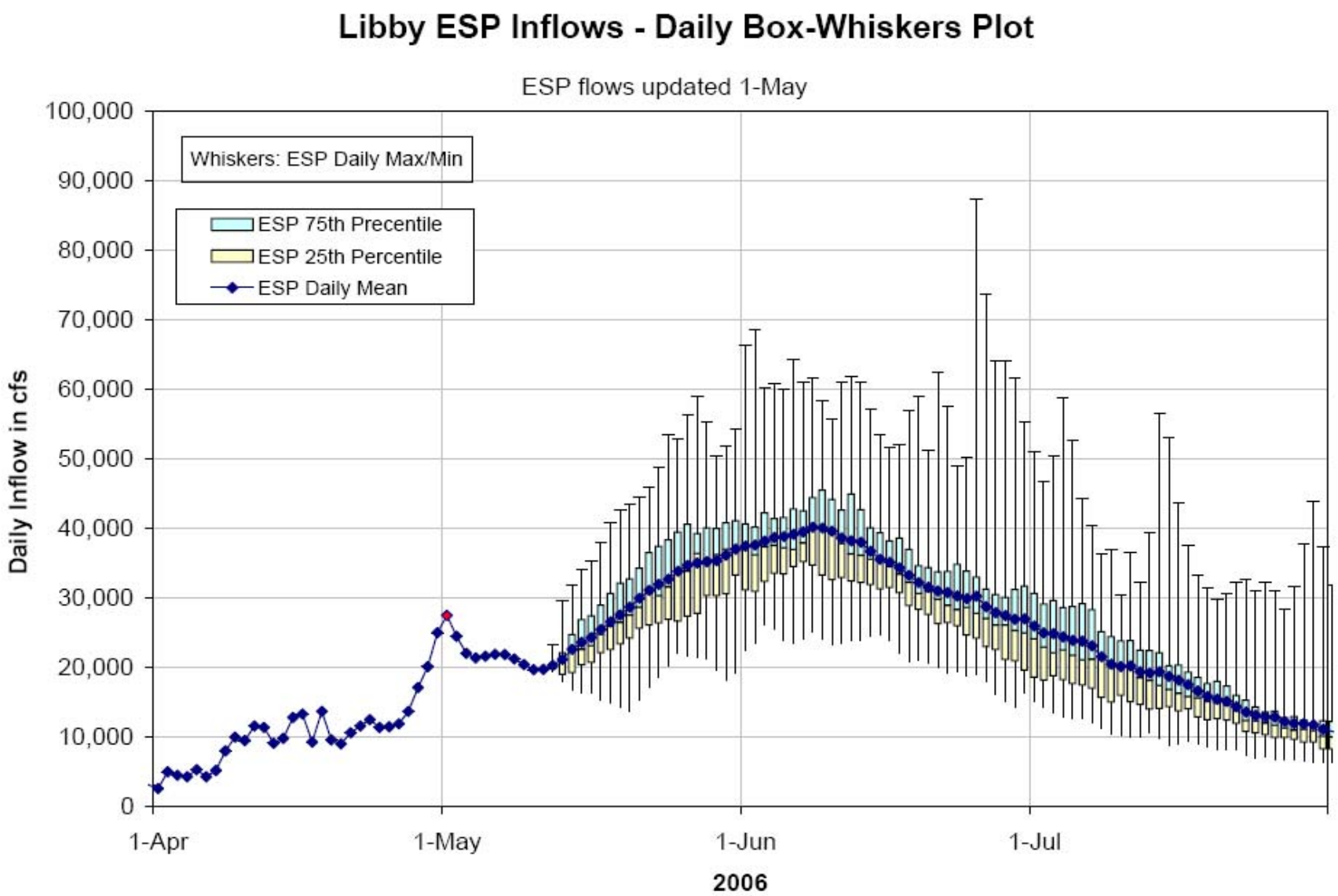
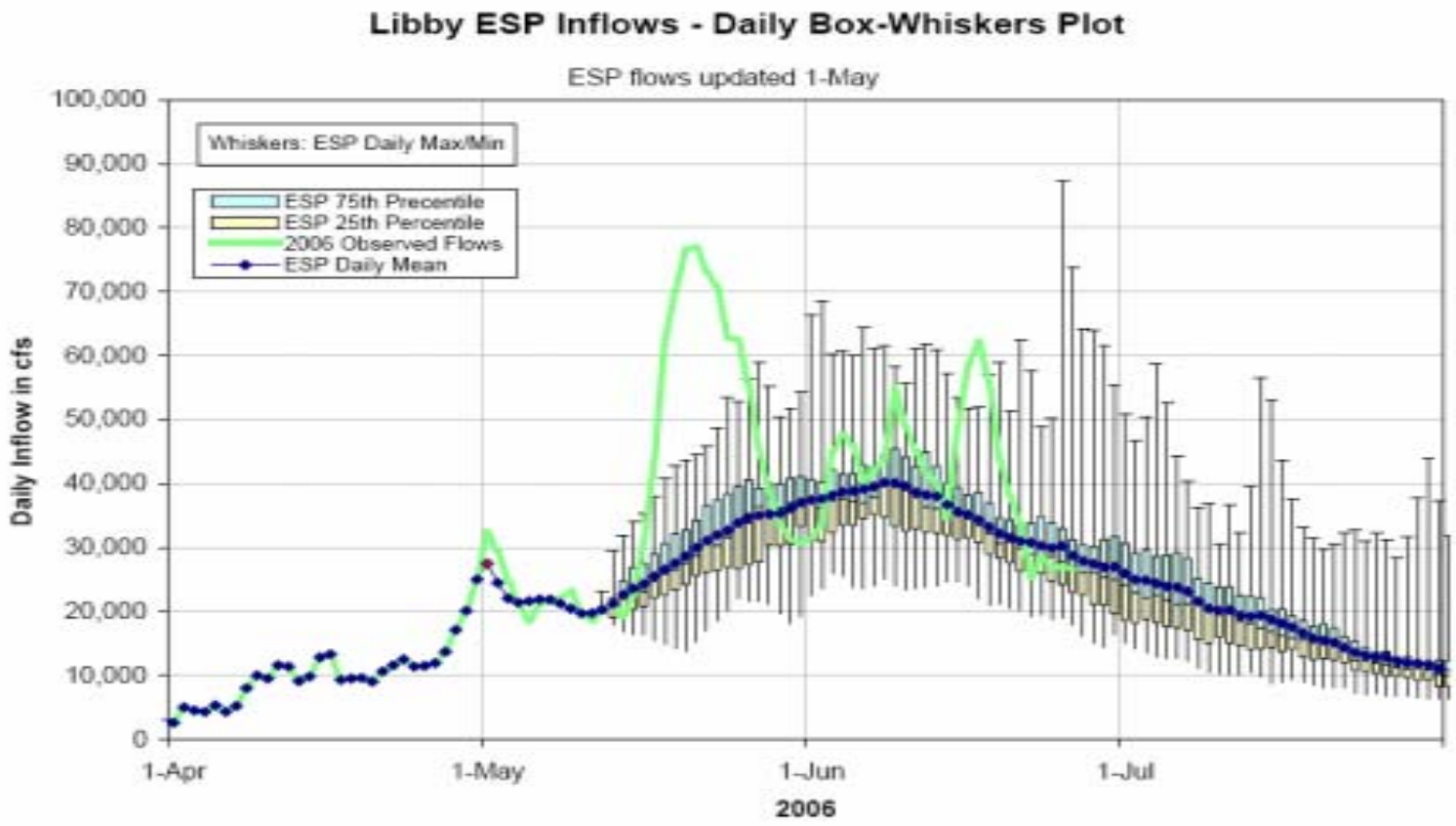
April

- April water supply forecast was 6.076 MAF, 97% of average
- In late April there was high flow on the Snake River and Lower Columbia. To avoid increasing these lower river flows, no additional inflow to Grand Coulee was desirable.
- Operations for sturgeon flow were being discussed with Corps, BPA, USFWS, Tribes, Idaho and Montana.
- End of April reservoir elevation at Libby was below flood control upper limit of elevation 2417 feet.


Libby ESP Inflows - Daily Box-Whiskers Plot
ESP flows updated 1-May
Whiskers: ESP Daily Max/Min
ESP 75th Precentile
ESP 25th Percentile
ESP Daily Mean
Daily Inflow in cfs
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1-Apr
1-May
1-Jun
1-Jul
2006

Forecast and Observed Inflow to Libby Dam



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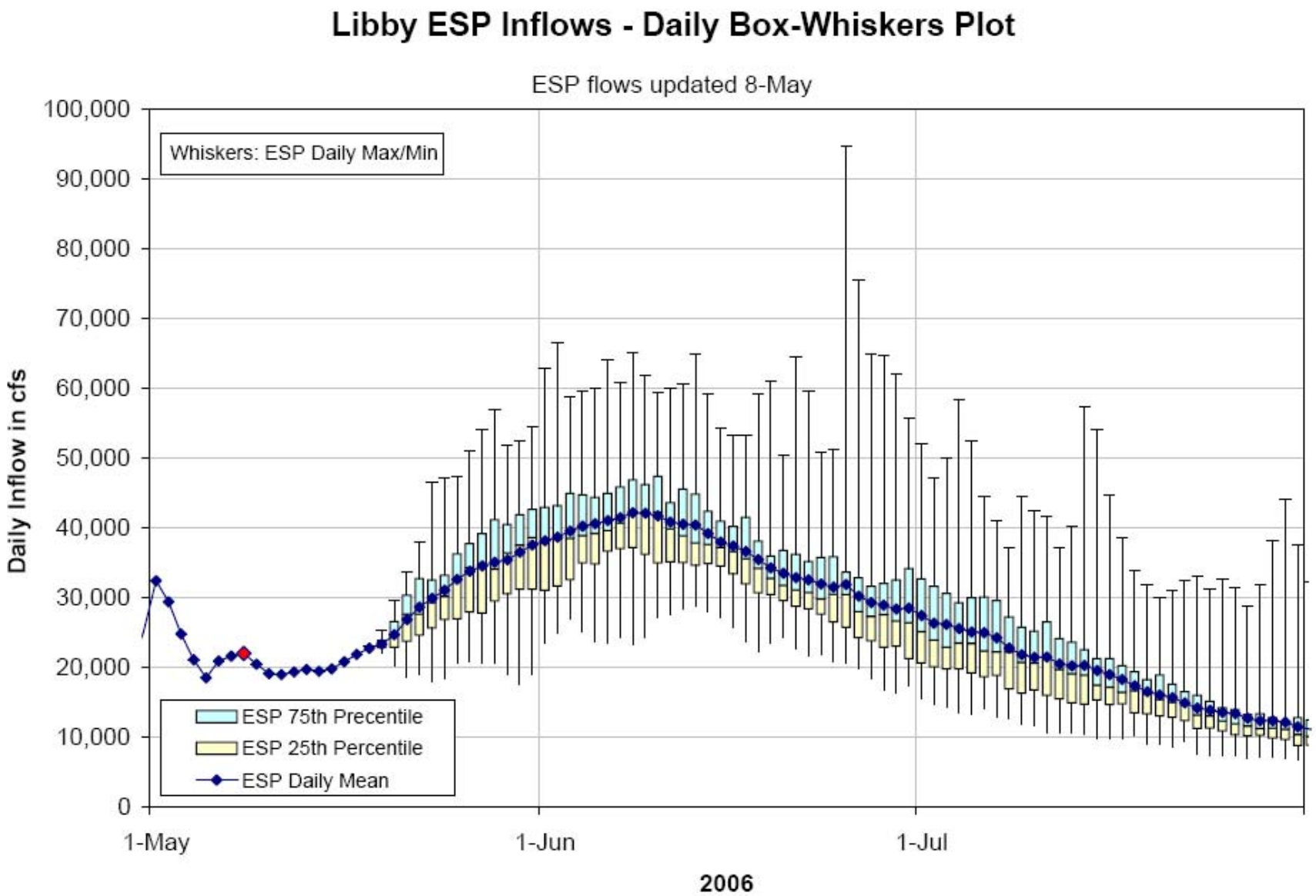
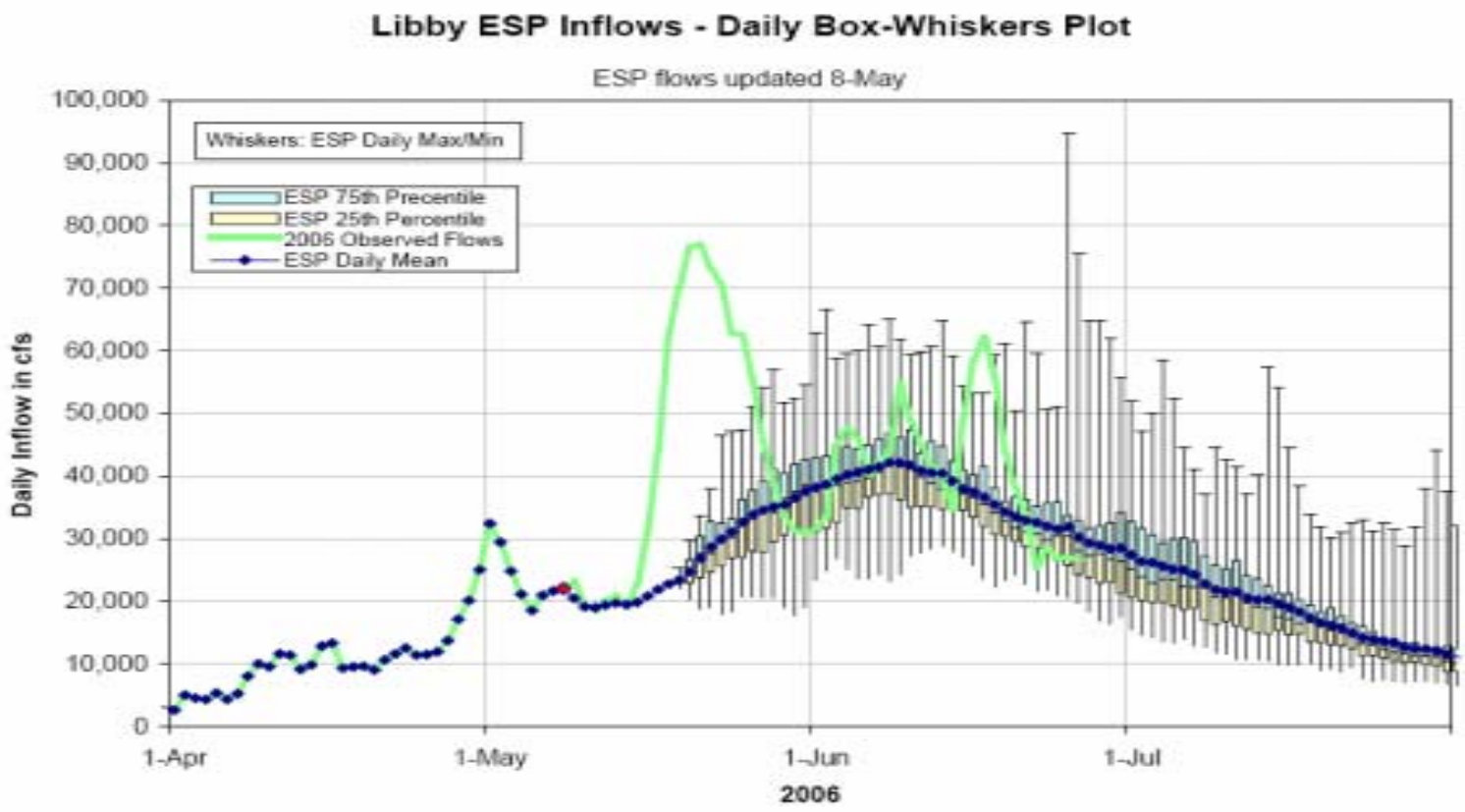
May

- A "Stacked Flow" operation for 2006 was agreed upon May 5.
  - A Stacked Flow is a full powerhouse outflow from Libby Dam concurrent with the local freshet at Bonners Ferry, to a stage up to 1764 feet
- The water supply forecast was 6.179 MAF, 99% of average.
- Libby public meeting May 10, Stacked Flow operation begins May 15 to coincide with the local freshet.


Libby ESP Inflows - Daily Box-Whiskers Plot
ESP flows updated 8-May
Whiskers: ESP Daily Max/Min
ESP 75th Precentile
ESP 25th Percentile
ESP Daily Mean
Daily Inflow in cfs
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1-May
1-Jun
1-Jul
2006

Forecast and Observed Inflow to Libby Dam



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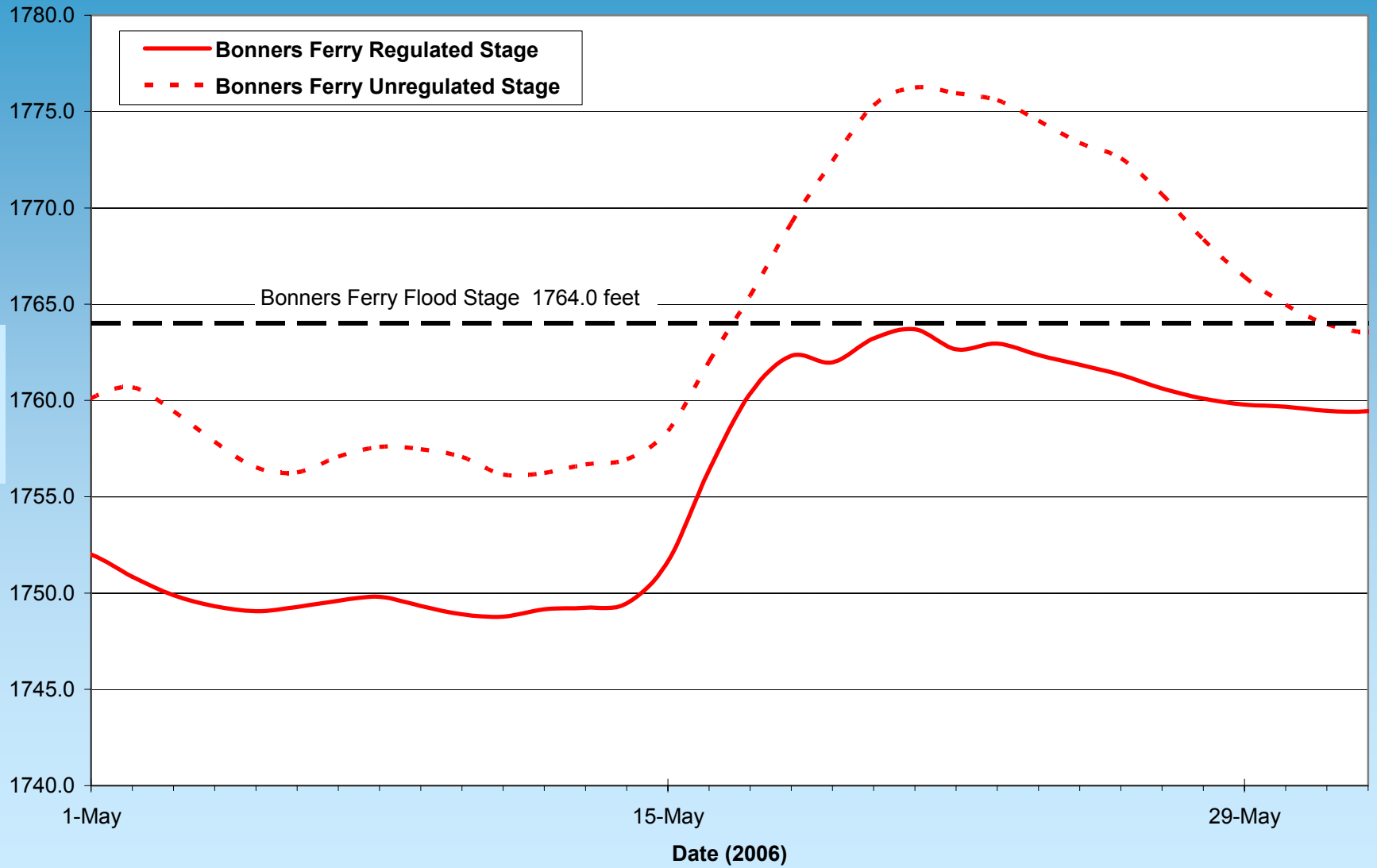
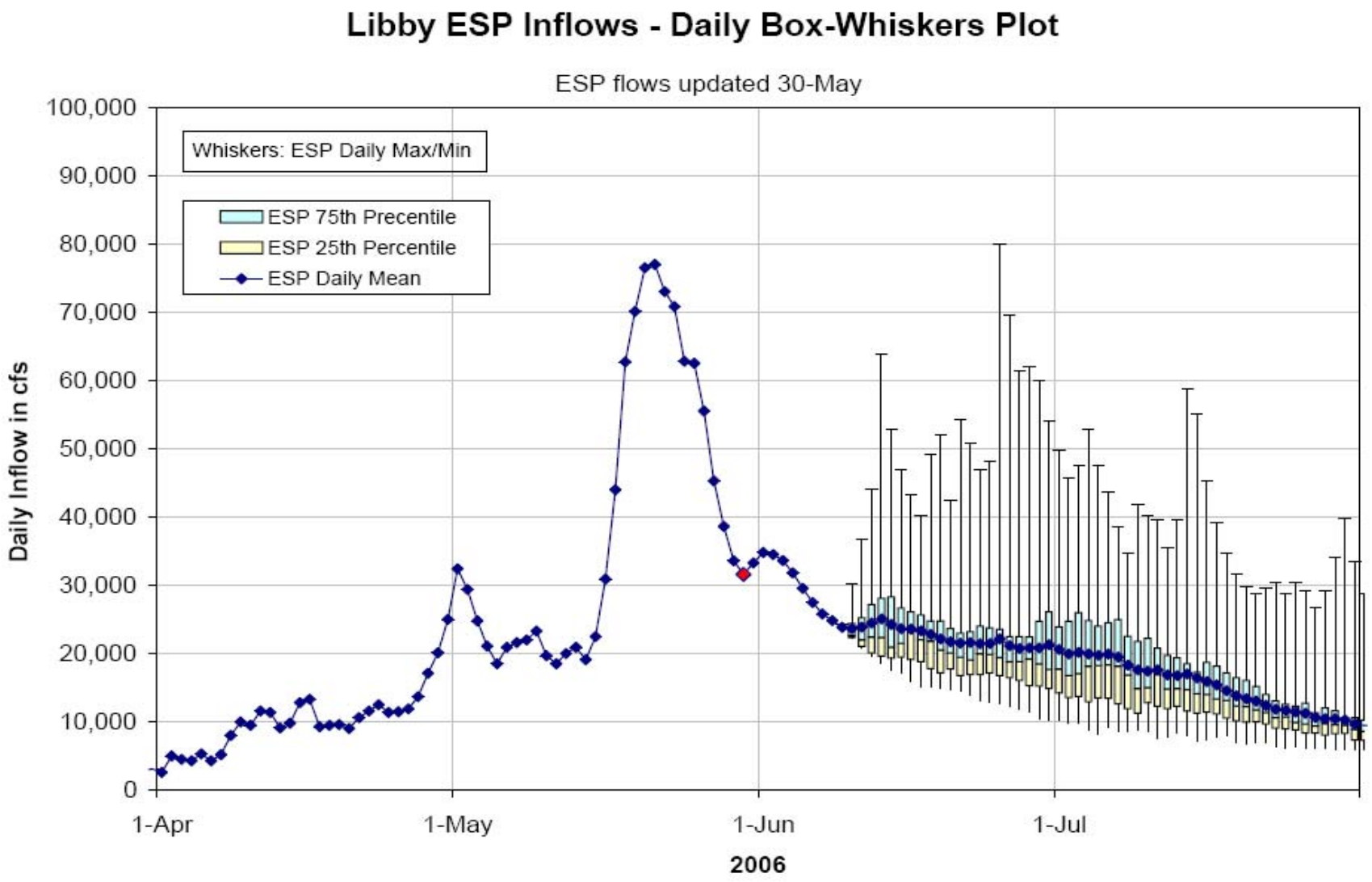
May Flood Damage Reduction

- On May 21, the observed flow and stage at Bonners Ferry was 48,000 cfs, stage 1763.65 feet.
- Without Libby Dam in place, the flow would have been 100,600 cfs, and the stage may have been 1776.3 feet.

Bonners Ferry Stage in May




Libby ESP Inflows - Daily Box-Whiskers Plot
ESP flows updated 30-May
Whiskers: ESP Daily Max/Min
ESP 75th Precentile
ESP 25th Percentile
ESP Daily Mean
Daily Inflow in cfs
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
1-Apr
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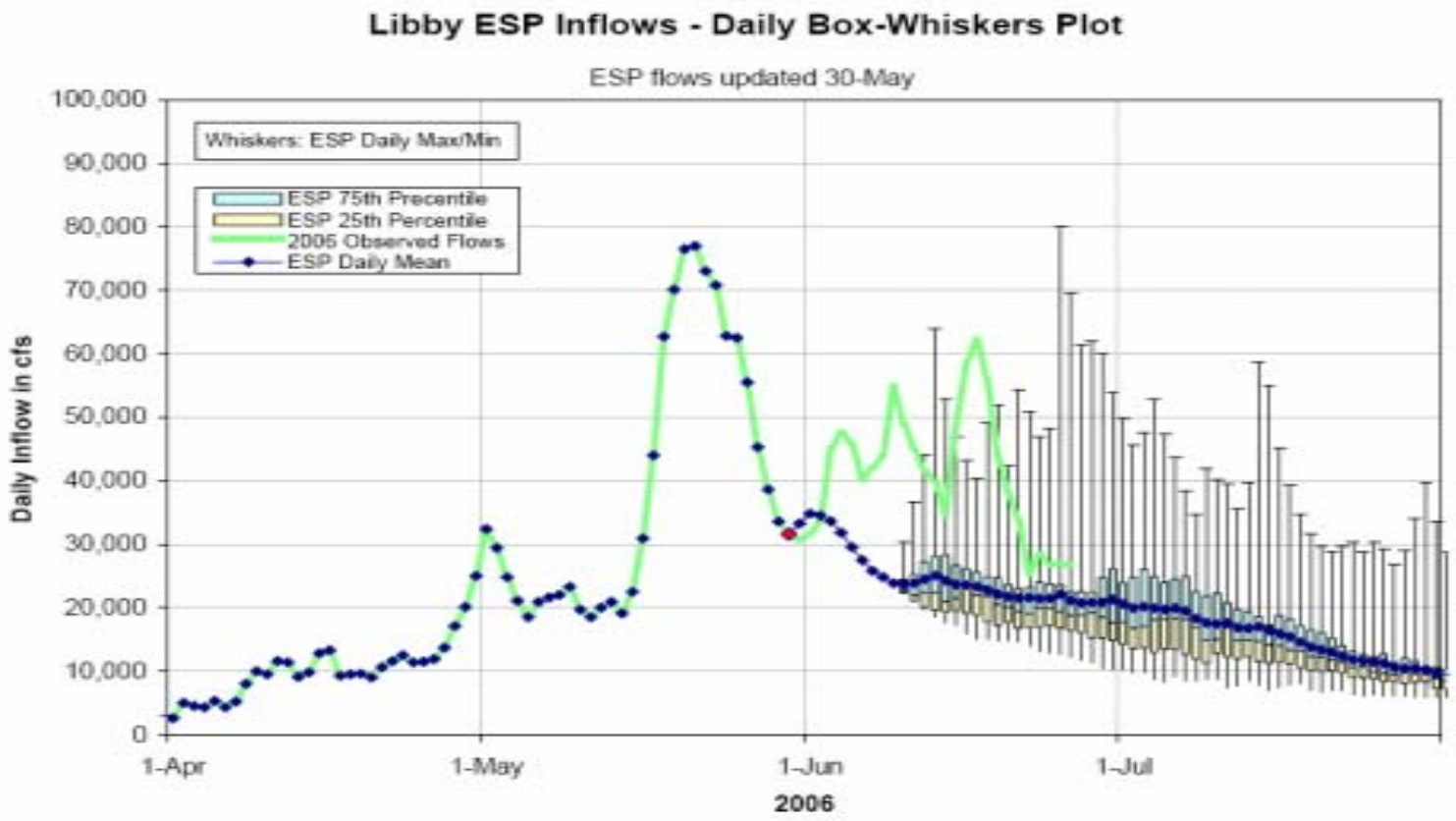
2006

Forecast and Observed Inflow to Libby Dam



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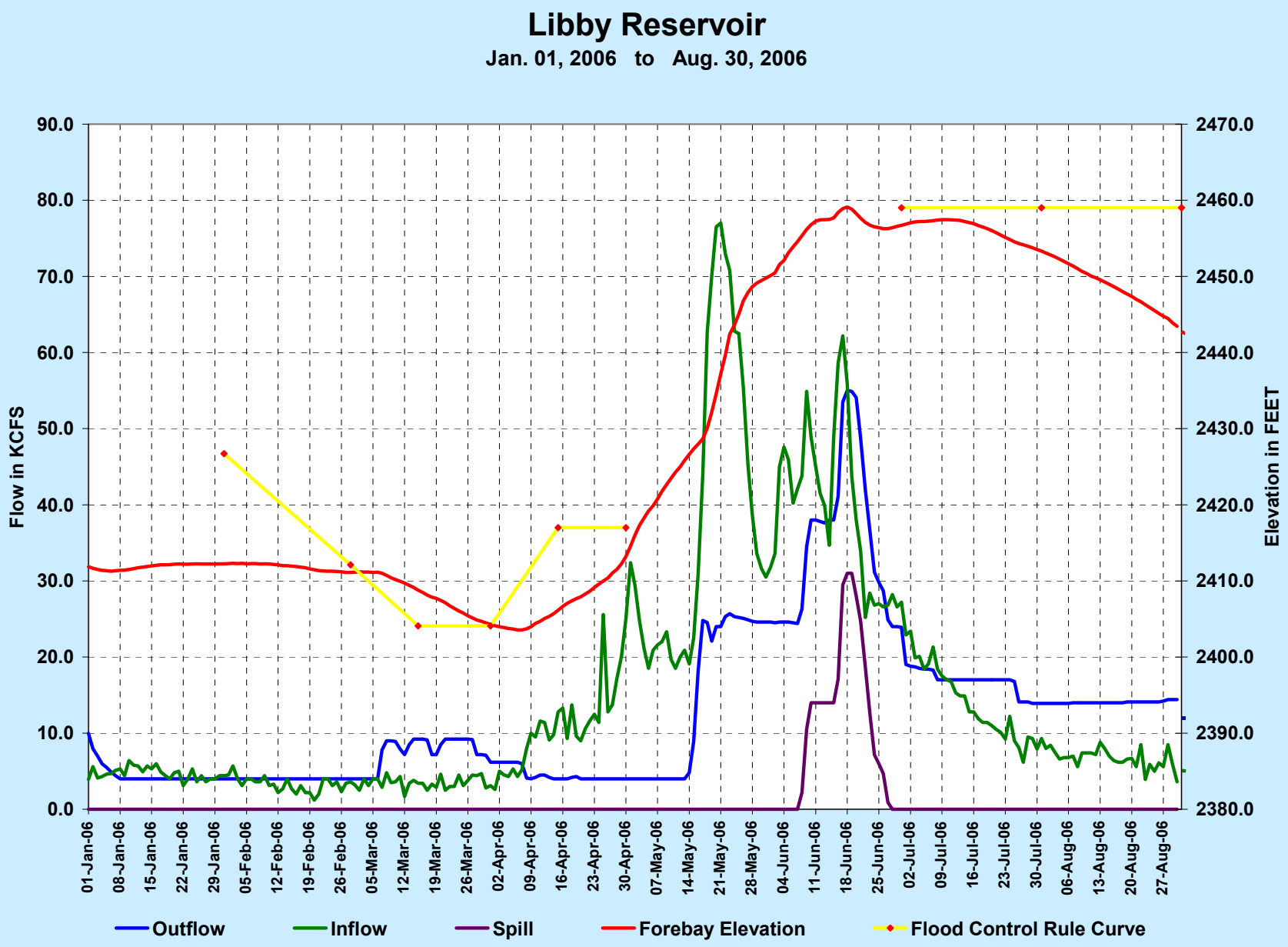
Early and mid-June

- June 7 the Corps decided to begin a pre-emptive spill of 1,500 cfs to 2,000 cfs at Libby on June 10.
- June 7 inflow to the reservoir greater than expected.
- 8,000 cfs spill begins June 8.
- Further increased spill June 16.
- Maximum outflow June 18.
- Peak outflow from Libby Dam was not greater than inflow.


Libby Reservoir
Jan. 01, 2006 to Aug. 30, 2006
Flow in KCFS
Elevation in FEET
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
2470.0
2460.0
2450.0
2440.0
2430.0
2420.0
2410.0
2400.0
2390.0
2380.0
01-Jan-06
08-Jan-06
15-Jan-06
22-Jan-06
29-Jan-06
05-Feb-06
12-Feb-06
19-Feb-06
26-Feb-06
05-Mar-06
12-Mar-06
19-Mar-06
26-Mar-06
02-Apr-06
09-Apr-06
16-Apr-06
23-Apr-06
30-Apr-06
07-May-06
14-May-06
21-May-06
28-May-06
04-Jun-06
11-Jun-06
18-Jun-06
25-Jun-06
02-Jul-06
09-Jul-06
16-Jul-06
23-Jul-06
30-Jul-06
06-Aug-06
13-Aug-06
20-Aug-06
27-Aug-06
Outflow
Inflow
Spill
Forebay Elevation
Flood Control Rule Curve

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Thank You