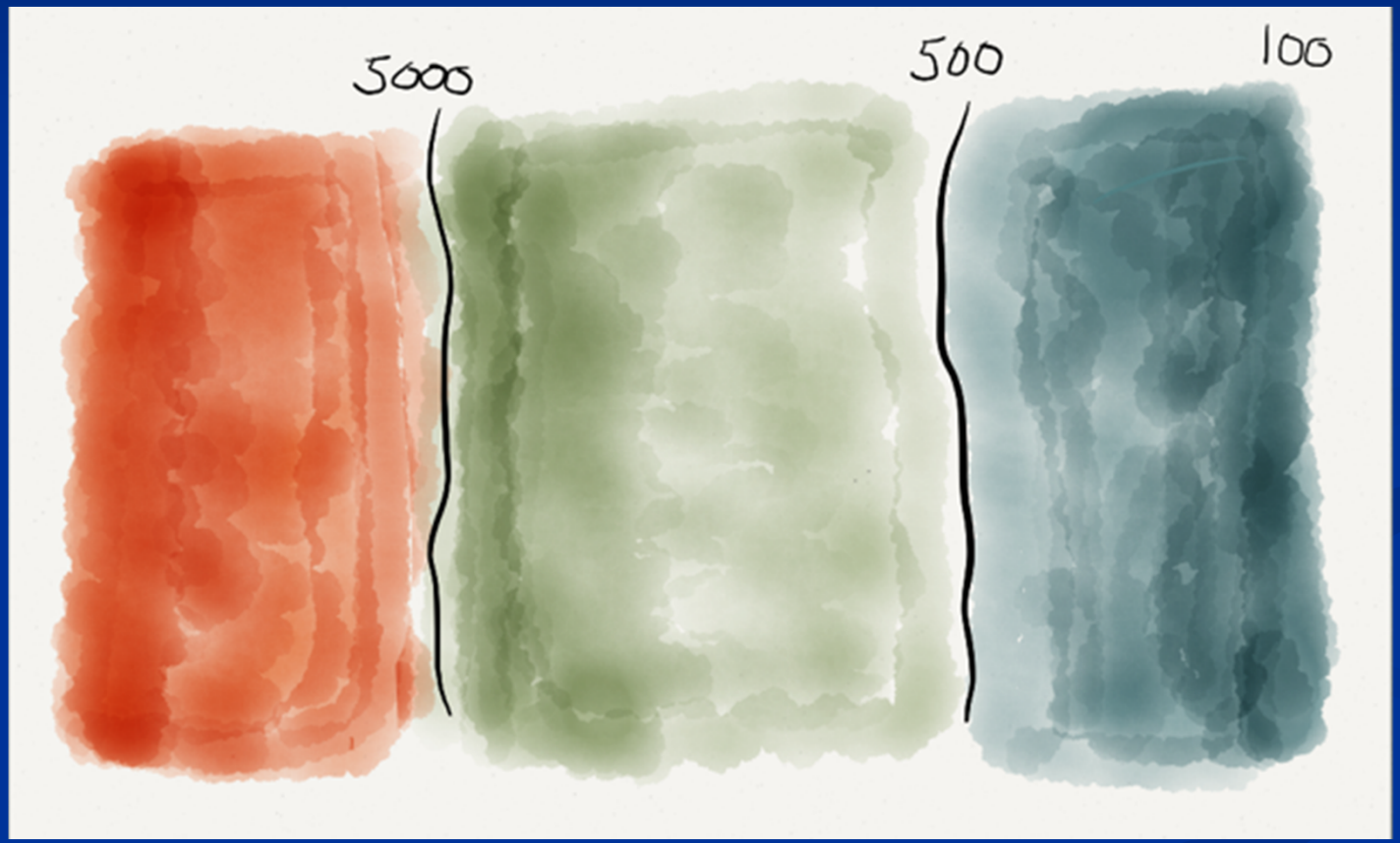
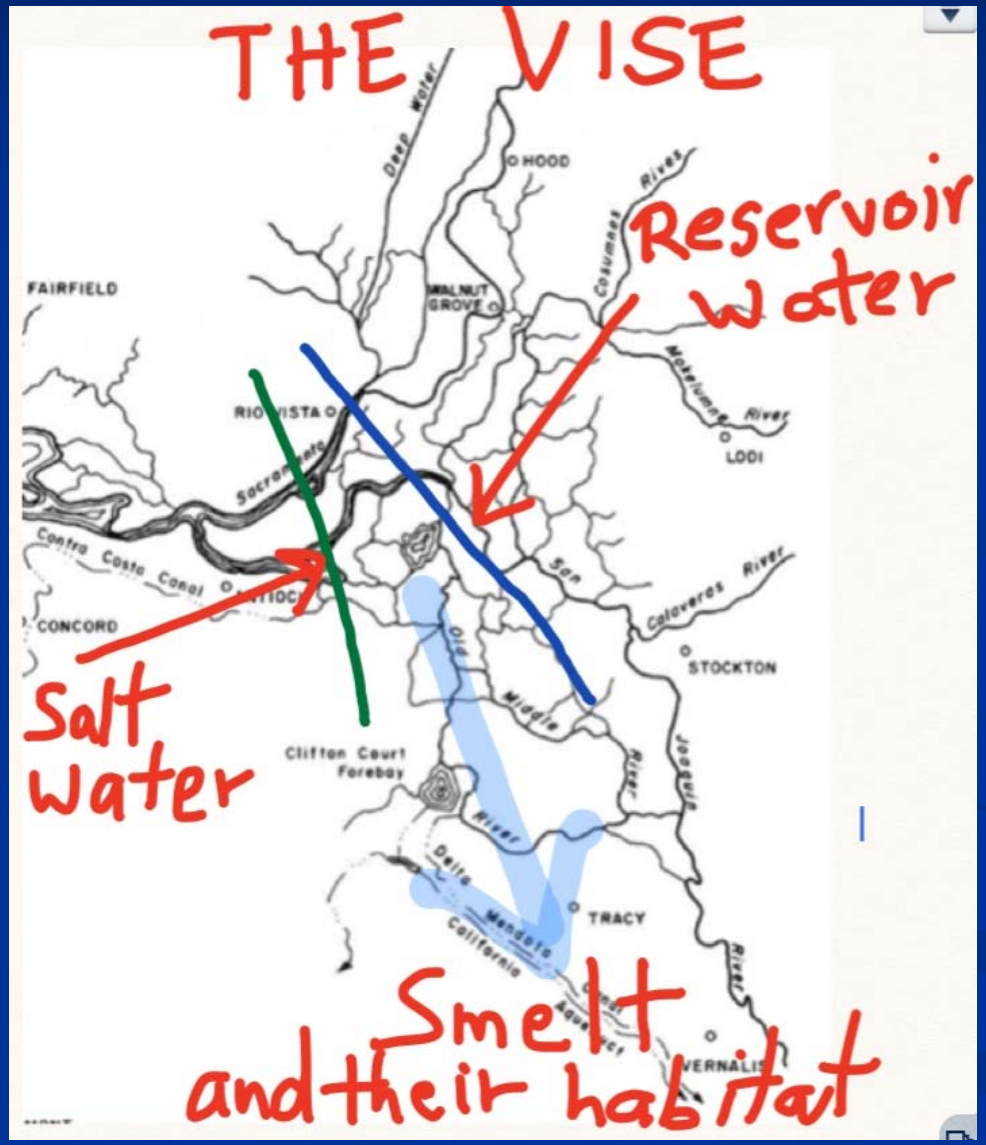
Flow Standards and LSZ



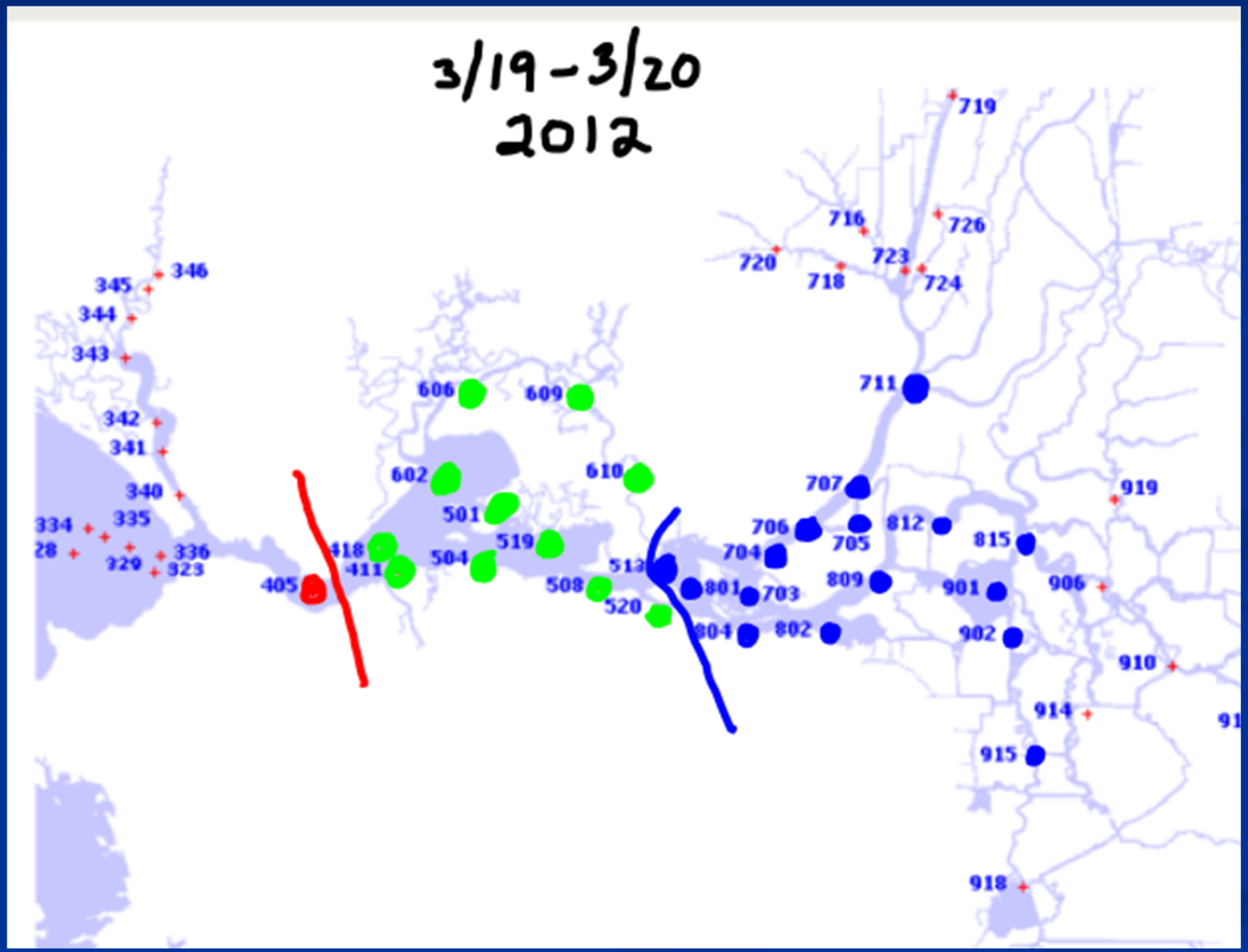
Why is LSZ Important?

- Collects nutrients, sediment, and plankton
- Mixing and hydrodynamics
- Long Residence – blooms, productivity
- Saves organisms energy - same salinity as blood
- Salmon smolt transition
- Shallow, turbid, and cooler
- All necessary ingredients for POD species

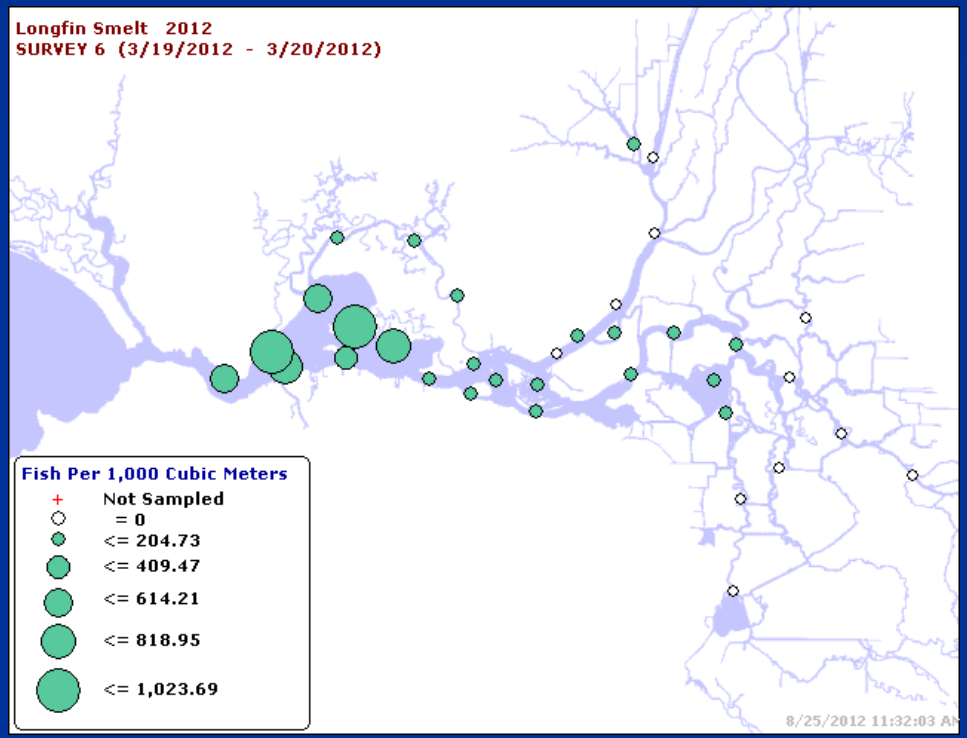
THE VISE

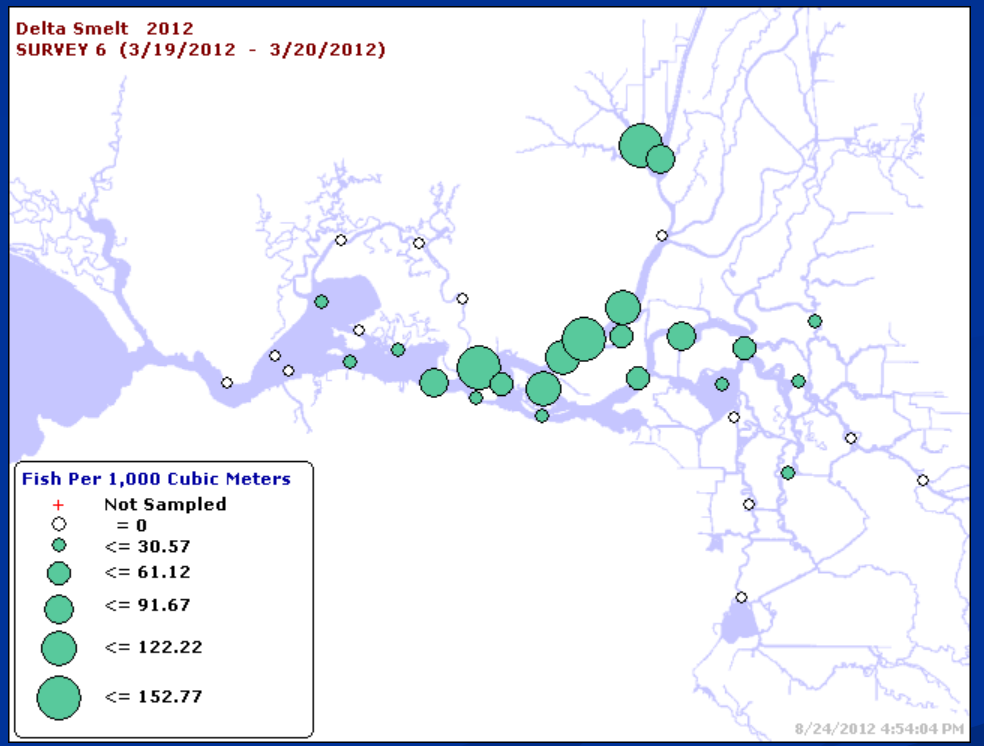

THE VISE
Reservoir water
Salt water
Smelt and their habitat
FAIRFIELD
CONCORD
RIO VISTA
WALNUT GROVE
HOOD
LODI
STOCKTON
TRACY
Clifton Court Forebay
Contra Costa Canal
Deep water
Mokelumne River
San Joaquin River
Old River
Middle River
Delta Mendota Canal

Low Salinity Zone March 2012

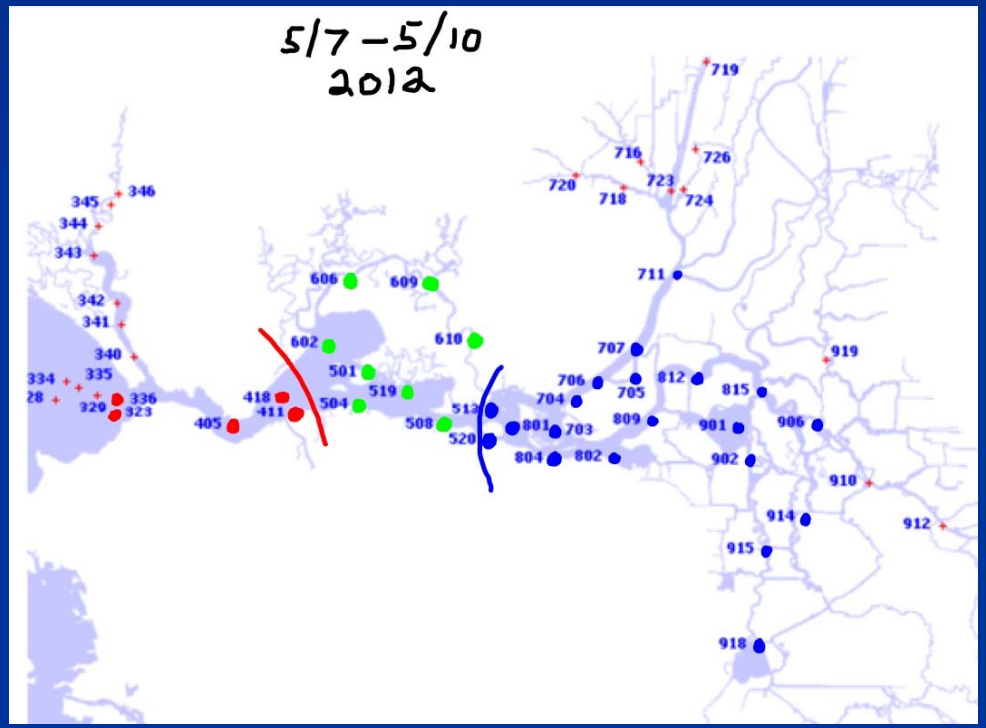


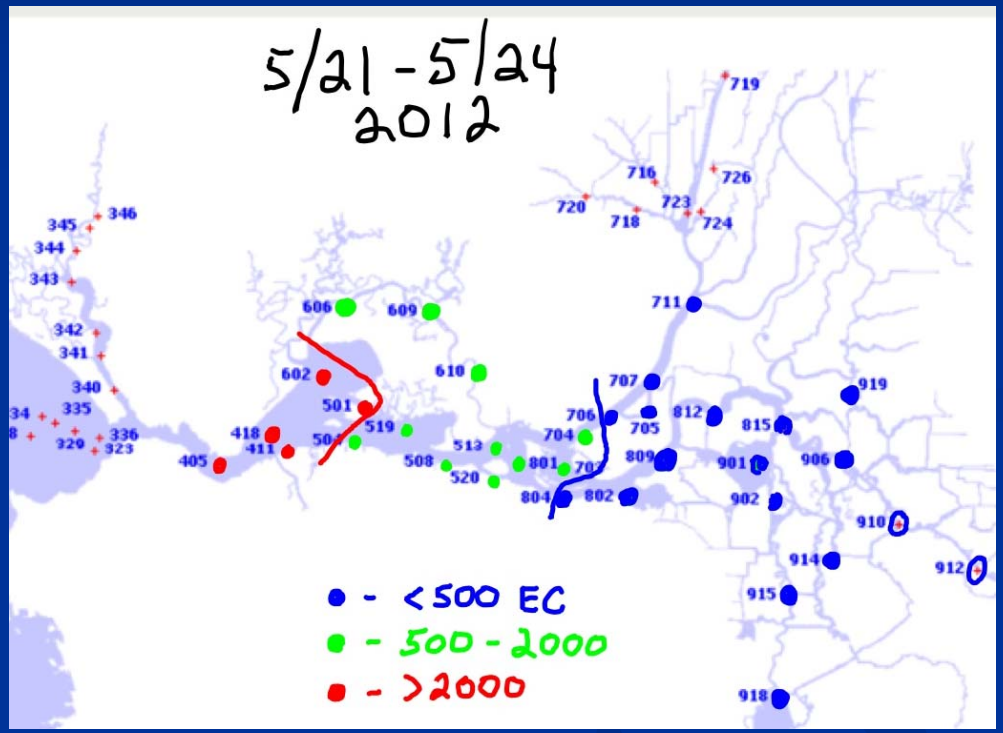
SMELT MARCH 2012



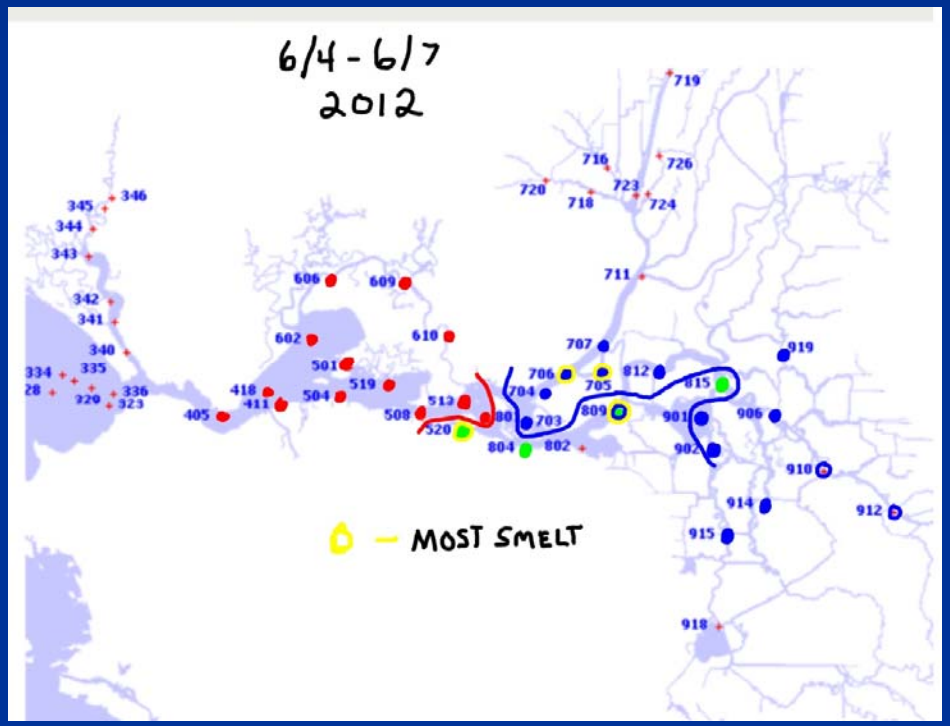


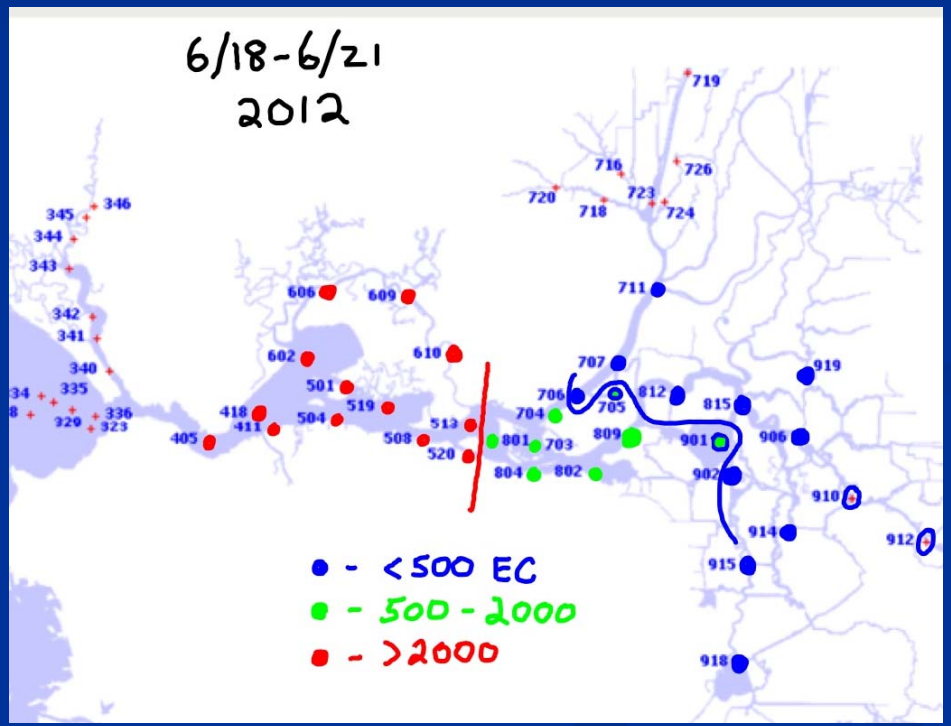
May 2012



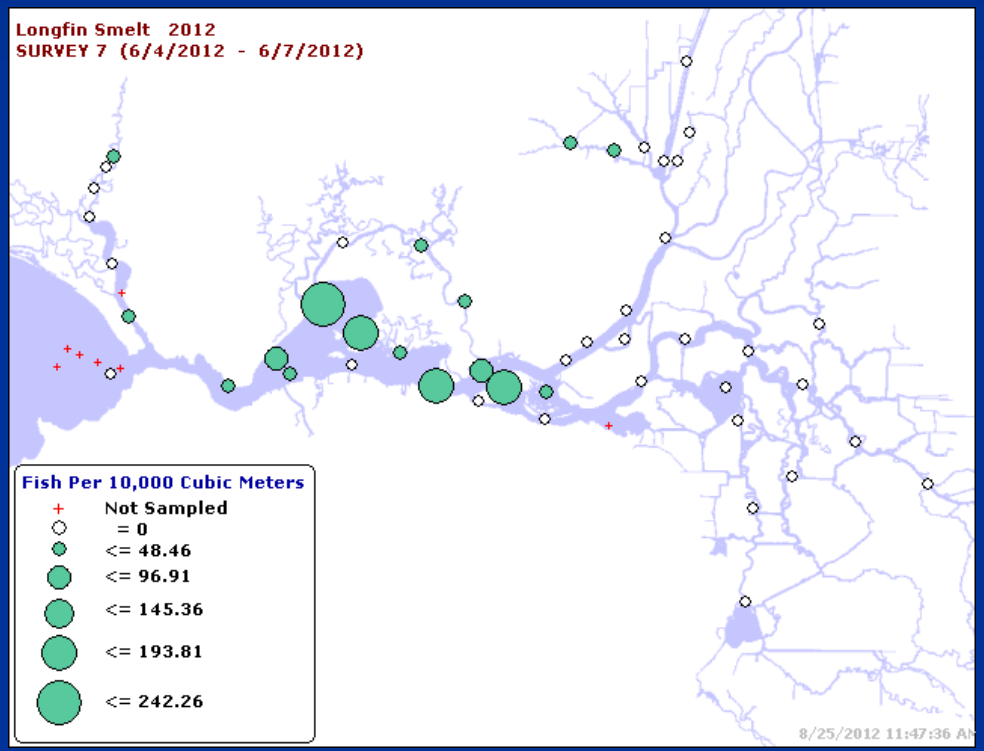


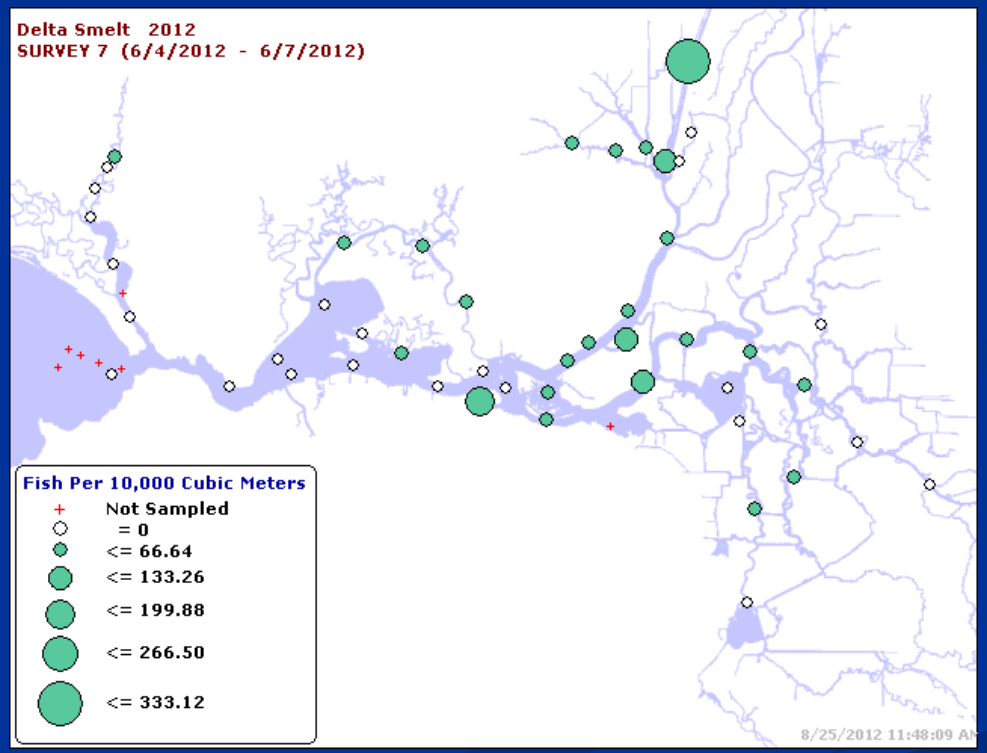
June 2012



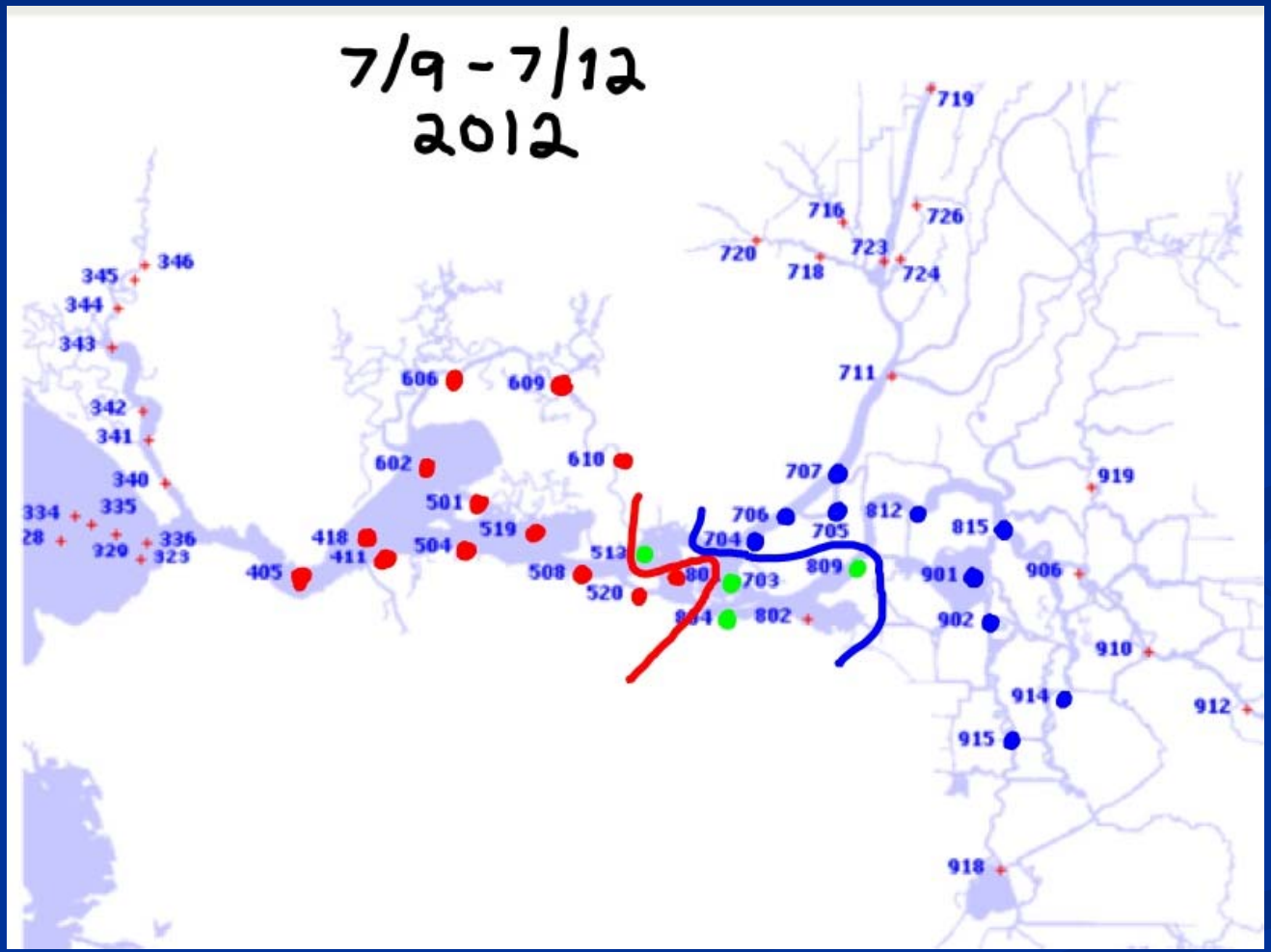


Smelt June 2012





July 2012


7/9 - 7/12
2012
719
716
726
720
723
718
724
711
606
609
602
610
707
919
501
706
812
815
519
705
704
418
504
411
513
809
901
906
405
508
703
520
802
902
910
914
912
915
918
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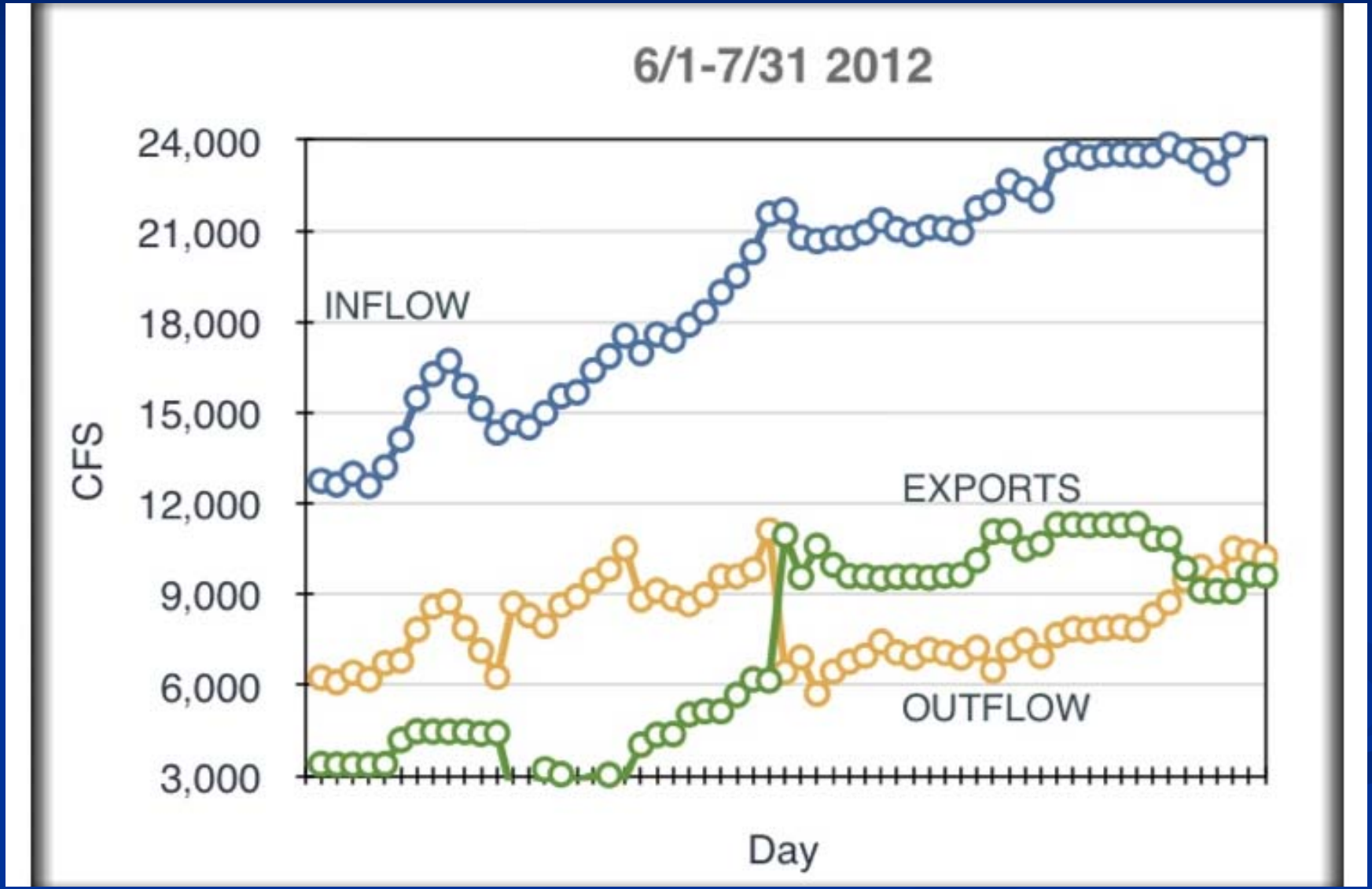
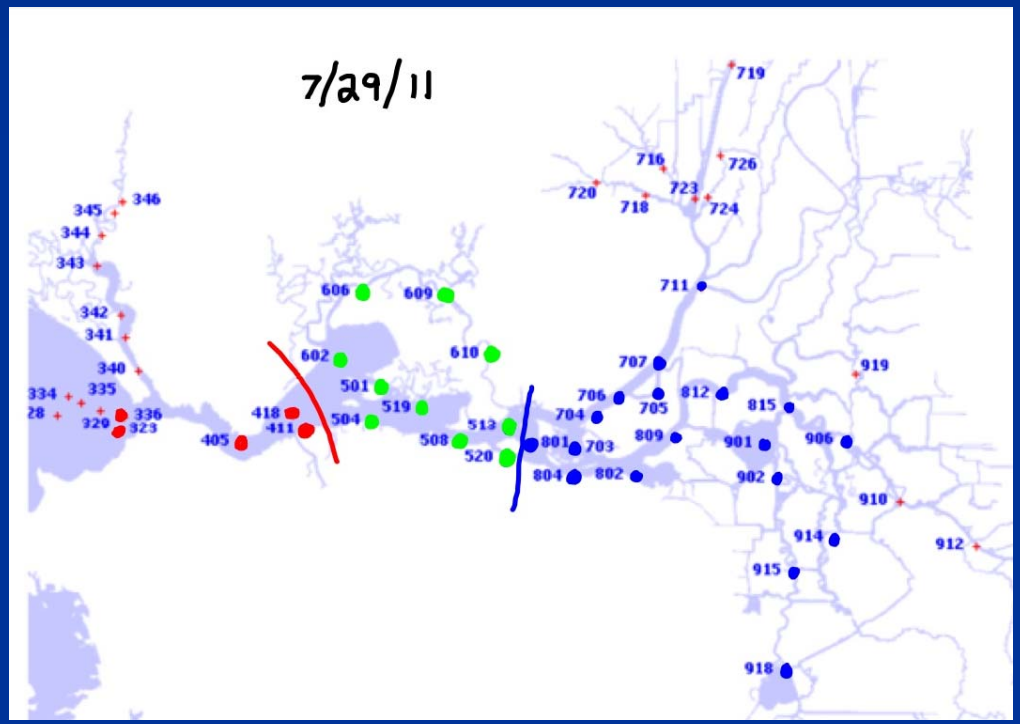
343
342
341
340
335
334
336
329
323

2012


6/1-7/31 2012
24,000
21,000
18,000
15,000
12,000
9,000
6,000
3,000
CFS
INFLOW
EXPORTS
OUTFLOW
Day

July 2011


7/29/11
719
716
726
720
723
718
724
711
606
609
602
610
707
919
501
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706
812
815
704
705
418
504
513
809
906
405
411
508
801
703
901
520
804
802
902
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912
915
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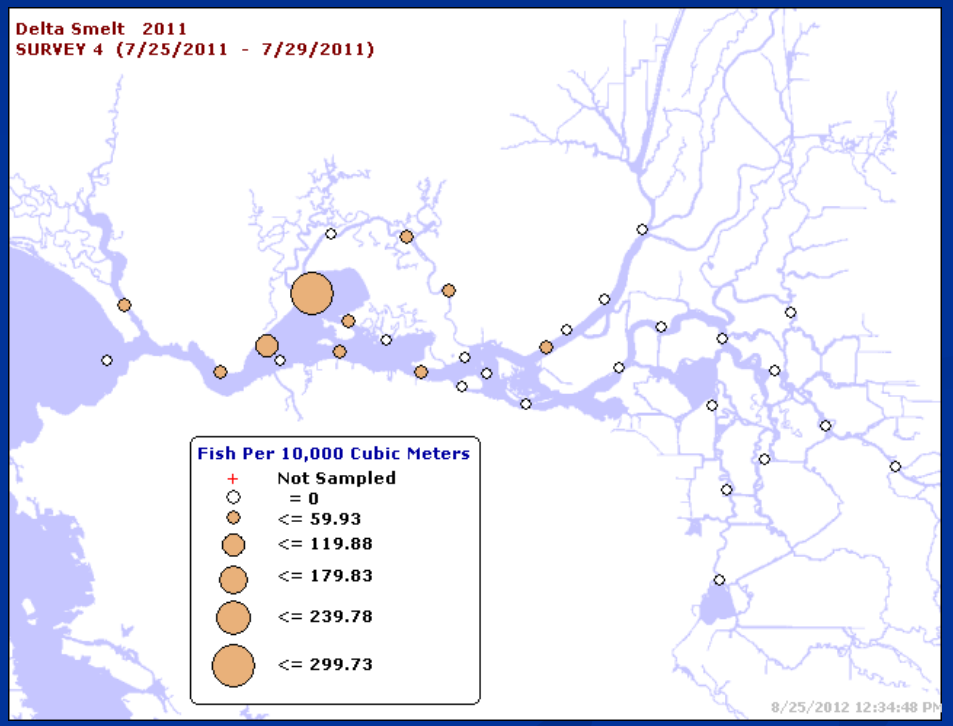
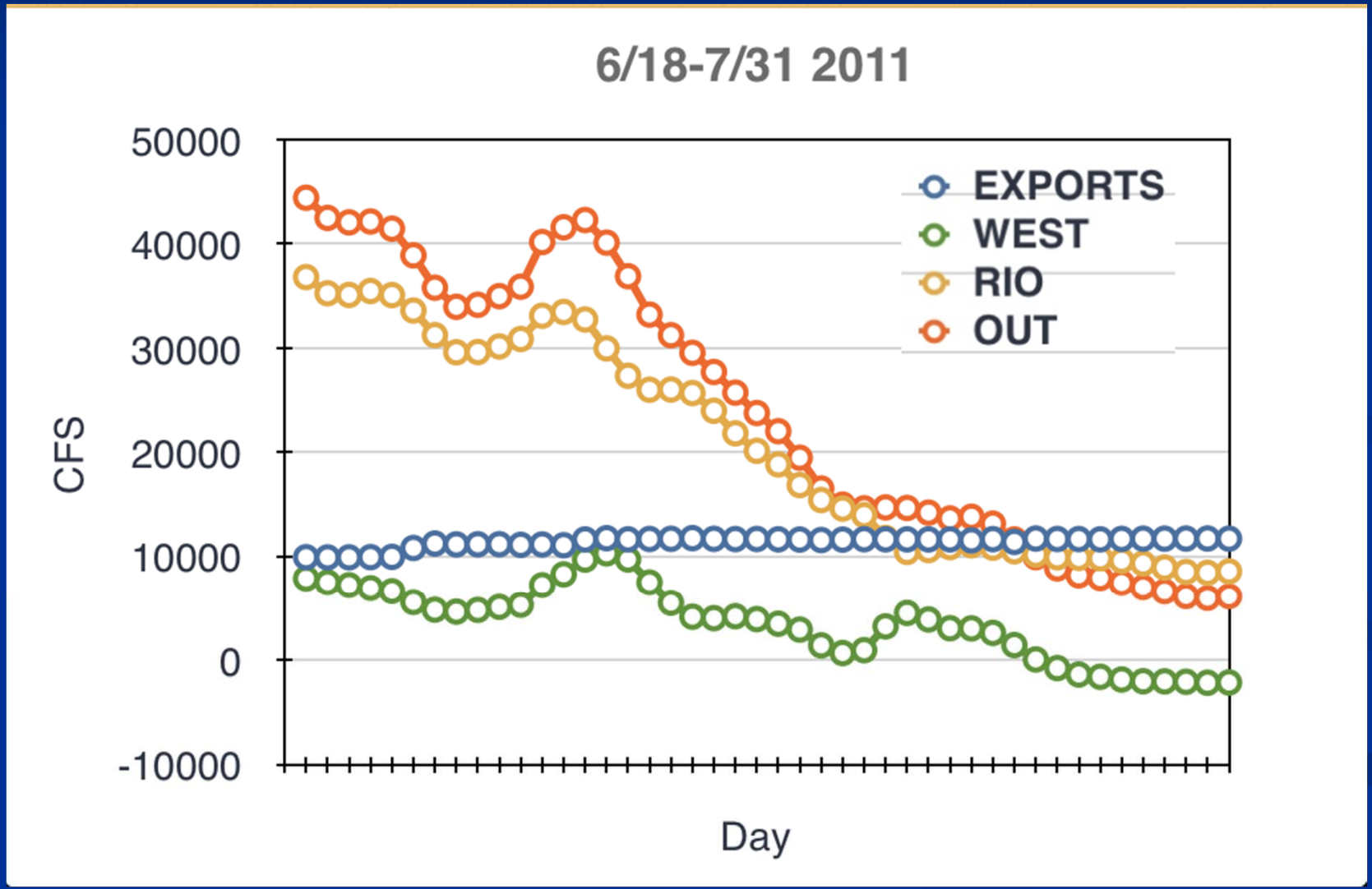
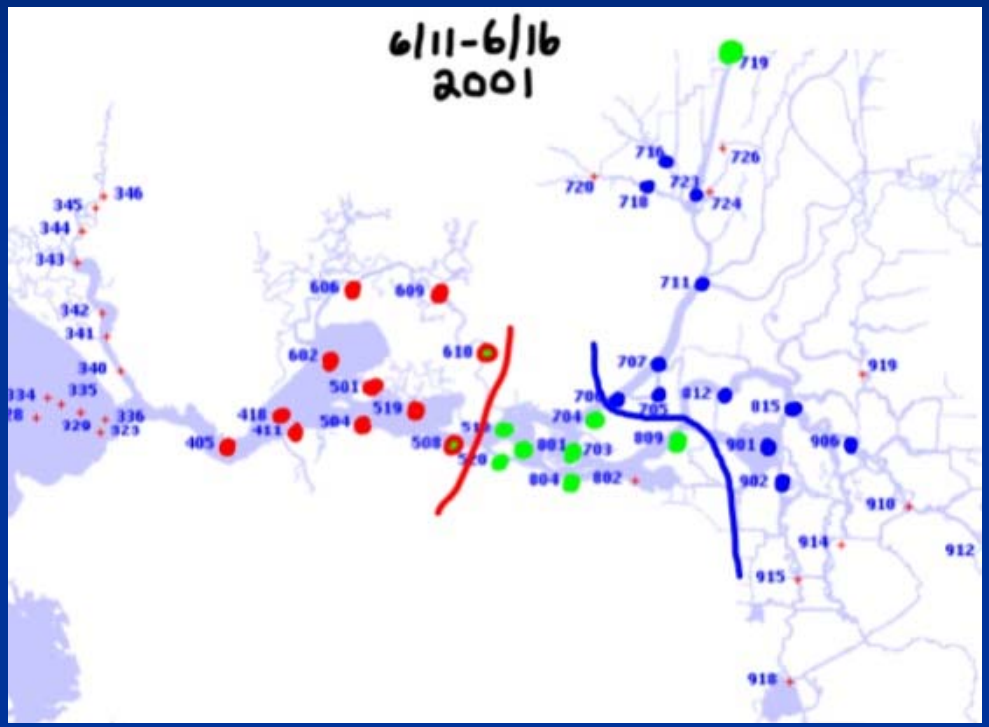
344
343
342
341
340
334
335
336
329
323

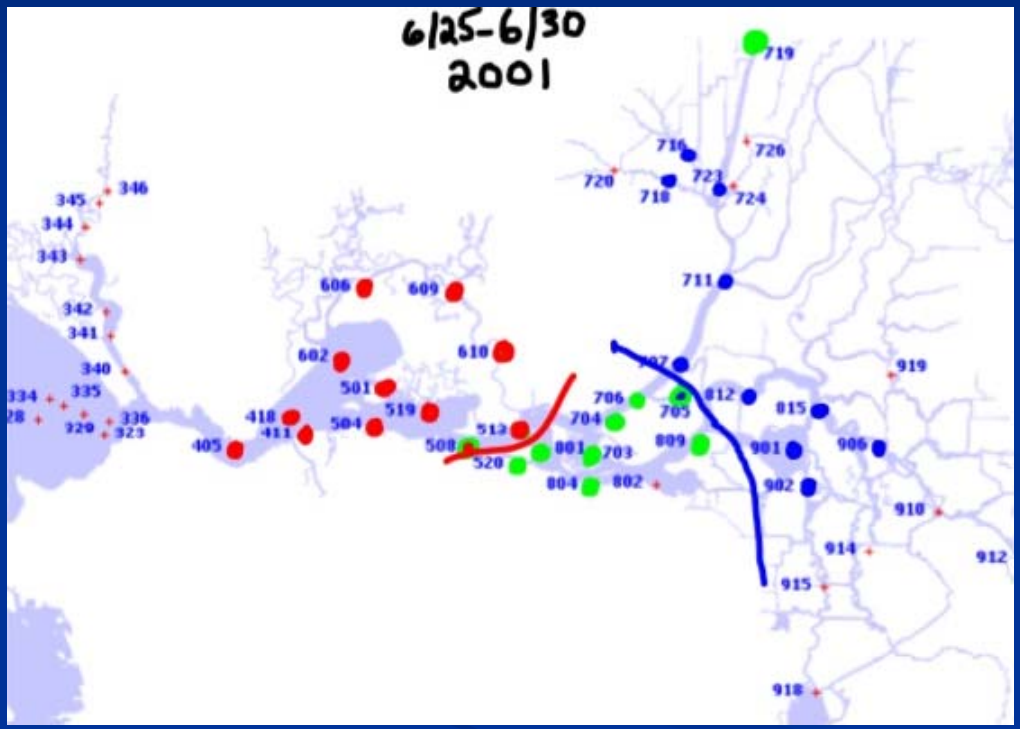

Delta Smelt 2011
SURVEY 4 (7/25/2011 - 7/29/2011)
Fish Per 10,000 Cubic Meters
Not Sampled
= 0
<= 59.93
<= 119.88
<= 179.83
<= 239.78
<= 299.73
8/25/2012 12:34:48 PM

2011

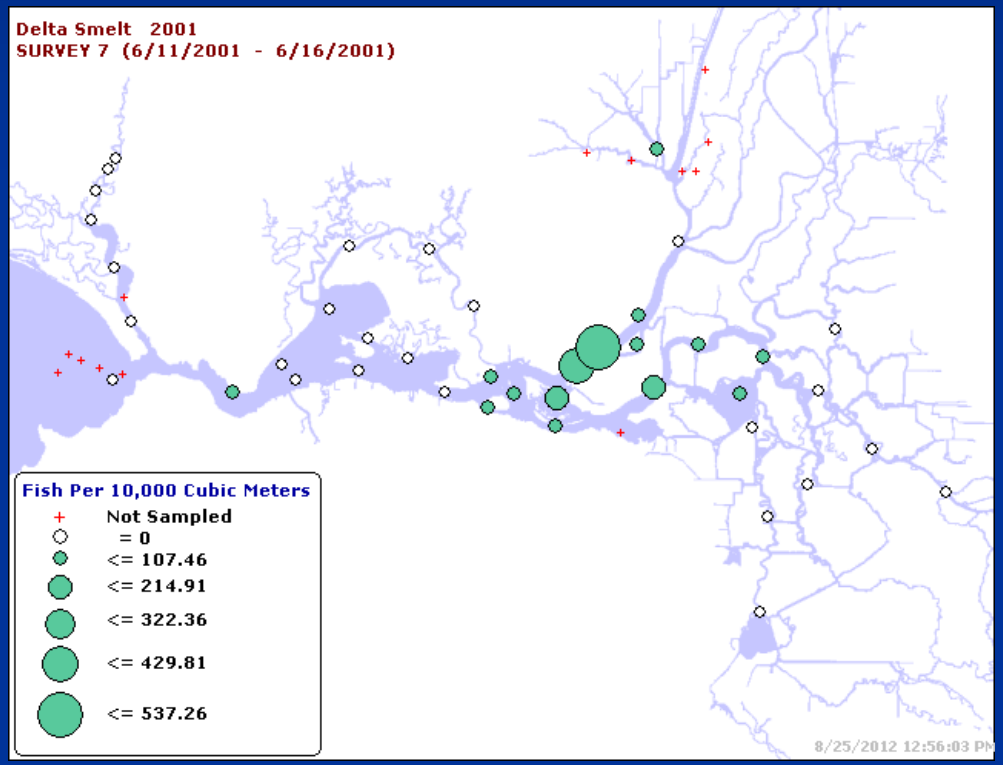

6/18-7/31 2011
50000
40000
30000
20000
10000
0
-10000
CFS
Day
EXPORTS
WEST
RIO
OUT

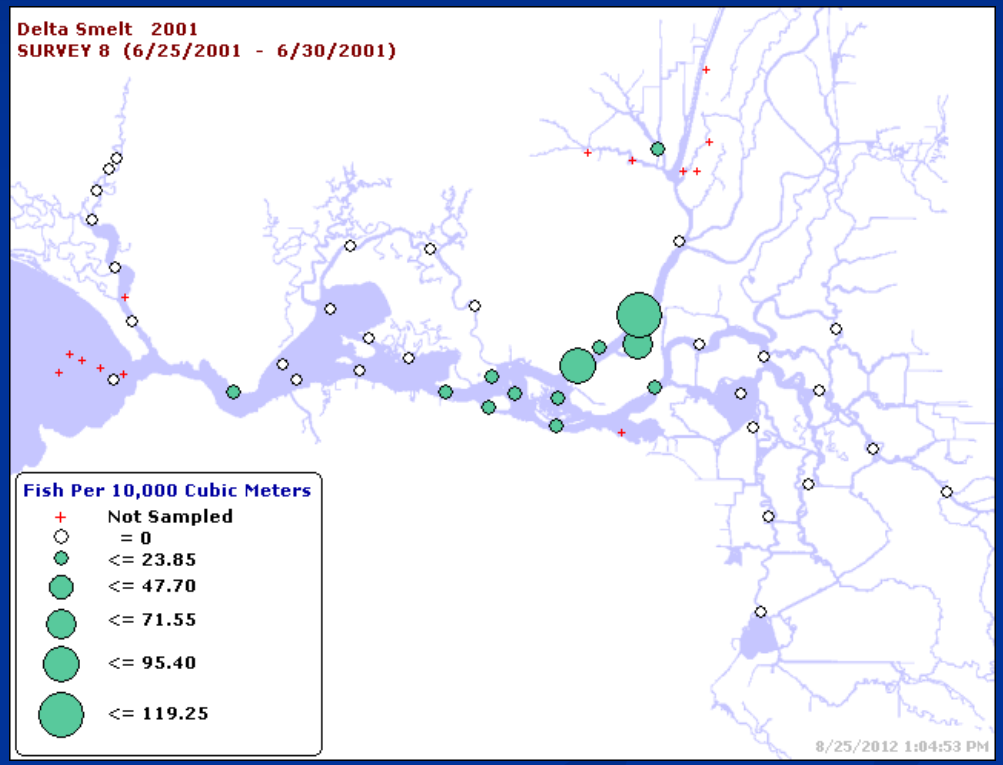
2001



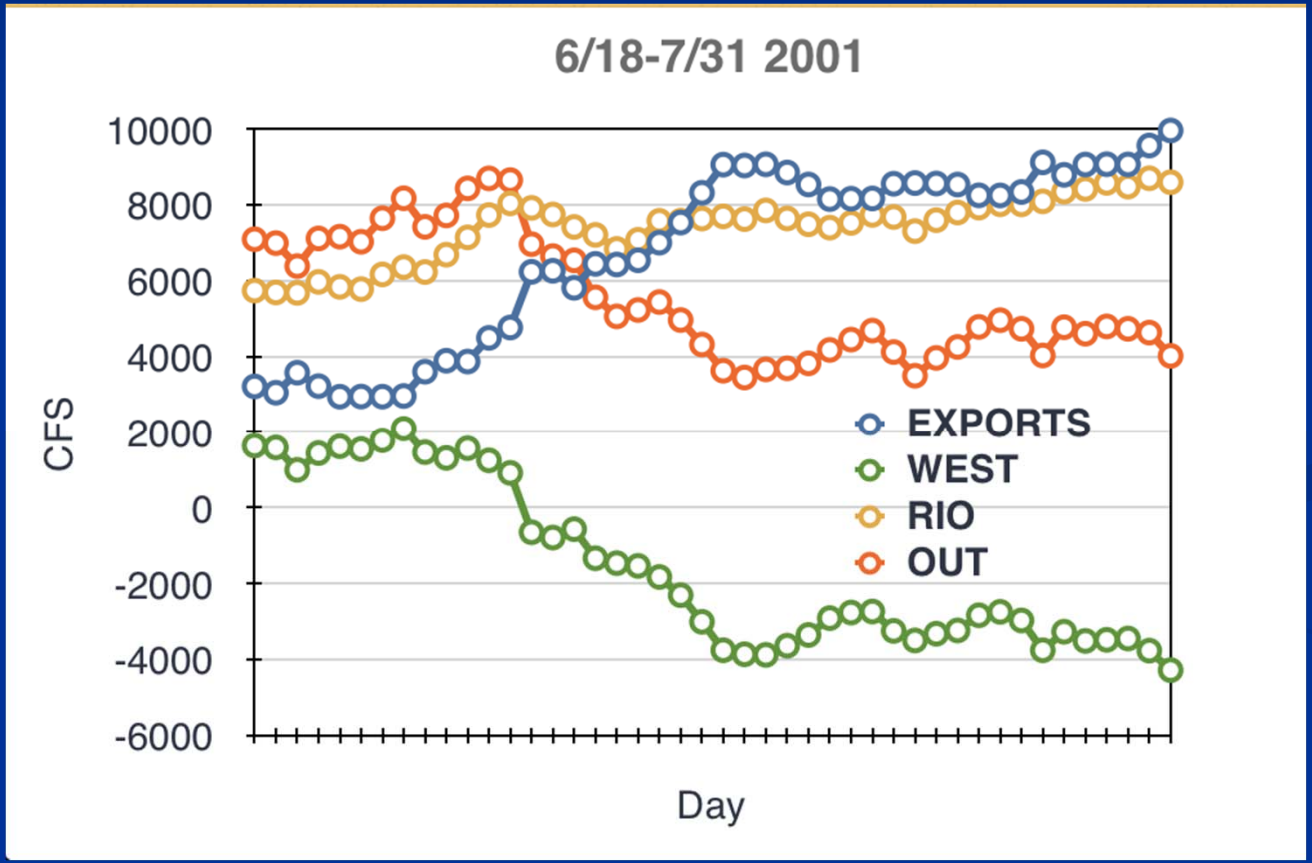


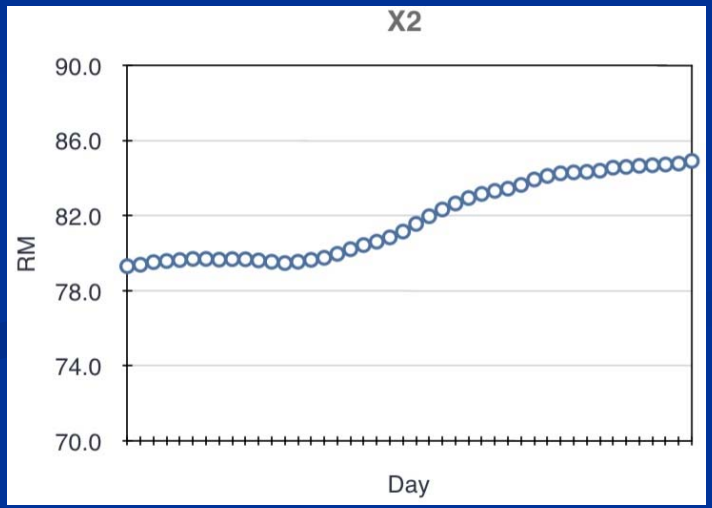
Smelt 2001


Delta Smelt 2001
SURVEY 7 (6/11/2001 - 6/16/2001)
Fish Per 10,000 Cubic Meters
Not Sampled
= 0
<= 107.46
<= 214.91
<= 322.36
<= 429.81
<= 537.26
8/25/2012 12:56:03 PM

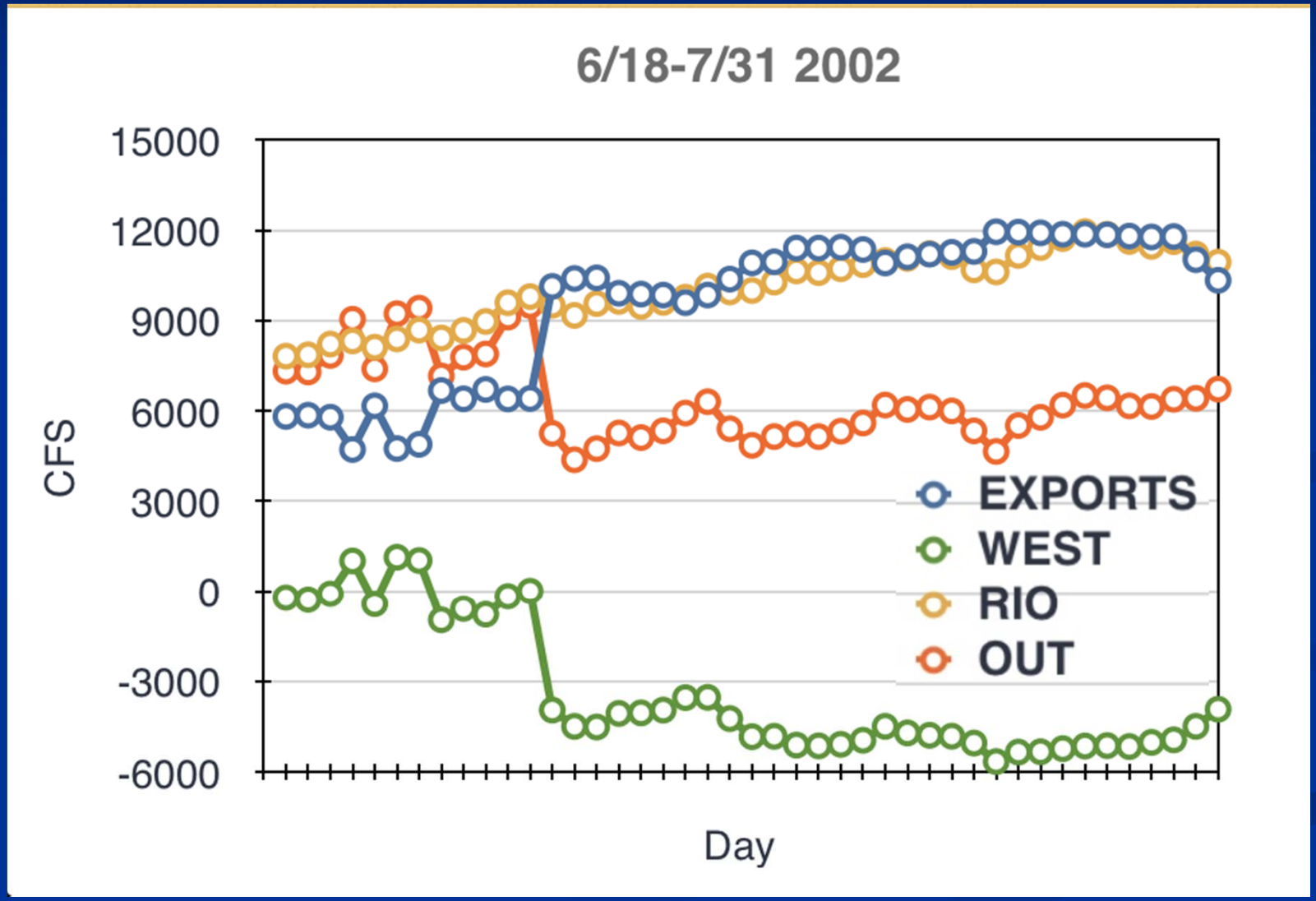

Delta Smelt 2001
SURVEY 8 (6/25/2001 - 6/30/2001)
Fish Per 10,000 Cubic Meters
Not Sampled
= 0
<= 23.85
<= 47.70
<= 71.55
<= 95.40
<= 119.25
8/25/2012 1:04:53 PM

2001

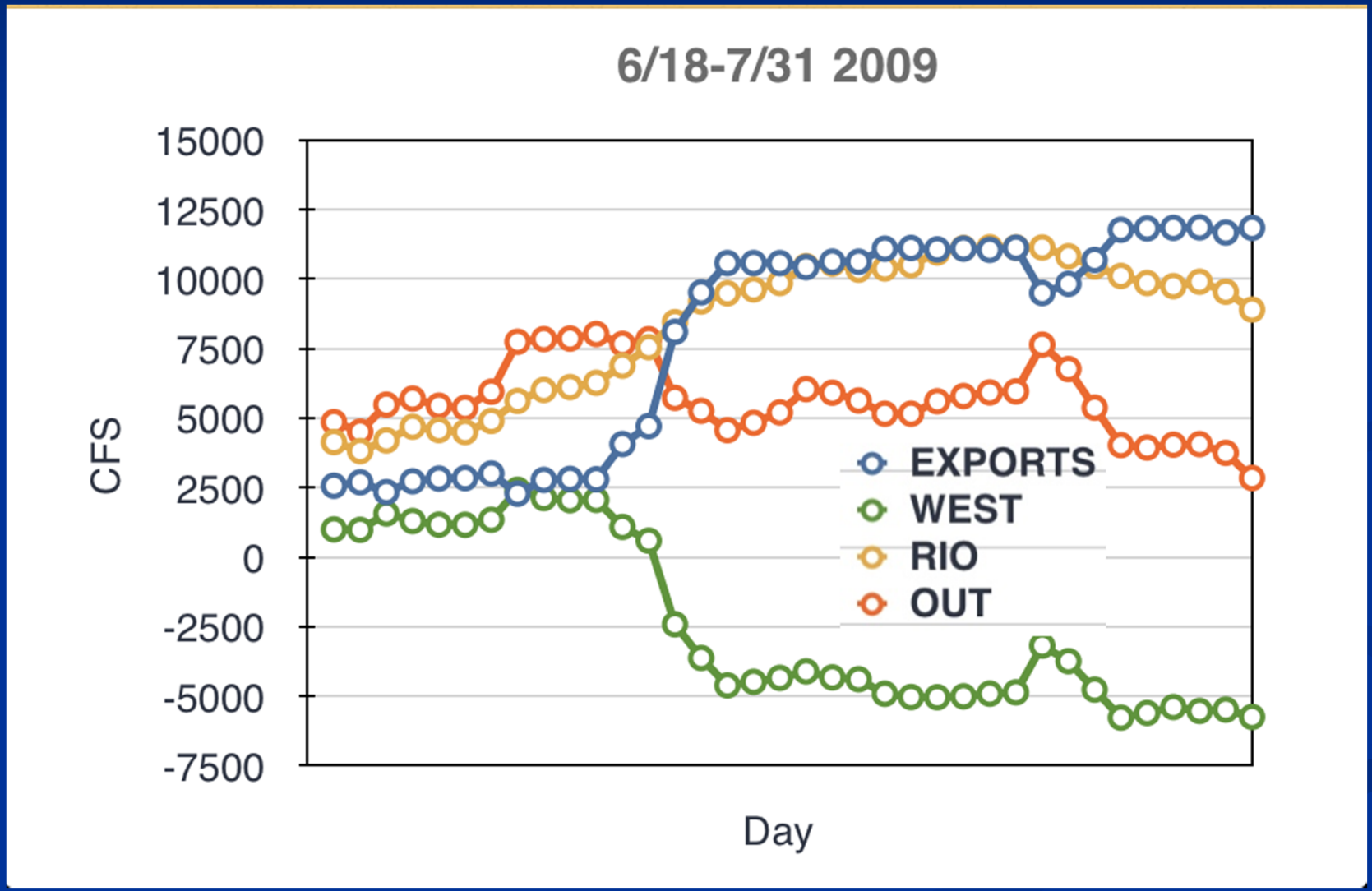

6/18-7/31 2001
10000
8000
6000
4000
2000
0
-2000
-4000
-6000
CFS
Day
EXPORTS
WEST
RIO
OUT


X2
90.0
86.0
82.0
78.0
74.0
70.0
RM
Day

2002


6/18-7/31 2002
15000
12000
9000
6000
3000
0
-3000
-6000
CFS
Day
EXPORTS
WEST
RIO
OUT

2009


6/18-7/31 2009
15000
12500
10000
7500
5000
2500
0
-2500
-5000
-7500
CFS
Day
EXPORTS
WEST
RIO
OUT

Recommended Flow Standards

- Delta Outflow or X2 Location
- Export Limits
- WEST or OMR Flow
- May, June, July - YES
- August - September - October ?