Surface Water Quantity Models

Progress Meeting Notes

September 8, 2015 – Teleconference

Attendees: **CDM Smith**: John Boyer, Nina Caraway
SCDNR: Joe Gellici, Andy Wachob, Scott Harder, Alex Pellet, Ken Rentiers, Bill Clendenin
SCDHEC: David Baize, Chuck Gorman, Rob Devlin
Technical Advisory Committee: Eddie Twilley, K.C. Price, Julie Metts, Eric Krueger, Charles Wingard, Harrison Watson, Mullen Taylor, Heather Nix
Clemson: Jeff Allen

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1. **Saluda SWAM Model Update**
   a. UIF Revisions – Complete
   - John Boyer indicated that revisions to the Saluda UIF dataset have been completed and that CDM Smith will be posting the updated workbooks, graphs and the technical memorandum to the SFT site later this week.

   b. Draft Calibration Results
   - John Boyer provided an overview of the draft (graphical) calibration results which were distributed prior to the meeting. The results were noted as preliminary, given that CDM Smith is still performing an internal review of both the monthly and daily calibration model.
   - It was noted that the calibration is more of a *verification* – we are attempting to verify that the model represents water availability in the basin with sufficient accuracy; that ungagged flow estimates are reasonable; that flows are being combined correctly; and that basin operations (e.g., reservoir operations and discharges) are appropriately captured.
   - The comparison of measured vs. modeled flow below the Saluda Dam on Lake Murray was briefly discussed. It was noted that the model is not attempting to mimic the variations in historical operations which occurred over the calibration period (1983-2013). For example, the calibration model does not attempt to

reproduce the lowering and raising of lake levels that was performed to facilitate dam repairs, or for other reasons.

- Scott Harder questioned whether the proposed operating rules associated with the pending FERC license were included, or whether the historical and current rules were included. John Boyer indicated that the existing operating rules were included, but he will need to confirm with Tim Cox. It was unclear what minimum release was assumed, and if that assumption was the reason for the difference in measured vs. modeled flows at the low flow range.

c. Update on Application (Cloud) Hosting

- John Boyer indicated that CDM Smith is receiving a price quote for hosting the SWAM models. Bill Clendenin noted that depending on the price, the work may need to be bid out, following SC procurement rules. CDM Smith will pass along the quote, when received, and will work with DNR and DHEC to determine the next steps.

2. Draft Pee Dee Basin Framework

a. Approach to Intercoastal Waterway (IW) and Tidally Influenced Portions

- John Boyer noted that DNR has provided comments on the Draft Pee Dee Framework. The comments requiring input and/or confirmation from DHEC have already been addressed by DHEC staff. CDM Smith is in the process of addressing the other comments, and updating the Draft Framework.
- The options to include tidally influenced portions in the SWAM model were discussed. John Boyer noted that previous studies (e.g., USGS Scientific Investigations Report 2007-5110) have demonstrated that a large portion of flow from the Waccamaw River flows north through the IW; however, the percentage of flow has not been quantified. Flow from the Great Pee Dee River, depending on tidal conditions, also is expected to contribute to the IW.
- John Boyer suggested that it may be worthwhile to include the IW and tidal portions of the Great Pee Dee, Sampit, Waccamaw, and Black rivers in the model framework *if only* to represent the many permitted withdrawal locations and amounts. It will not be possible for SWAM to perform any calculations (with confidence) in the tidally influenced portions because of the uncertainty of flow.
- Scott Harder suggested that CDM Smith consider including the IW as a separate model, with the thought that it would not be "validated" and have limited use. John Boyer suggested a similar approach might be taken with the Sampit River, since it does not connect to the Great Pee Dee River or other portions of the river network in the Pee Dee Basin; it does not have users which discharge to outside of the Sampit sub-basin; and could exist as a standalone model. This helps simplify the main Pee Dee Basin SWAM model.

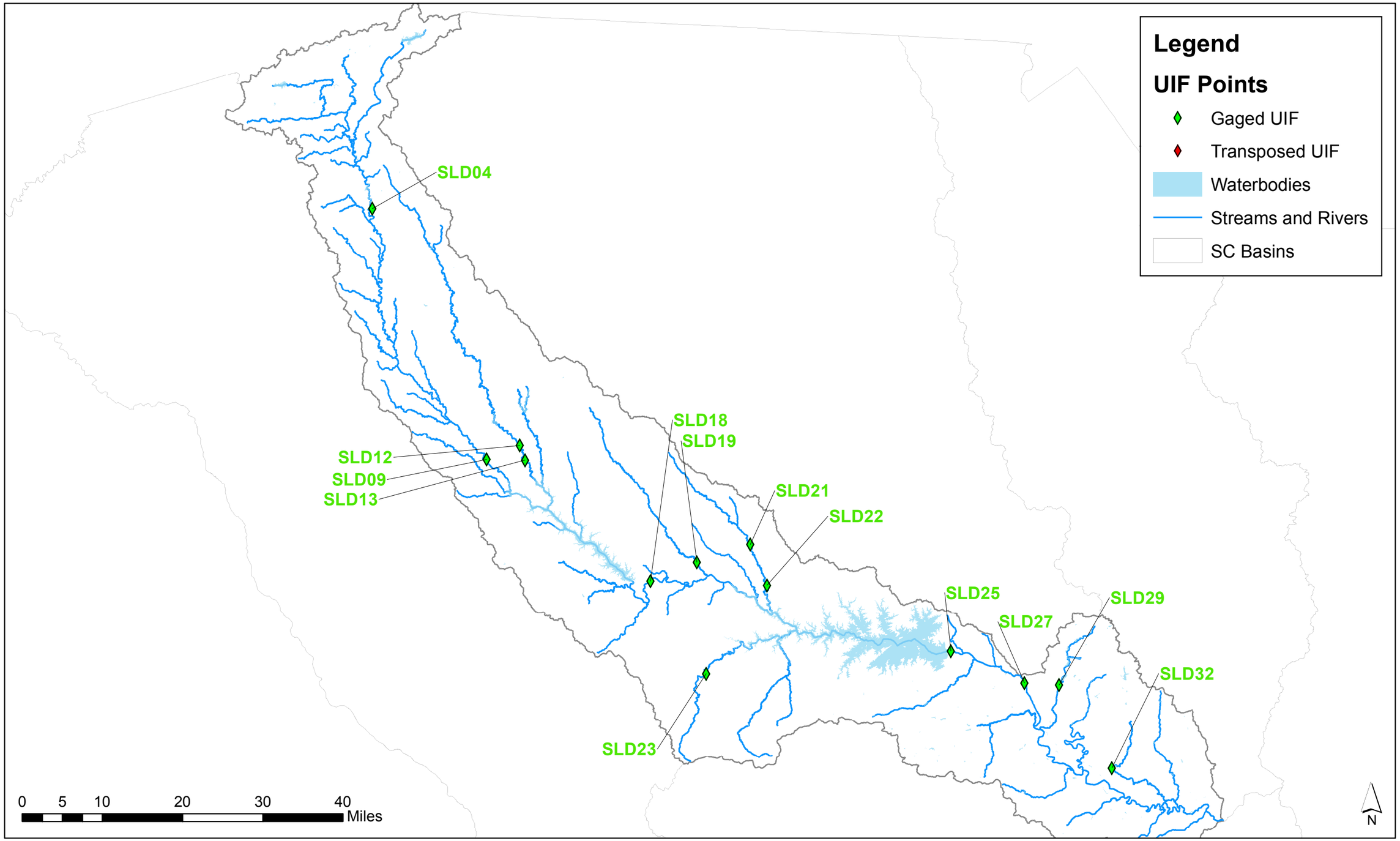
- It was suggested that the SWAM model output (flows) up to the point where tidal influences begin, may be used as input to other (coastal) models.
- Harrison Watson questioned the withdrawal and discharges in the Florence area, and indicated he would follow-up with John Boyer after the call.

3. **Data Collection and Analysis**
    a. Broad, Pee Dee and Catawba – Substantially complete
    b. Santee and Salkehatchie – in progress
    - Data collection continue to progress in the remaining basins. No significant issues were identified.

4. **Upcoming Stakeholder Meetings (Week of Oct 12th)**
    a. 2nd Saluda Meeting
        i. Agenda, Format, Date and Location Options
        - Jeff Allen indicated that Clemson is looking into the University Center on Pleasantburg Drive in Greenville. Clemson will look into possible dates during the week.
        - DNR, DHEC and Clemson concurred with the draft agenda circulated by John Boyer. Clemson will look into possible dates during the week, with the goal of having the meetings on consecutive days, or separated by one day.
    b. 1st Pee Dee Meeting
        i. Date and Location Options
        - Jeff Allen indicated that Clemson is looking into venues in the Florence area.

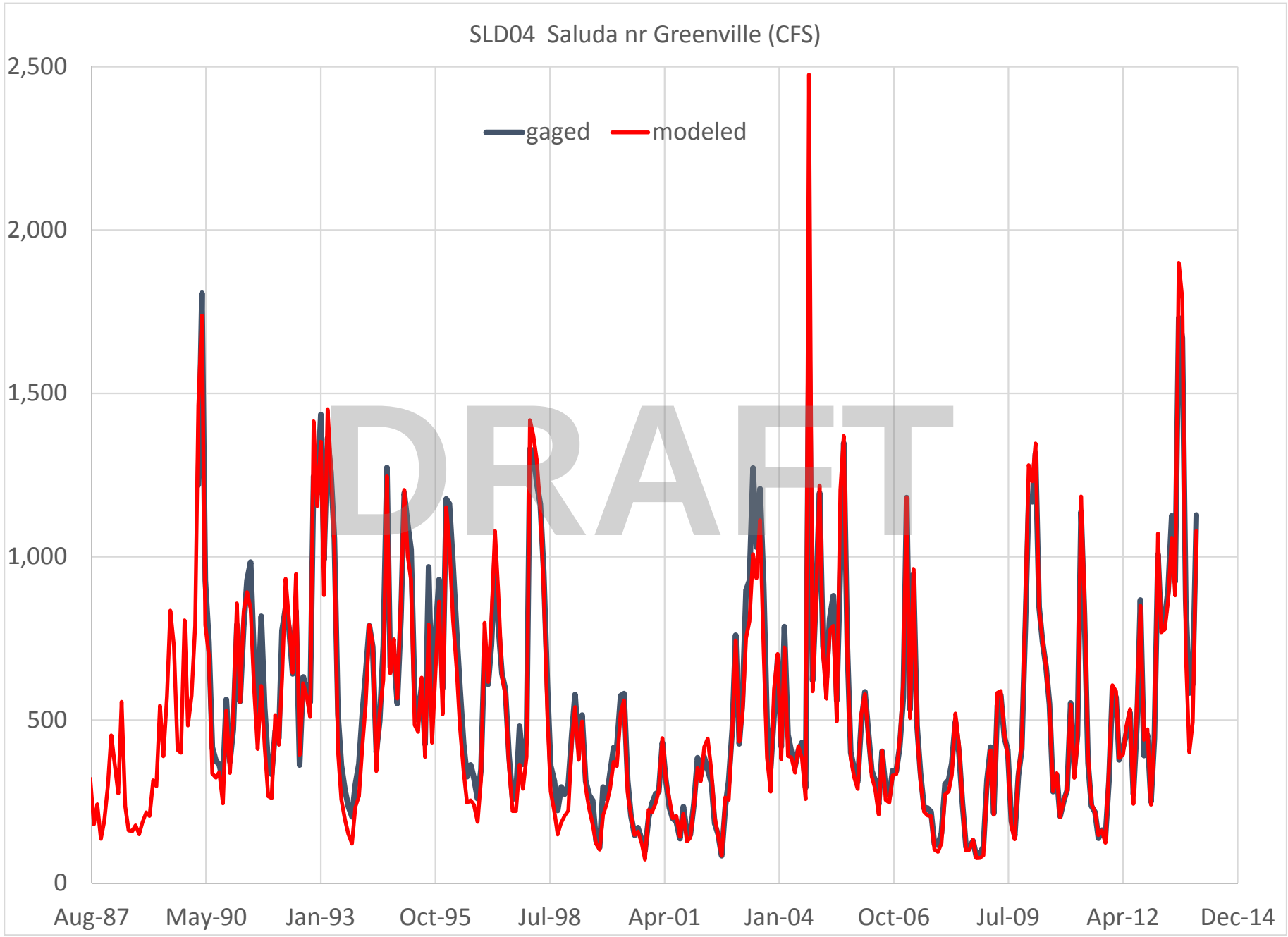
5. **Upcoming Deliverables**
    a. Saluda UIF Dataset and Memo (revised) and Draft Model – this week
    b. Saluda Draft Modeling Report – next week
    c. Pee Dee Framework (revised) – by Sept 21
    d. Draft Edisto UIF Dataset and Memo – by Sept 30
    e. Catawba Draft Framework – by Sept 30

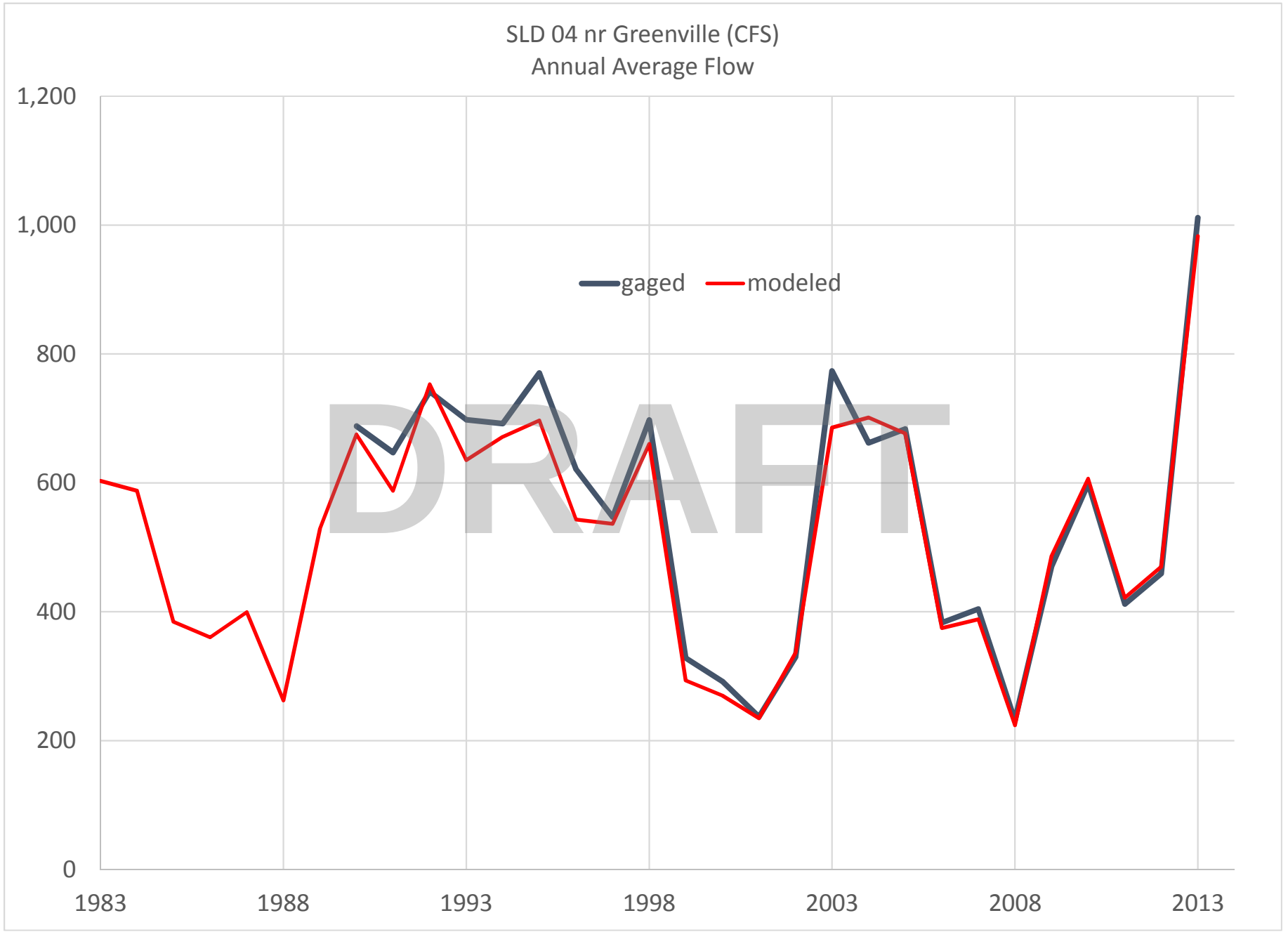
6. **Other Items**
    - No additional items were discussed.

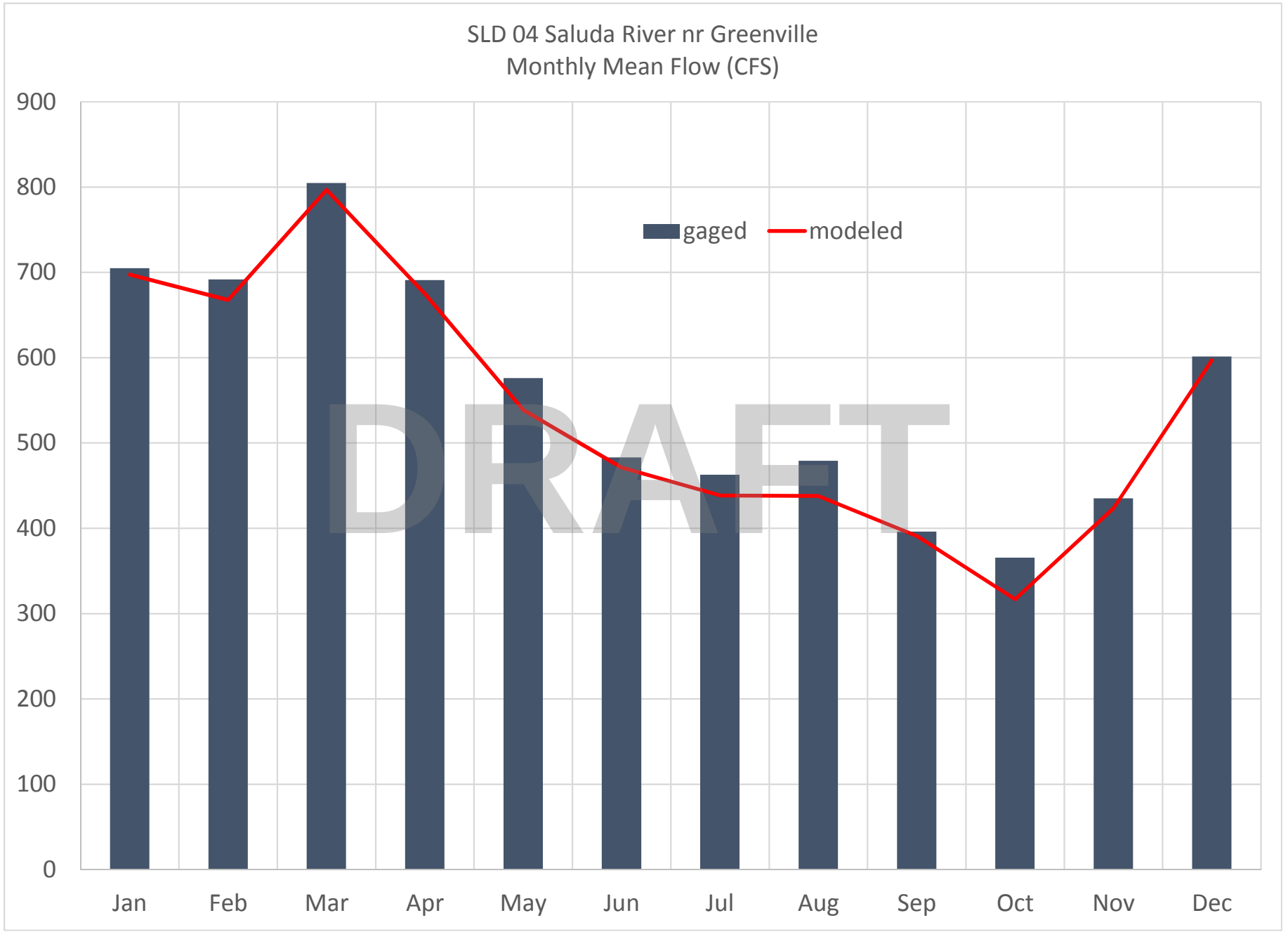


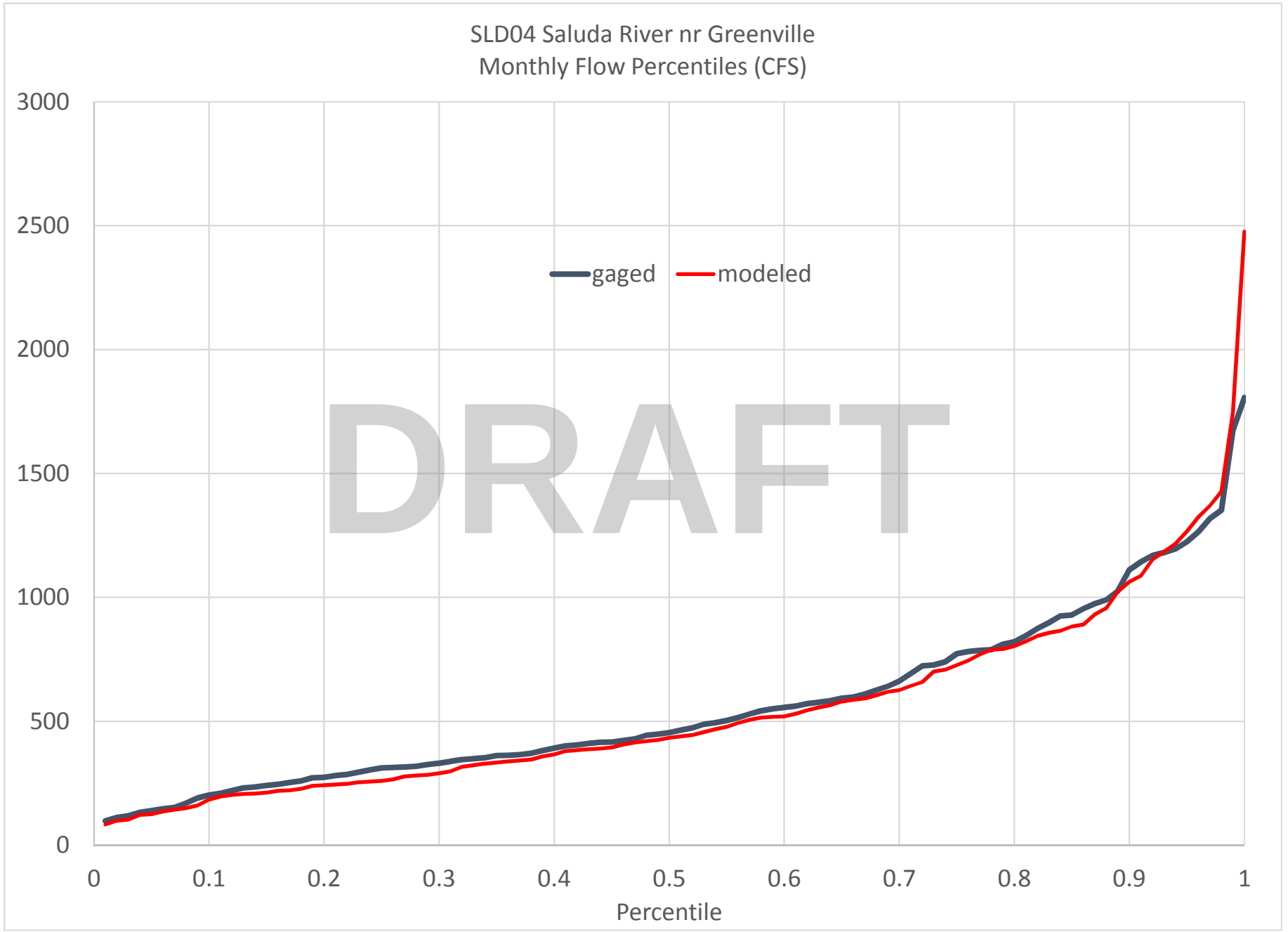
CDM Smith

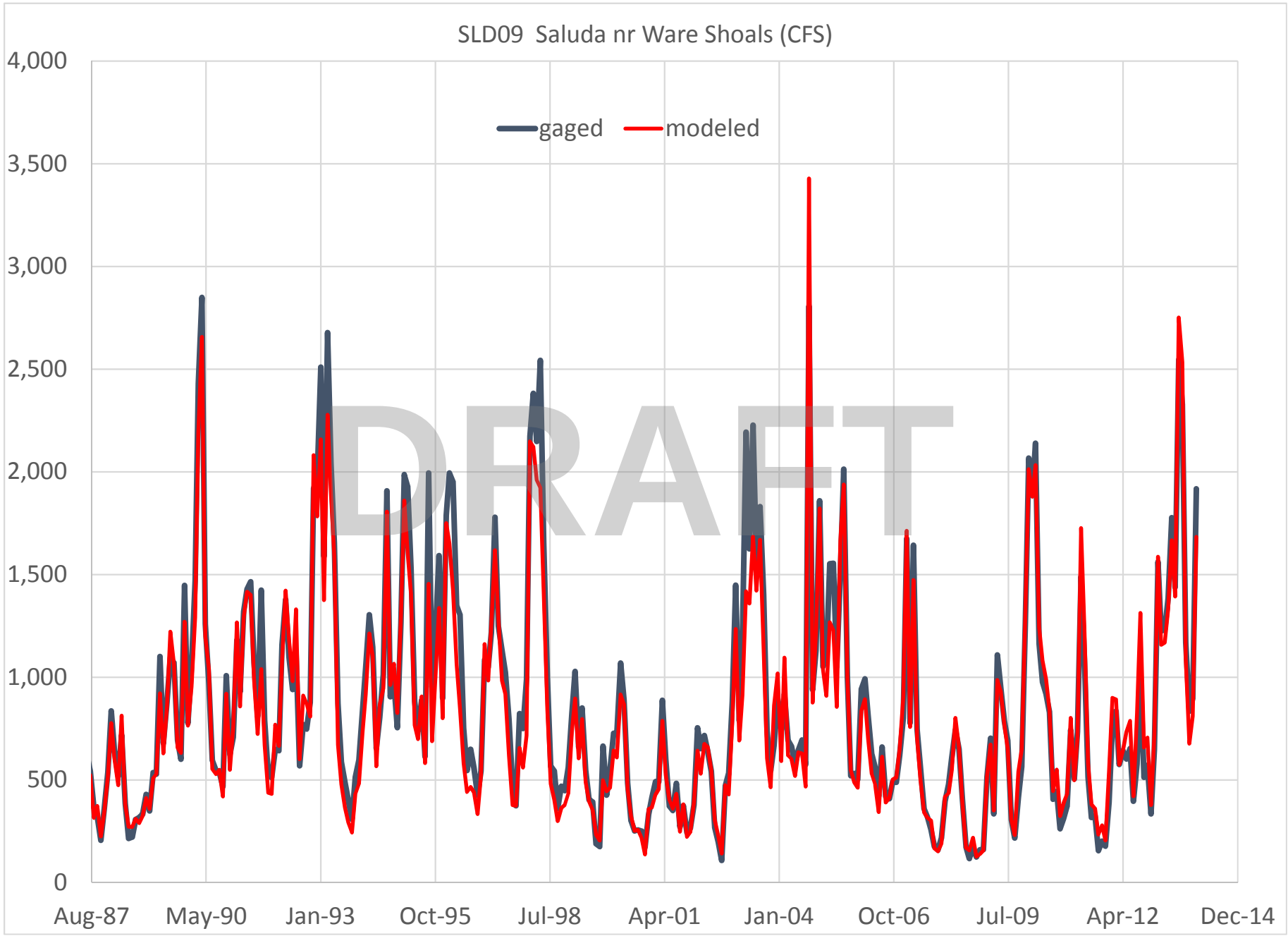
SWAM Calibration Gages in the Saluda River Basin

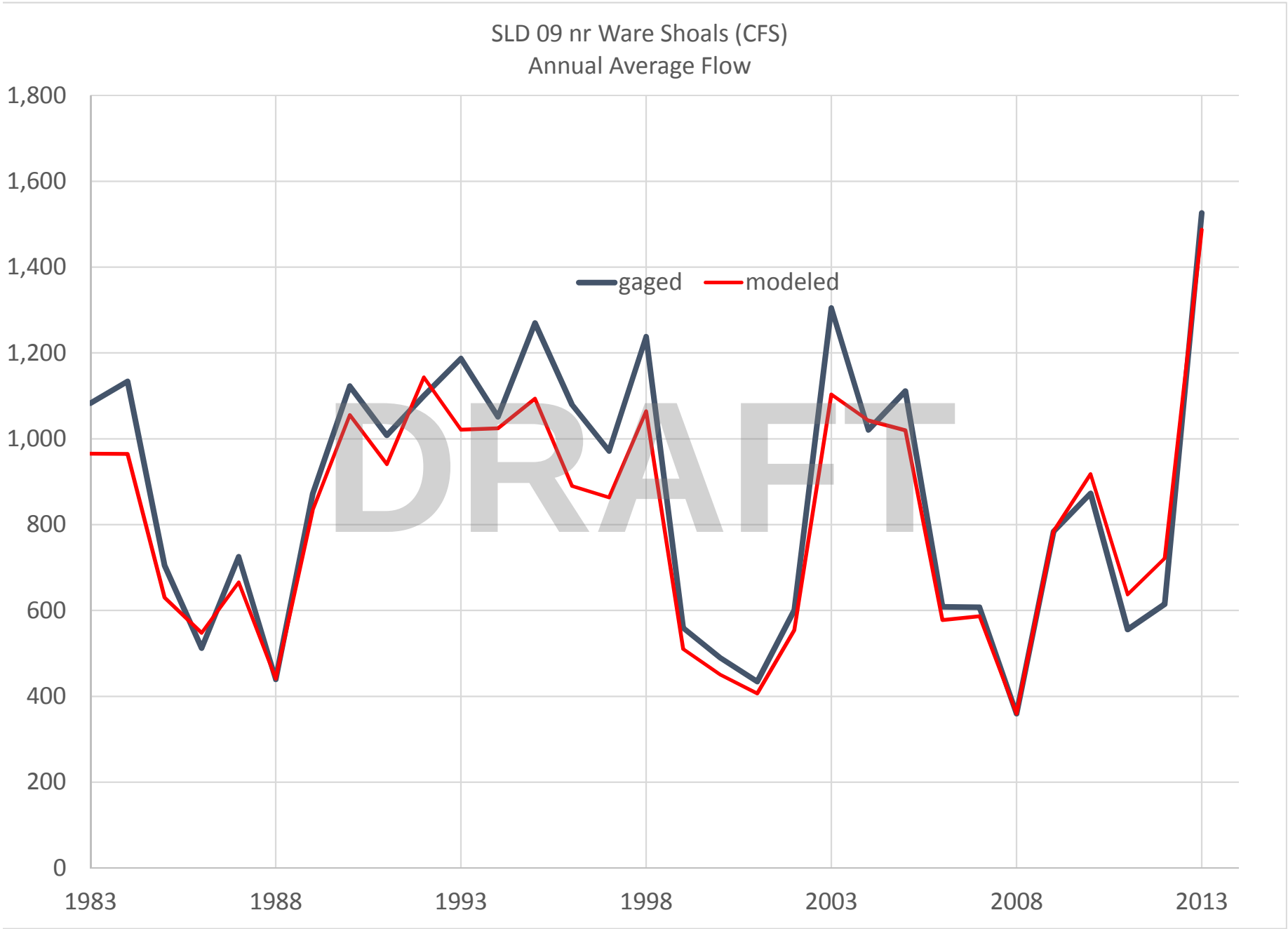

SLD04 Saluda nr Greenville (CFS)
gaged
modeled
2,500
2,000
1,500
1,000
500
0
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
DRAFT

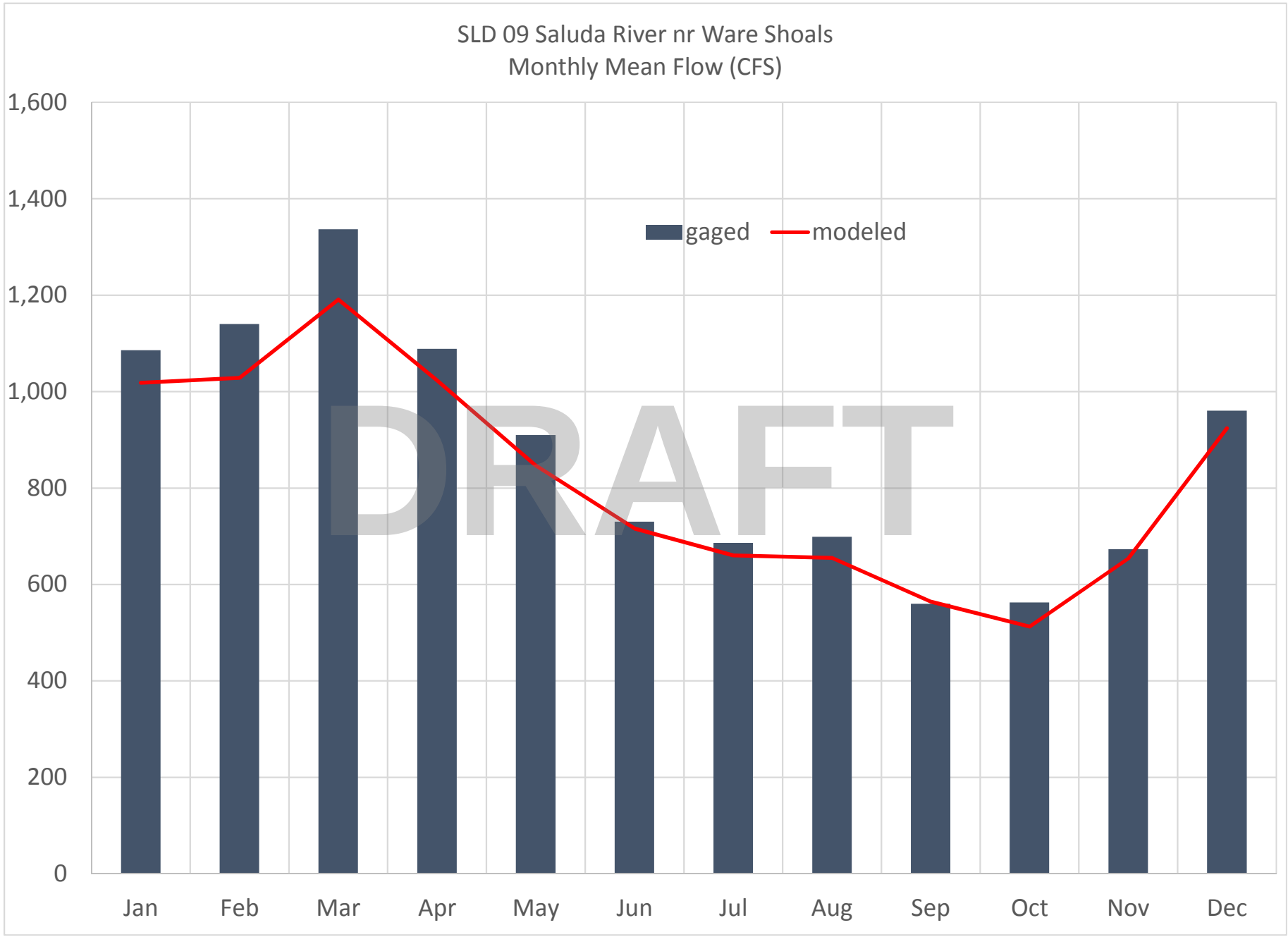

SLD 04 nr Greenville (CFS)
Annual Average Flow
1,200
1,000
800
600
400
200
0
1983
1988
1993
1998
2003
2008
2013
gaged
modeled
DRAFT

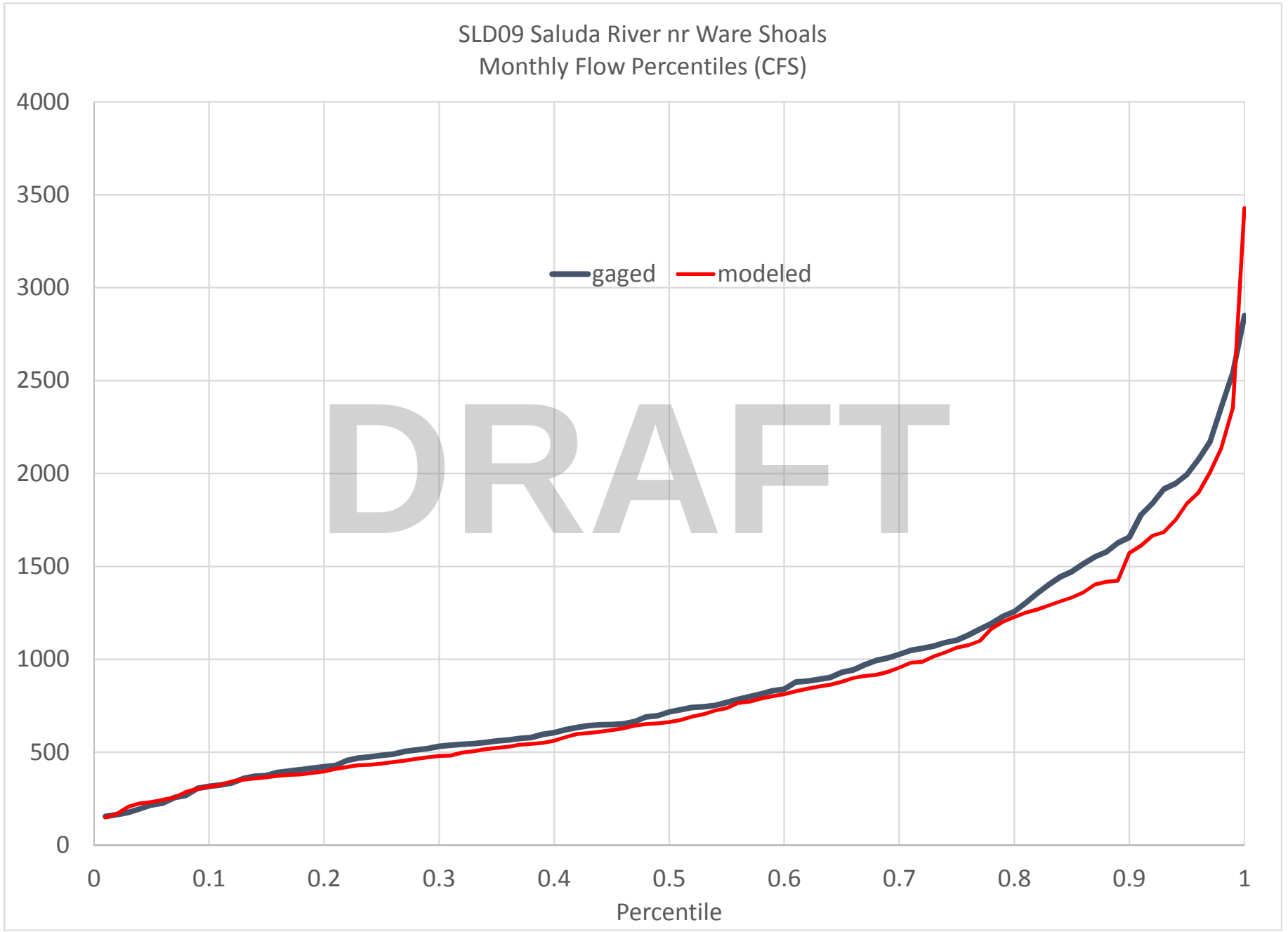

SLD 04 Saluda River nr Greenville
Monthly Mean Flow (CFS)
900
800
700
600
500
400
300
200
100
0
gaged
modeled
DRAFT
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

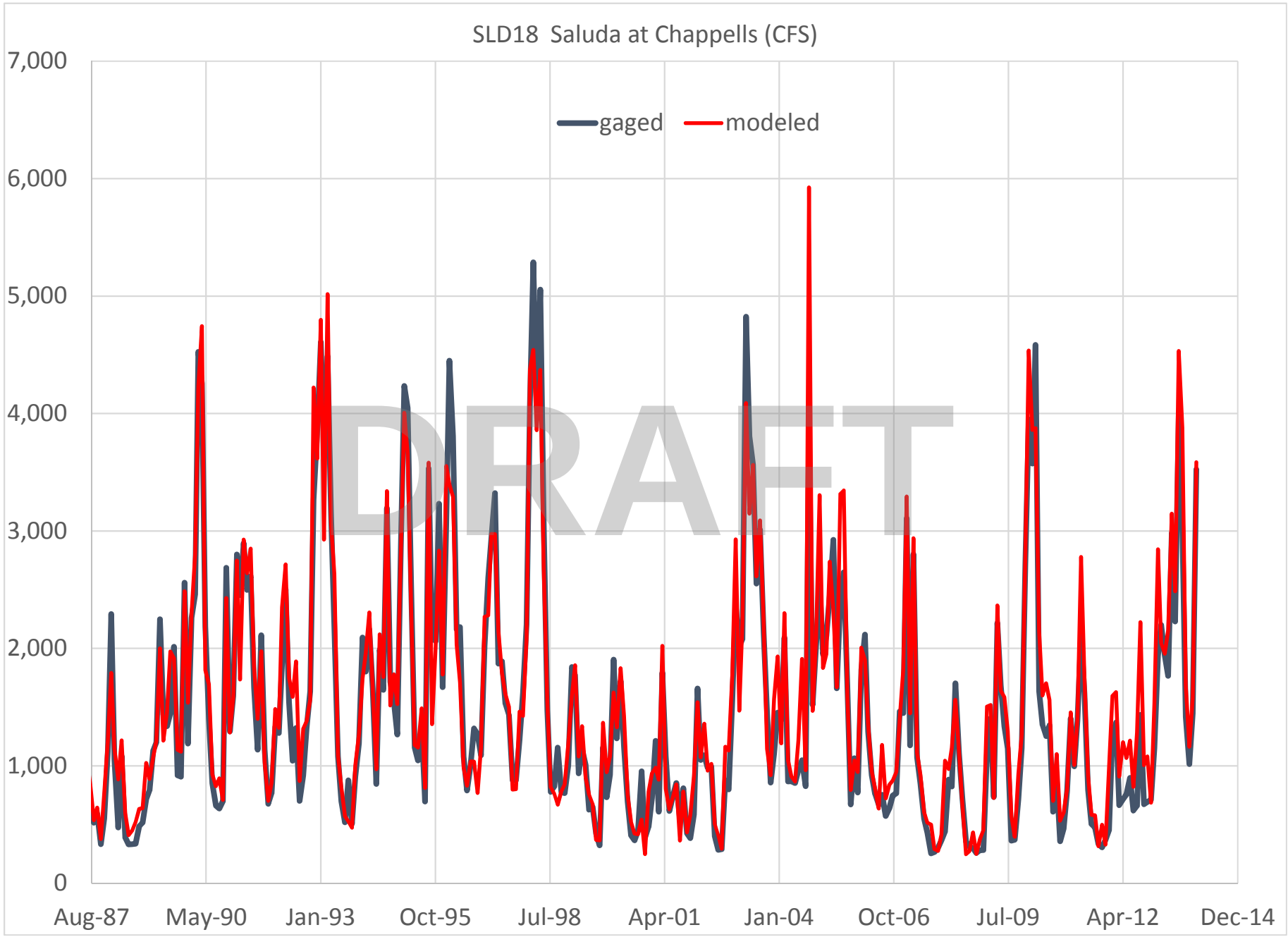

SLD04 Saluda River nr Greenville
Monthly Flow Percentiles (CFS)
3000
2500
2000
1500
1000
500
0
gaged
modeled
DRAFT
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Percentile

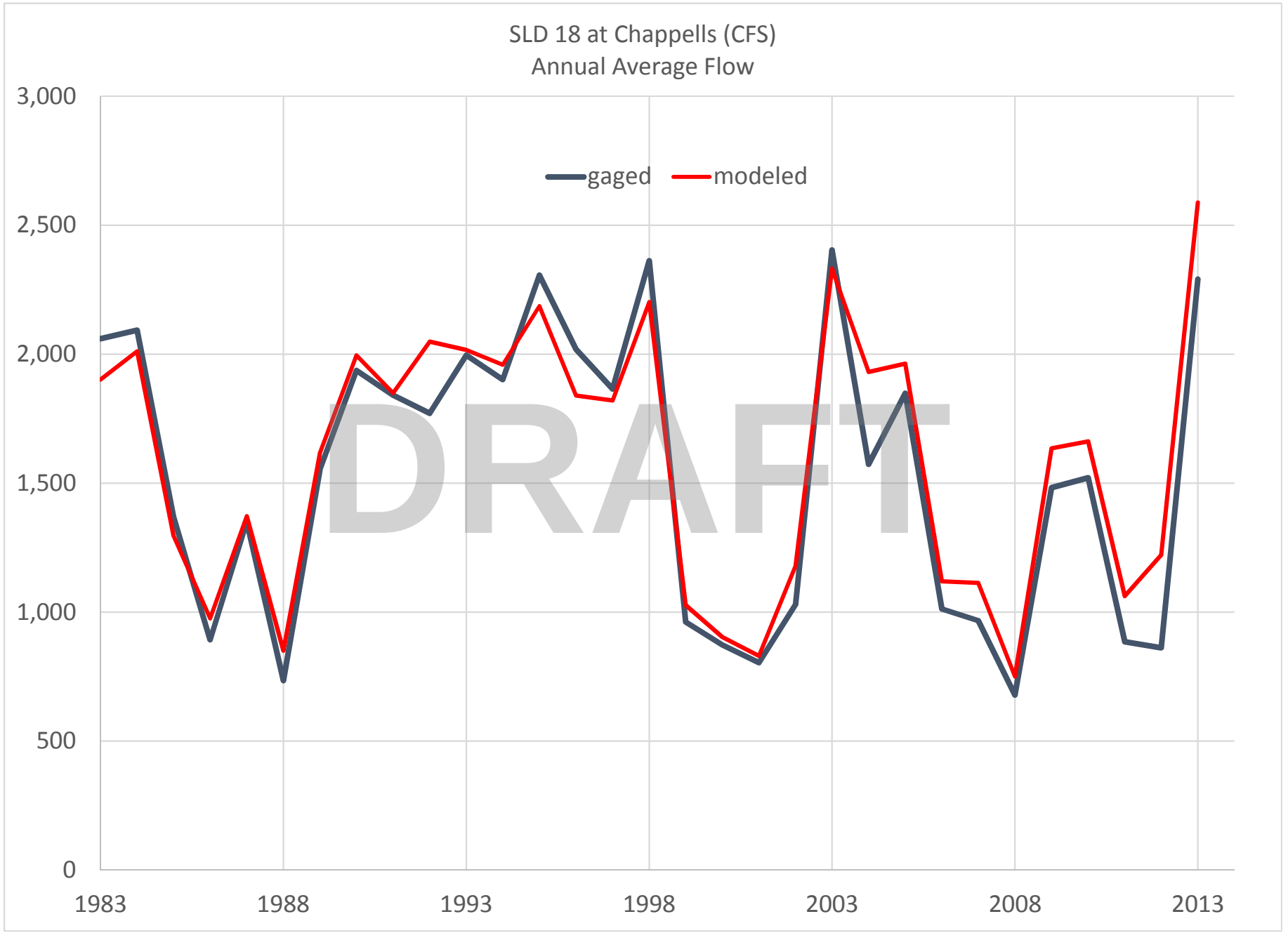

SLD09 Saluda nr Ware Shoals (CFS)
gaged
modeled
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
DRAFT

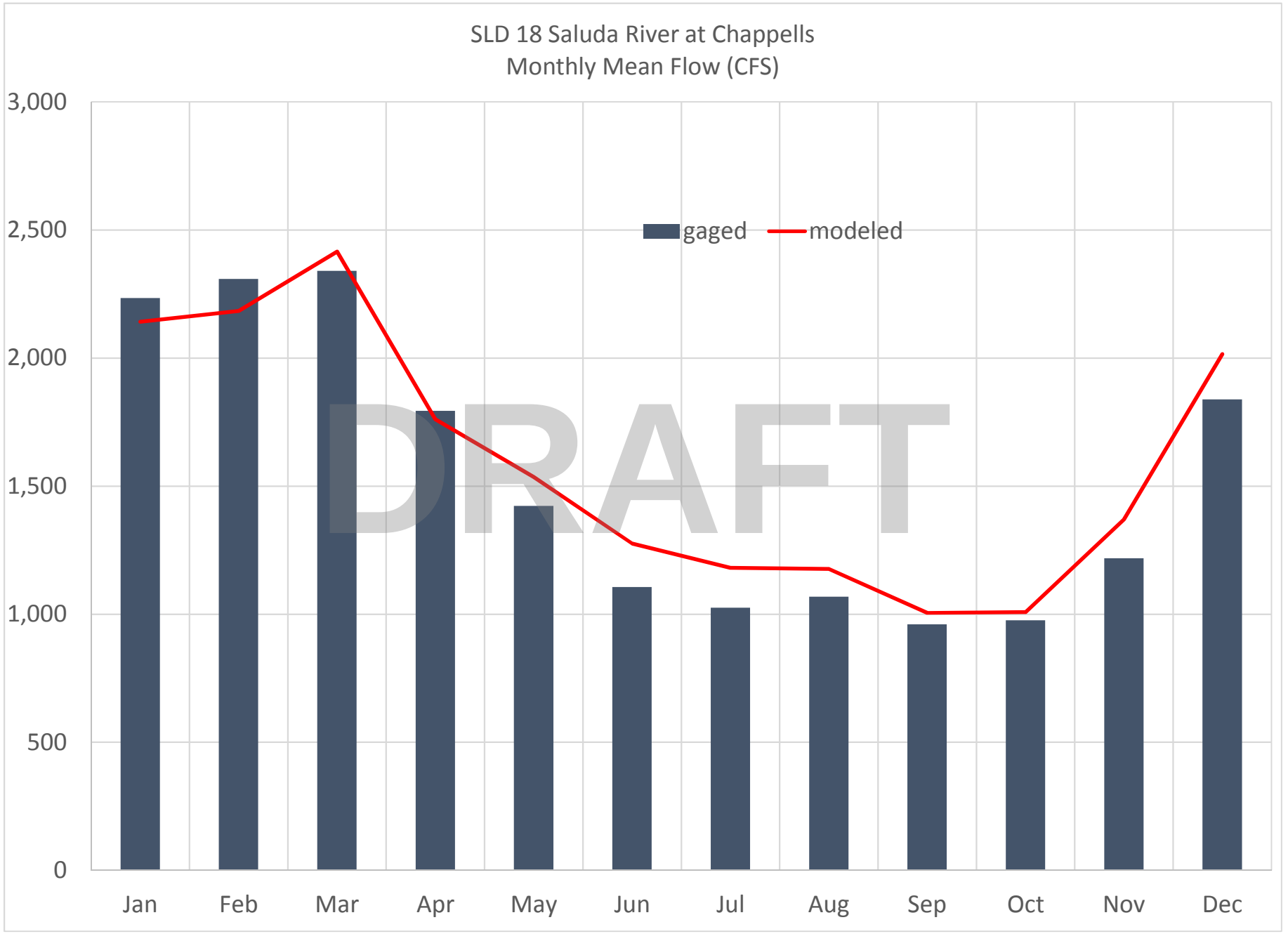

SLD 09 nr Ware Shoals (CFS)
Annual Average Flow
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
1983
1988
1993
1998
2003
2008
2013
gaged
modeled
DRAFT

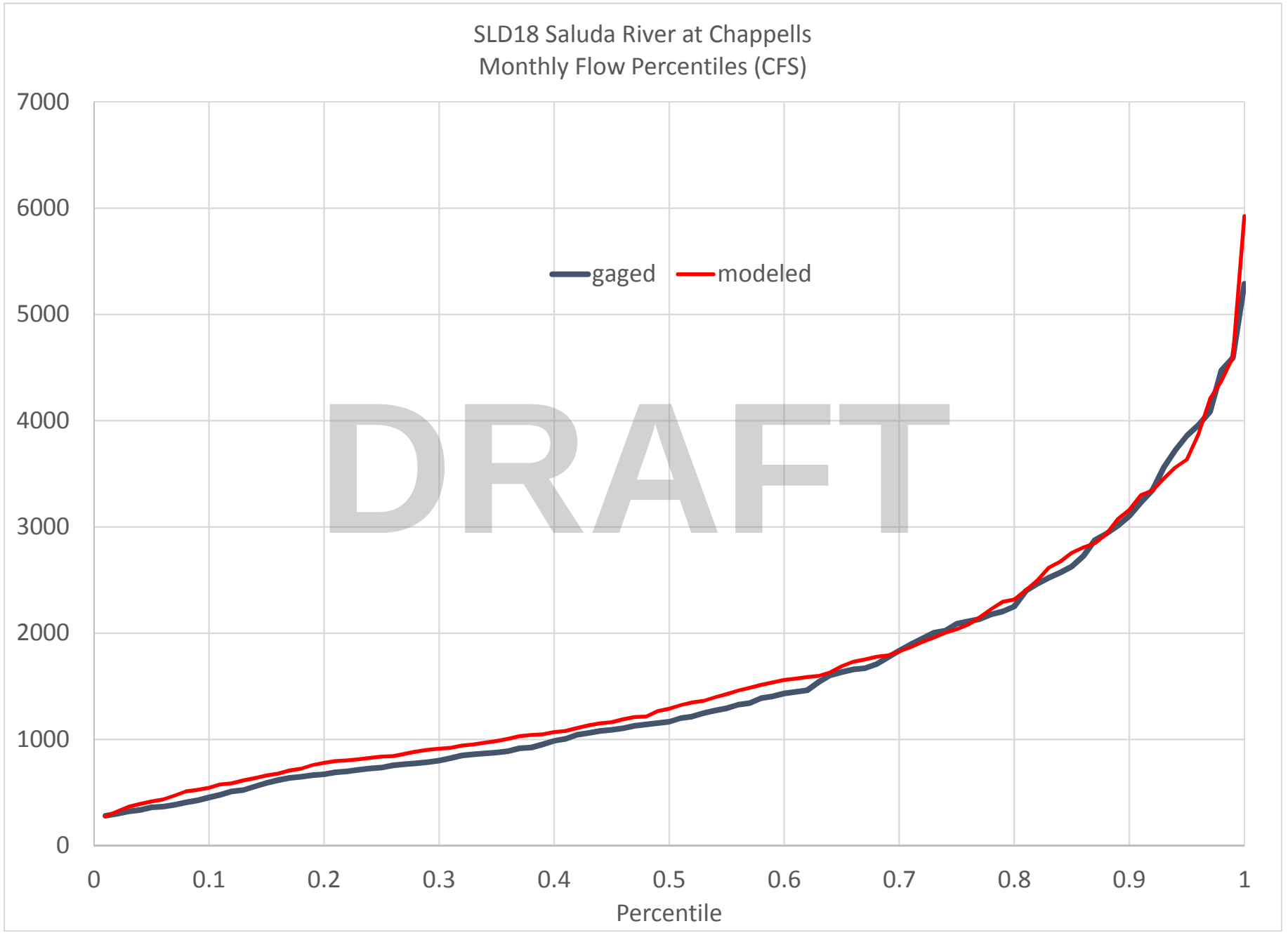

SLD 09 Saluda River nr Ware Shoals
Monthly Mean Flow (CFS)
1,600
1,400
1,200
1,000
800
600
400
200
0
gaged
modeled
DRAFT
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

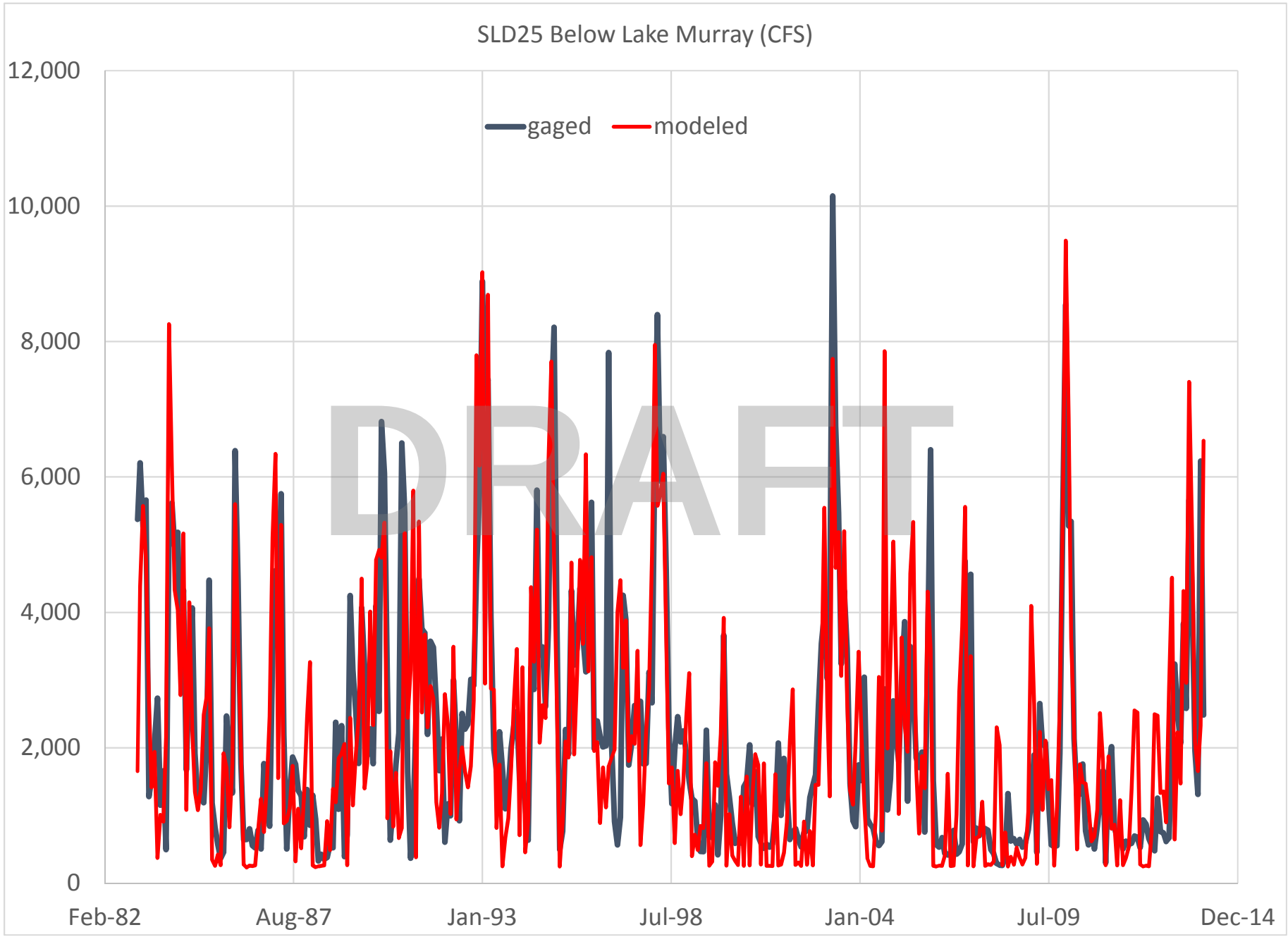

SLD09 Saluda River nr Ware Shoals
Monthly Flow Percentiles (CFS)
4000
3500
3000
2500
2000
1500
1000
500
0
gaged
modeled
DRAFT
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Percentile

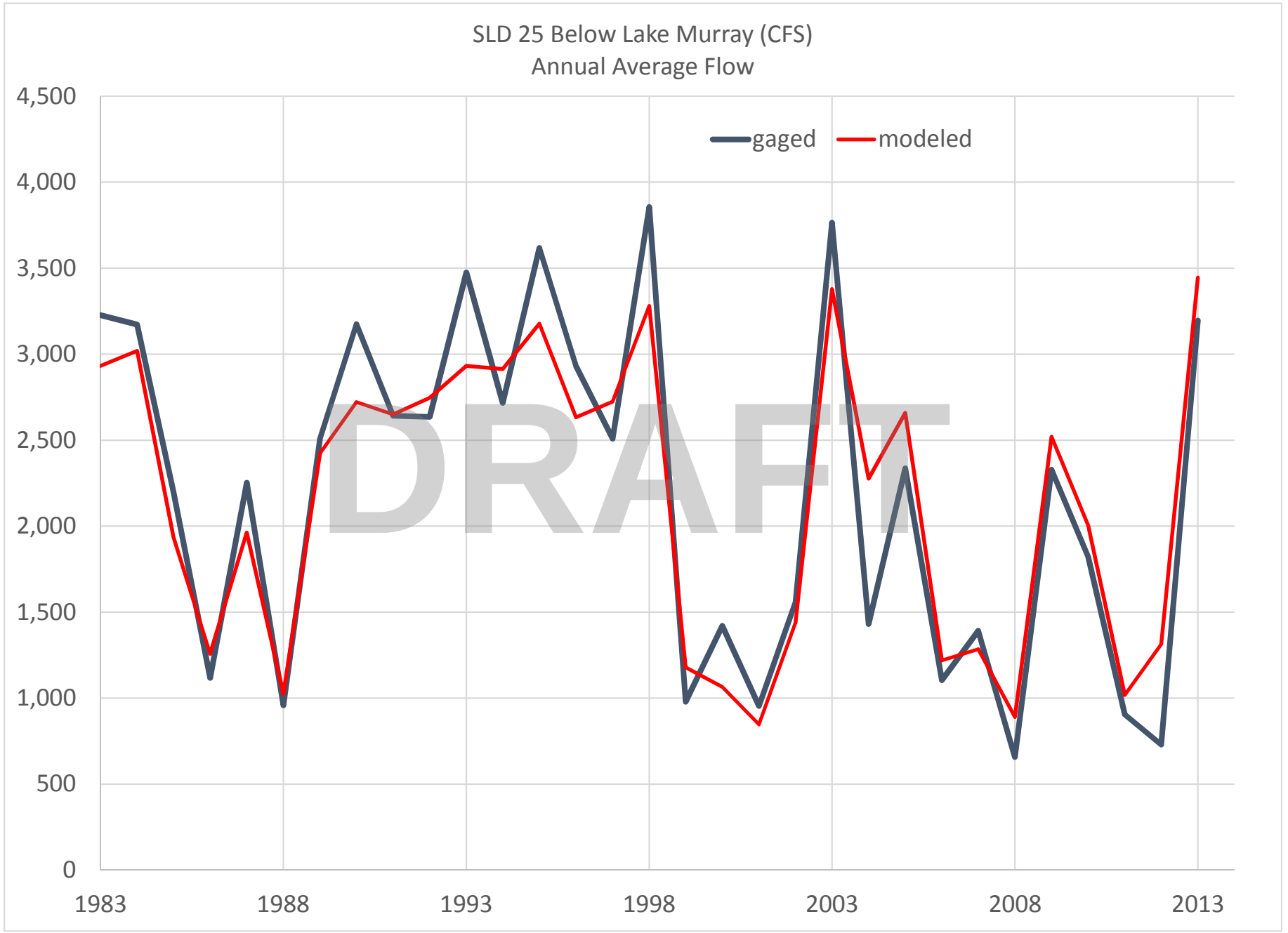

SLD18 Saluda at Chappells (CFS)
gaged
modeled
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
DRAFT

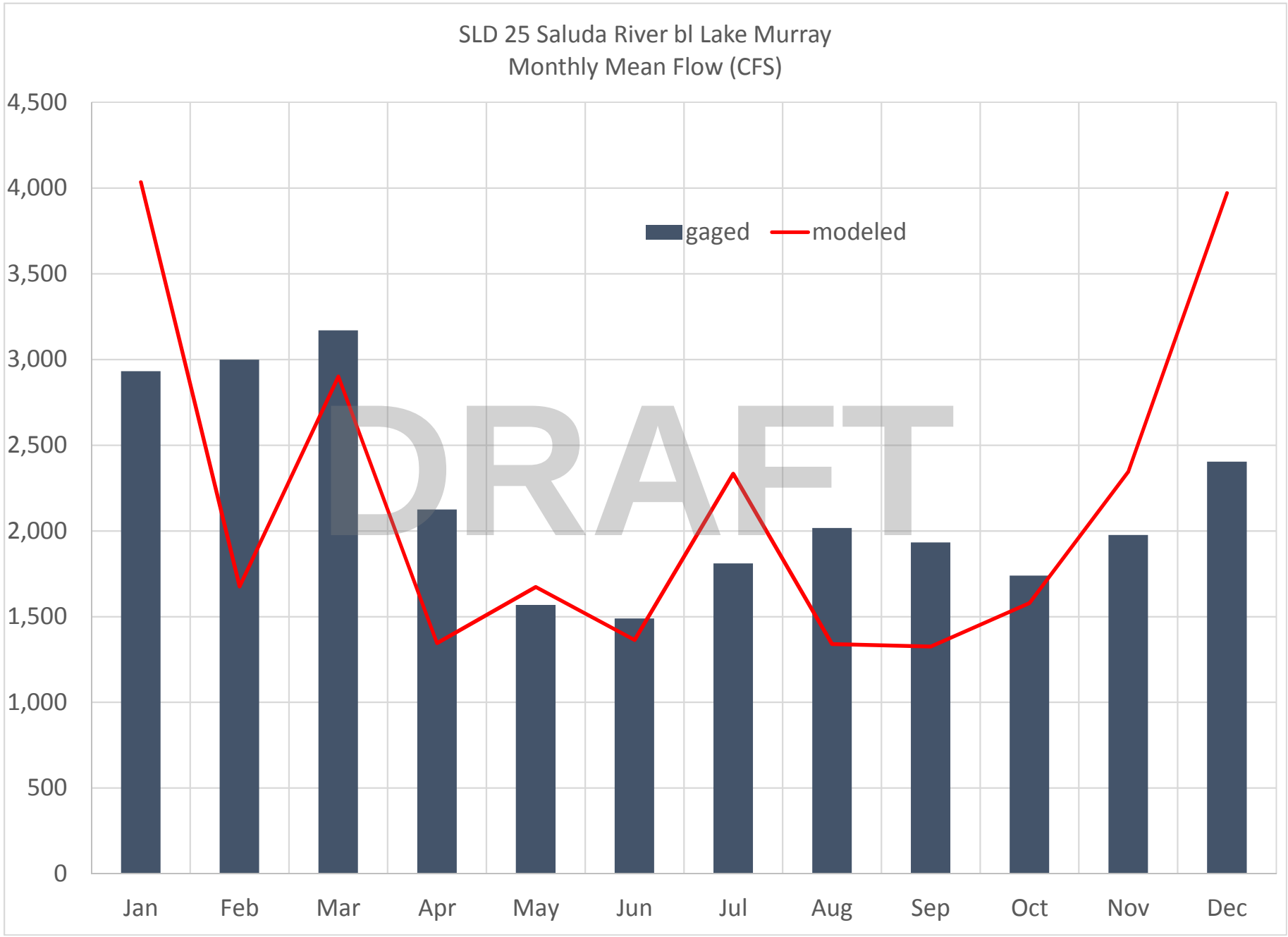

SLD 18 at Chappells (CFS)
Annual Average Flow
gaged
modeled
3,000
2,500
2,000
1,500
1,000
500
0
1983
1988
1993
1998
2003
2008
2013
DRAFT

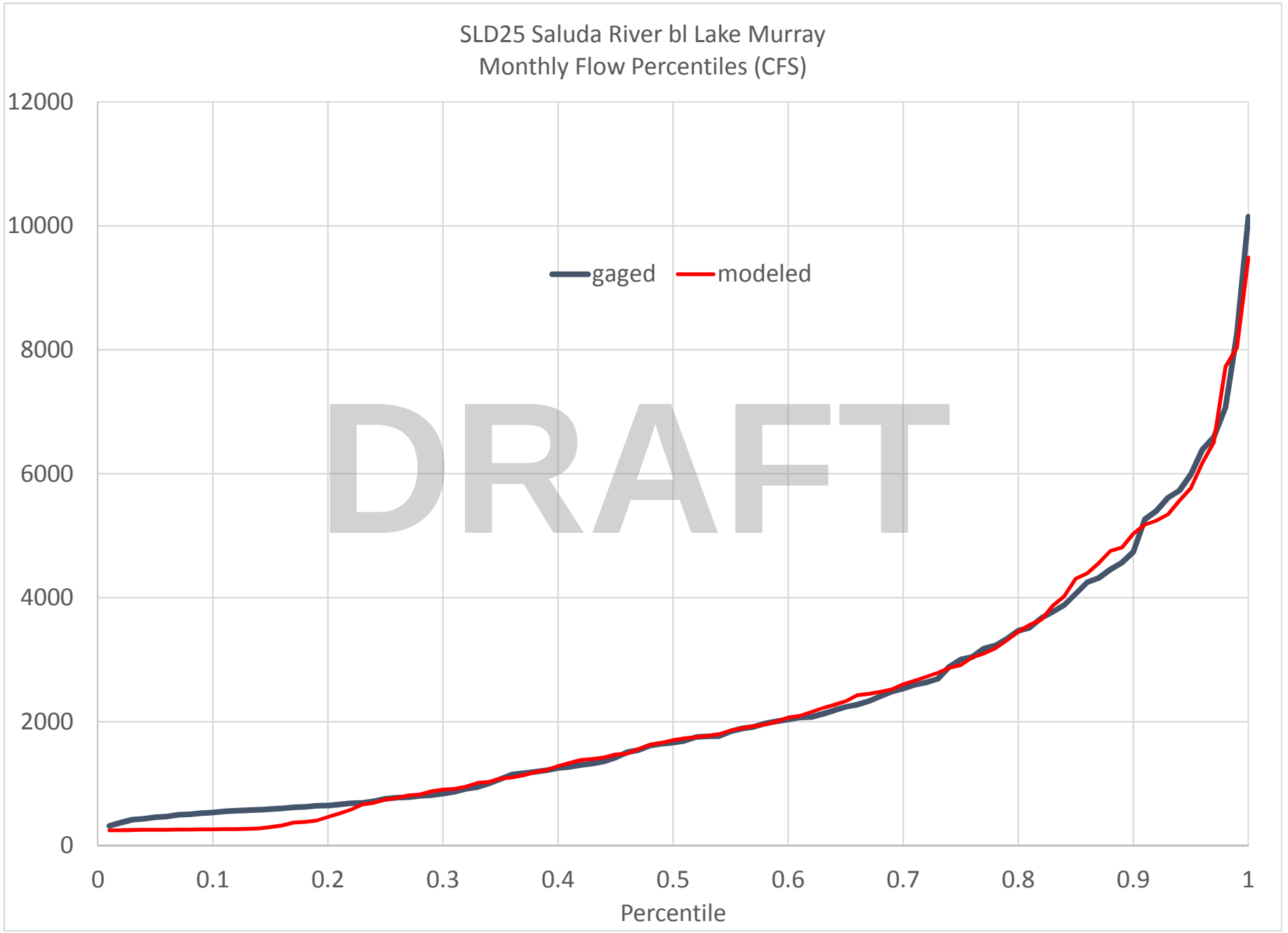

SLD 18 Saluda River at Chappells
Monthly Mean Flow (CFS)
3,000
2,500
2,000
1,500
1,000
500
0
gaged
modeled
DRAFT
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

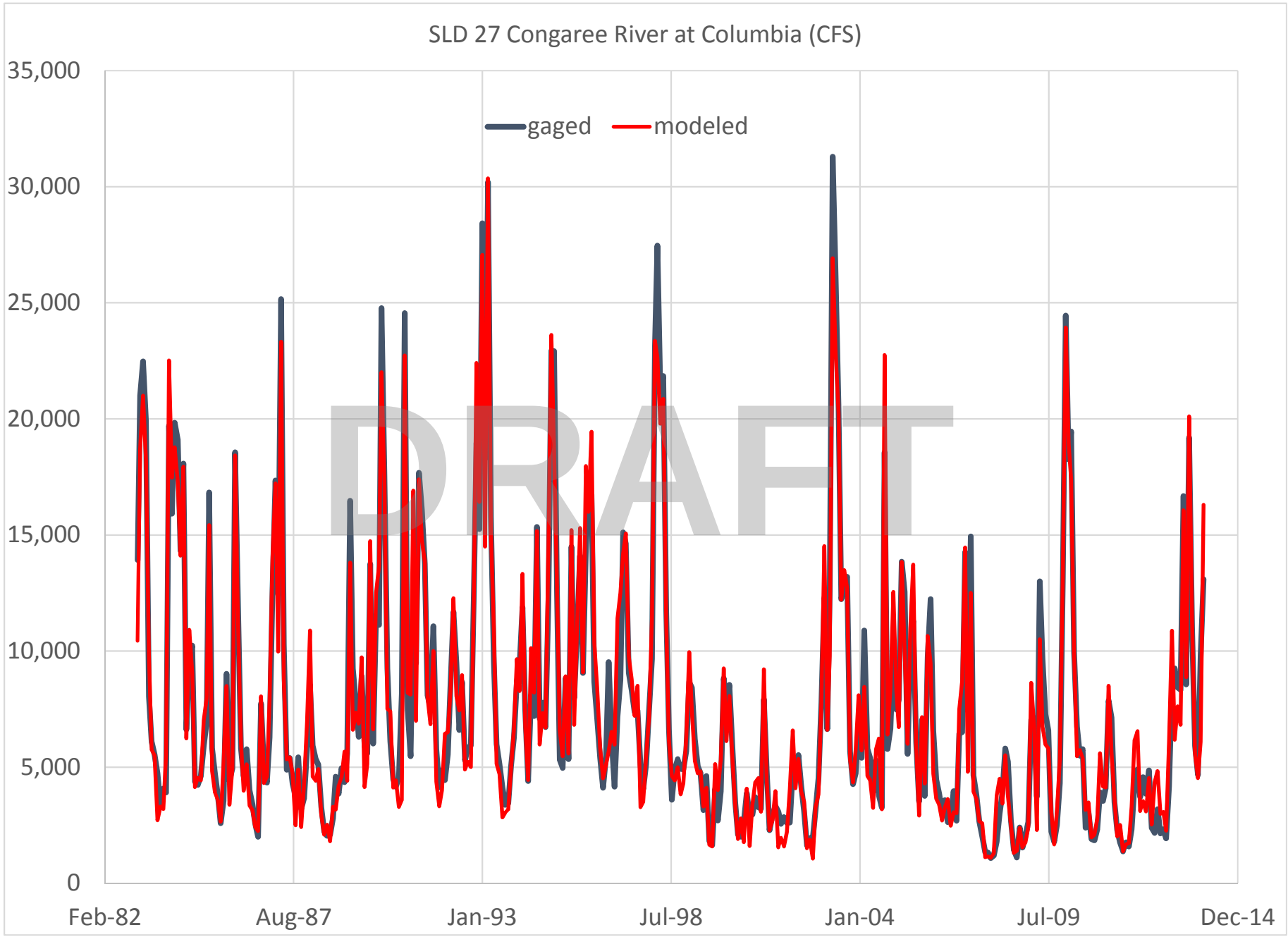

SLD18 Saluda River at Chappells
Monthly Flow Percentiles (CFS)
7000
6000
5000
4000
3000
2000
1000
0
gaged
modeled
DRAFT
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Percentile

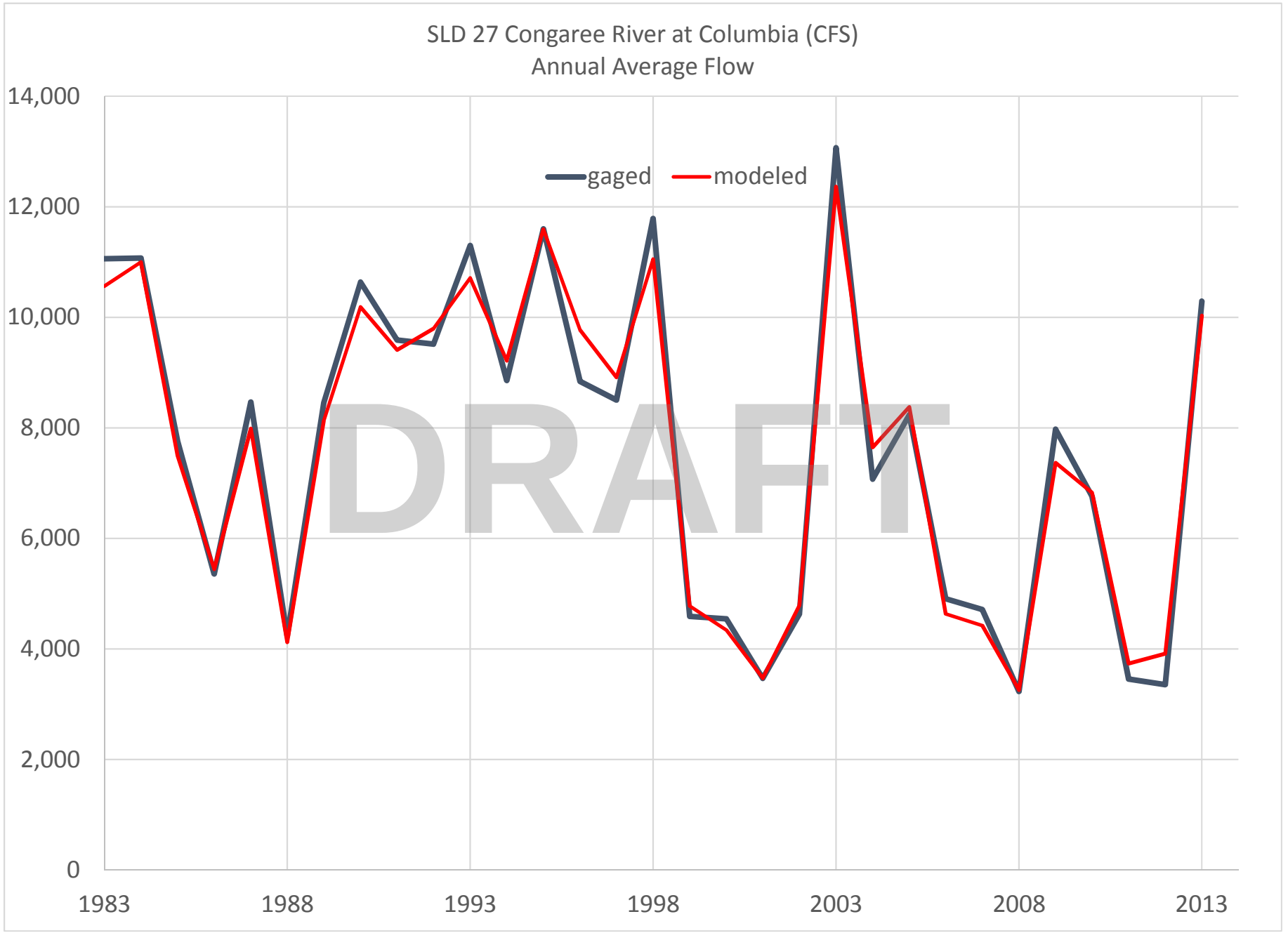

SLD25 Below Lake Murray (CFS)
gaged
modeled
12,000
10,000
8,000
6,000
4,000
2,000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT

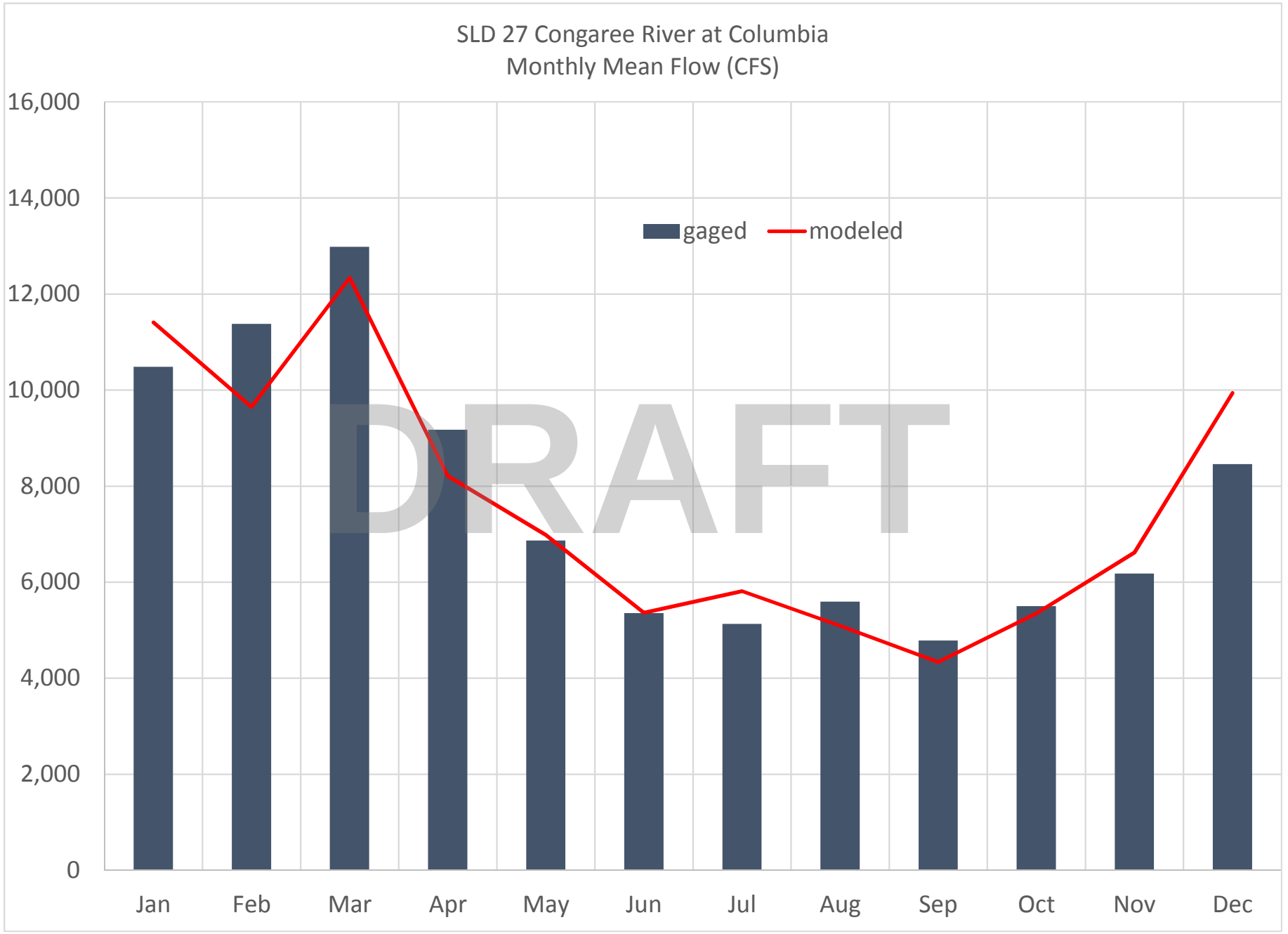

SLD 25 Below Lake Murray (CFS)
Annual Average Flow
gaged
modeled
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1983
1988
1993
1998
2003
2008
2013
DRAFT

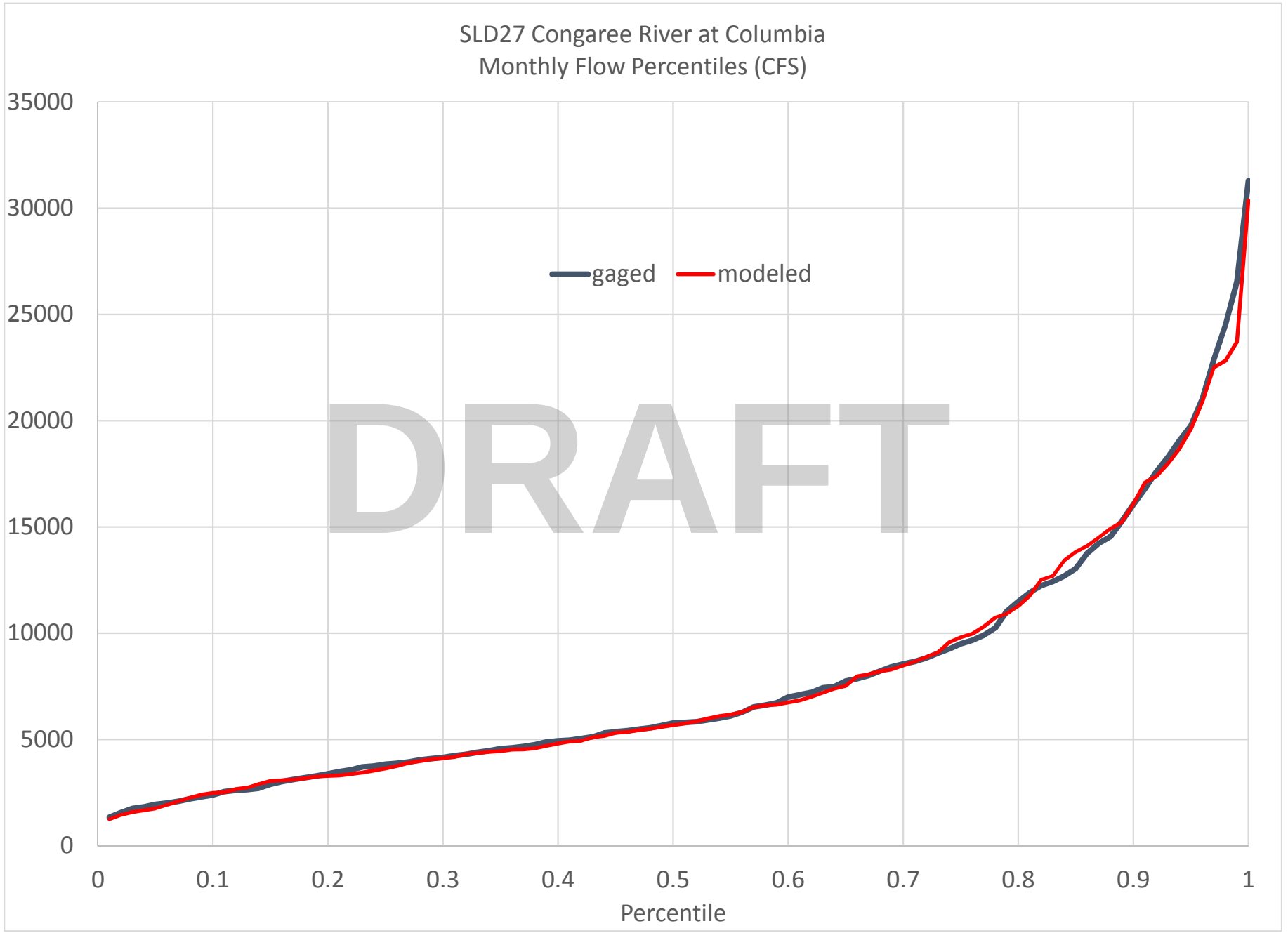

SLD 25 Saluda River bl Lake Murray
Monthly Mean Flow (CFS)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
gaged
modeled
DRAFT
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

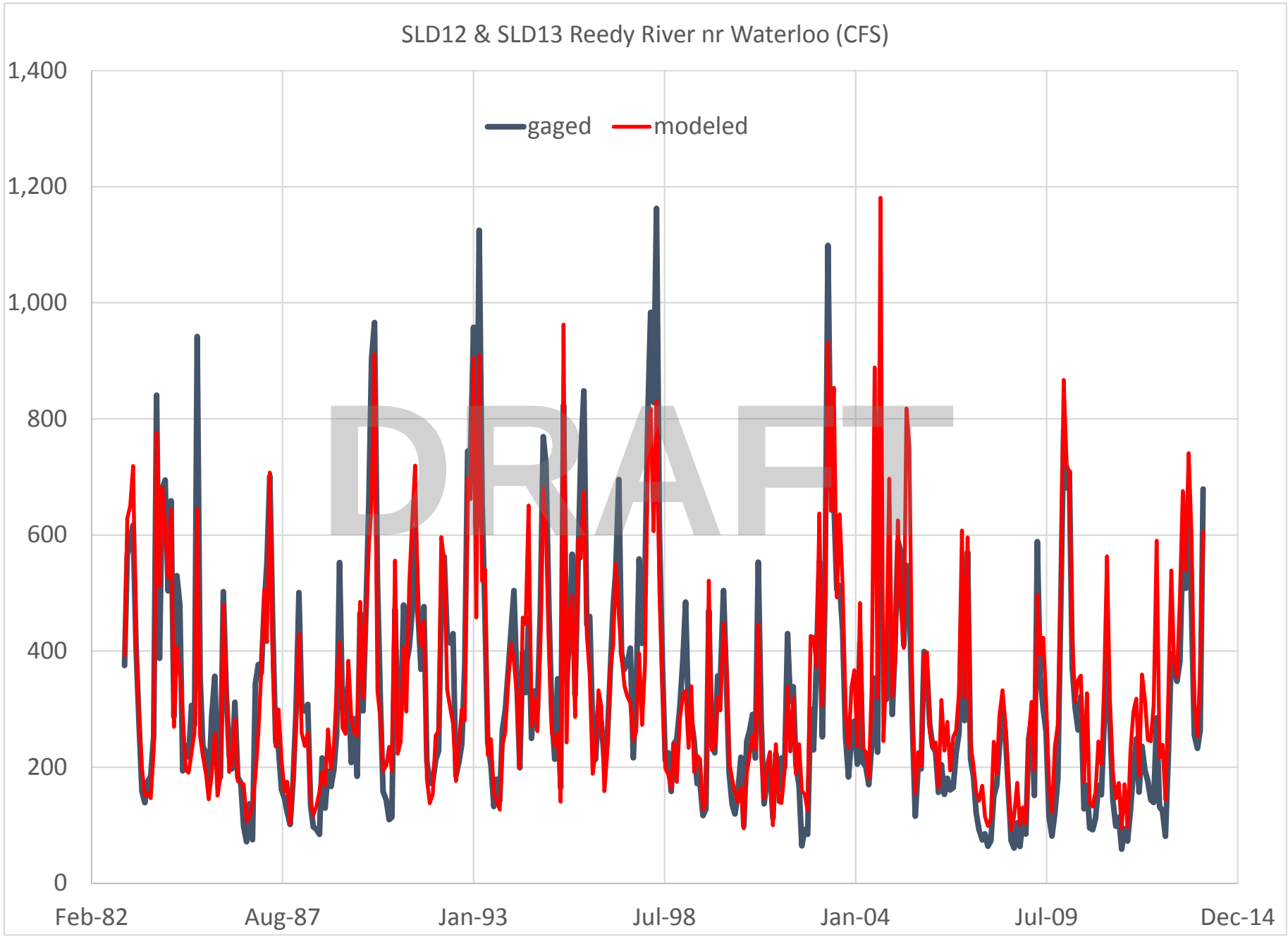

SLD25 Saluda River bl Lake Murray
Monthly Flow Percentiles (CFS)
12000
10000
8000
6000
4000
2000
0
gaged
modeled
DRAFT
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Percentile

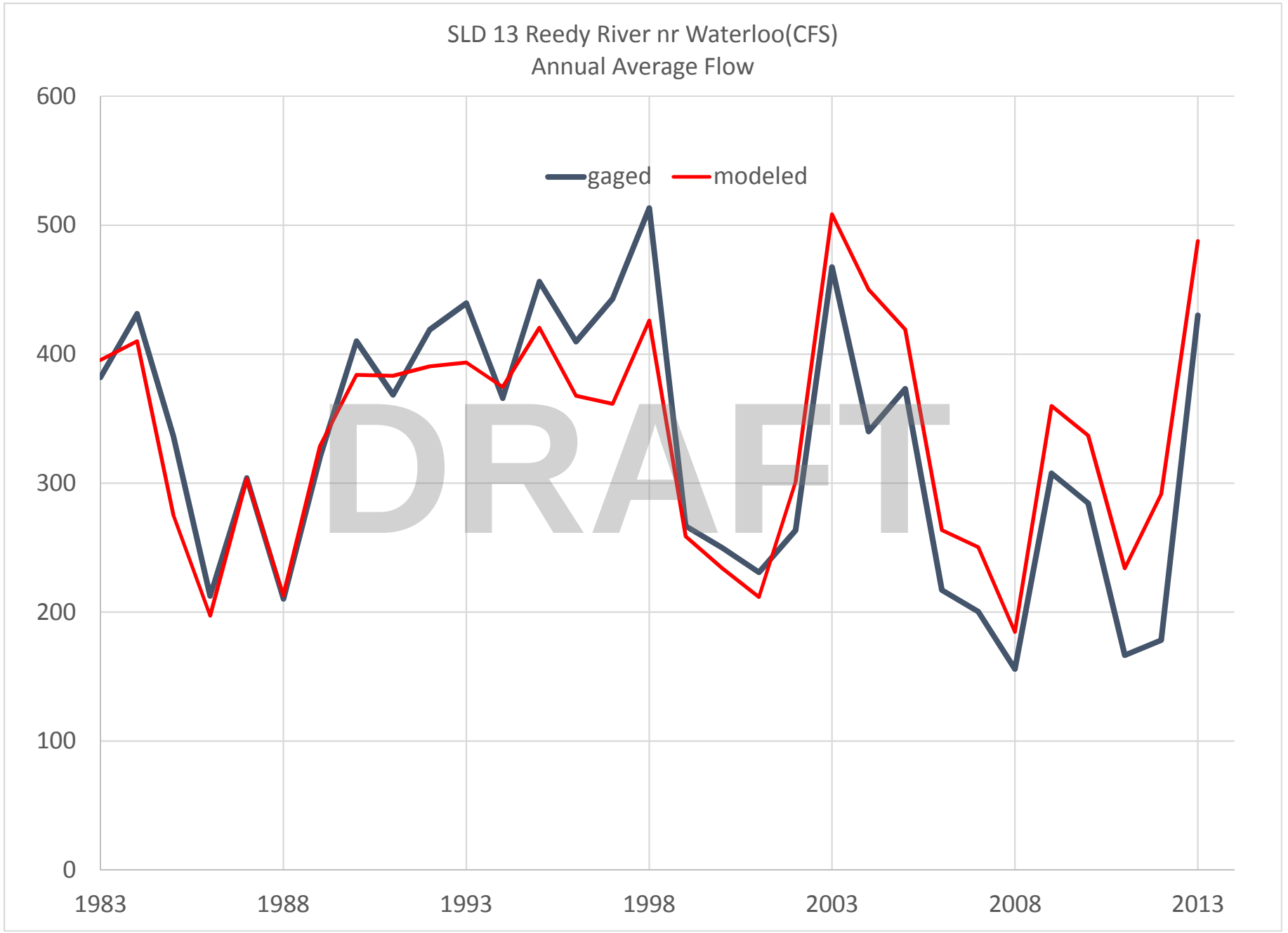

SLD 27 Congaree River at Columbia (CFS)
gaged
modeled
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT

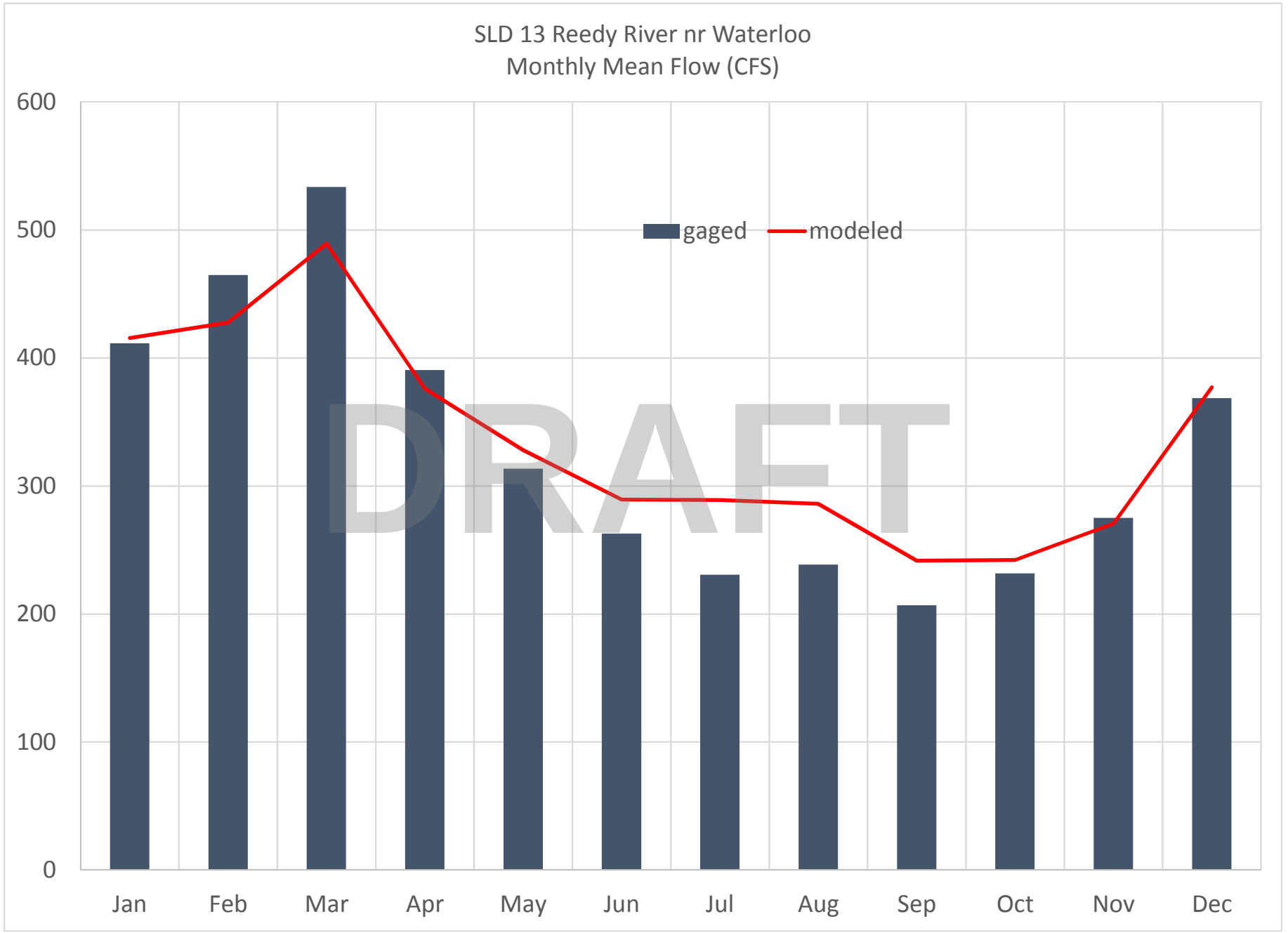

SLD 27 Congaree River at Columbia (CFS)
Annual Average Flow
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
1983
1988
1993
1998
2003
2008
2013
gaged
modeled
DRAFT

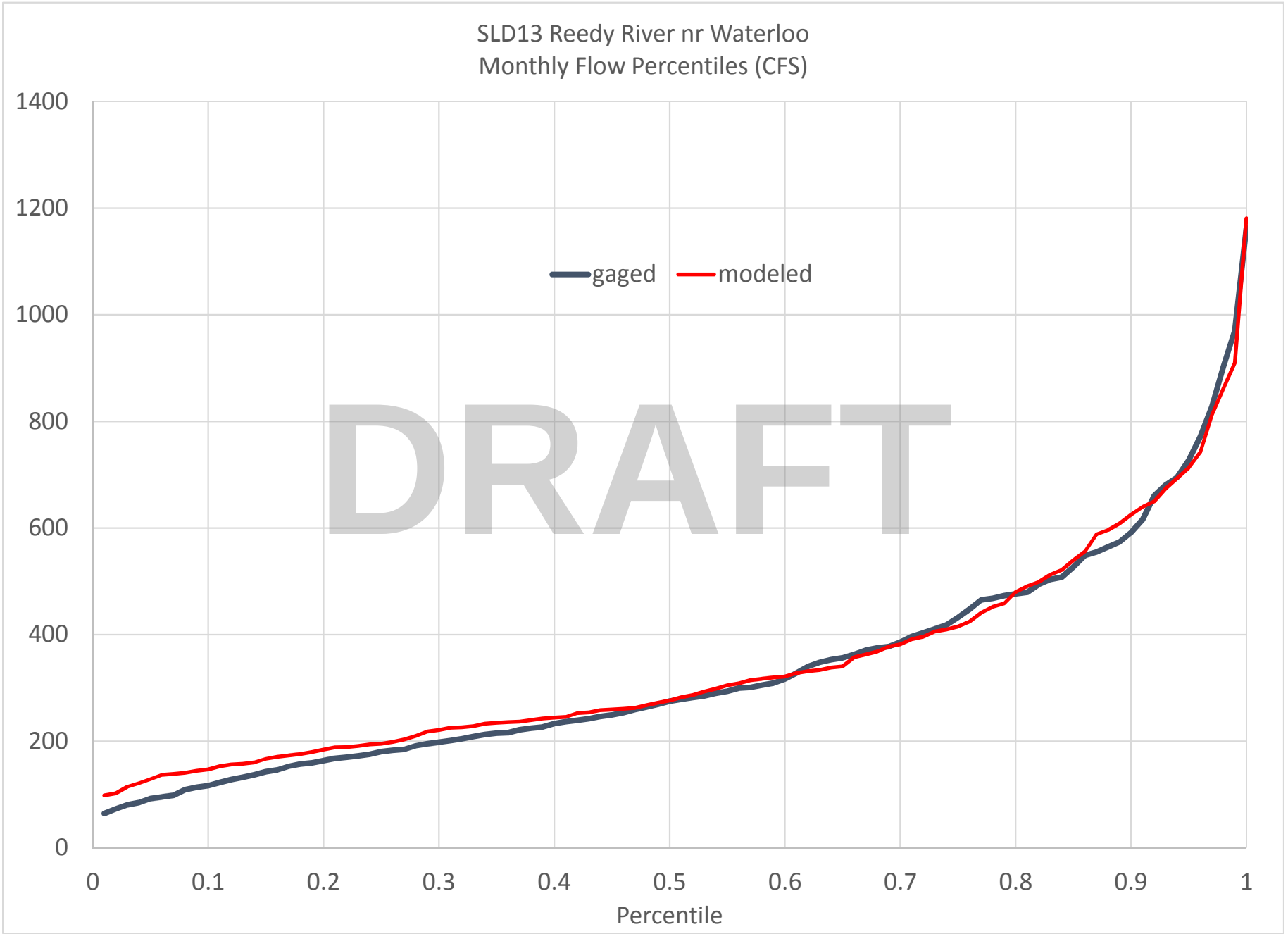

SLD 27 Congaree River at Columbia
Monthly Mean Flow (CFS)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
gaged
modeled
DRAFT
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

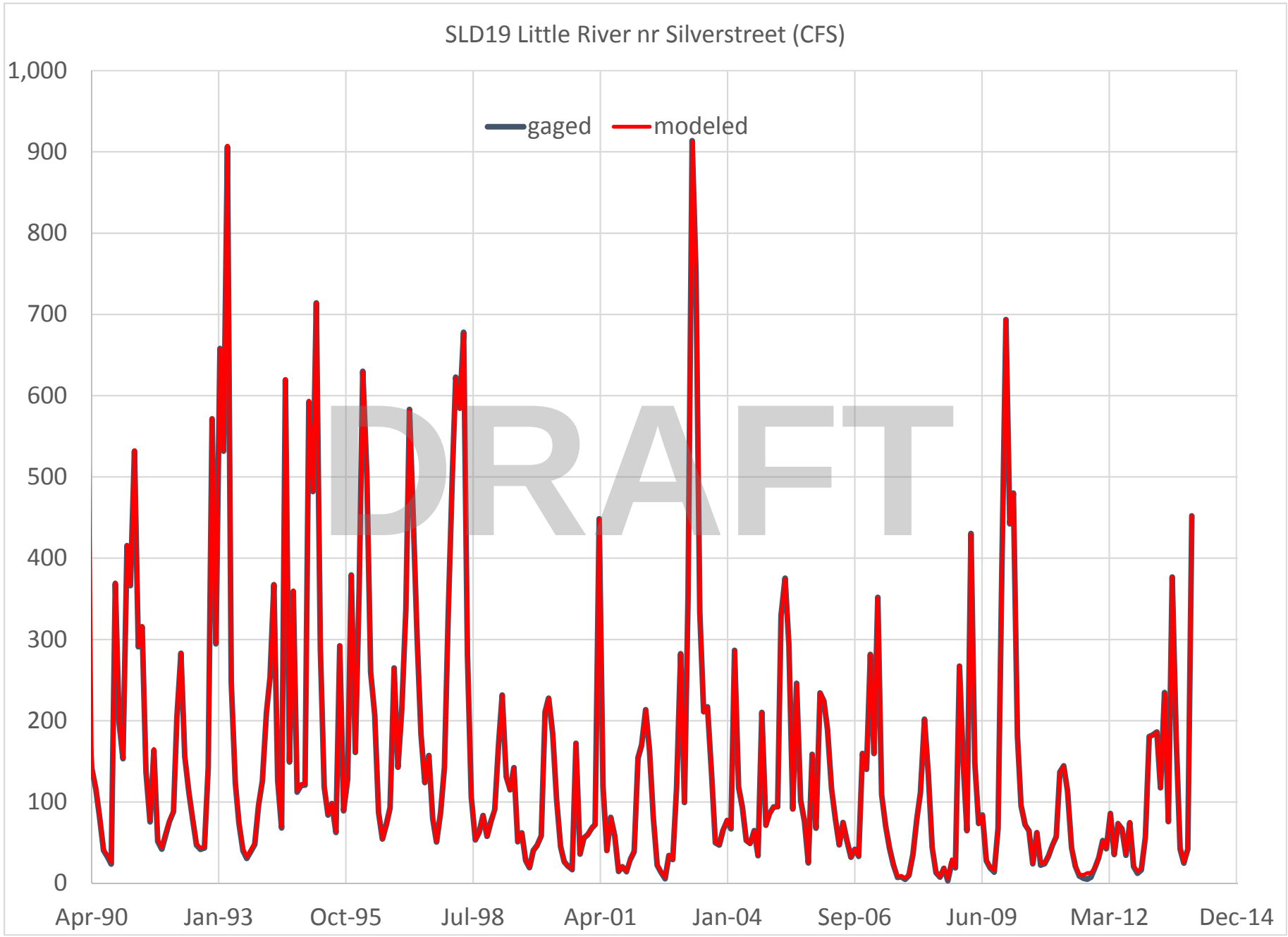

SLD27 Congaree River at Columbia
Monthly Flow Percentiles (CFS)
35000
30000
25000
20000
15000
10000
5000
0
gaged
modeled
DRAFT
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Percentile

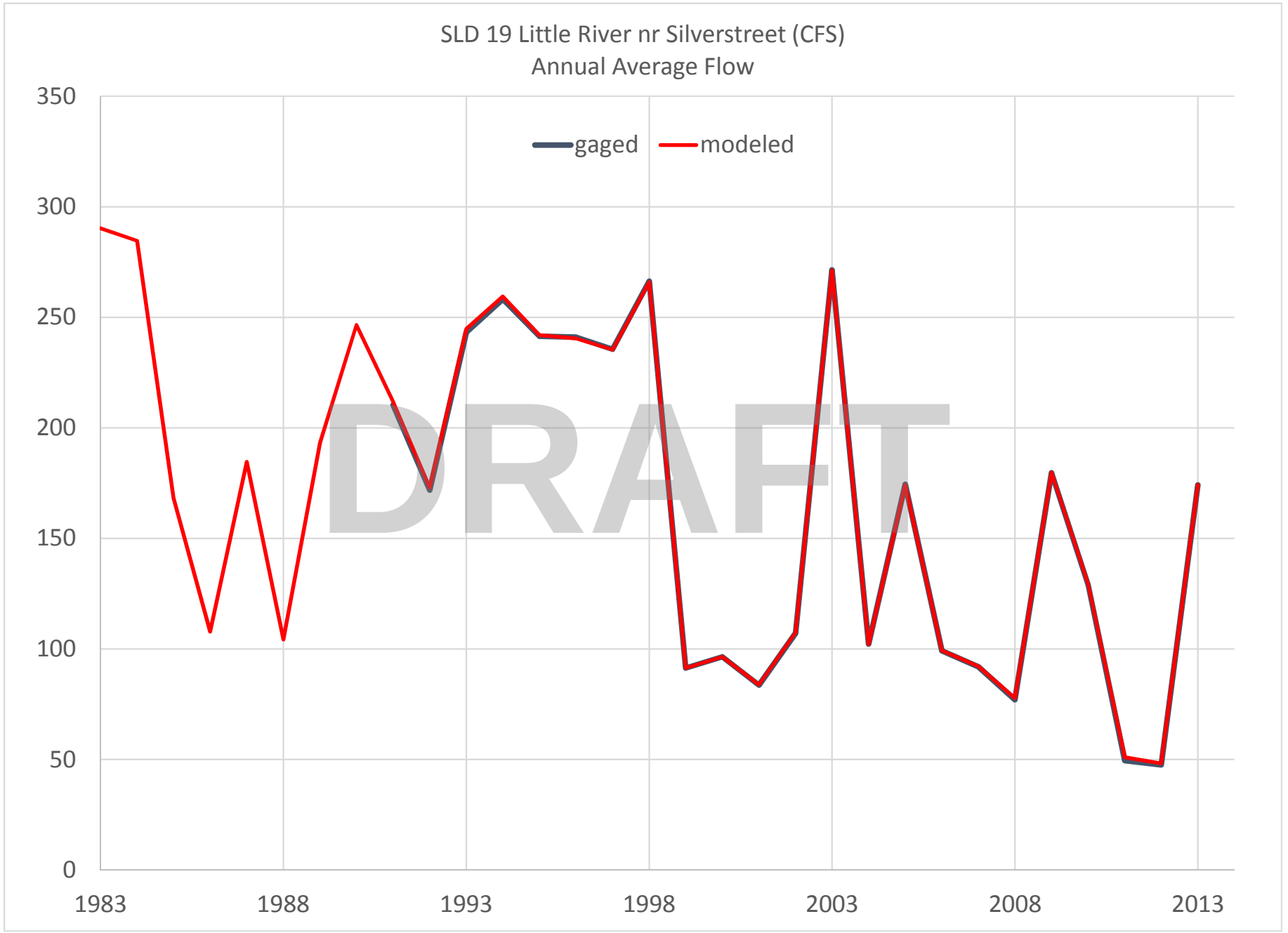

SLD12 & SLD13 Reedy River nr Waterloo (CFS)
gaged
modeled
1,400
1,200
1,000
800
600
400
200
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT

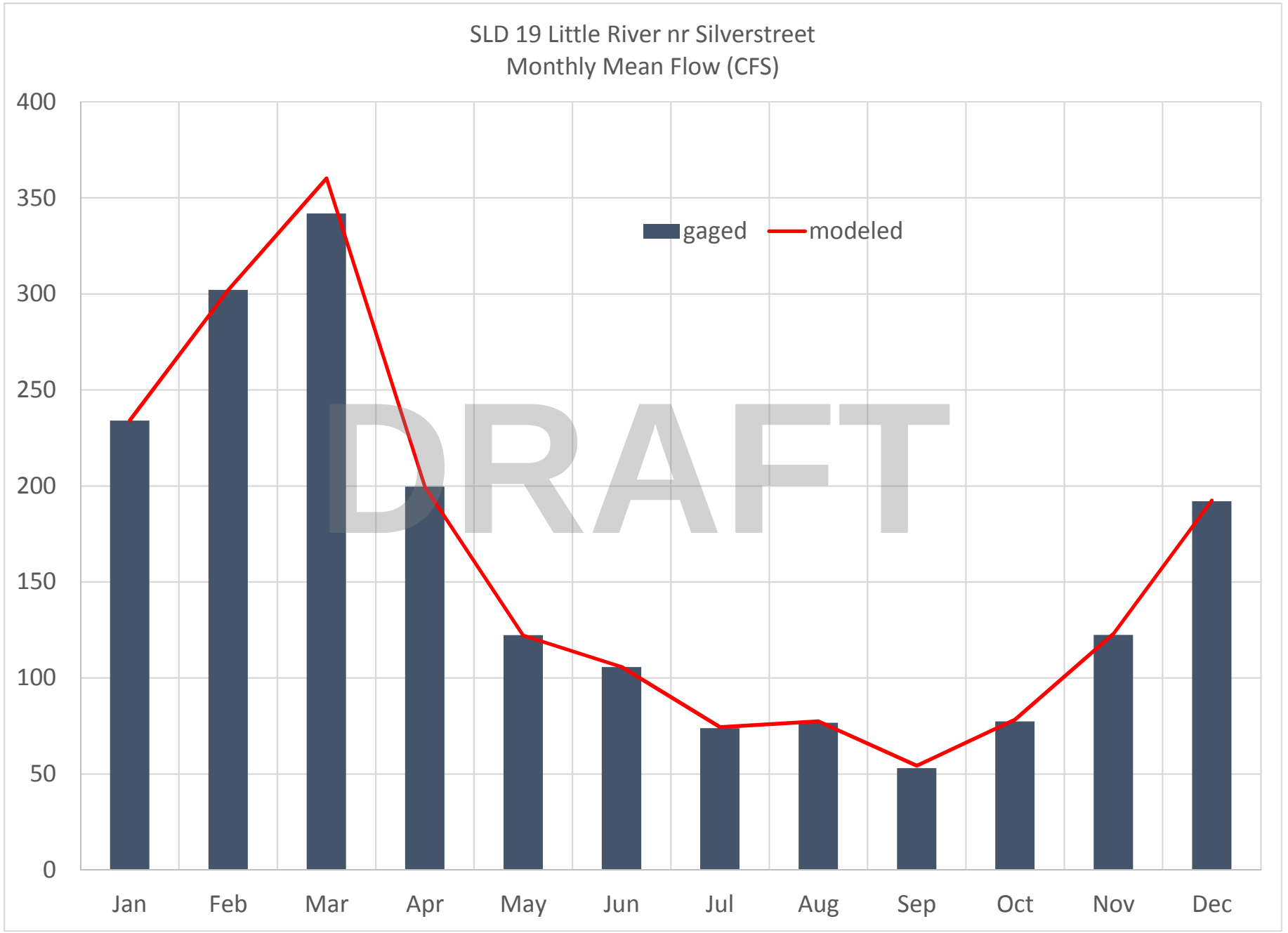

SLD 13 Reedy River nr Waterloo(CFS)
Annual Average Flow
gaged
modeled
600
500
400
300
200
100
0
1983
1988
1993
1998
2003
2008
2013
DRAFT

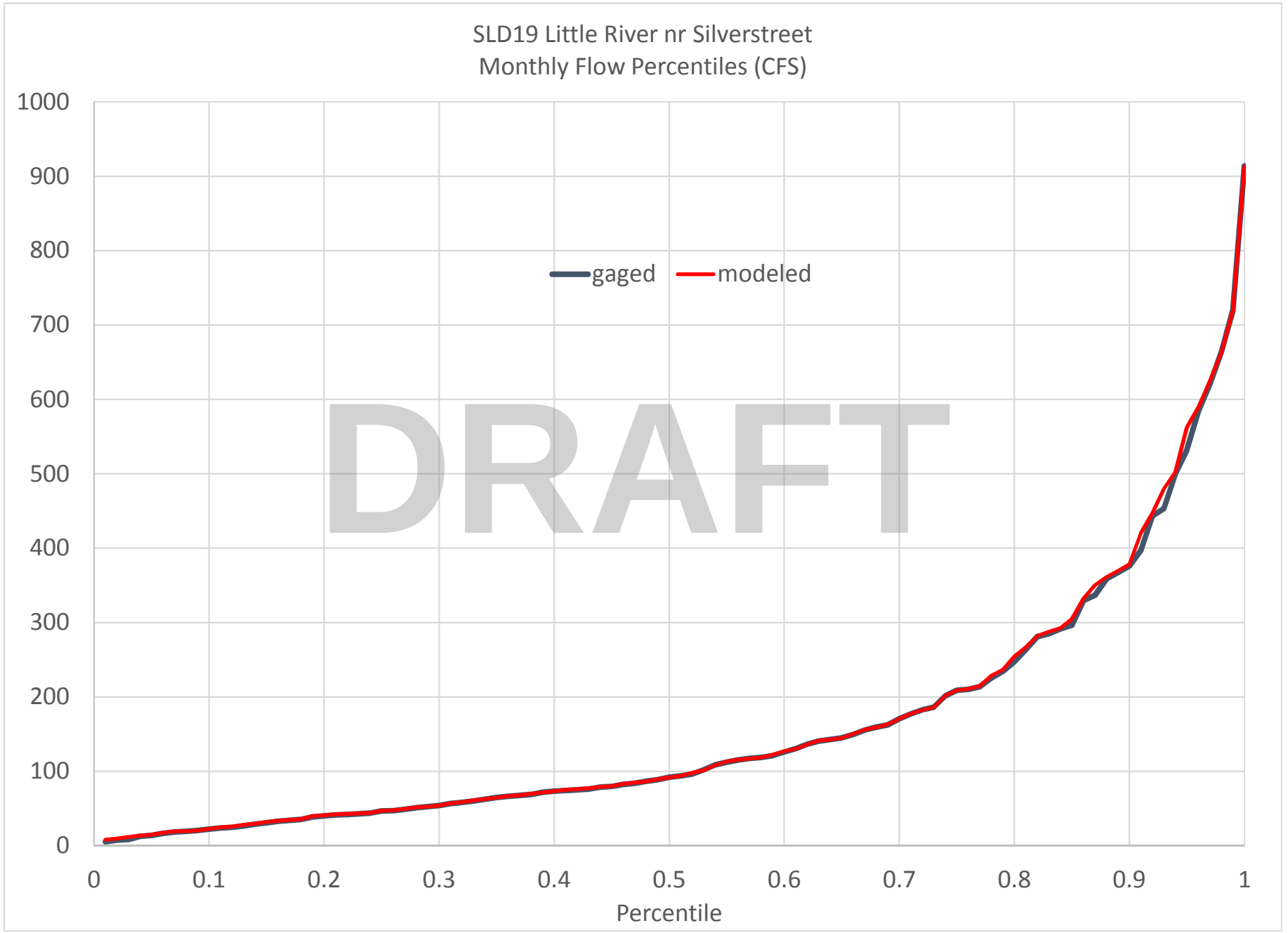

SLD 13 Reedy River nr Waterloo
Monthly Mean Flow (CFS)
600
500
400
300
200
100
0
gaged
modeled
DRAFT
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

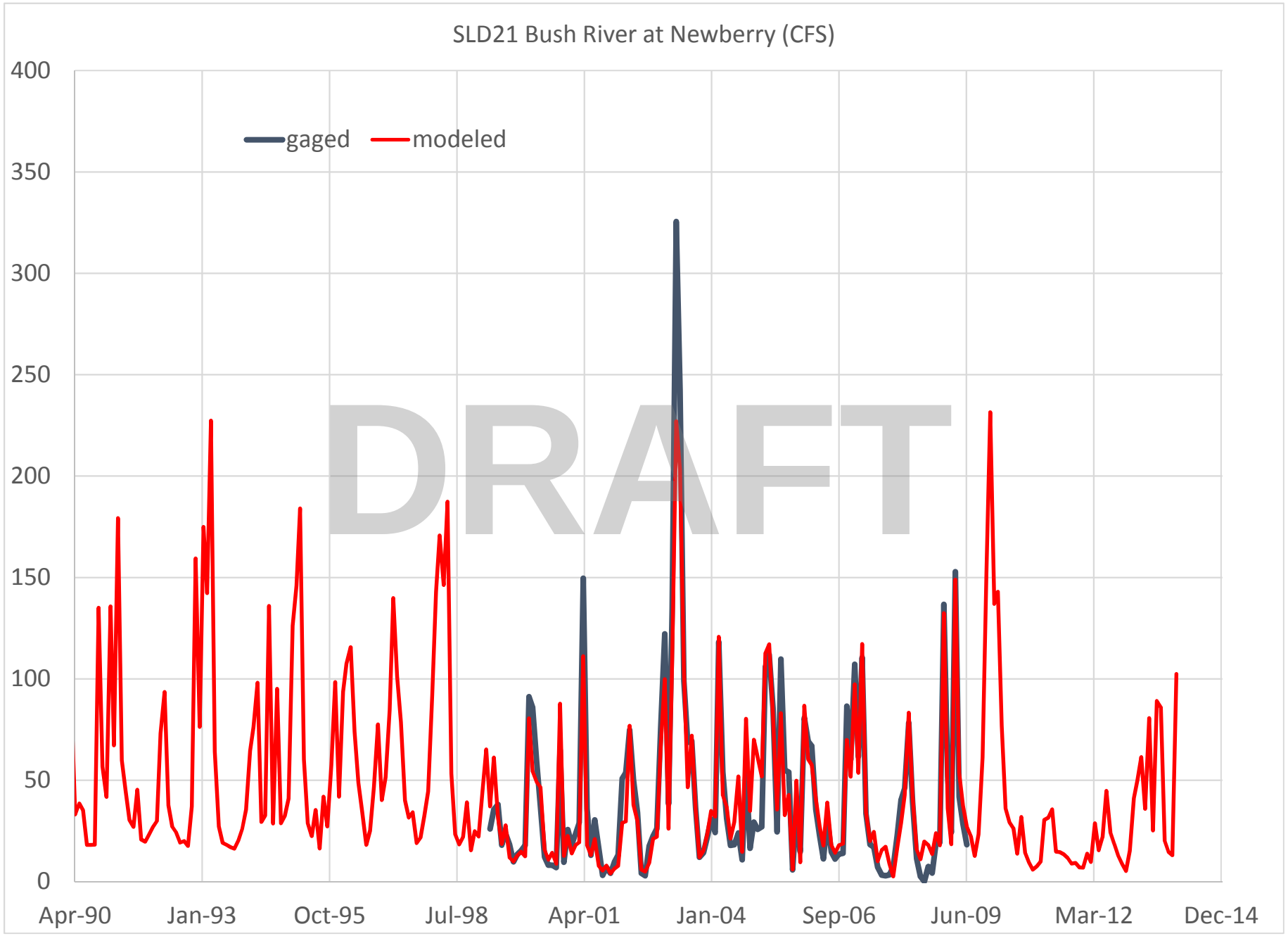

SLD13 Reedy River nr Waterloo
Monthly Flow Percentiles (CFS)
1400
1200
1000
800
600
400
200
0
gaged
modeled
DRAFT
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Percentile

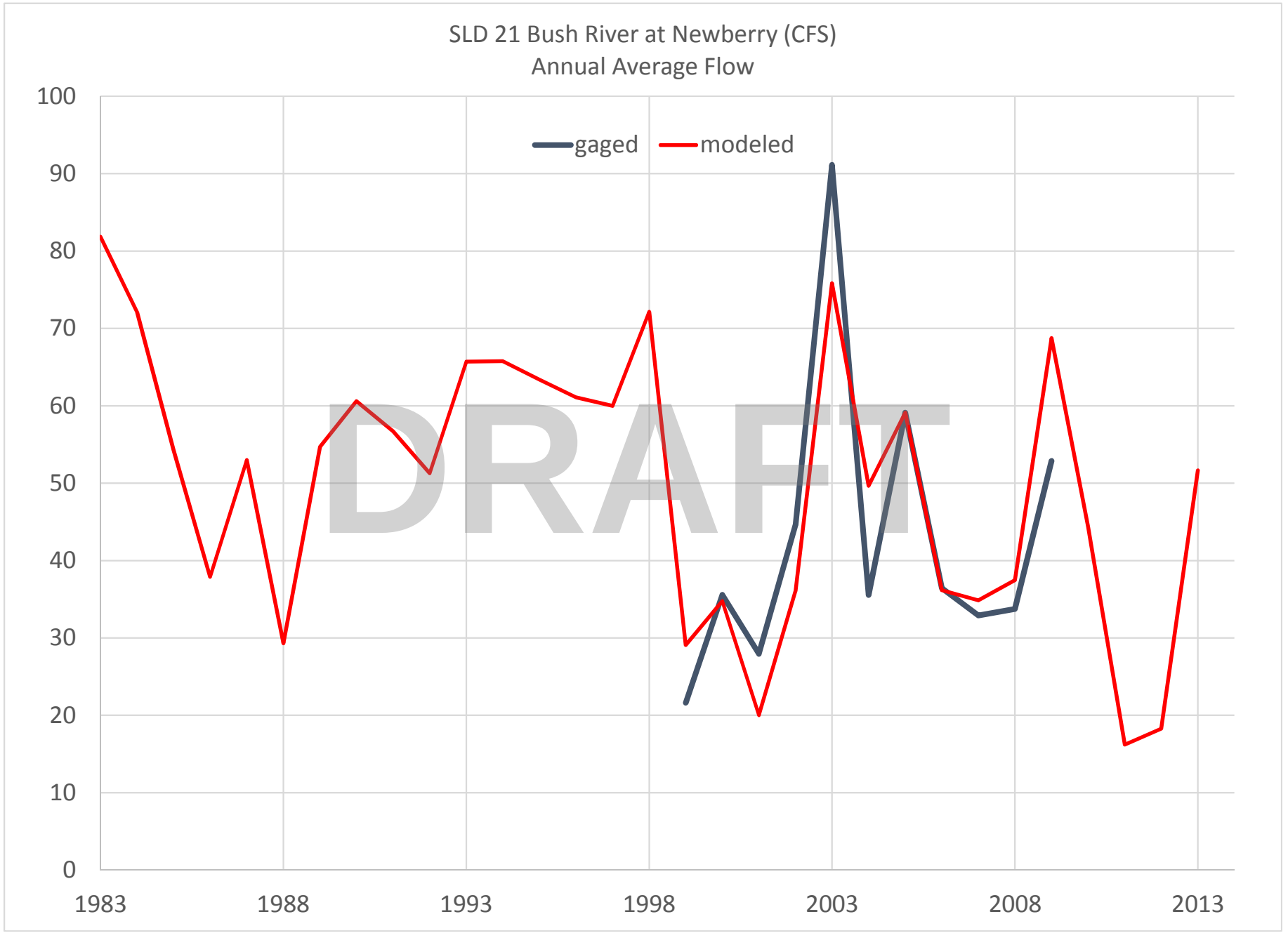

SLD19 Little River nr Silverstreet (CFS)
gaged
modeled
1,000
900
800
700
600
500
400
300
200
100
0
Apr-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Sep-06
Jun-09
Mar-12
Dec-14
DRAFT

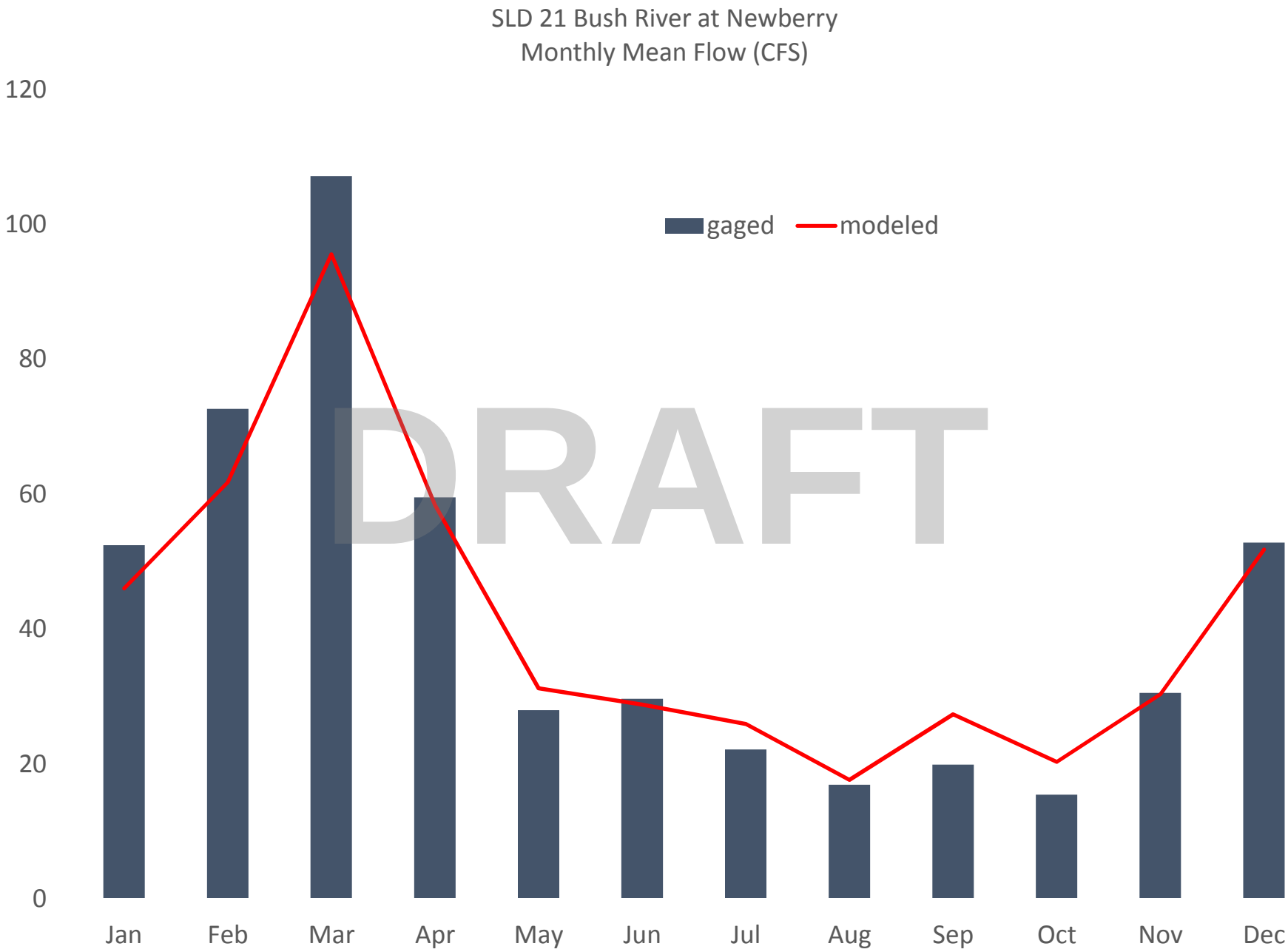

SLD 19 Little River nr Silverstreet (CFS)
Annual Average Flow
gaged
modeled
350
300
250
200
150
100
50
0
1983
1988
1993
1998
2003
2008
2013
DRAFT

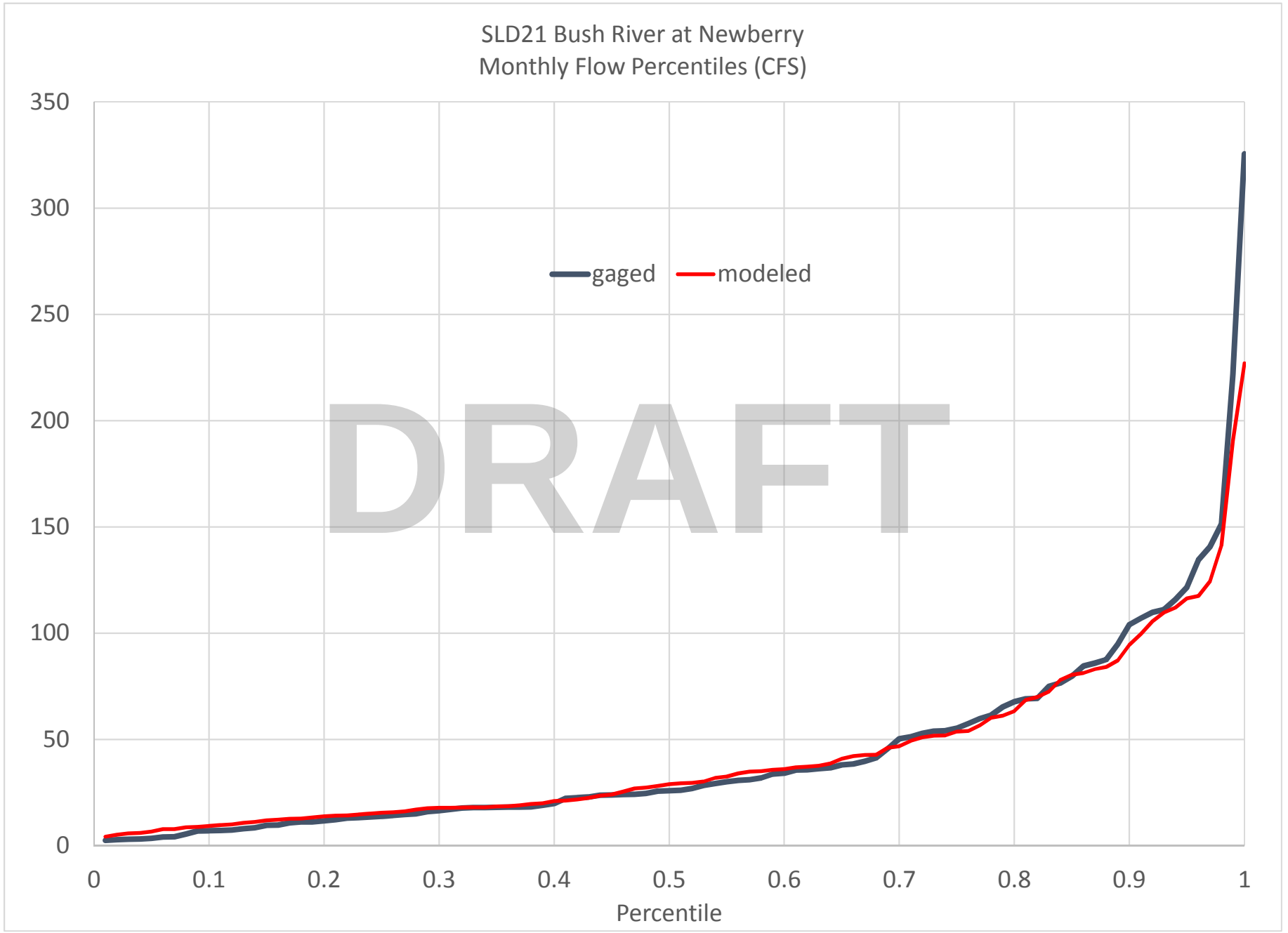

SLD 19 Little River nr Silverstreet
Monthly Mean Flow (CFS)
400
350
300
250
200
150
100
50
0
gaged
modeled
DRAFT
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

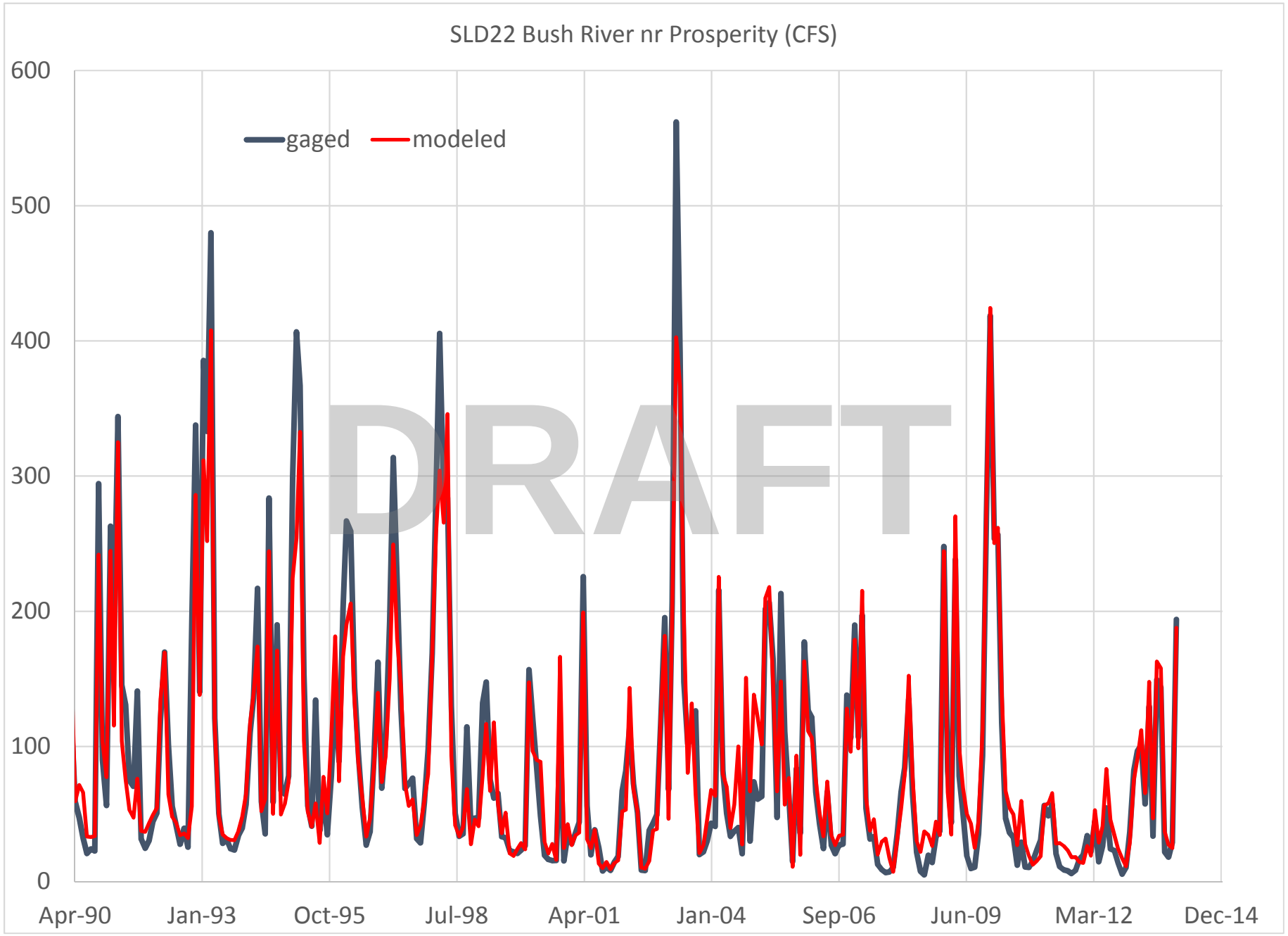

SLD19 Little River nr Silverstreet
Monthly Flow Percentiles (CFS)
1000
900
800
700
600
500
400
300
200
100
0
gaged
modeled
DRAFT
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Percentile

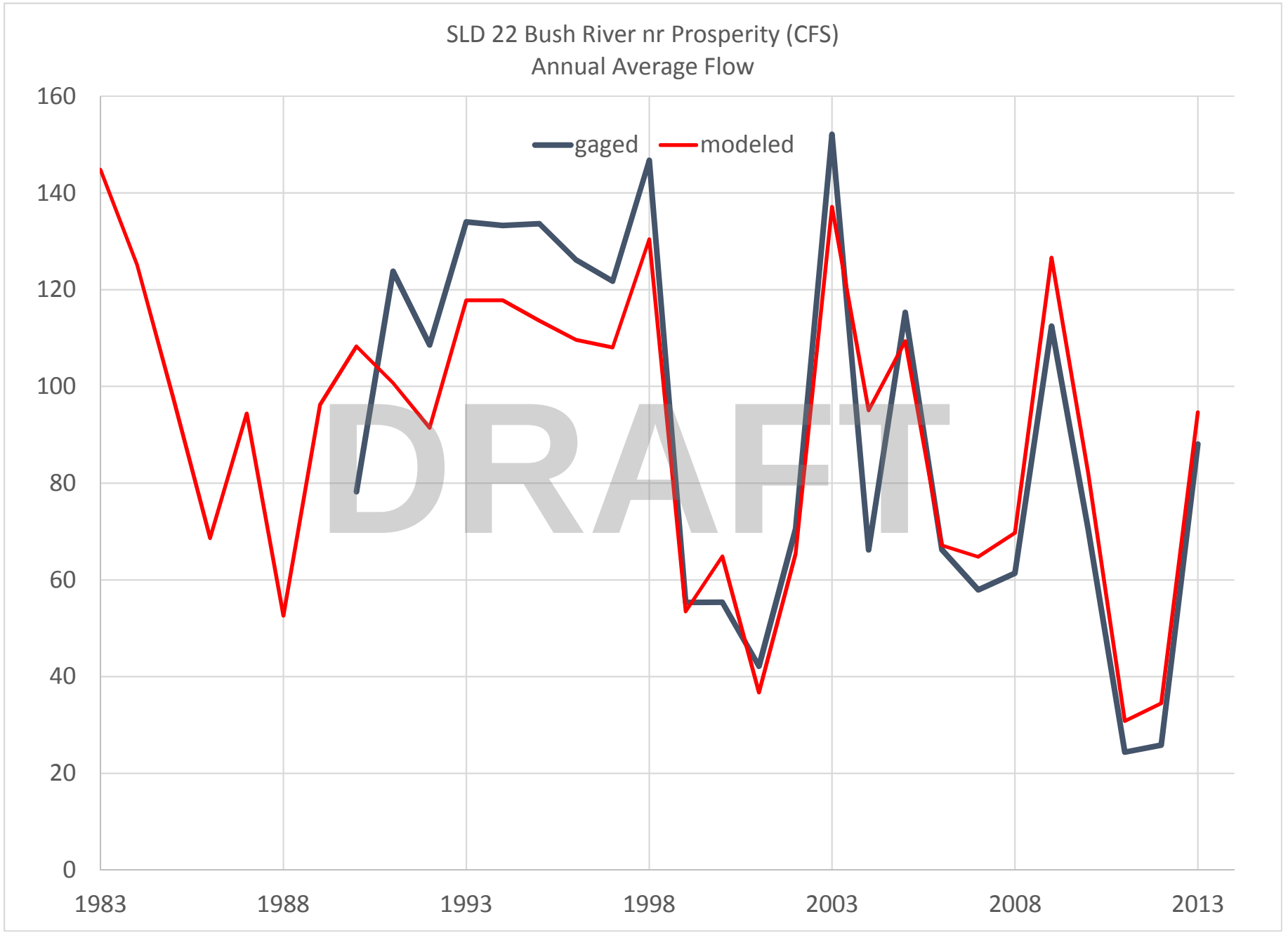

SLD21 Bush River at Newberry (CFS)
gaged
modeled
400
350
300
250
200
150
100
50
0
Apr-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Sep-06
Jun-09
Mar-12
Dec-14
DRAFT

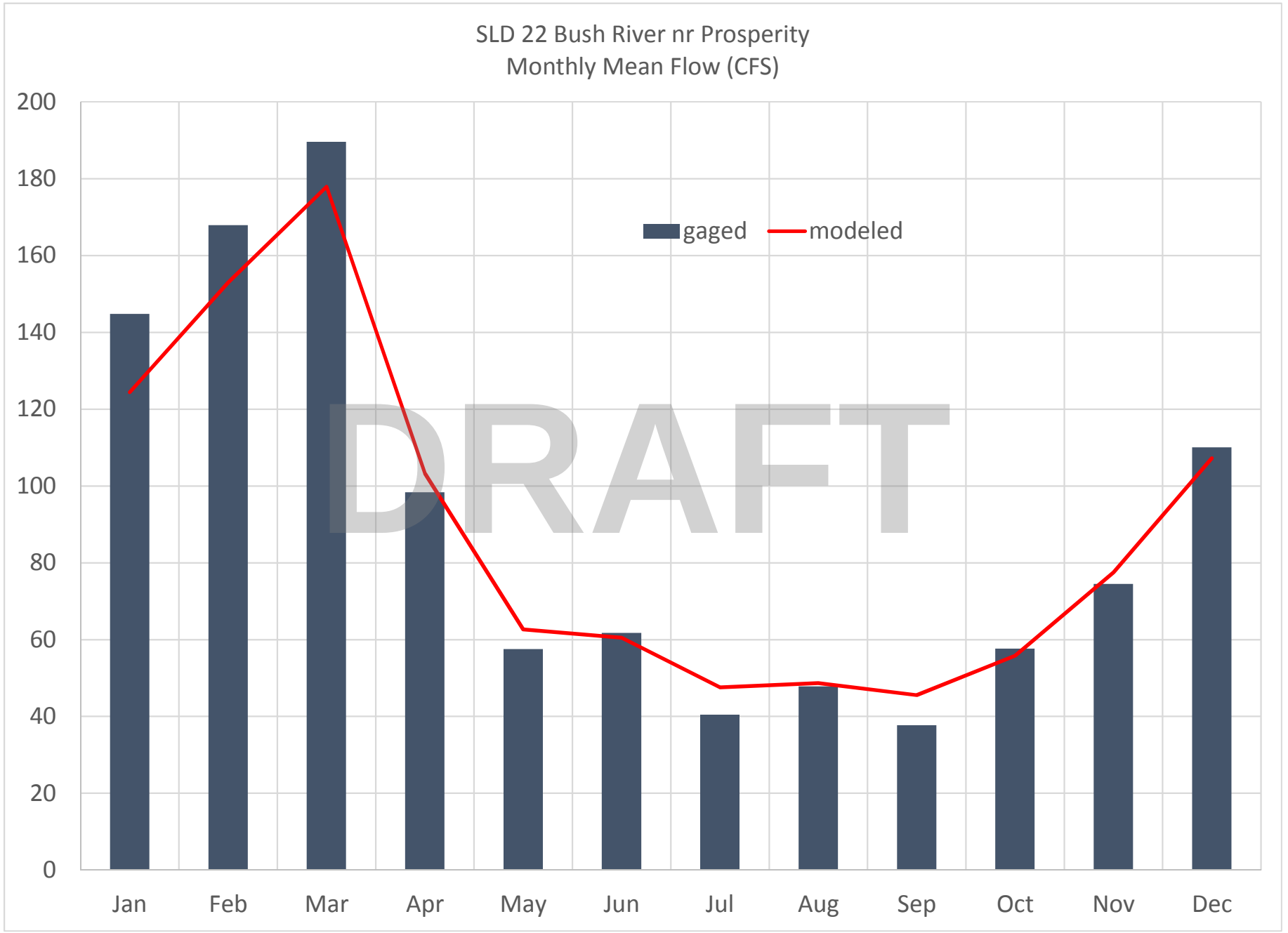

SLD 21 Bush River at Newberry (CFS)
Annual Average Flow
gaged
modeled
100
90
80
70
60
50
40
30
20
10
0
1983
1988
1993
1998
2003
2008
2013
DRAFT

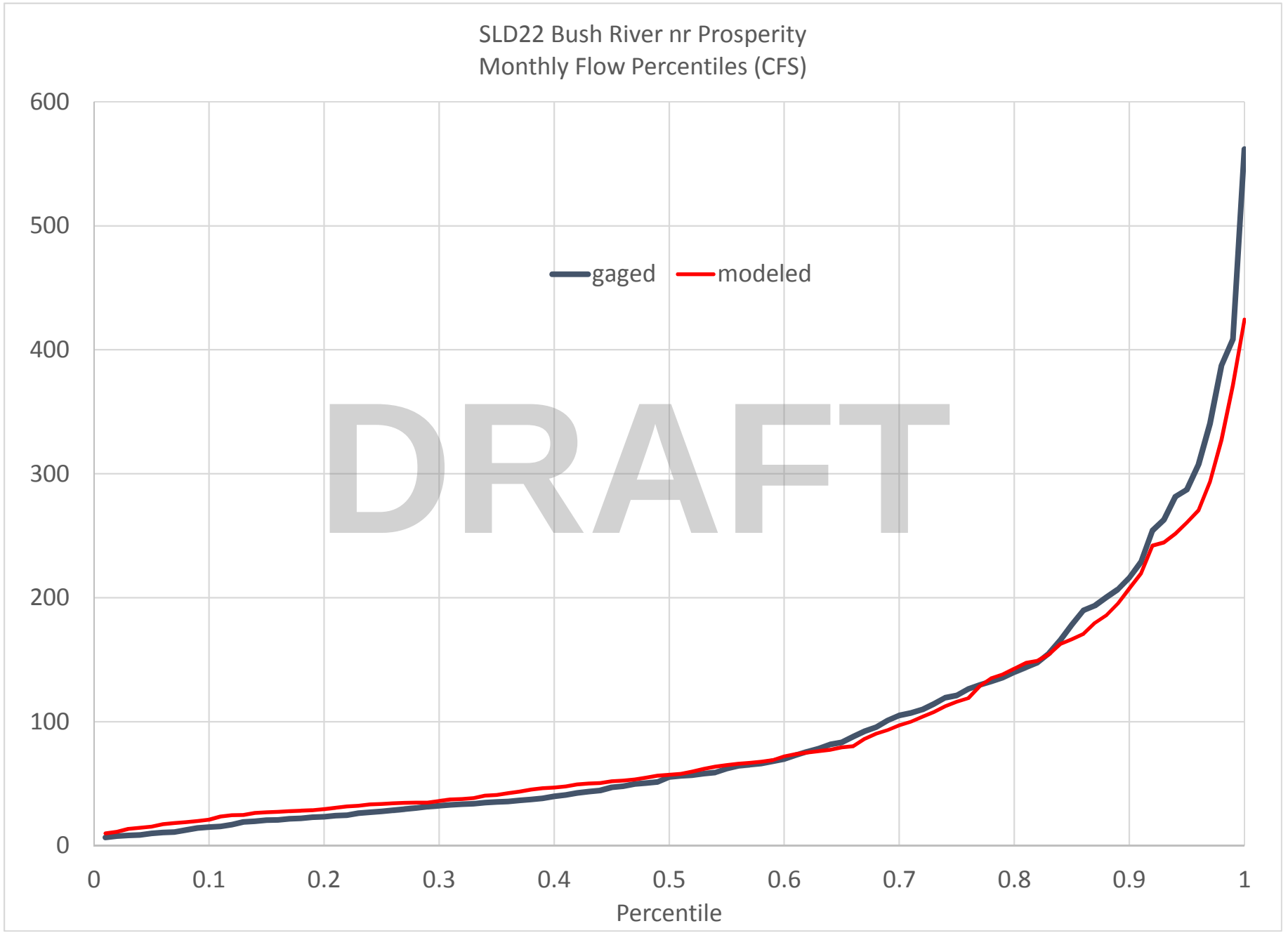

SLD 21 Bush River at Newberry
Monthly Mean Flow (CFS)
120
100
80
60
40
20
0
gaged
modeled
DRAFT
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

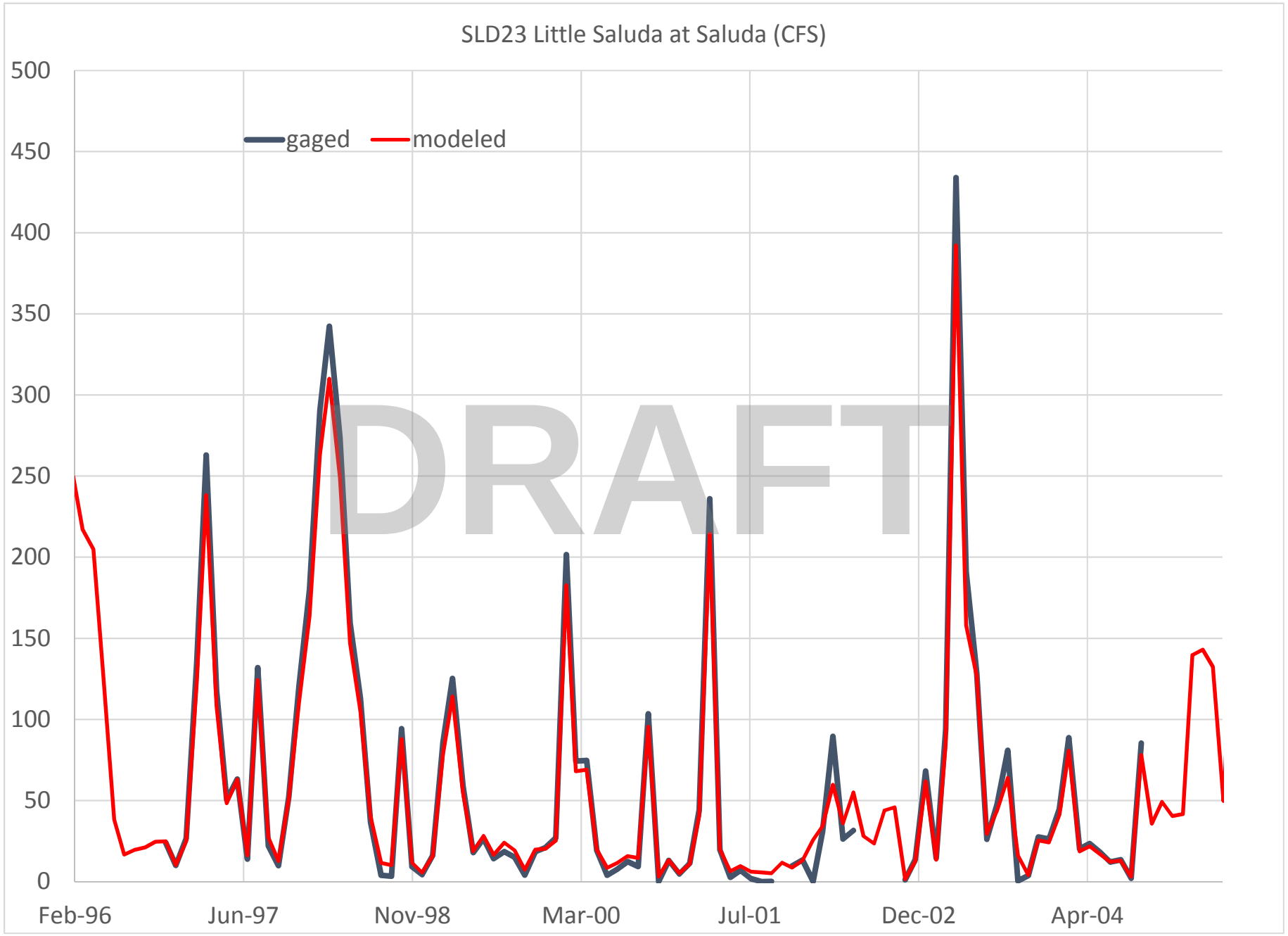

SLD21 Bush River at Newberry
Monthly Flow Percentiles (CFS)
350
300
250
200
150
100
50
0
gaged
modeled
DRAFT
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Percentile

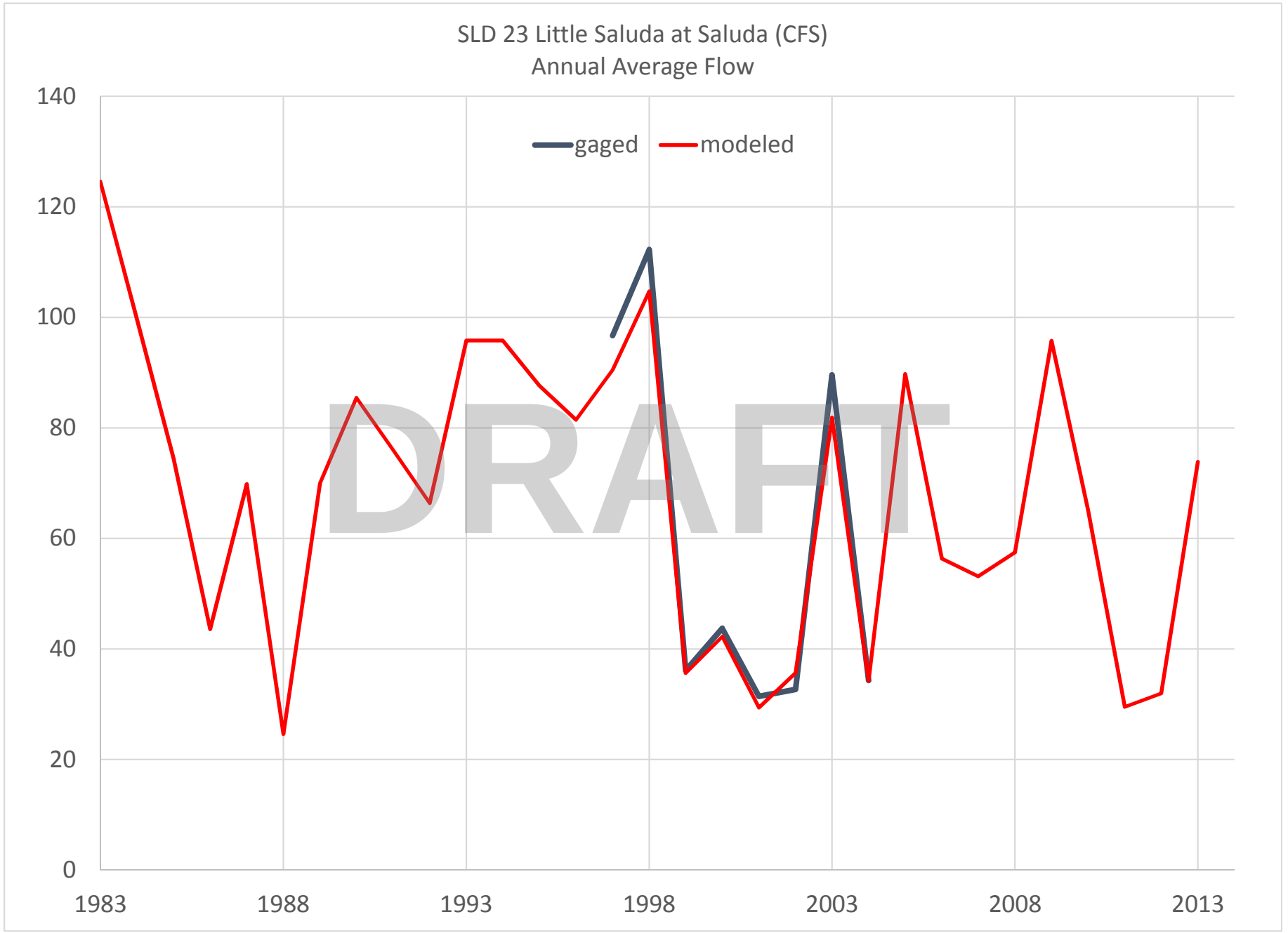

SLD22 Bush River nr Prosperity (CFS)
gaged
modeled
600
500
400
300
200
100
0
Apr-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Sep-06
Jun-09
Mar-12
Dec-14
DRAFT

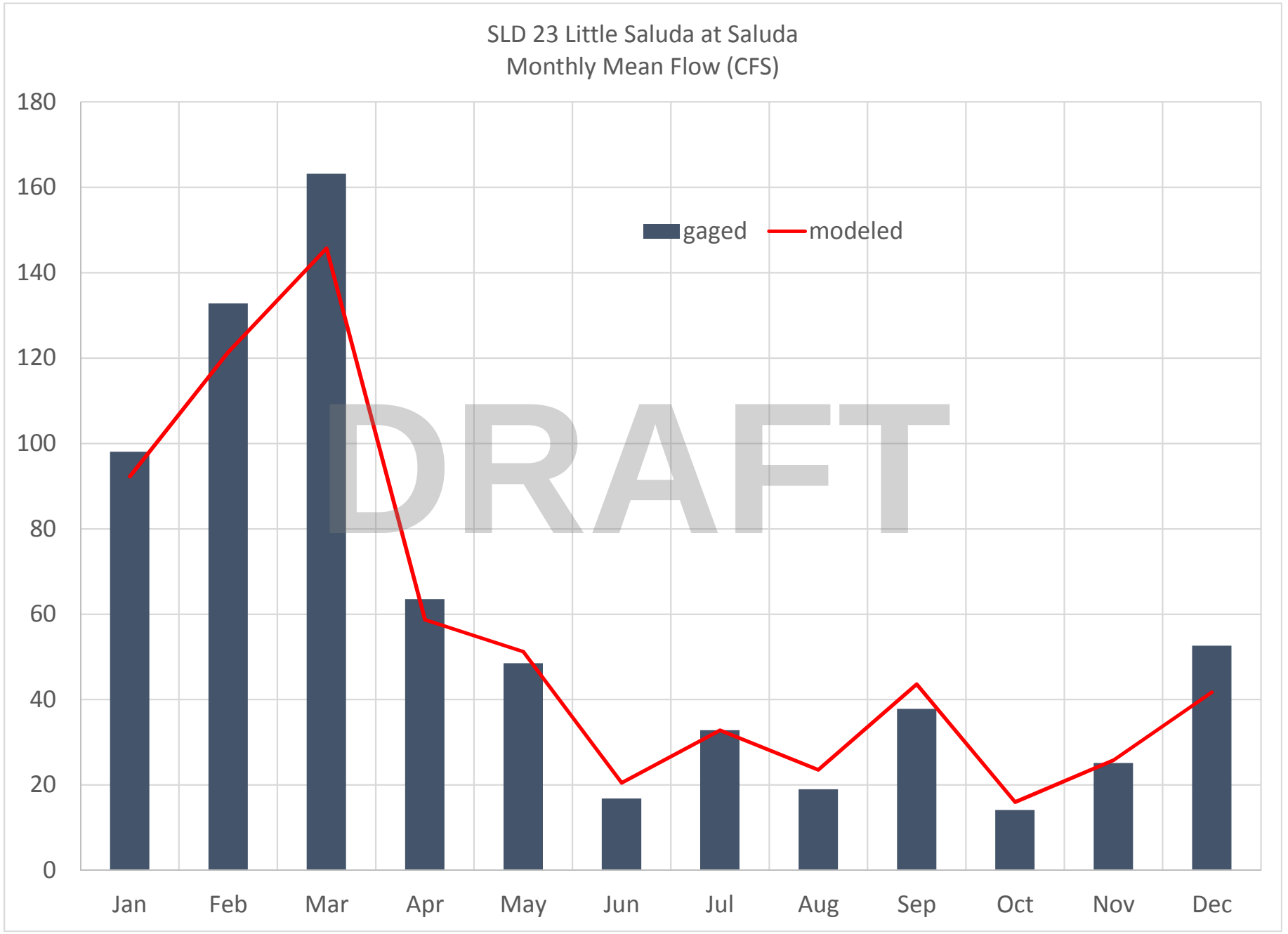

SLD 22 Bush River nr Prosperity (CFS)
Annual Average Flow
gaged
modeled
160
140
120
100
80
60
40
20
0
1983
1988
1993
1998
2003
2008
2013
DRAFT

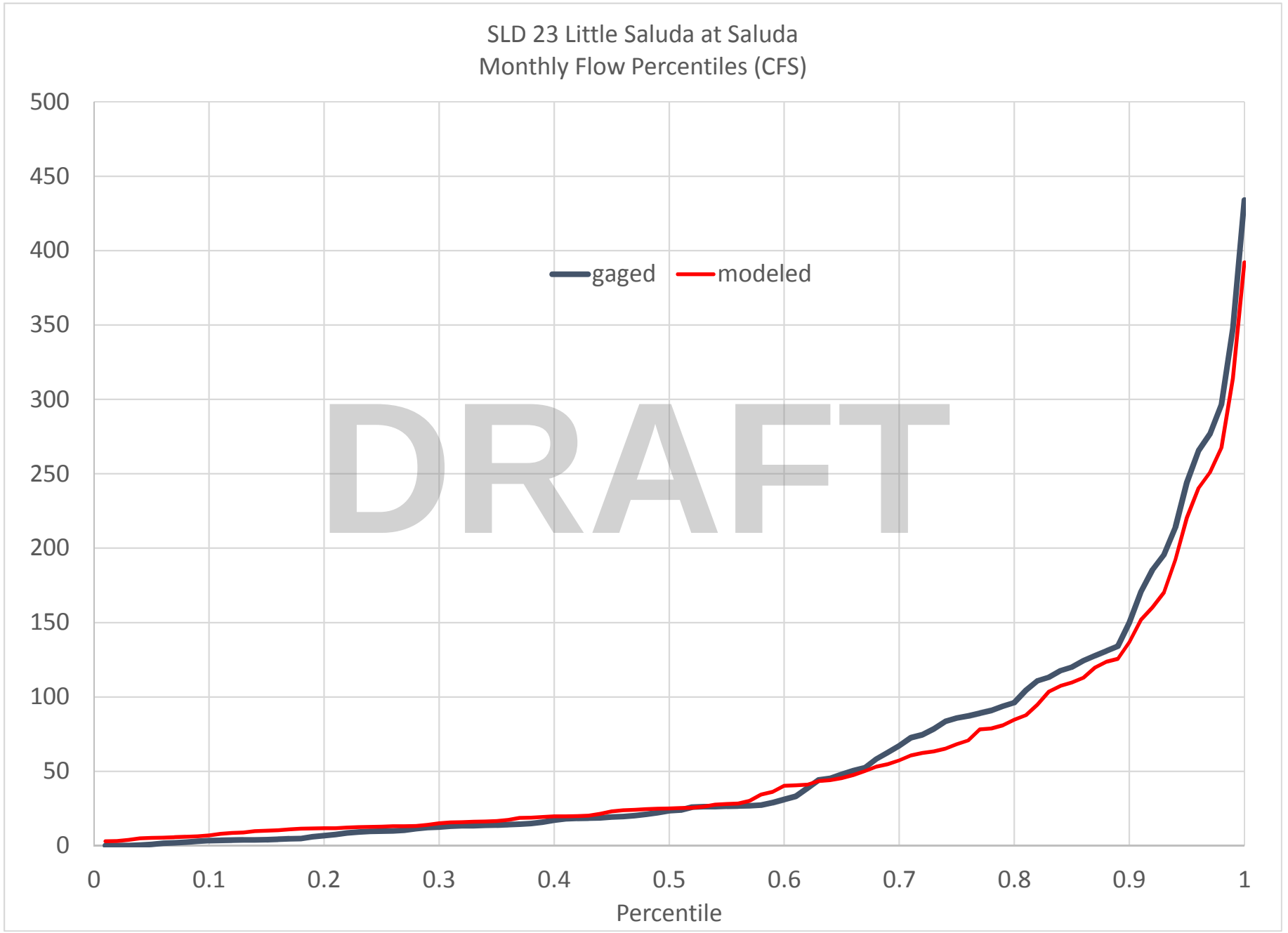

SLD 22 Bush River nr Prosperity
Monthly Mean Flow (CFS)
200
180
160
140
120
100
80
60
40
20
0
gaged
modeled
DRAFT
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

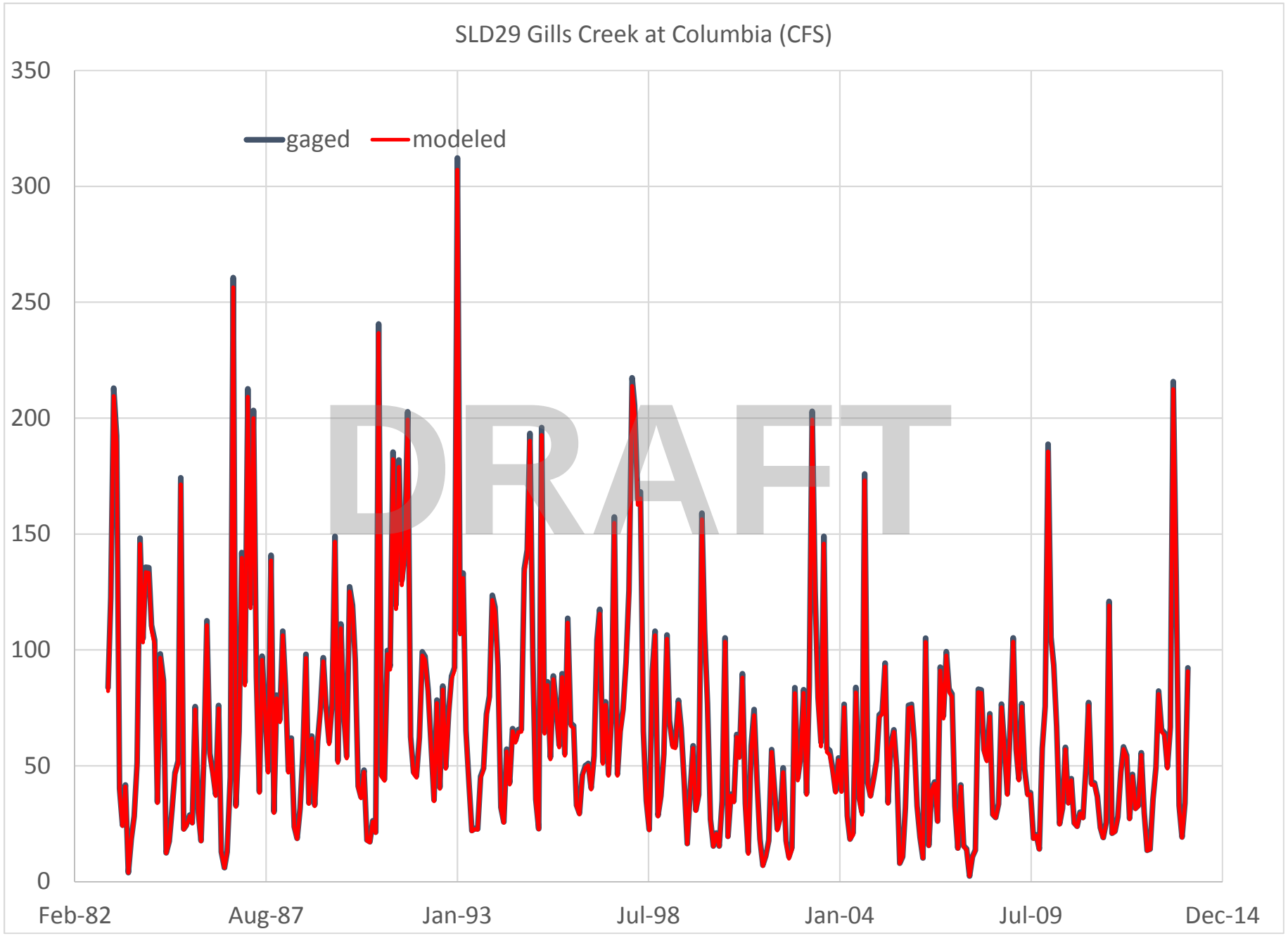

SLD22 Bush River nr Prosperity
Monthly Flow Percentiles (CFS)
600
500
400
300
200
100
0
gaged
modeled
DRAFT
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Percentile

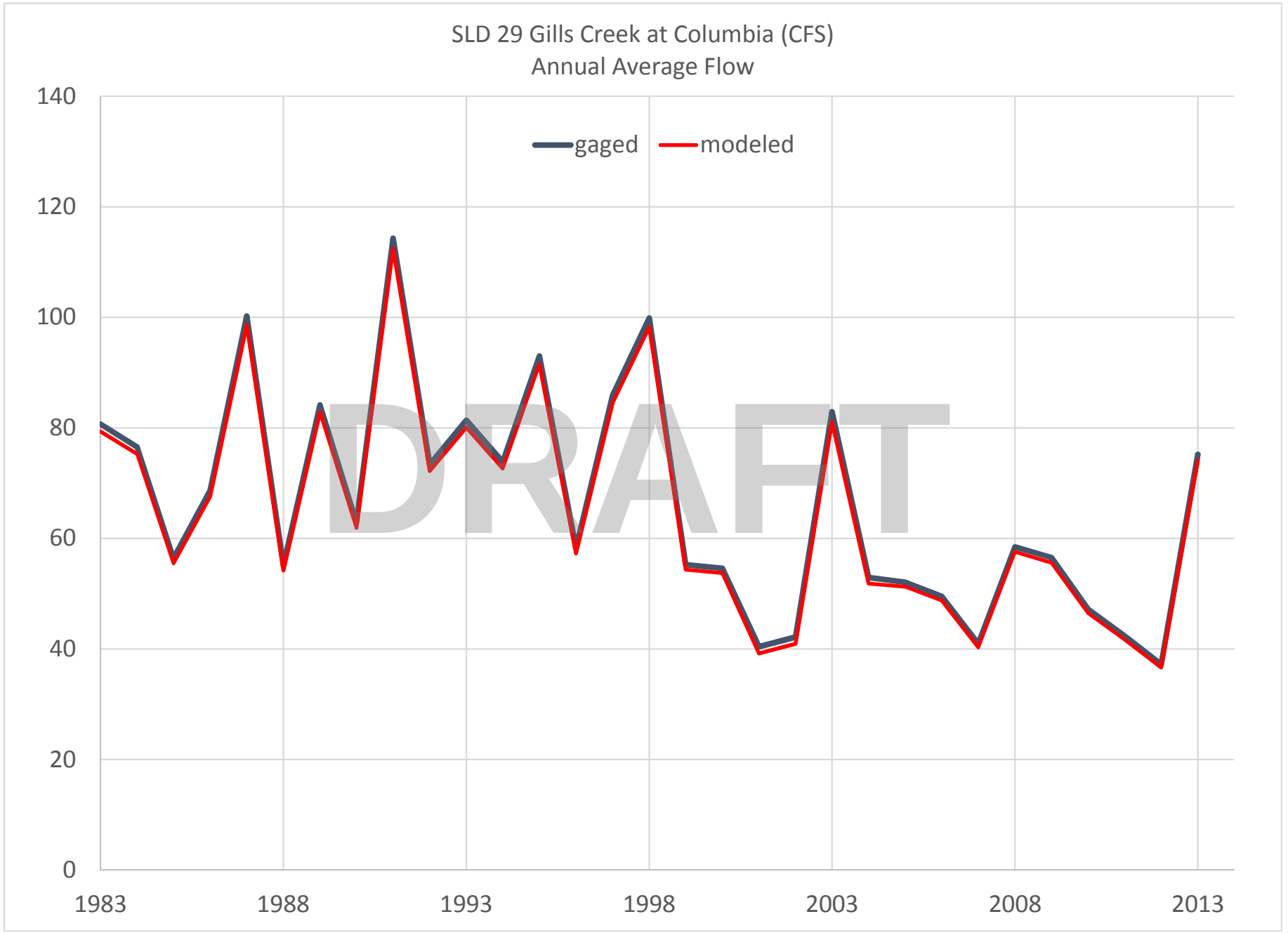

SLD23 Little Saluda at Saluda (CFS)
gaged
modeled
500
450
400
350
300
250
200
150
100
50
0
Feb-96
Jun-97
Nov-98
Mar-00
Jul-01
Dec-02
Apr-04
DRAFT

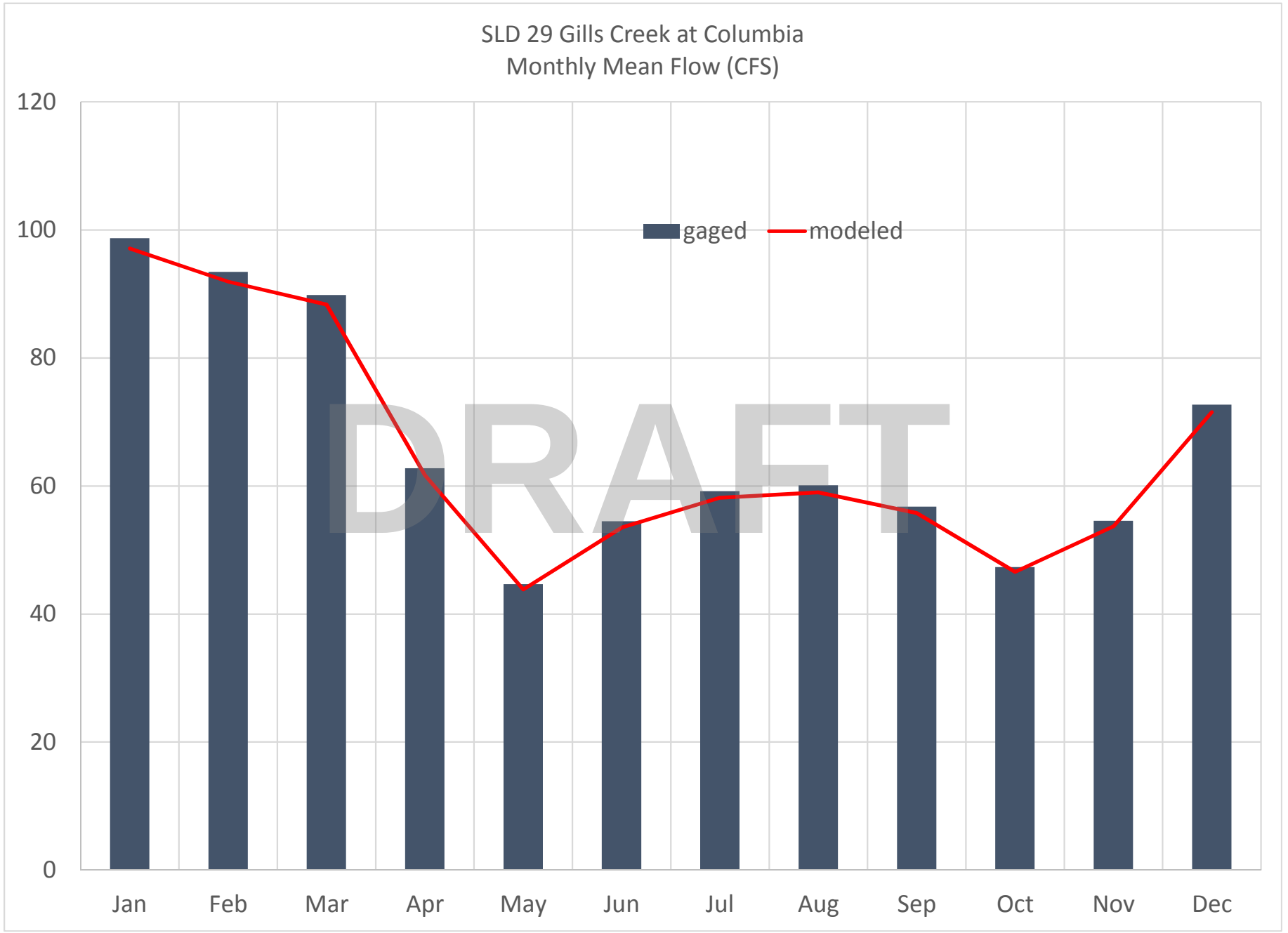

SLD 23 Little Saluda at Saluda (CFS)
Annual Average Flow
gaged
modeled
140
120
100
80
60
40
20
0
1983
1988
1993
1998
2003
2008
2013
DRAFT

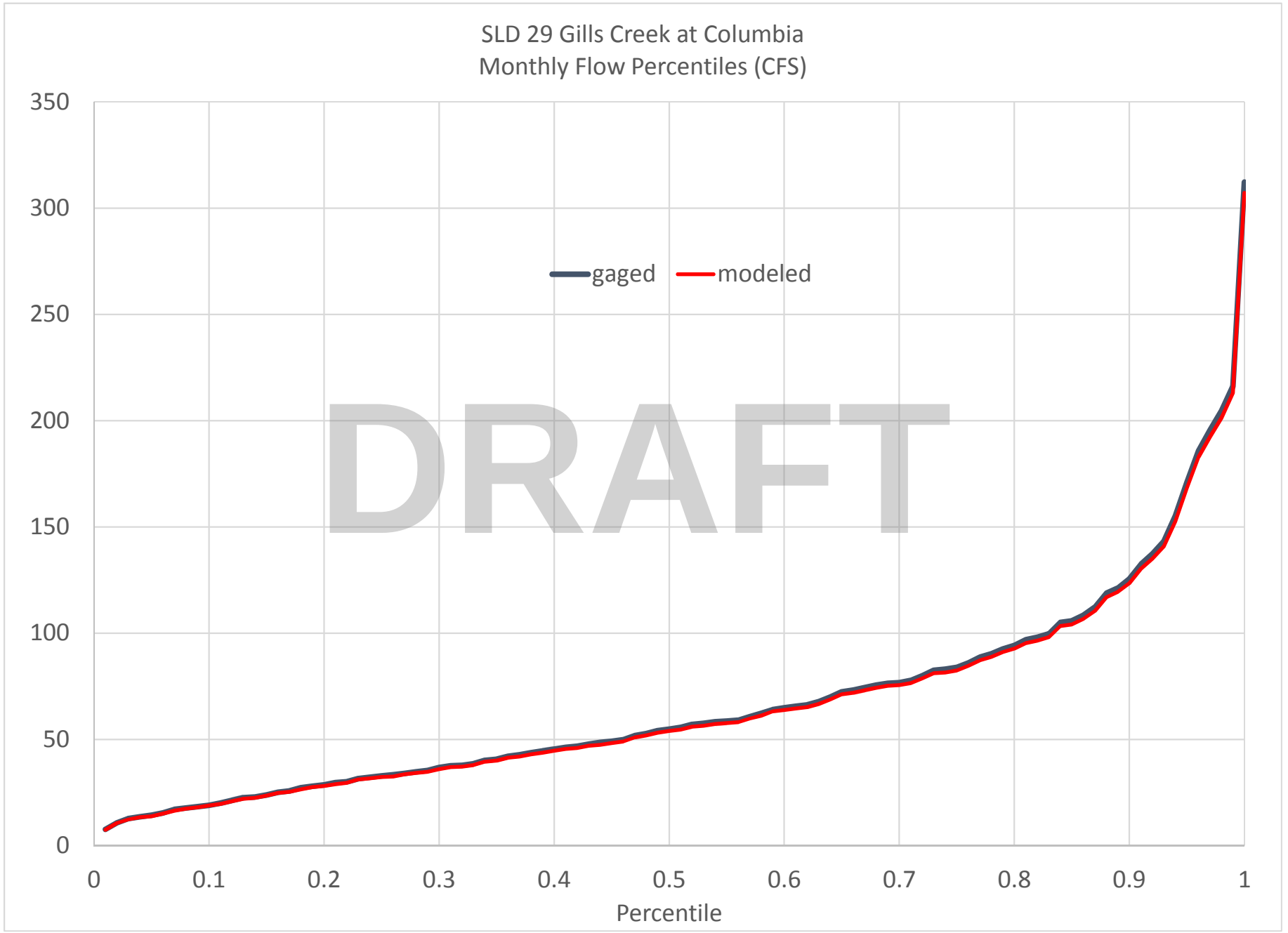

SLD 23 Little Saluda at Saluda
Monthly Mean Flow (CFS)
gaged
modeled
DRAFT
180
160
140
120
100
80
60
40
20
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

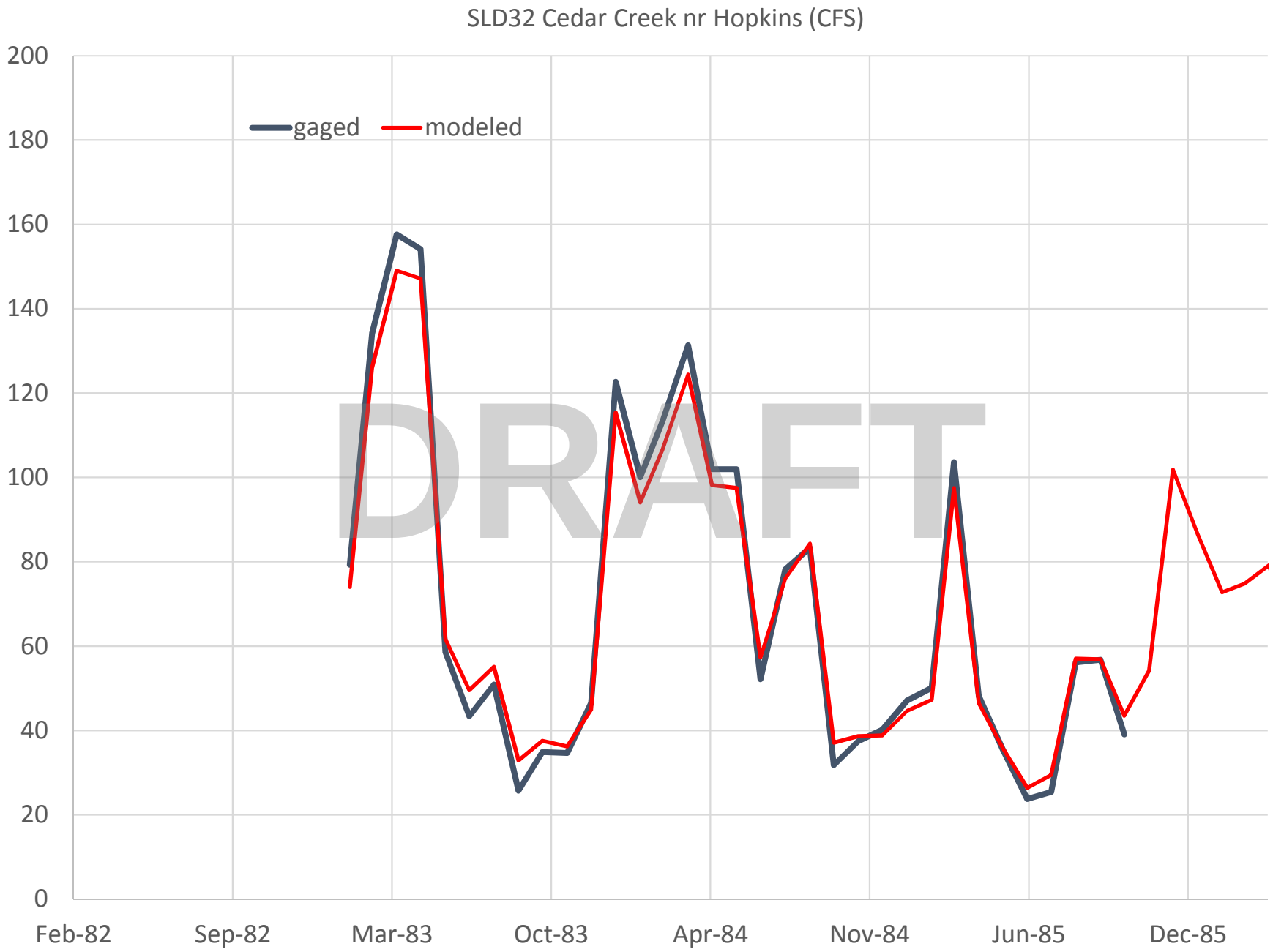

SLD 23 Little Saluda at Saluda
Monthly Flow Percentiles (CFS)
500
450
400
350
300
250
200
150
100
50
0
gaged
modeled
DRAFT
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Percentile

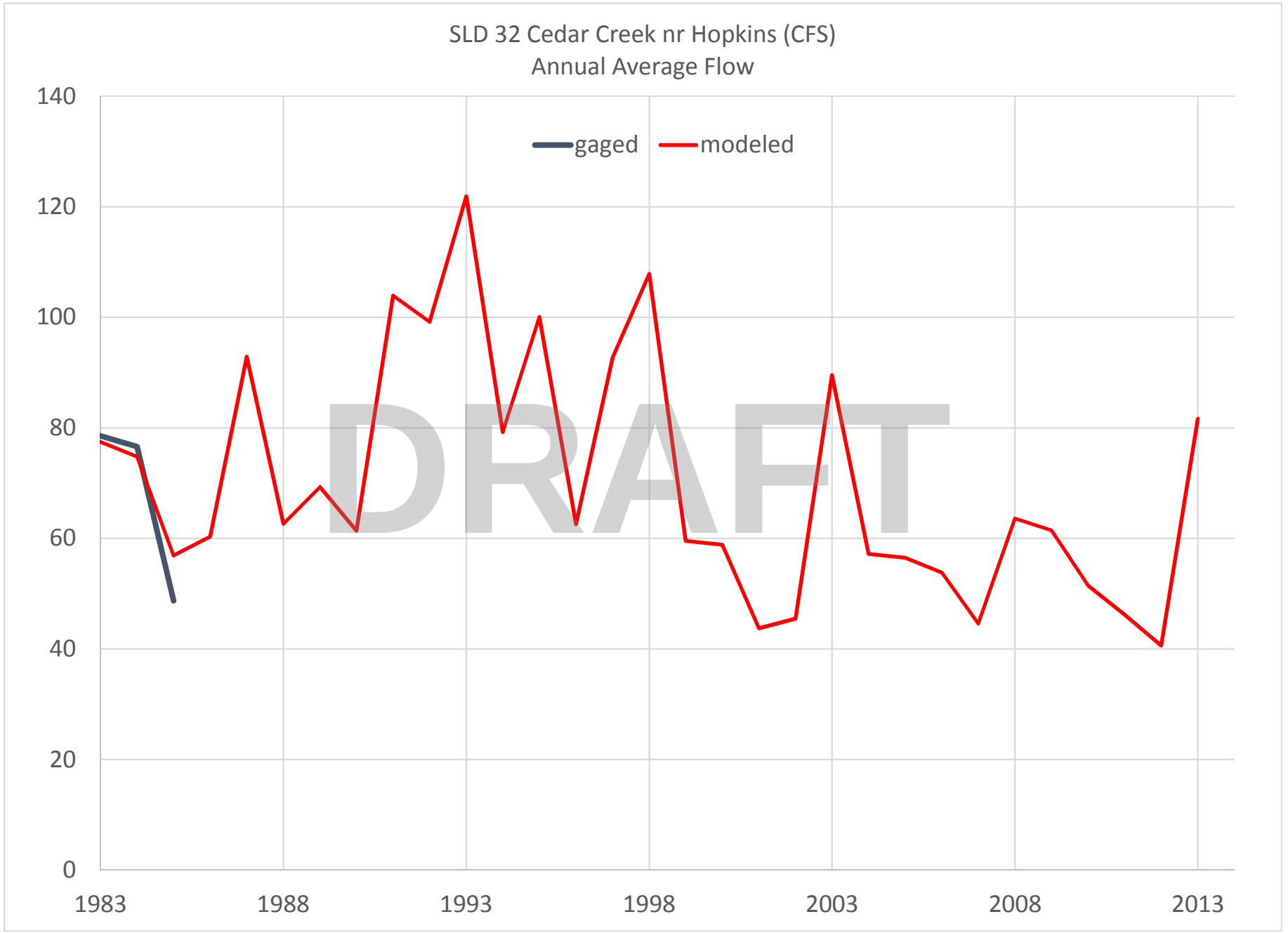

SLD29 Gills Creek at Columbia (CFS)
gaged
modeled
DRAFT
350
300
250
200
150
100
50
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14

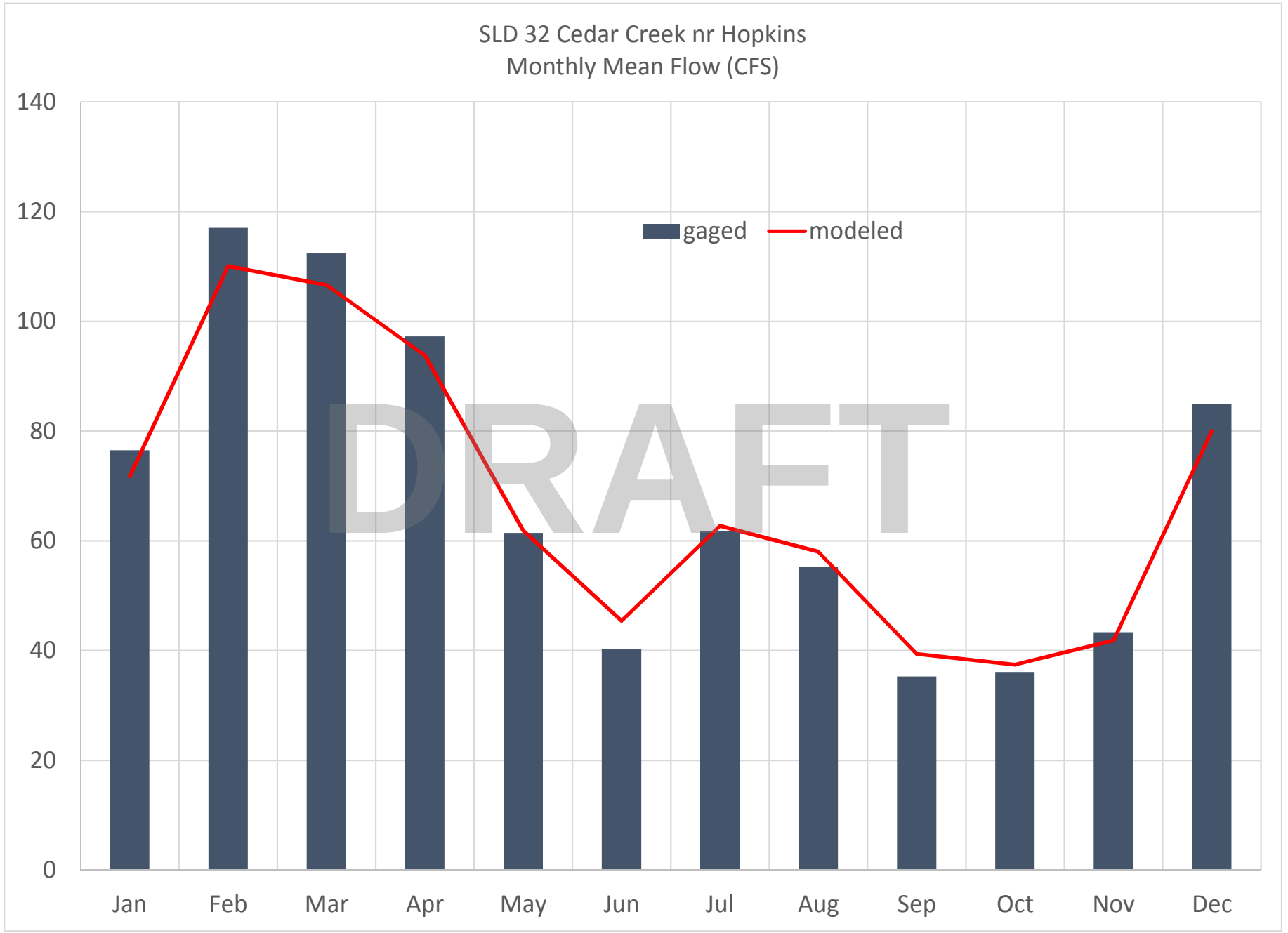

SLD 29 Gills Creek at Columbia (CFS)
Annual Average Flow
gaged
modeled
140
120
100
80
60
40
20
0
1983
1988
1993
1998
2003
2008
2013
DRAFT

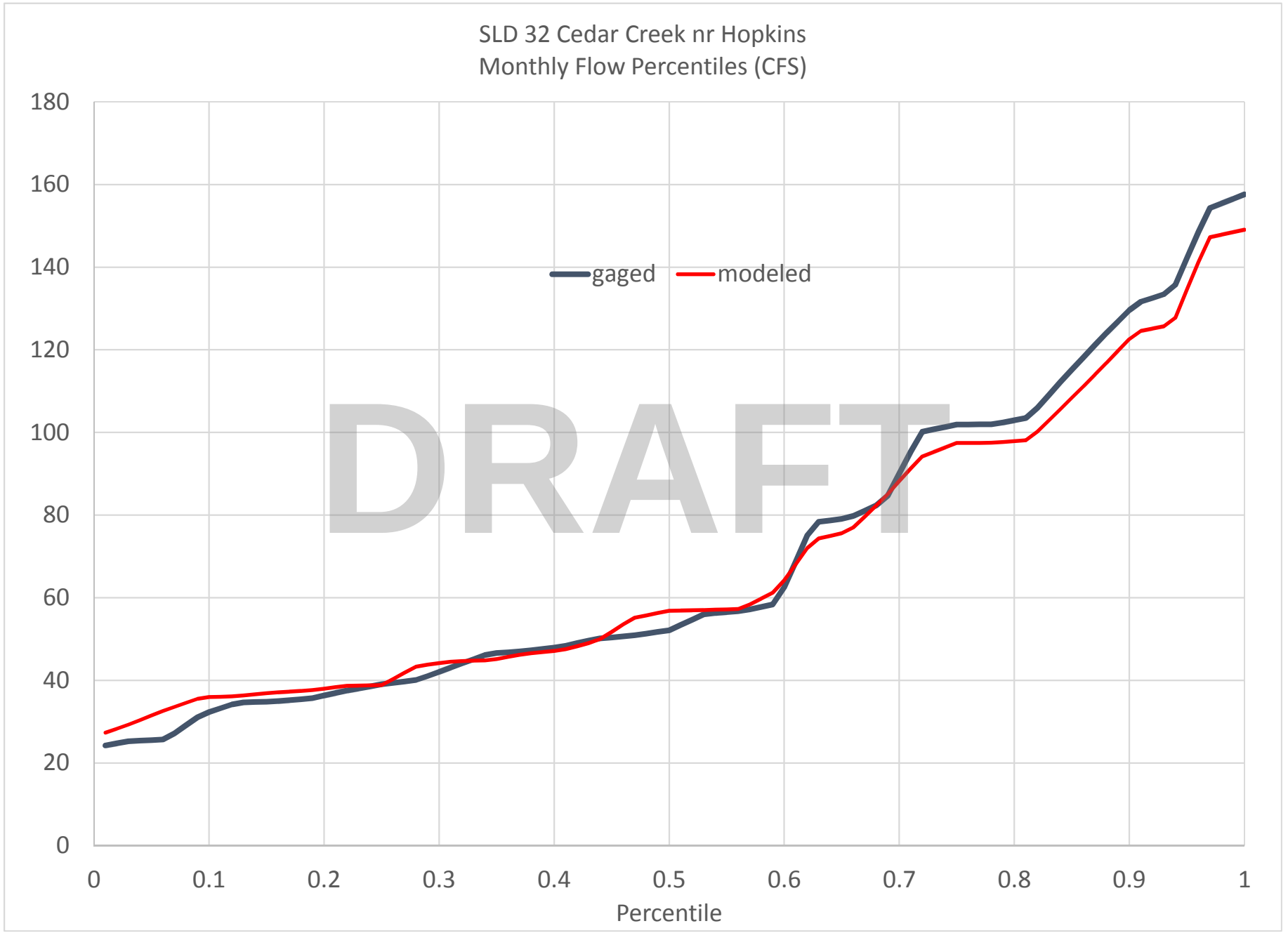

SLD 29 Gills Creek at Columbia
Monthly Mean Flow (CFS)
120
100
80
60
40
20
0
gaged
modeled
DRAFT
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

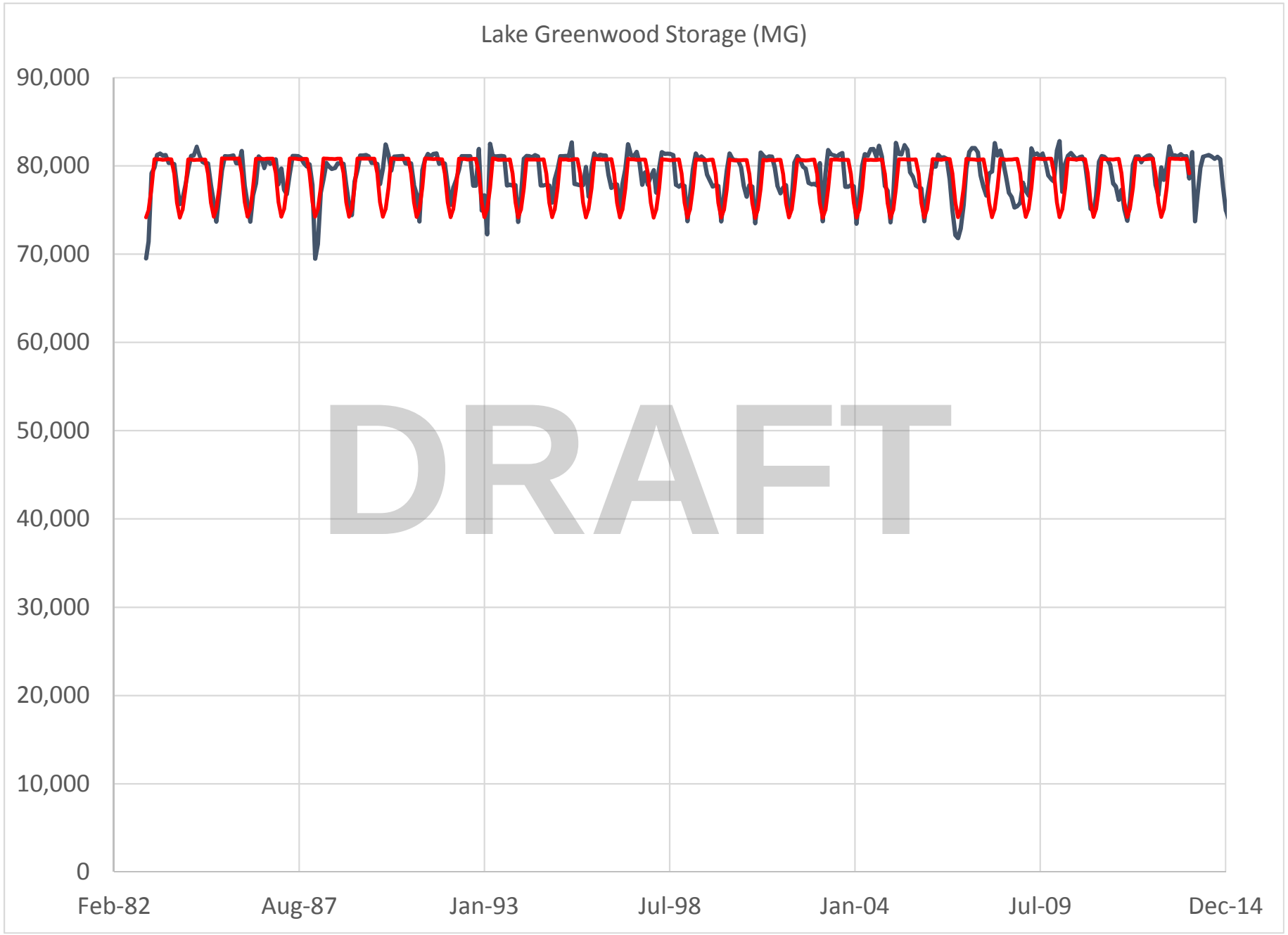

SLD 29 Gills Creek at Columbia
Monthly Flow Percentiles (CFS)
350
300
250
200
150
100
50
0
gaged
modeled
DRAFT
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Percentile

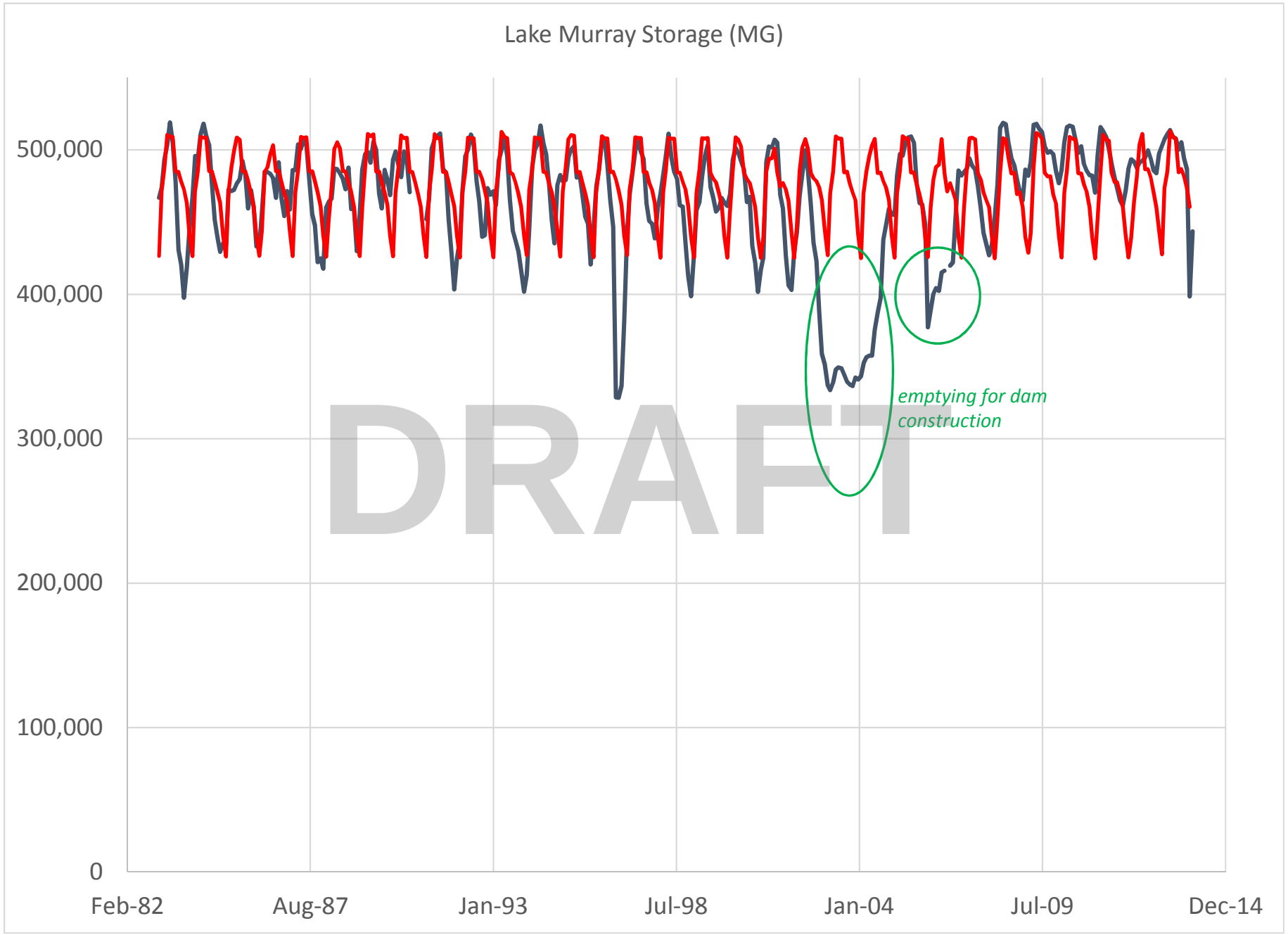

SLD32 Cedar Creek nr Hopkins (CFS)
gaged
modeled
DRAFT
200
180
160
140
120
100
80
60
40
20
0
Feb-82
Sep-82
Mar-83
Oct-83
Apr-84
Nov-84
Jun-85
Dec-85

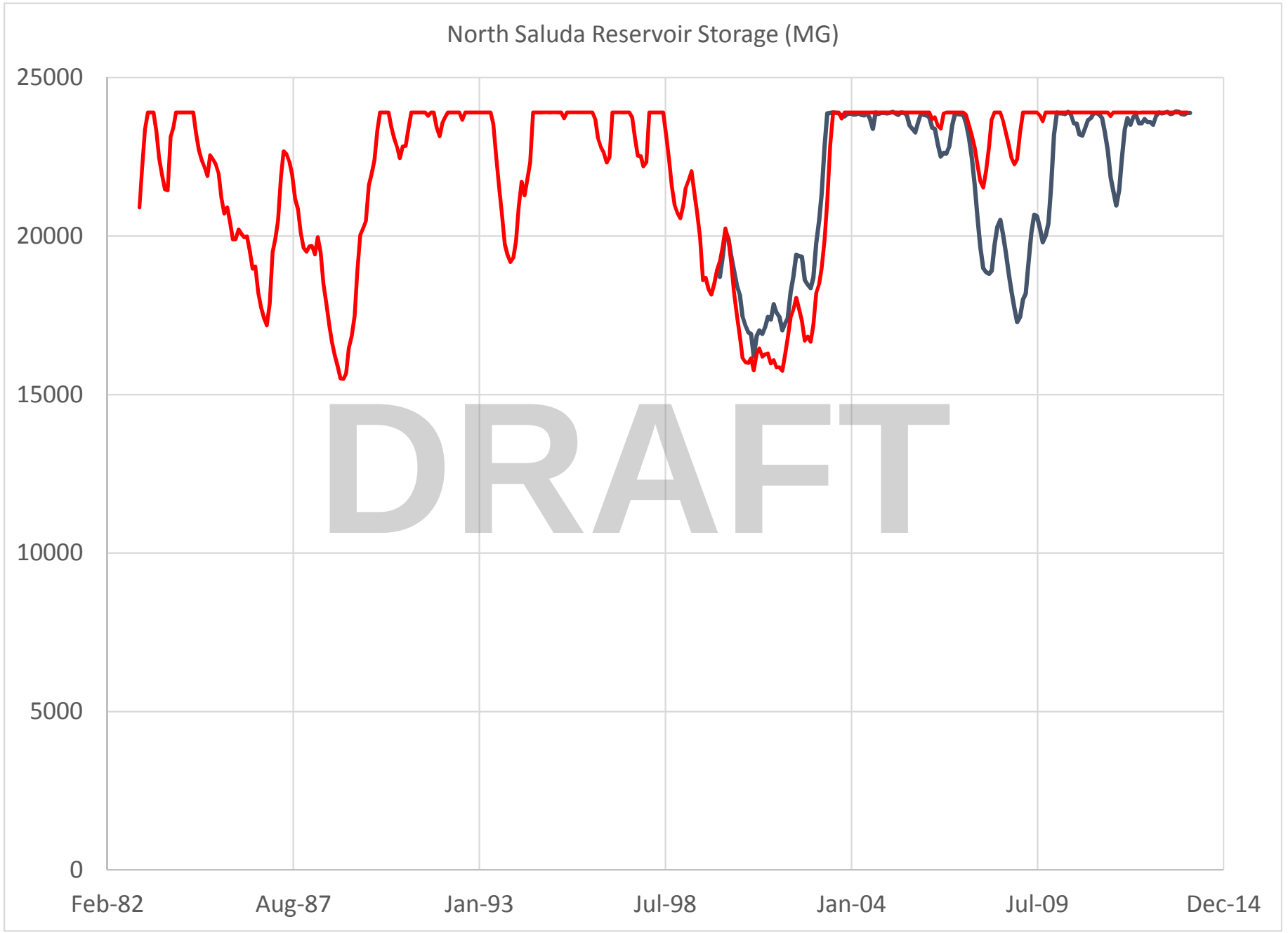

SLD 32 Cedar Creek nr Hopkins (CFS)
Annual Average Flow
gaged
modeled
140
120
100
80
60
40
20
0
1983
1988
1993
1998
2003
2008
2013
DRAFT


SLD 32 Cedar Creek nr Hopkins
Monthly Mean Flow (CFS)
140
120
100
80
60
40
20
0
gaged
modeled
DRAFT
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec


SLD 32 Cedar Creek nr Hopkins
Monthly Flow Percentiles (CFS)
gaged
modeled
DRAFT
180
160
140
120
100
80
60
40
20
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Percentile


Lake Greenwood Storage (MG)
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT


Lake Murray Storage (MG)
500,000
400,000
300,000
200,000
100,000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
emptying for dam construction
DRAFT


North Saluda Reservoir Storage (MG)
25000
20000
15000
10000
5000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT

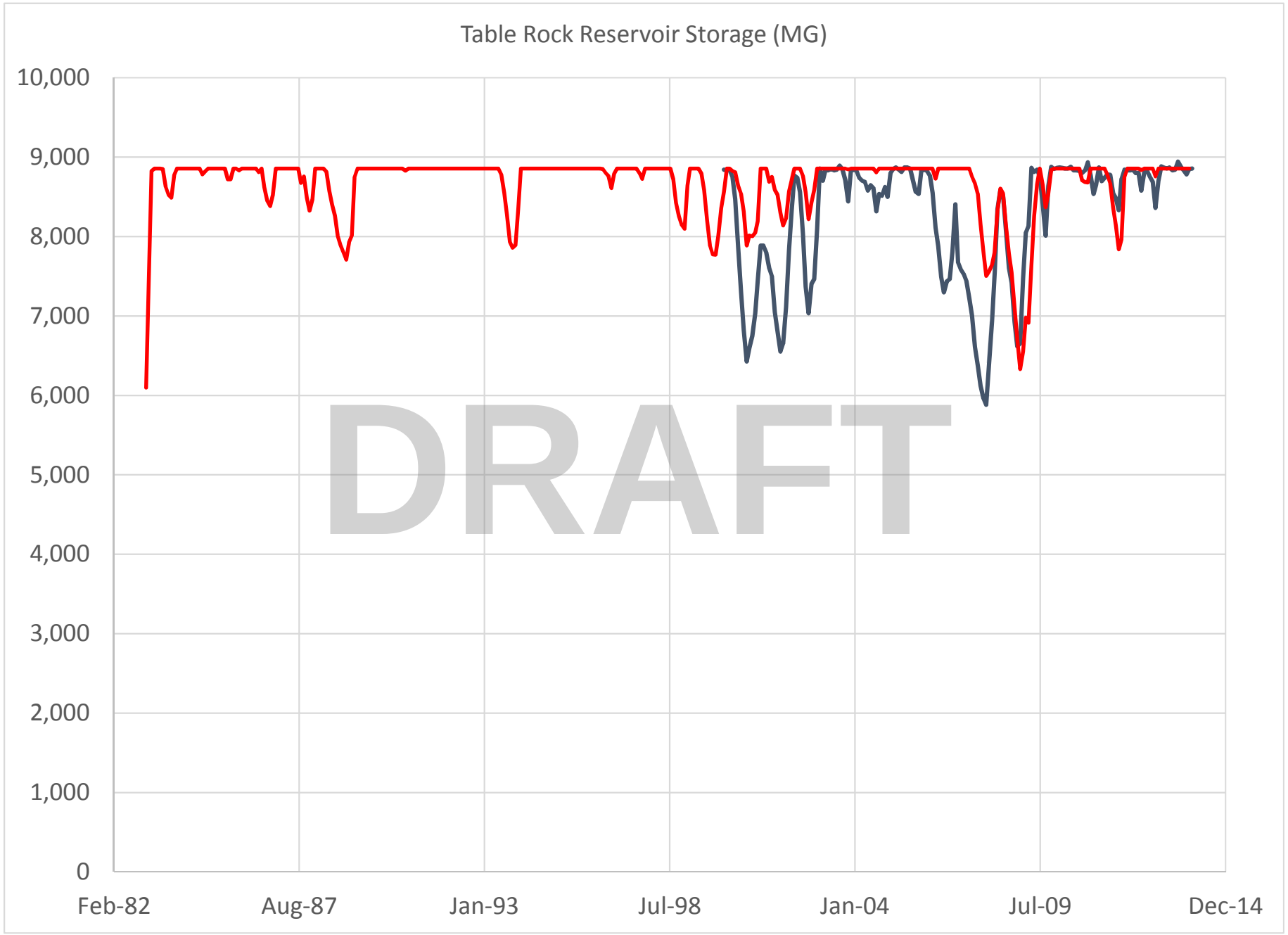
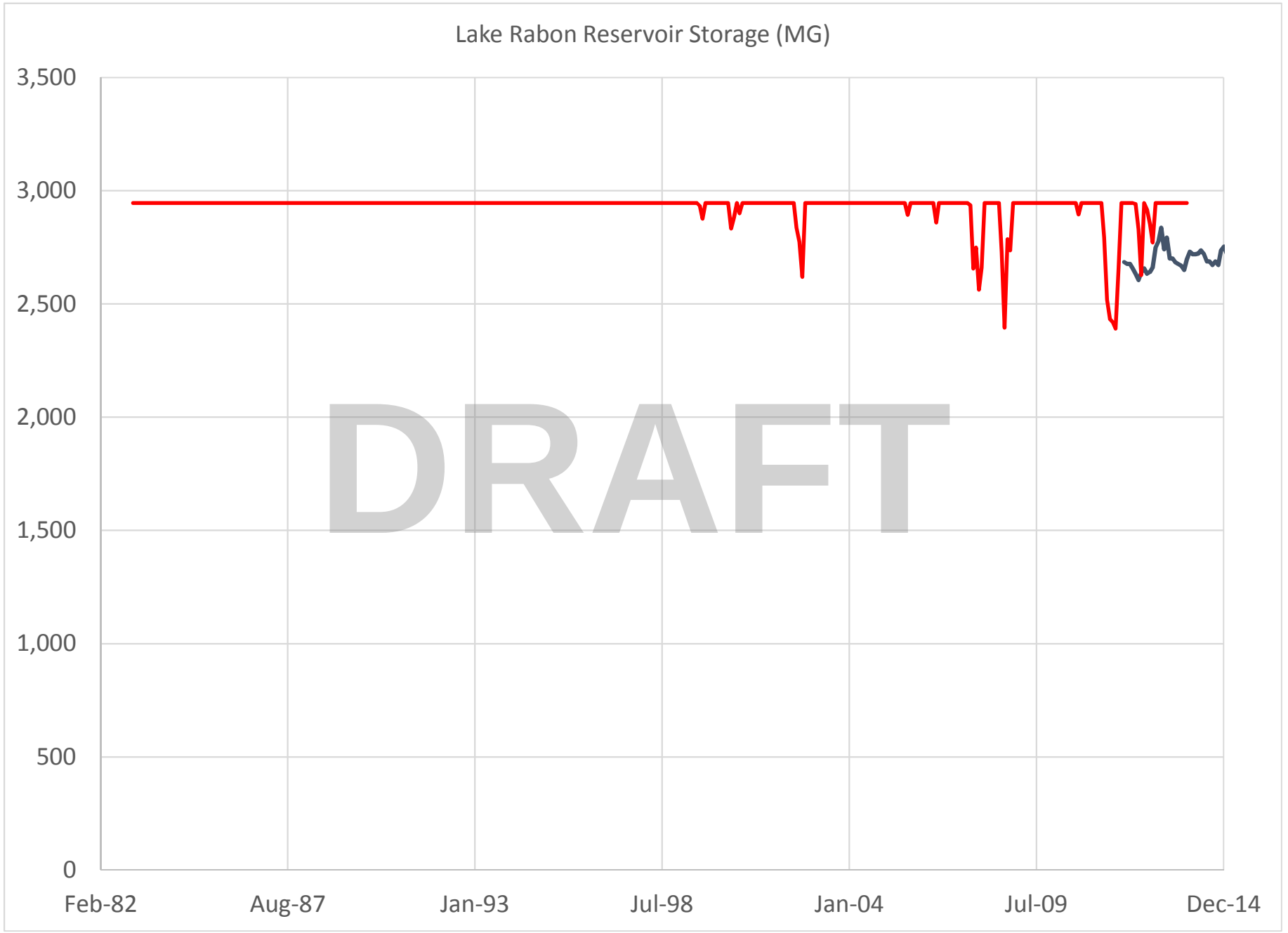
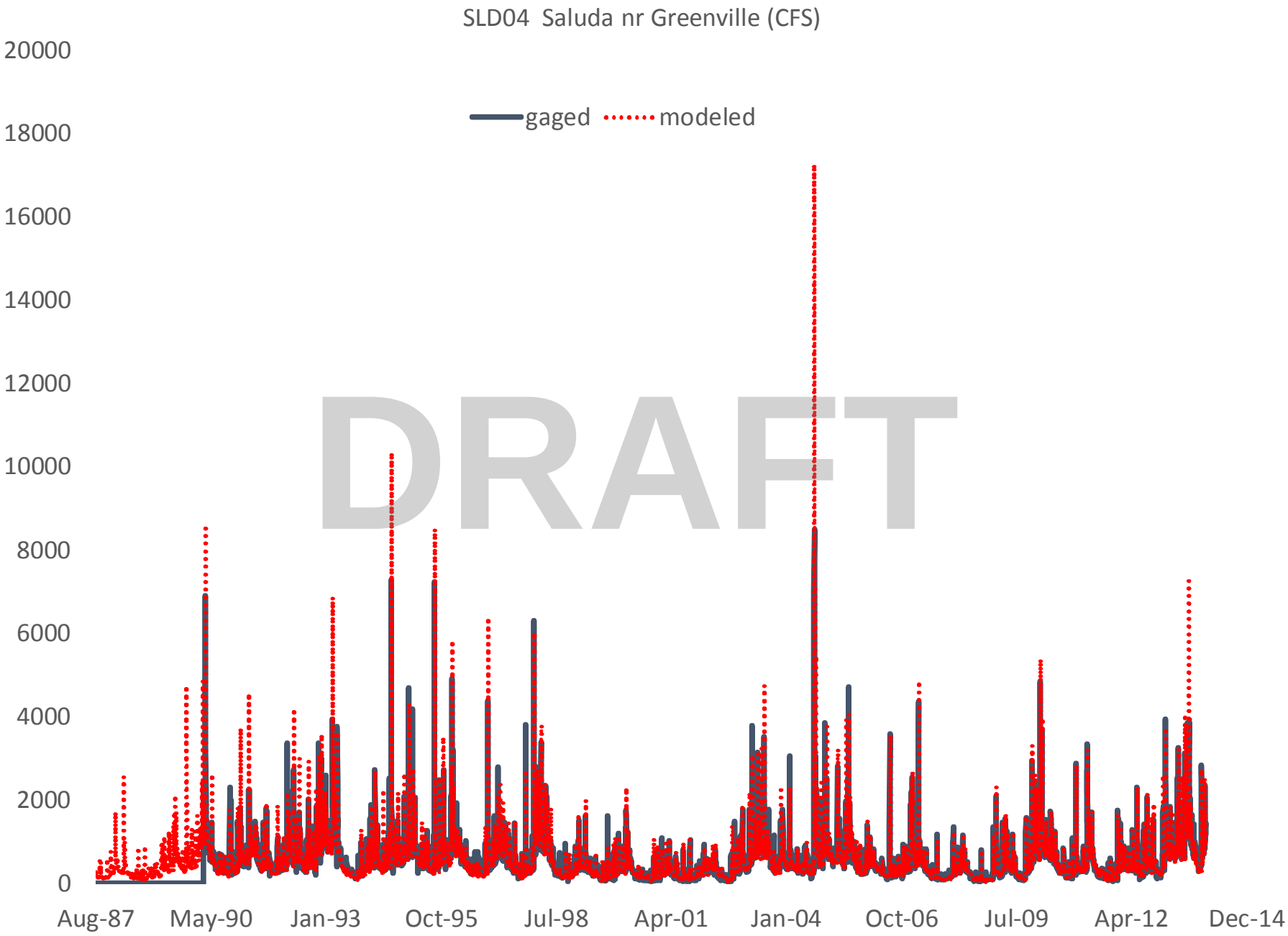
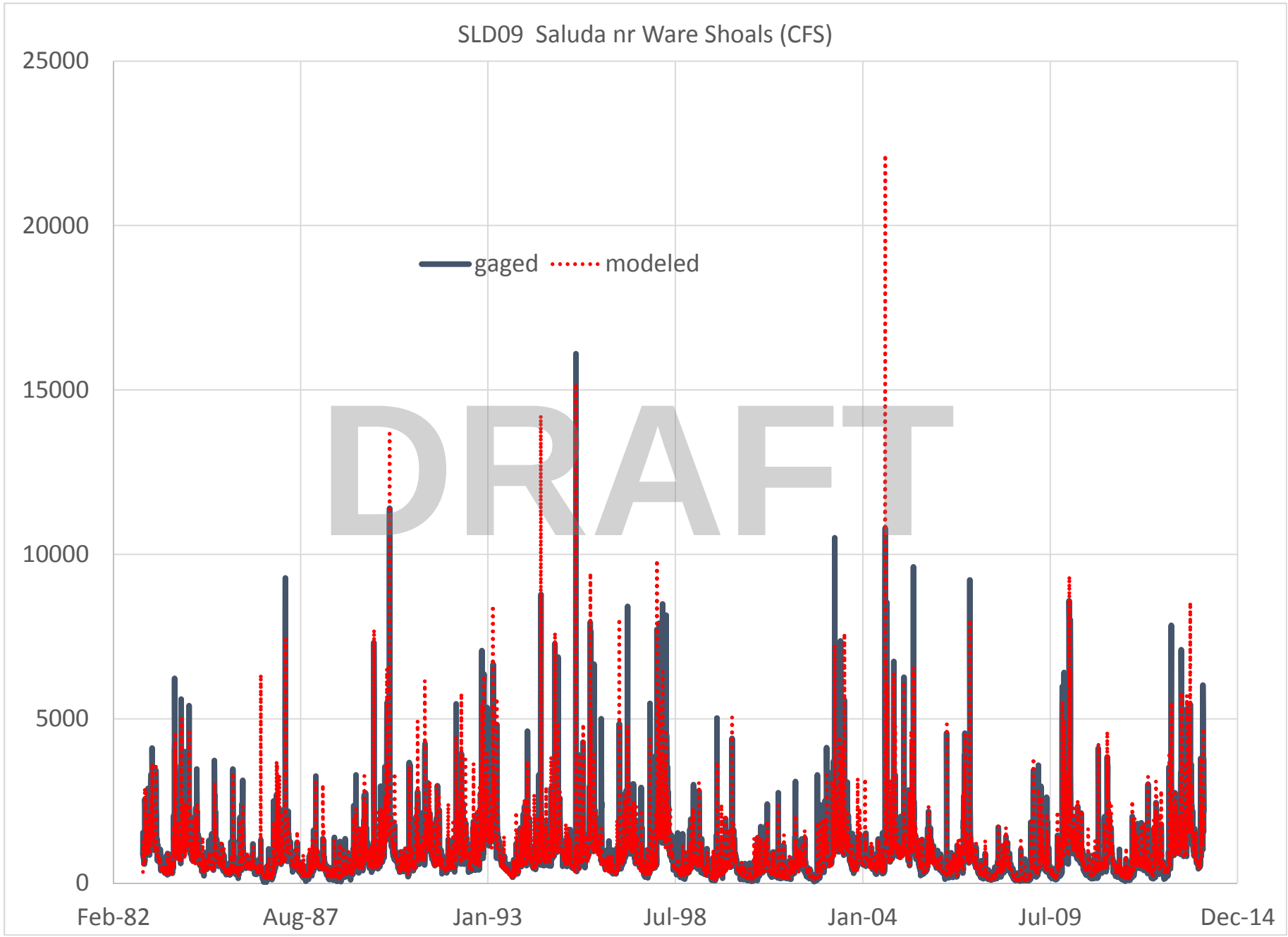
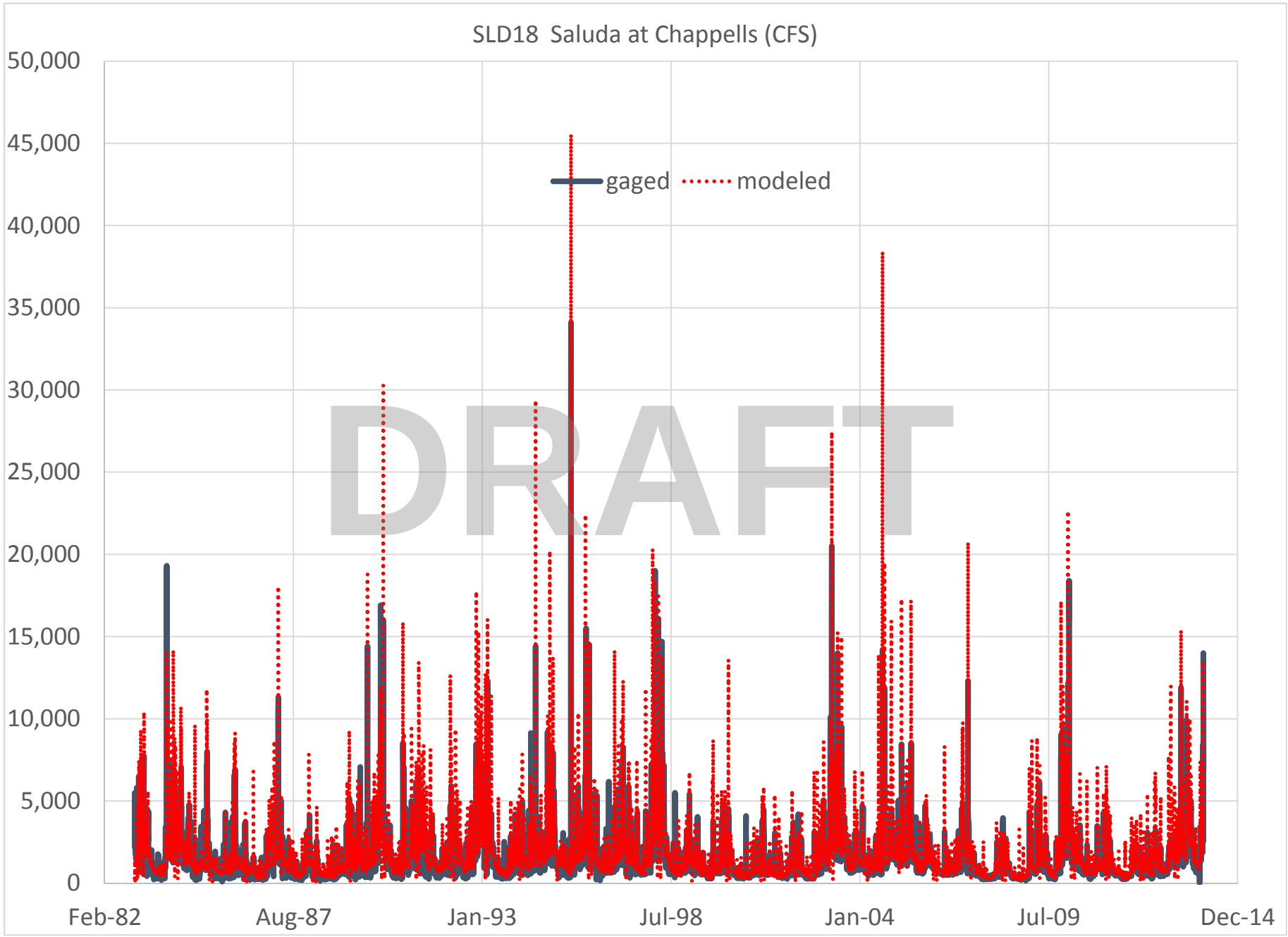


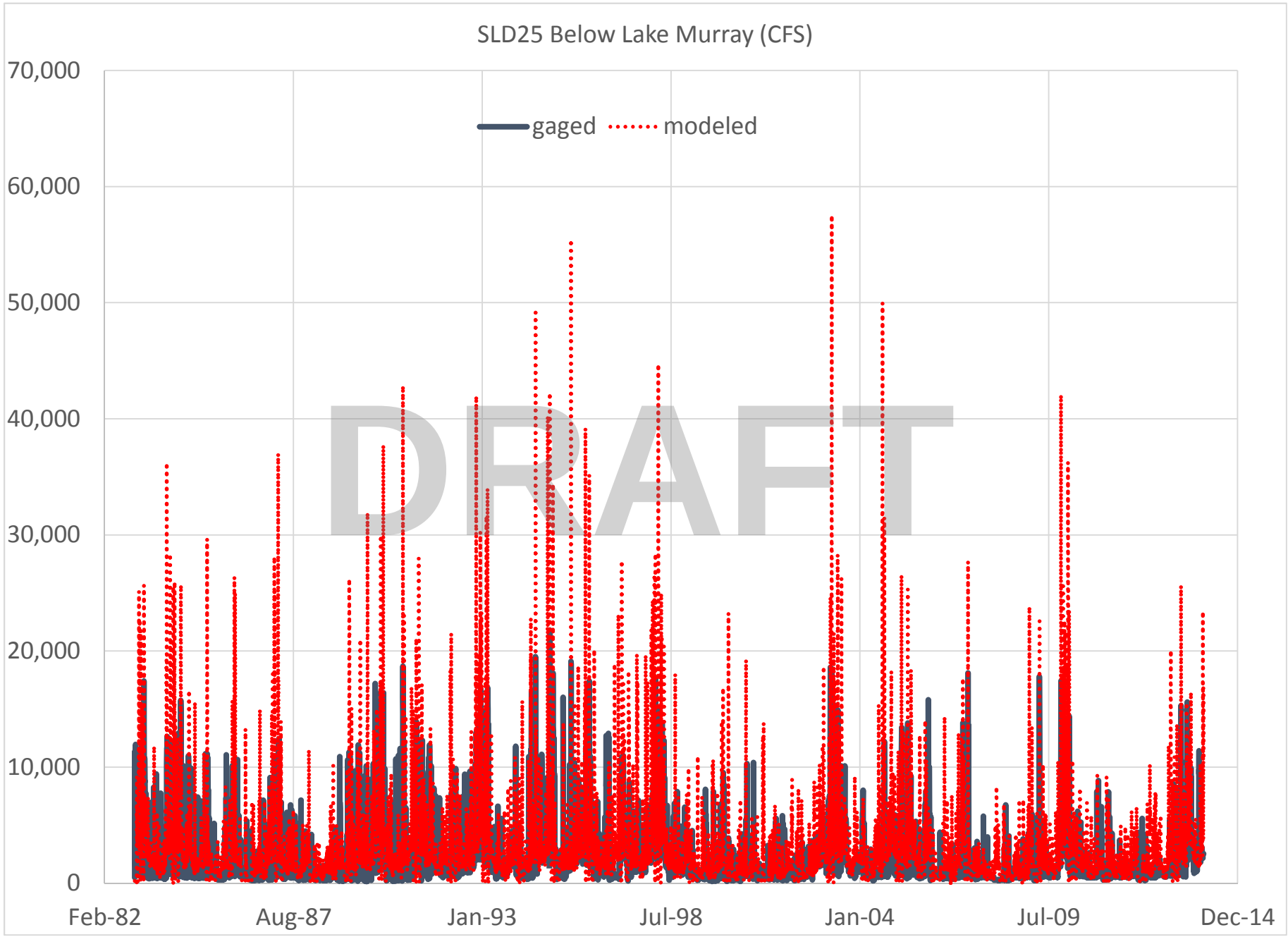
Table Rock Reservoir Storage (MG)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT

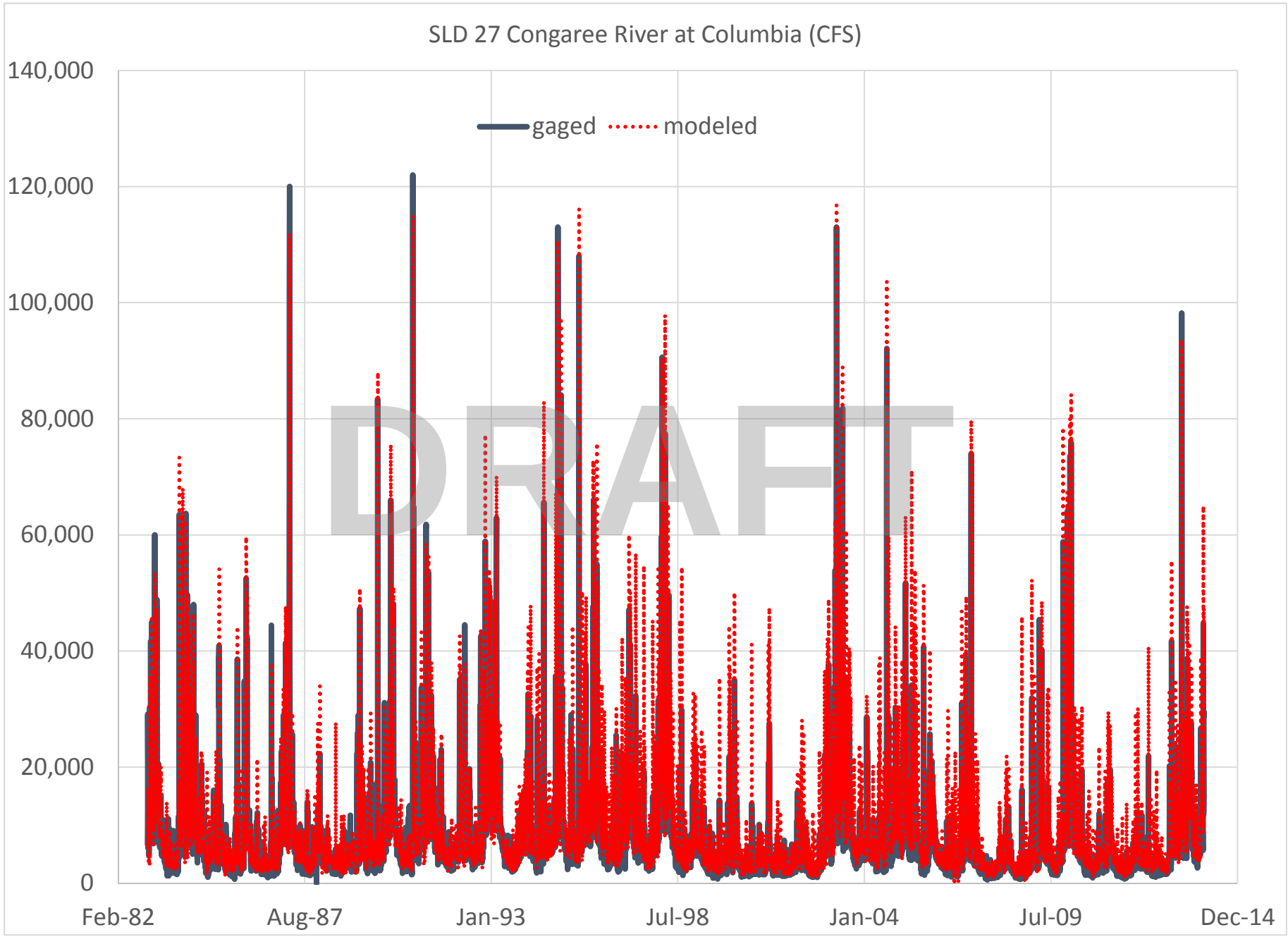

Lake Rabon Reservoir Storage (MG)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT

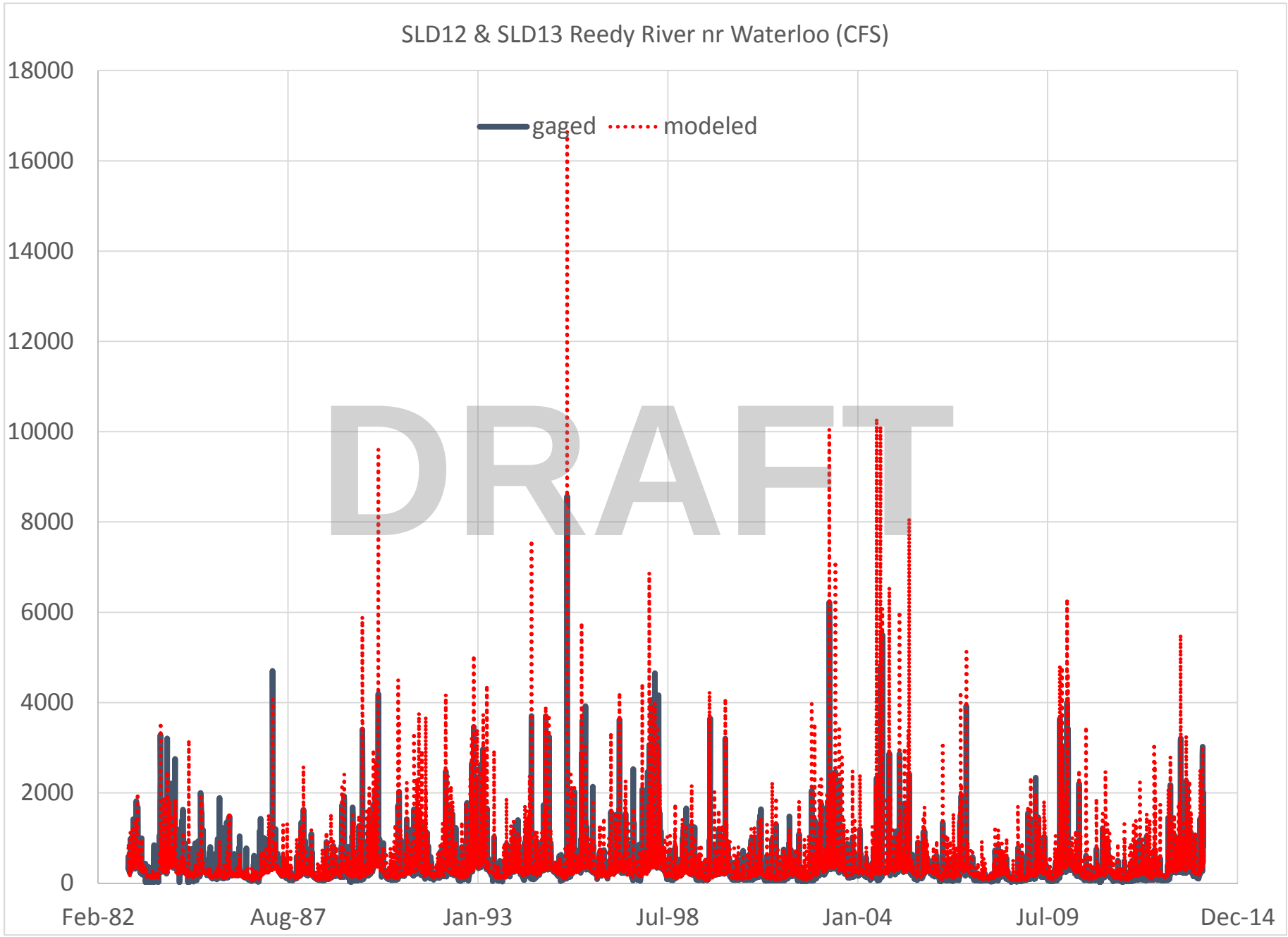

SLD04 Saluda nr Greenville (CFS)
gaged
modeled
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Apr-12
Dec-14
DRAFT

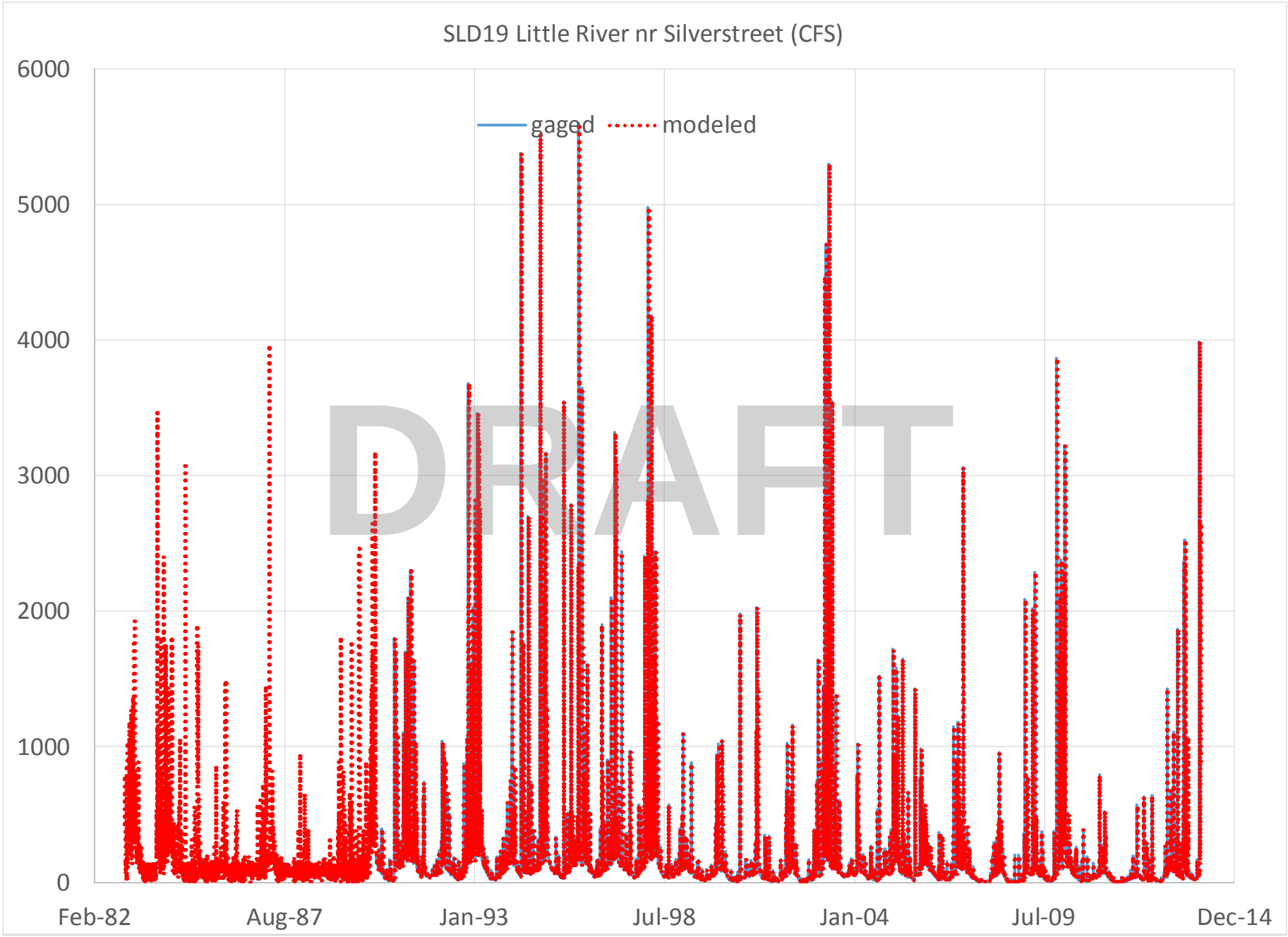

SLD09 Saluda nr Ware Shoals (CFS)
25000
20000
15000
10000
5000
0
gaged
modeled
DRAFT
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14

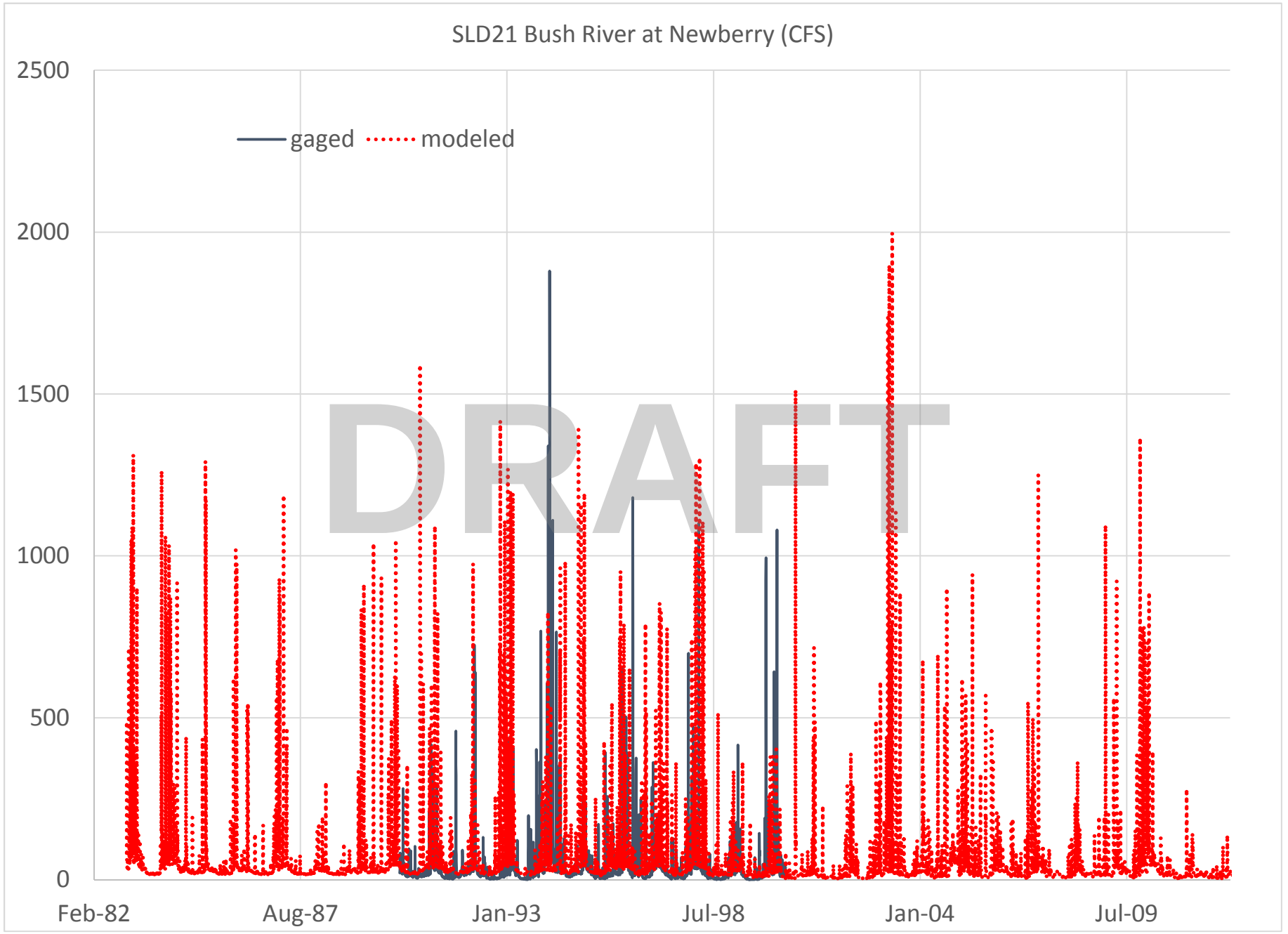

SLD18 Saluda at Chappells (CFS)
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
gaged
modeled
DRAFT
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14

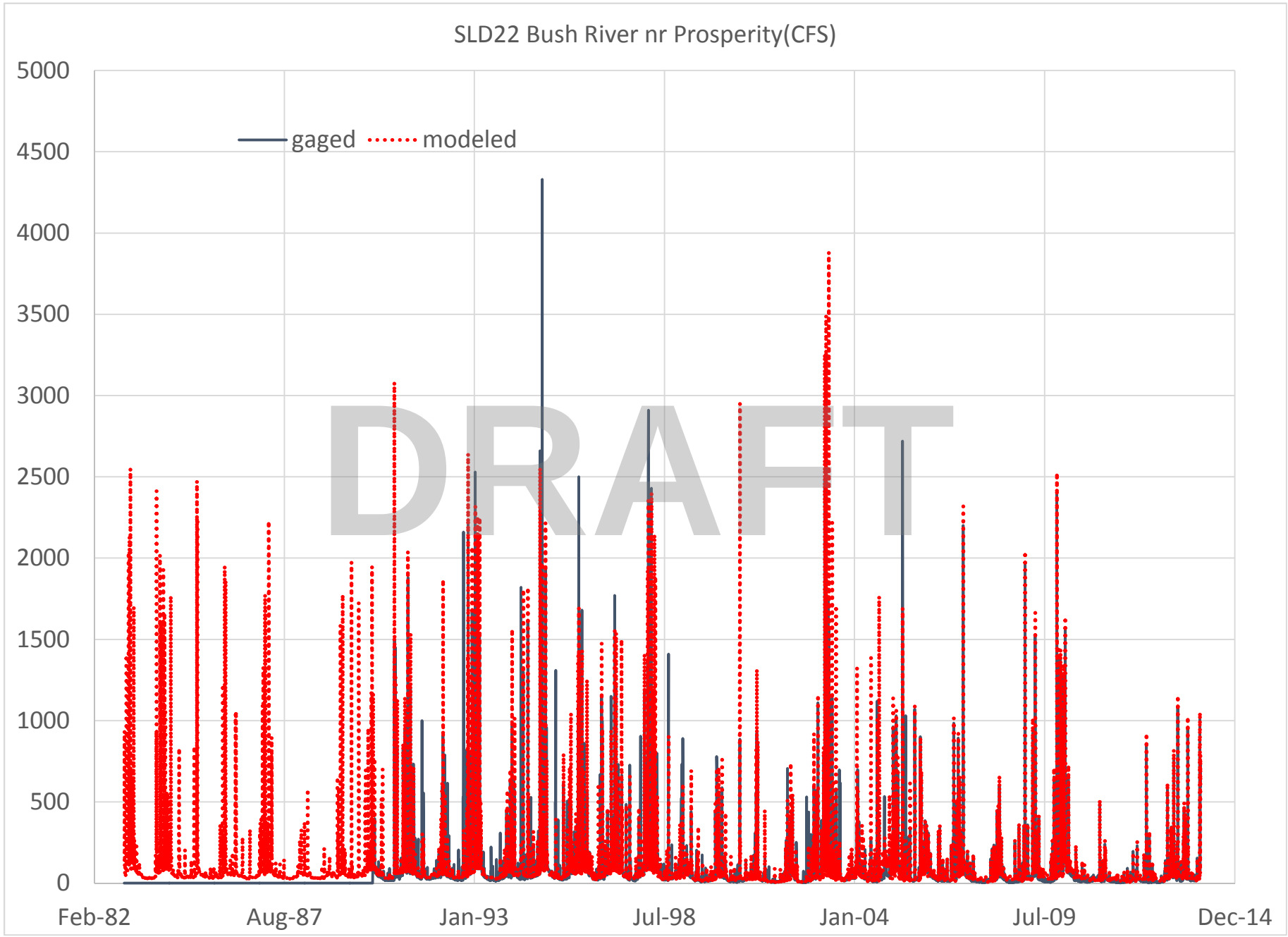

SLD25 Below Lake Murray (CFS)
gaged
modeled
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT

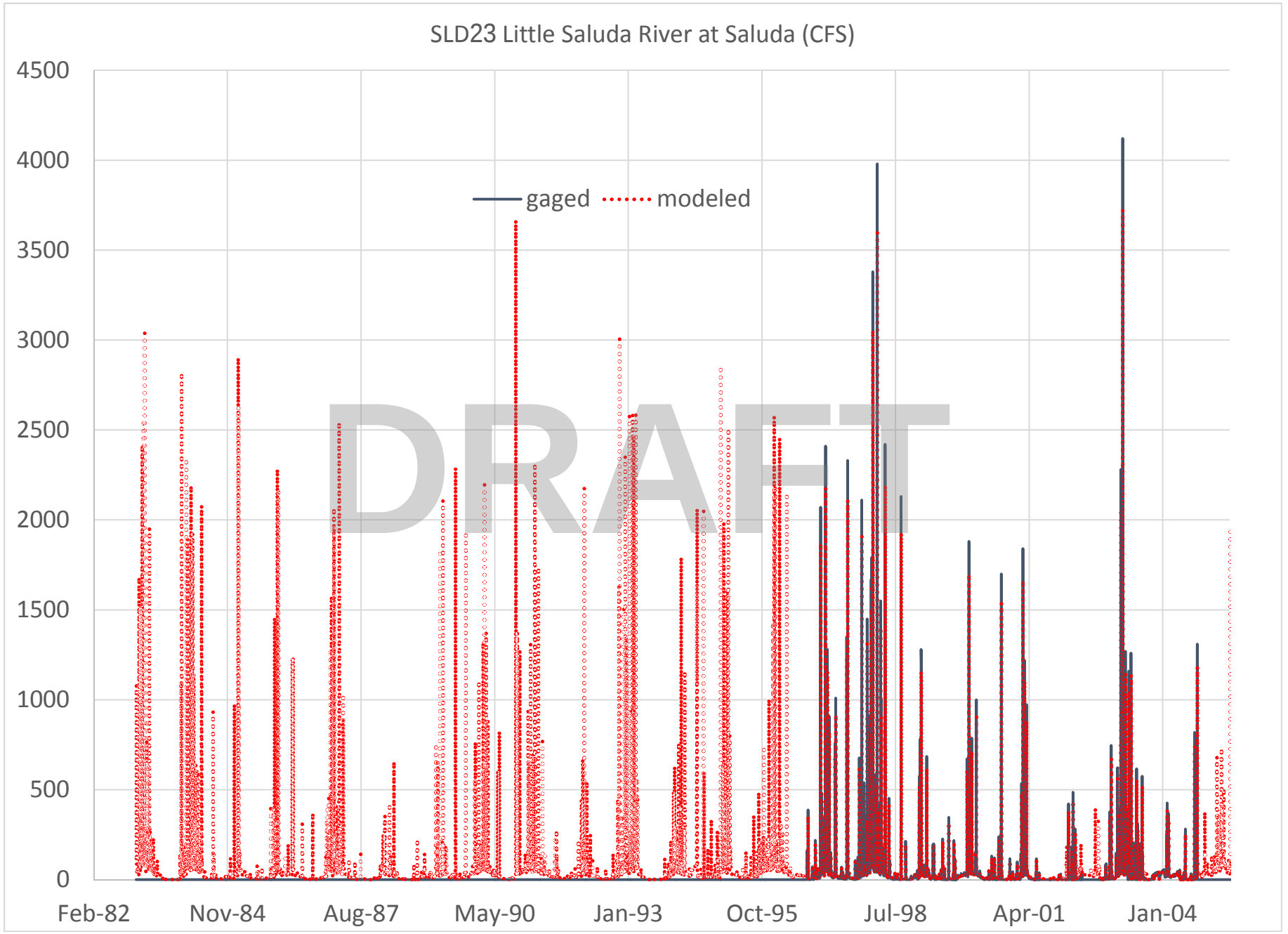

SLD 27 Congaree River at Columbia (CFS)
gaged
modeled
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT

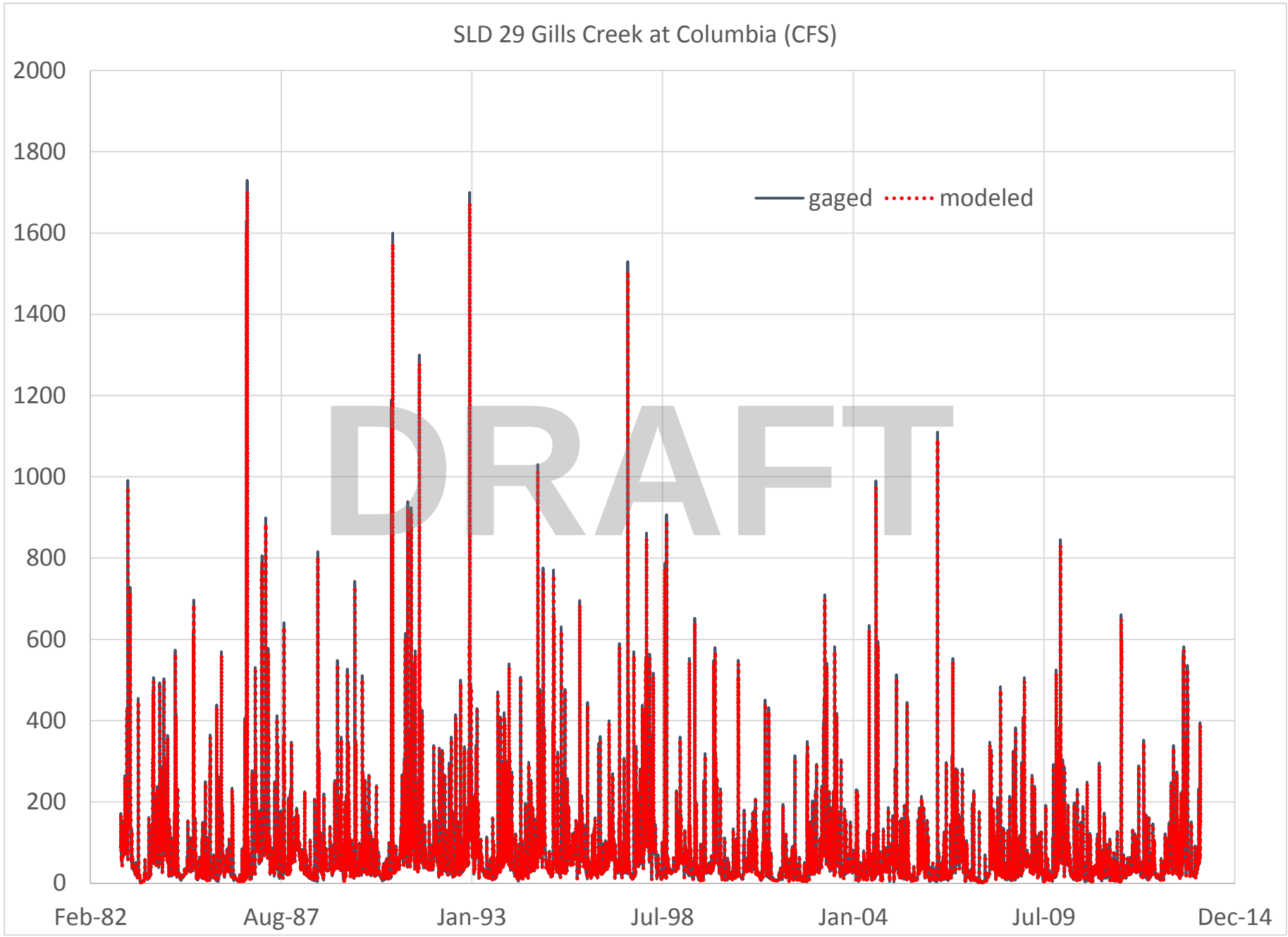

SLD12 & SLD13 Reedy River nr Waterloo (CFS)
gaged
modeled
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT

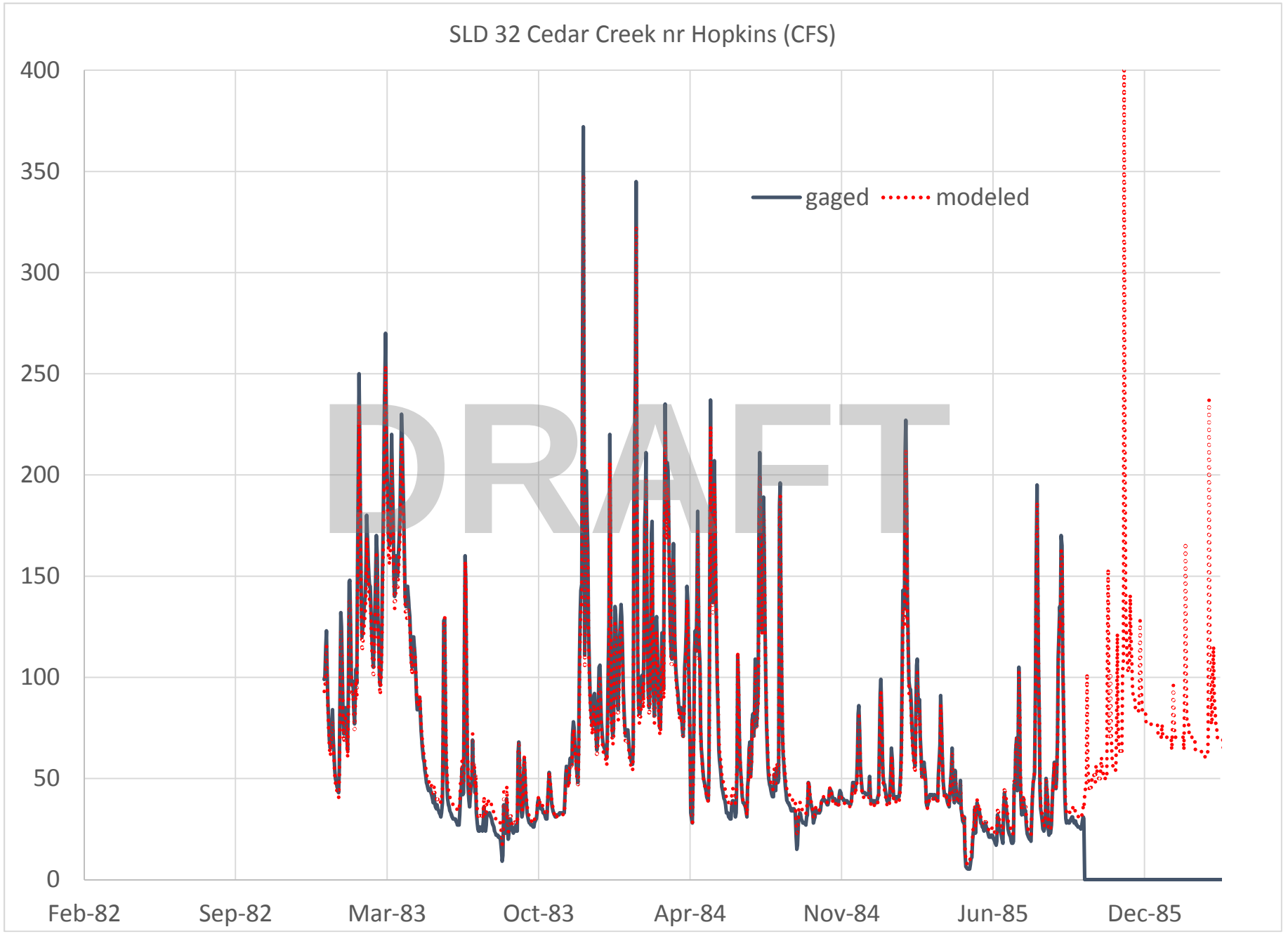

SLD19 Little River nr Silverstreet (CFS)
gaged
modeled
6000
5000
4000
3000
2000
1000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT

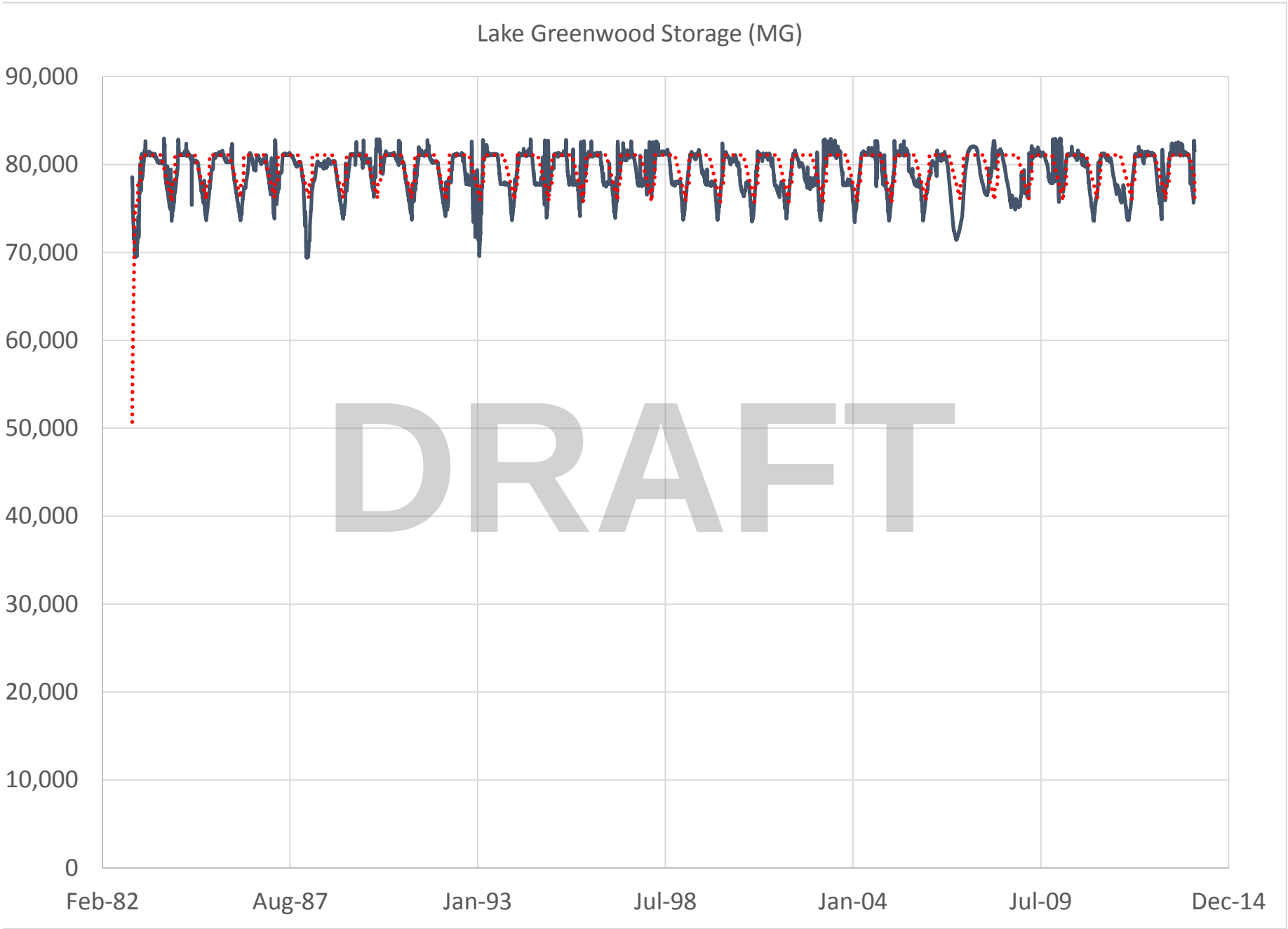

SLD21 Bush River at Newberry (CFS)
gaged
modeled
2500
2000
1500
1000
500
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
DRAFT

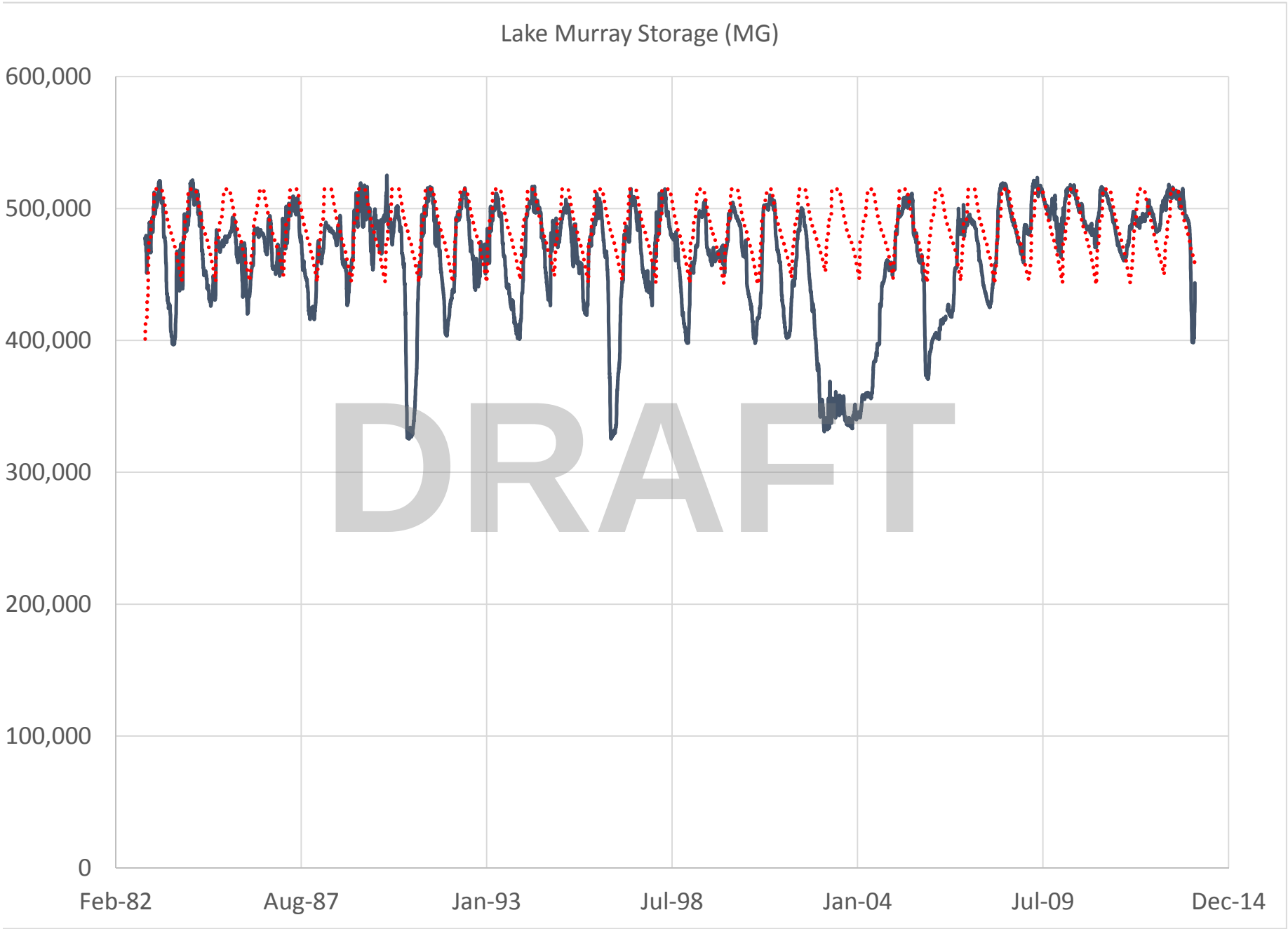

SLD22 Bush River nr Prosperity(CFS)
gaged
modeled
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT

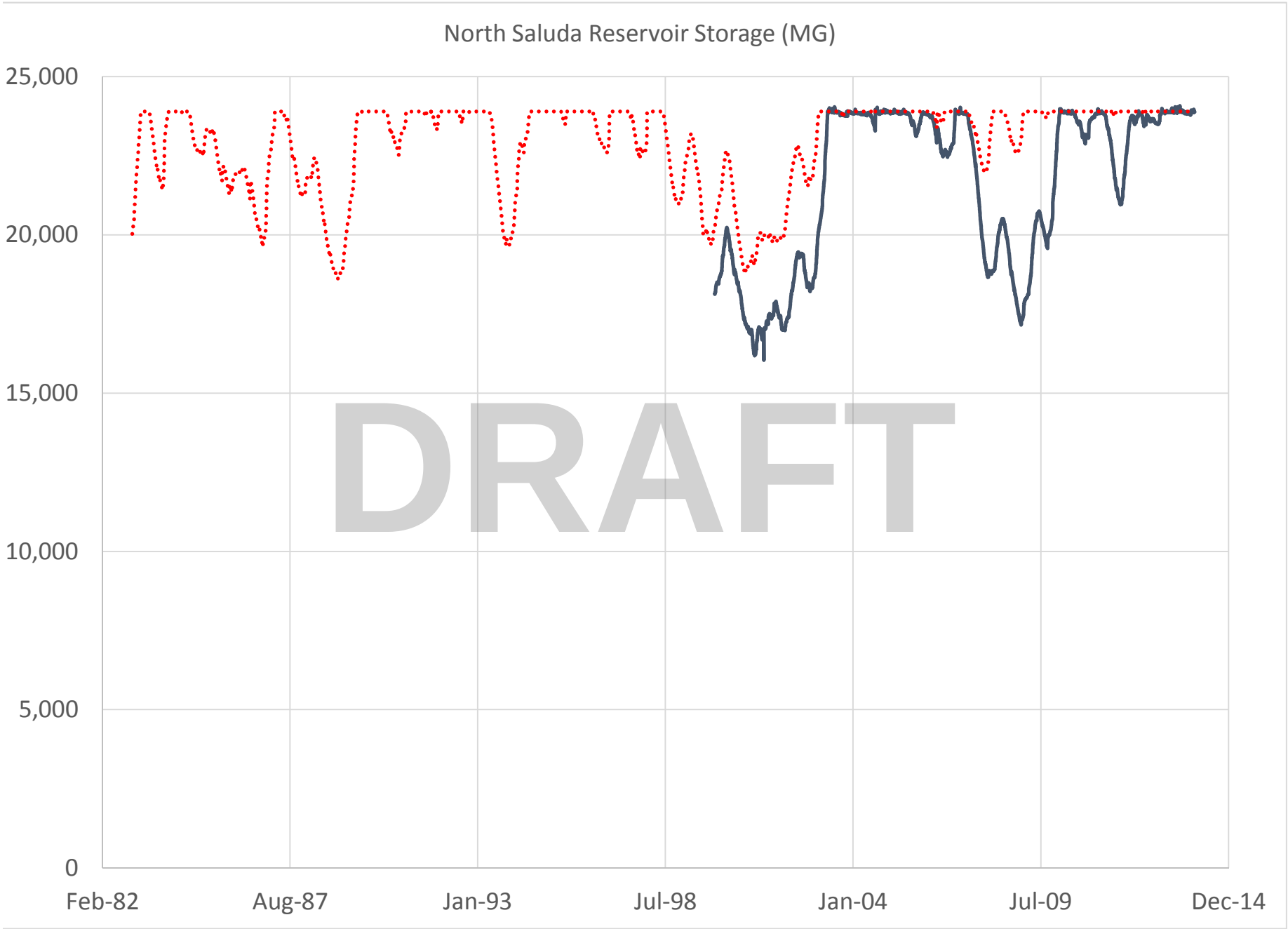

SLD23 Little Saluda River at Saluda (CFS)
gaged
modeled
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Feb-82
Nov-84
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
DRAFT


SLD 29 Gills Creek at Columbia (CFS)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
gaged
modeled
DRAFT
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14


SLD 32 Cedar Creek nr Hopkins (CFS)
400
350
300
250
200
150
100
50
0
Feb-82
Sep-82
Mar-83
Oct-83
Apr-84
Nov-84
Jun-85
Dec-85
gaged
modeled
DRAFT


Lake Greenwood Storage (MG)
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT


Lake Murray Storage (MG)
600,000
500,000
400,000
300,000
200,000
100,000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT


North Saluda Reservoir Storage (MG)
25,000
20,000
15,000
10,000
5,000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT

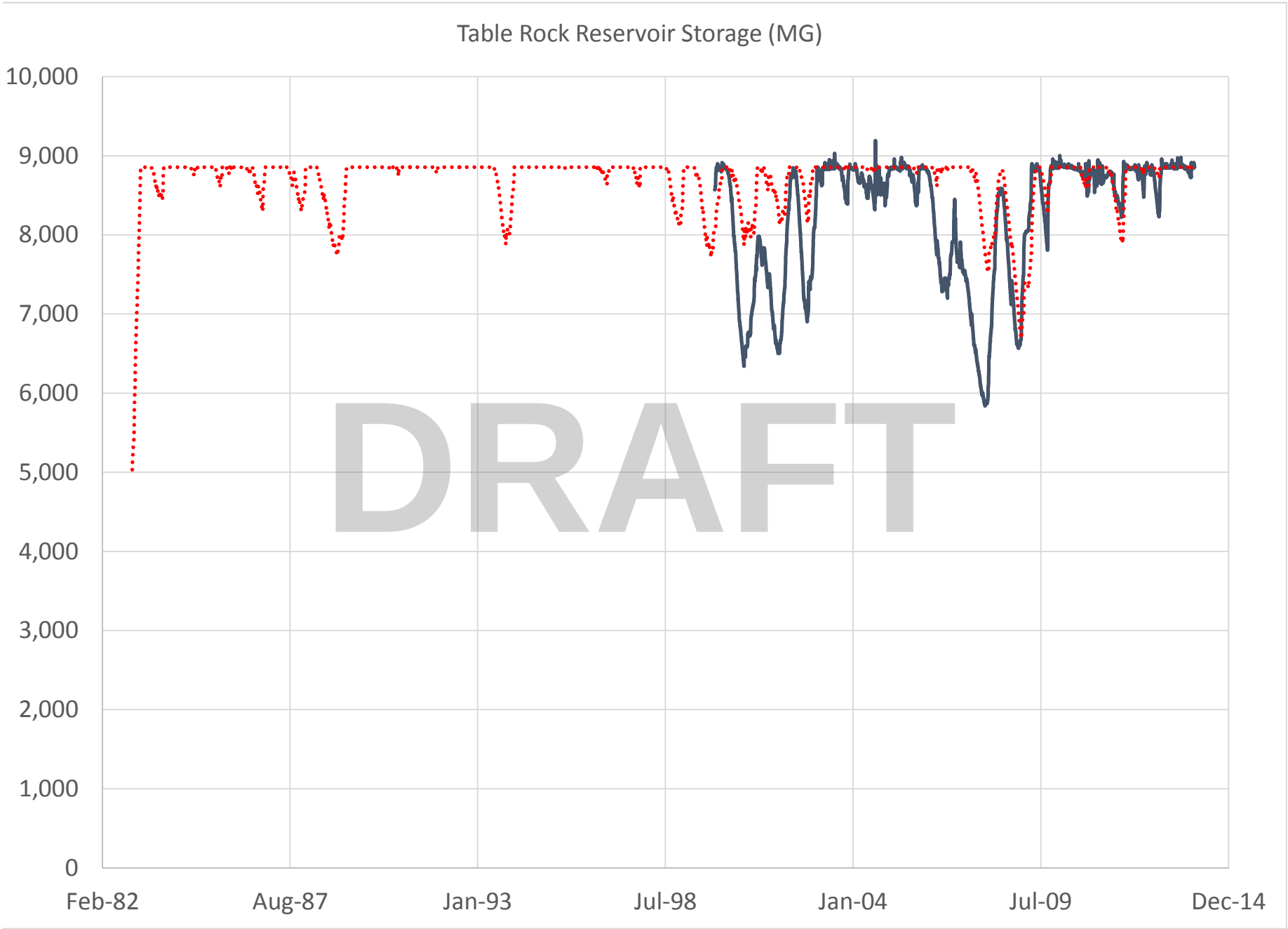
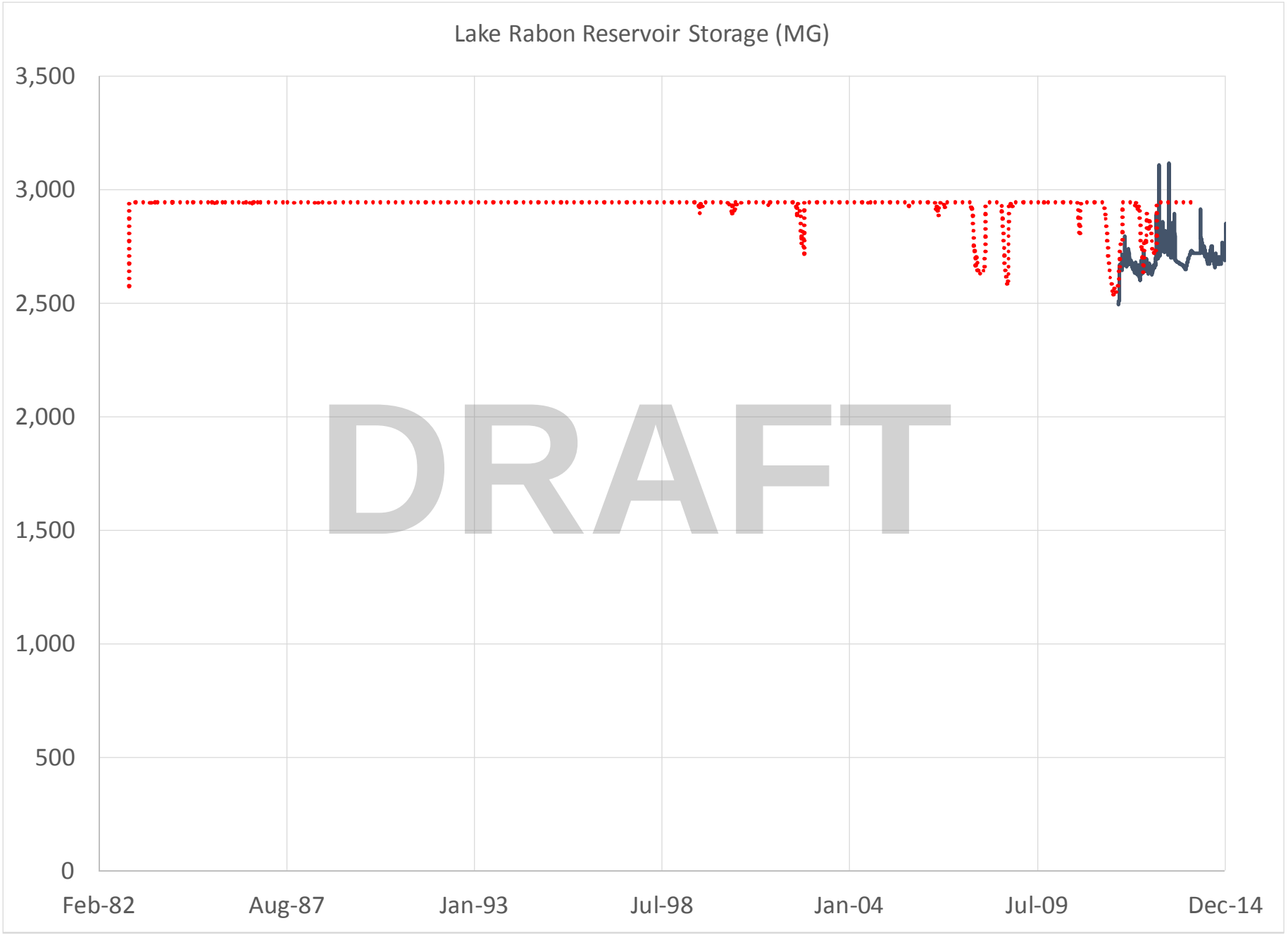


Table Rock Reservoir Storage (MG)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT


Lake Rabon Reservoir Storage (MG)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Dec-14
DRAFT