# Comparison of ESPAM2.1 and ESPAM2.0 via the 1/1/1870 Curtailment Scenario

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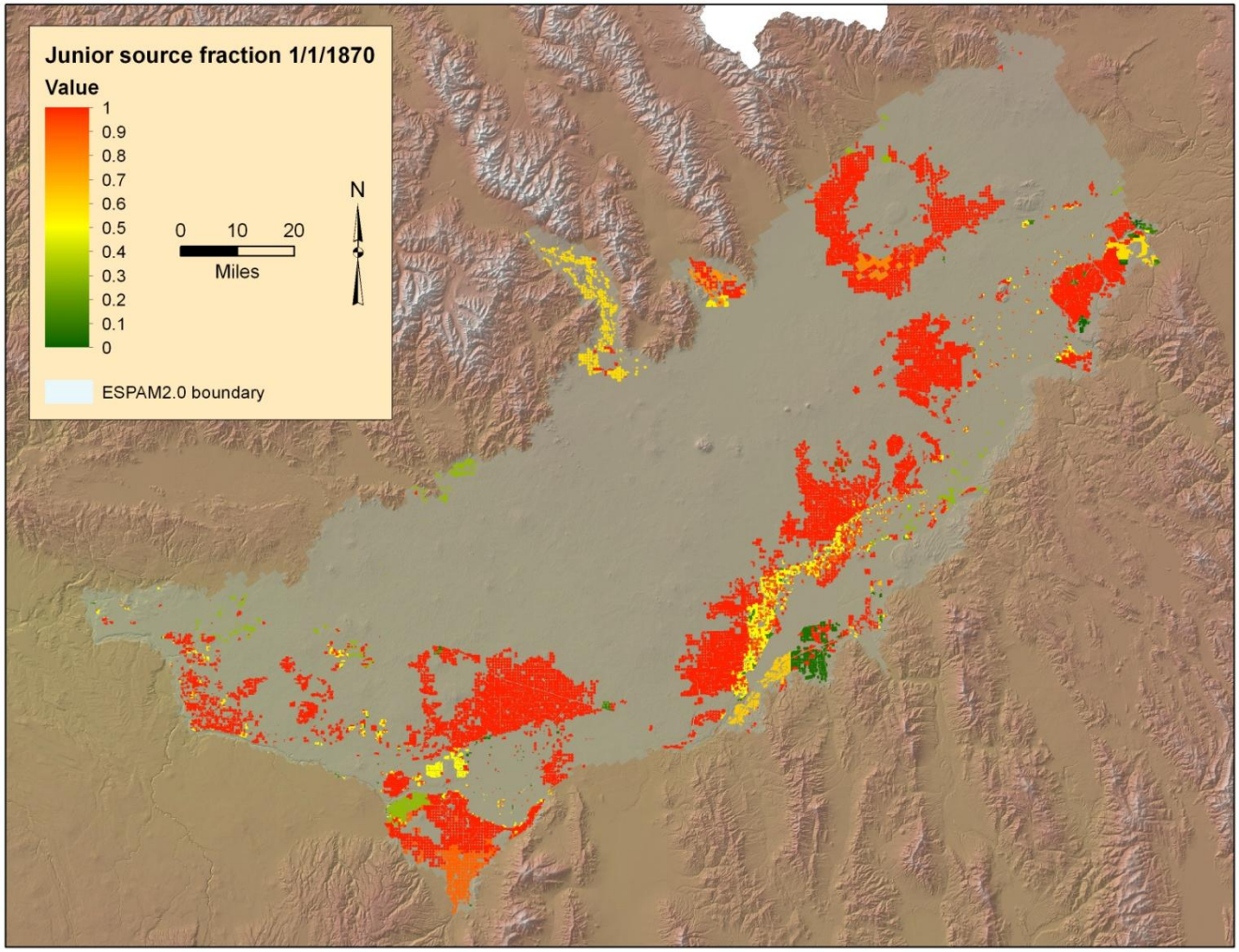
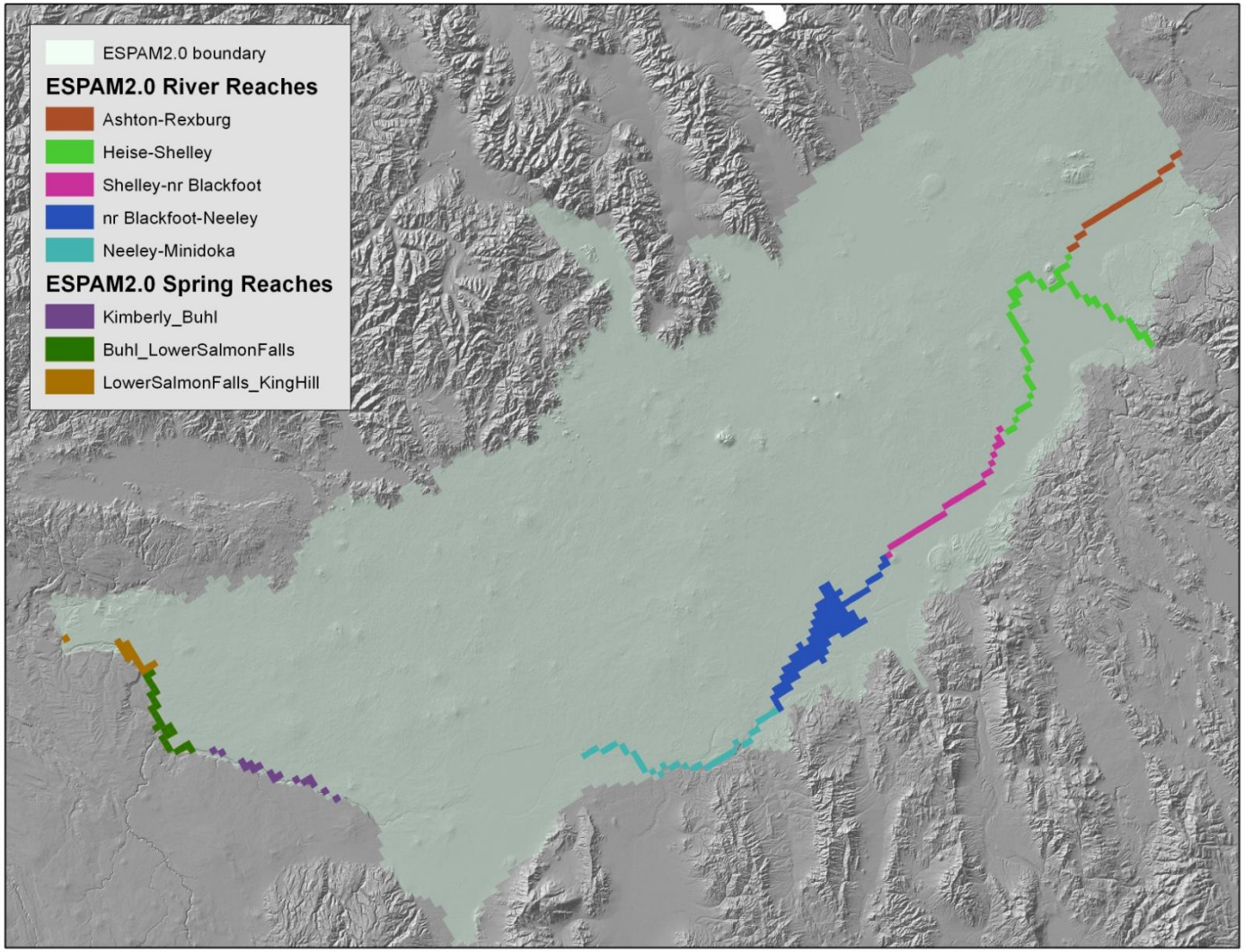
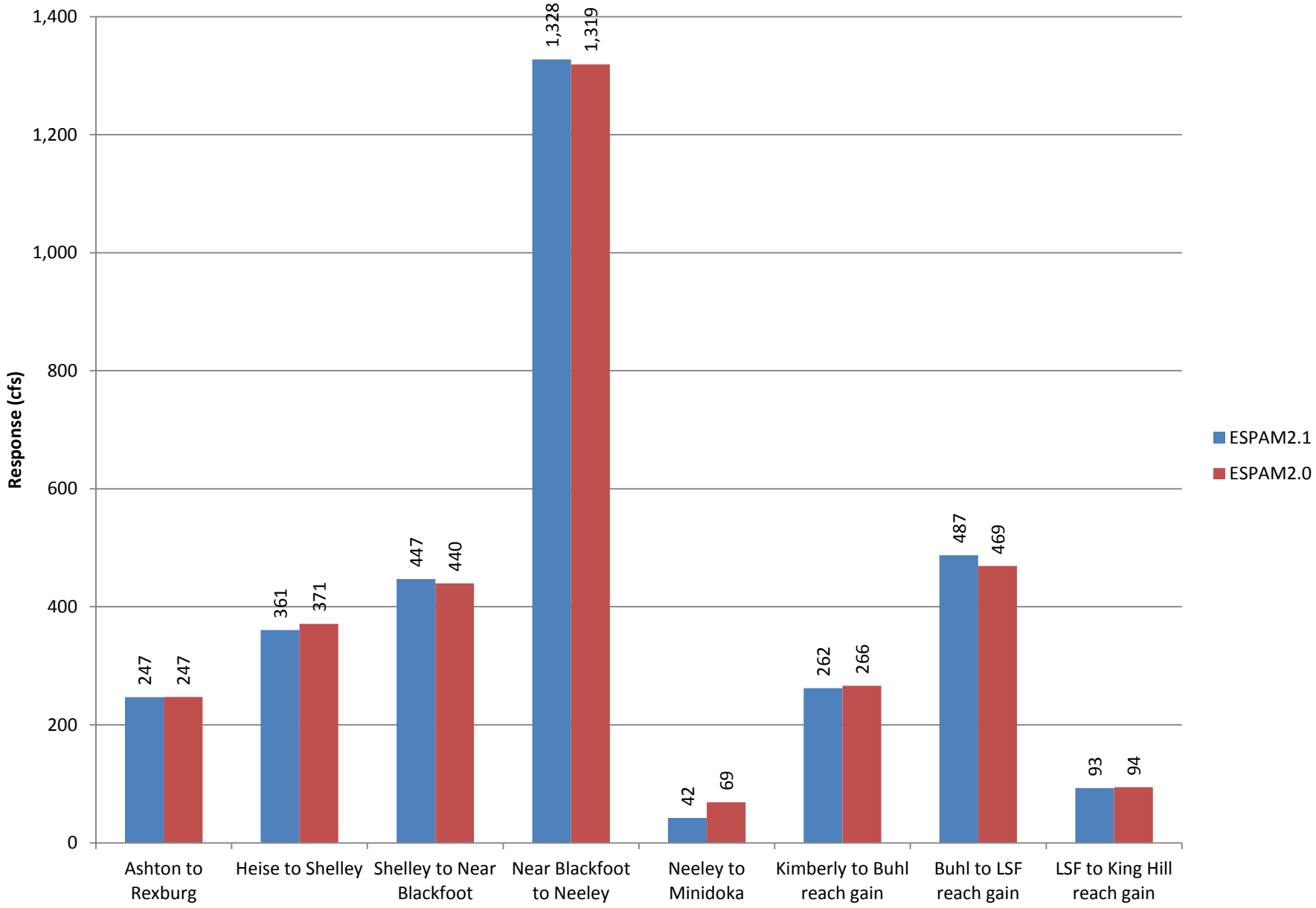
# Curtailment of groundwater irrigation junior to 1/1/1870



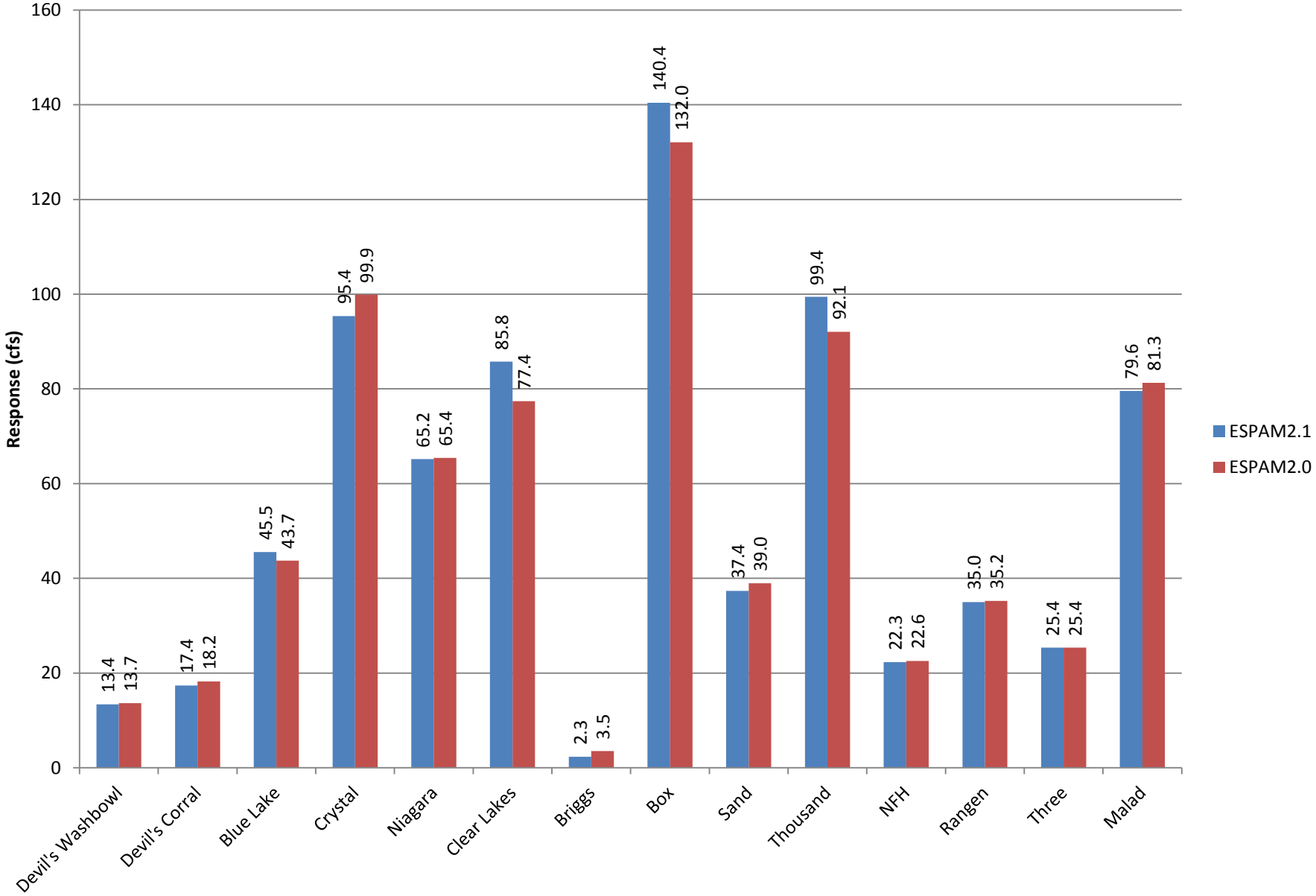
# *River Reaches for Calibration of ESPAM2.1*



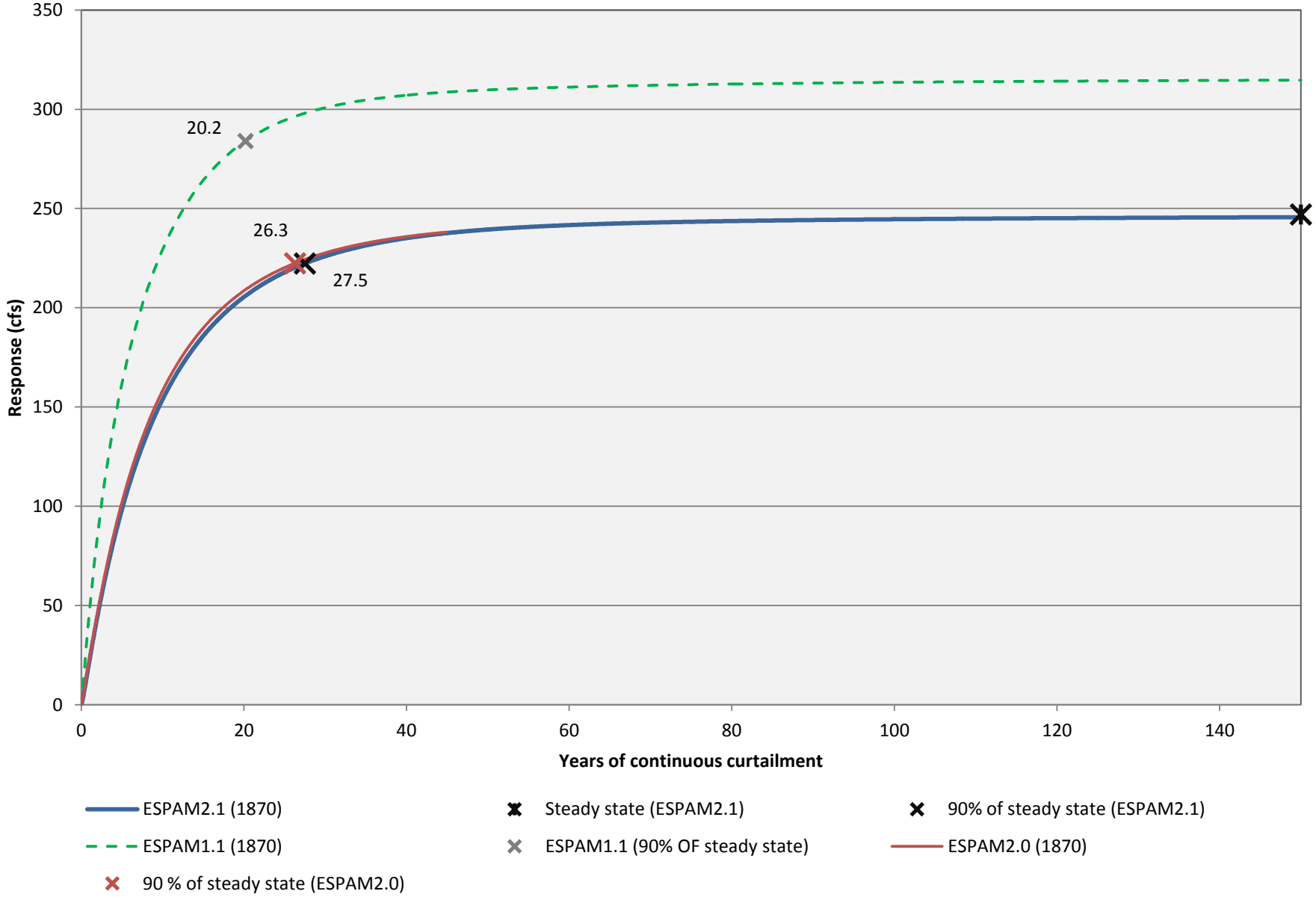
# Response to curtailment of groundwater irrigation junior to 1/1/1870

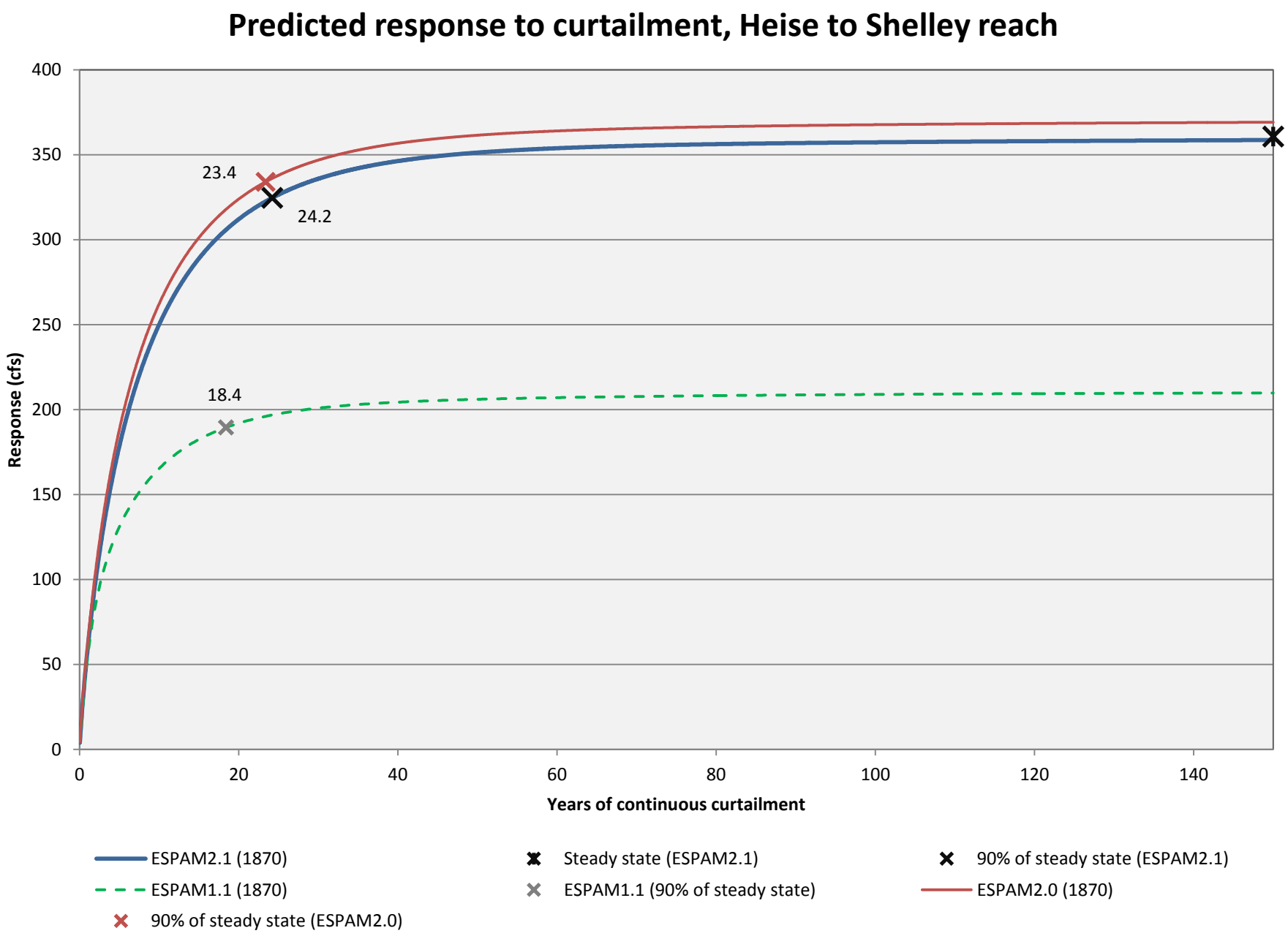


# Response to curtailment of groundwater irrigation junior to 1/1/1870

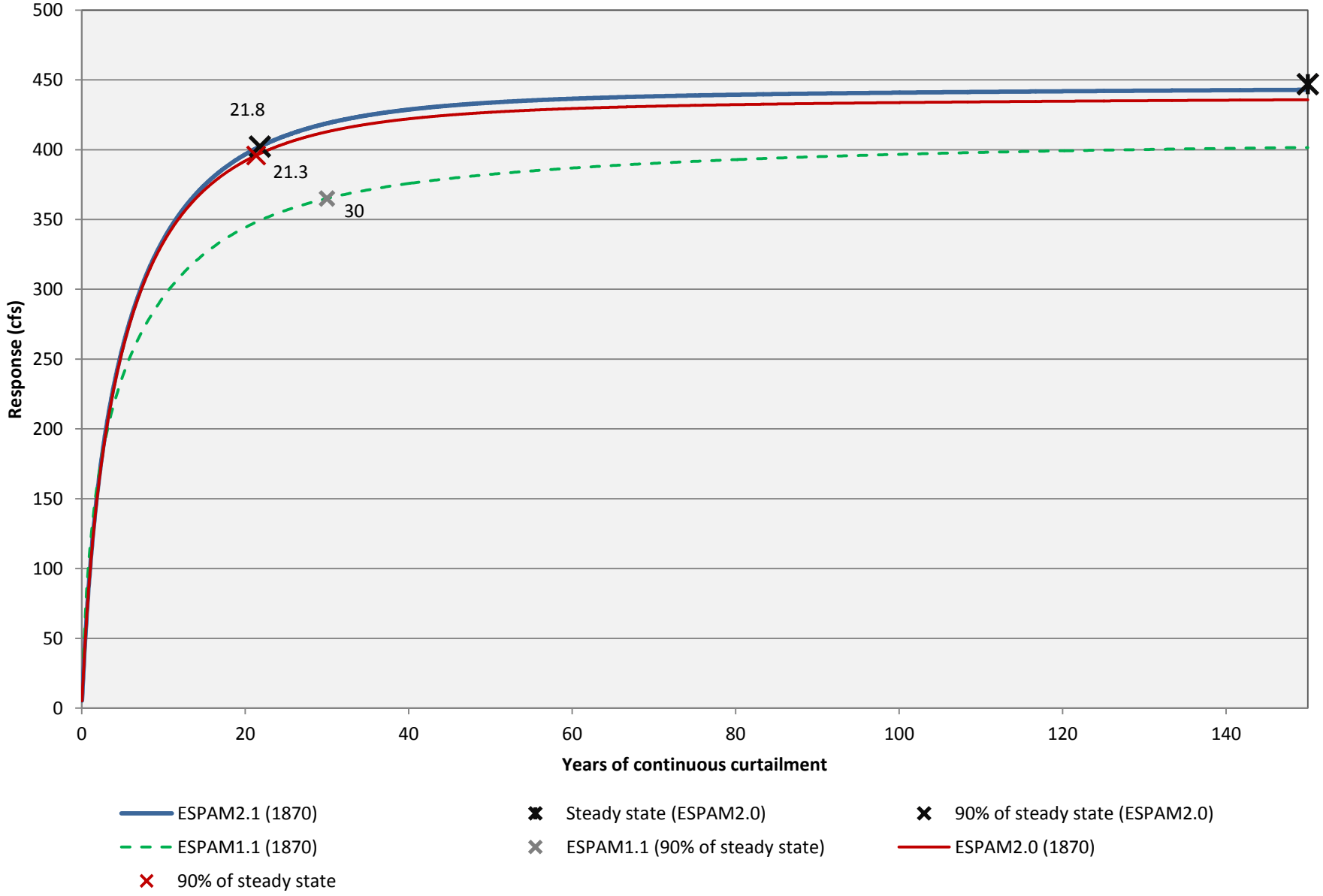


# Predicted response to curtailment, Ashton to Rexburg reach

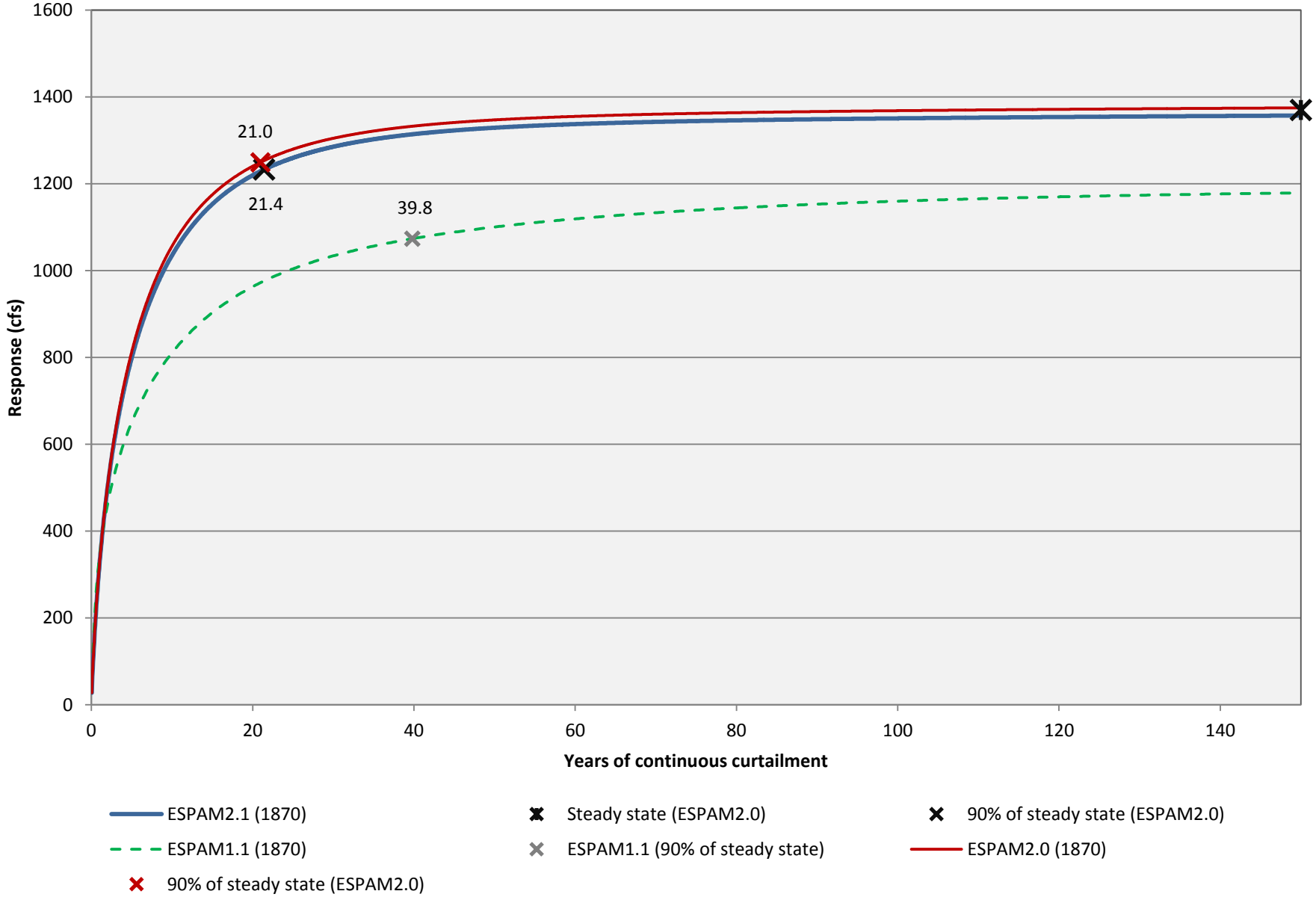



Predicted response to curtailment, Heise to Shelley reach
Response (cfs)
400
350
300
250
200
150
100
50
0
0
20
40
60
80
100
120
140
Years of continuous curtailment
23.4
24.2
18.4
ESPAM2.1 (1870)
Steady state (ESPAM2.1)
90% of steady state (ESPAM2.1)
ESPAM1.1 (1870)
ESPAM1.1 (90% of steady state)
ESPAM2.0 (1870)
90% of steady state (ESPAM2.0)

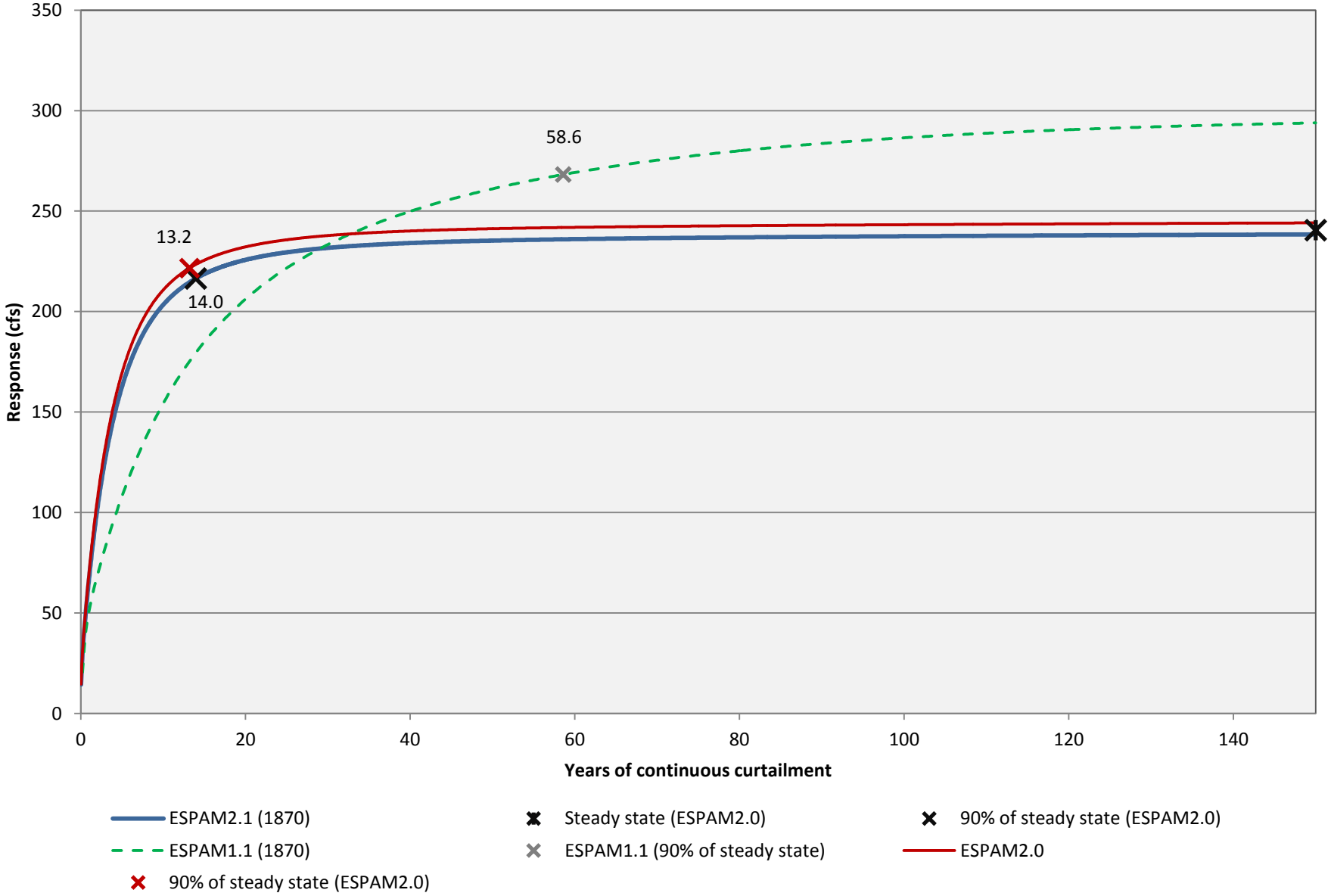
# Predicted response to curtailment, Shelley to near Blackfoot reach



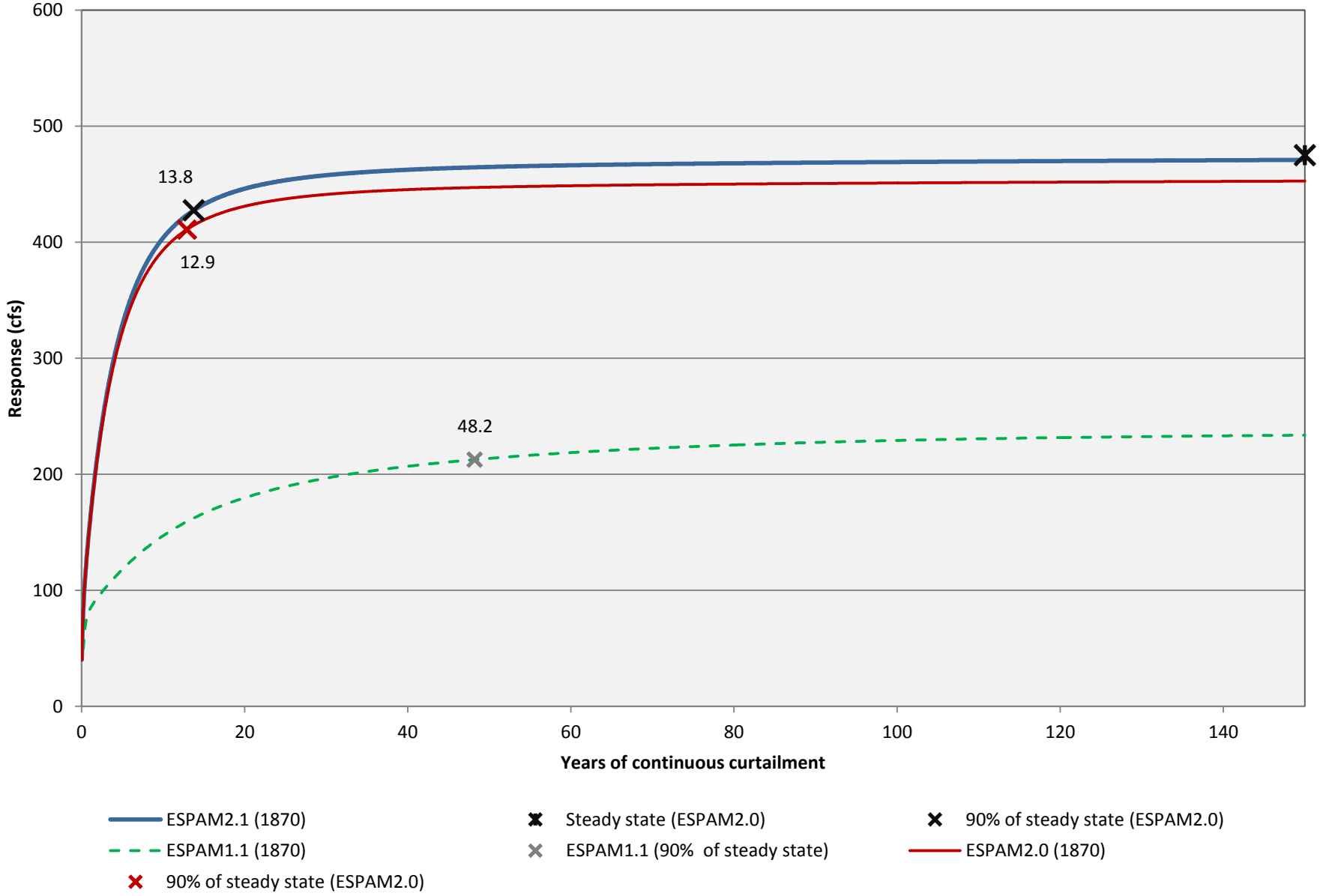
# Predicted response to curtailment, near Blackfoot to Minidoka reach

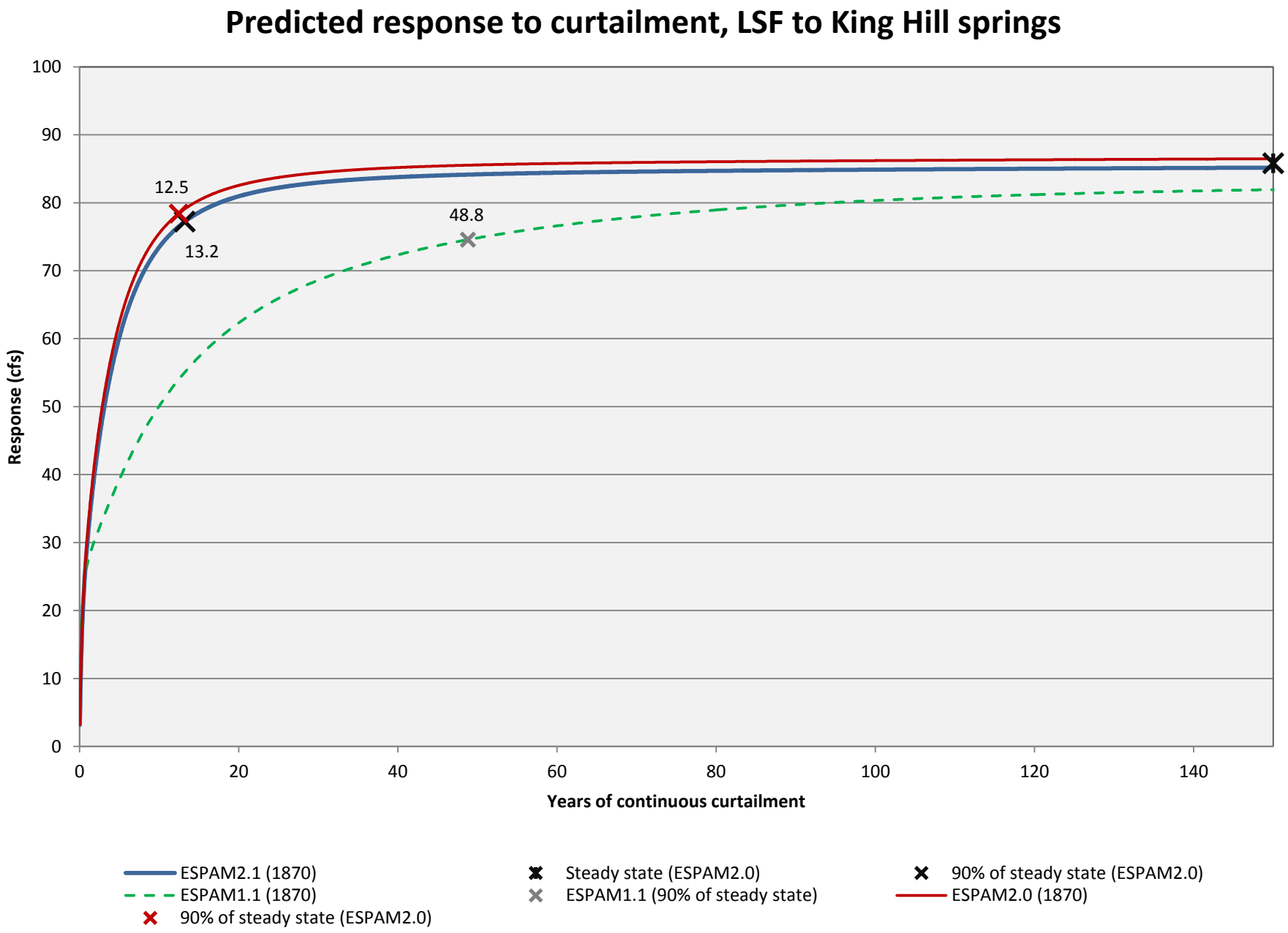


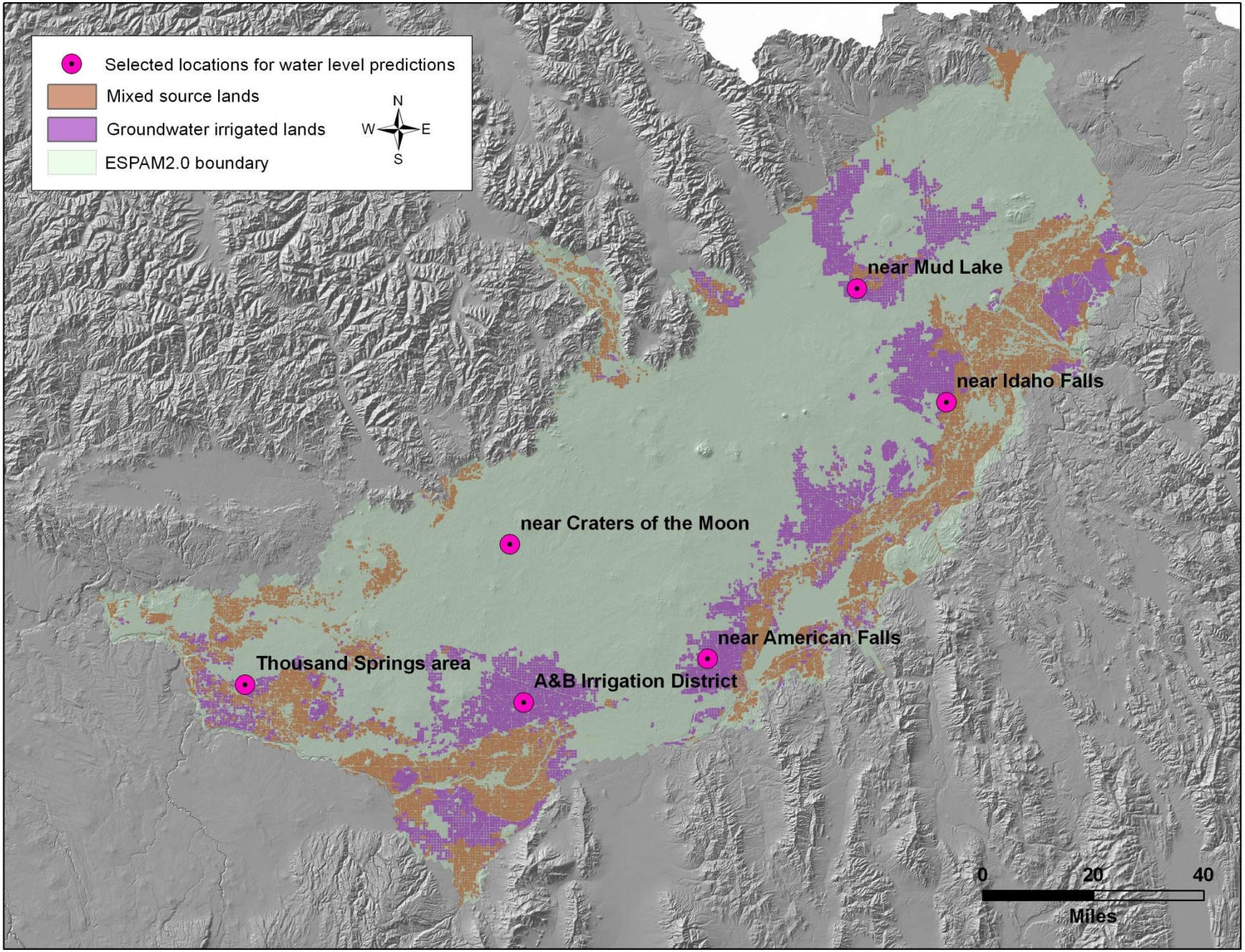
# Predicted response to curtailment, Kimberly to Buhl springs

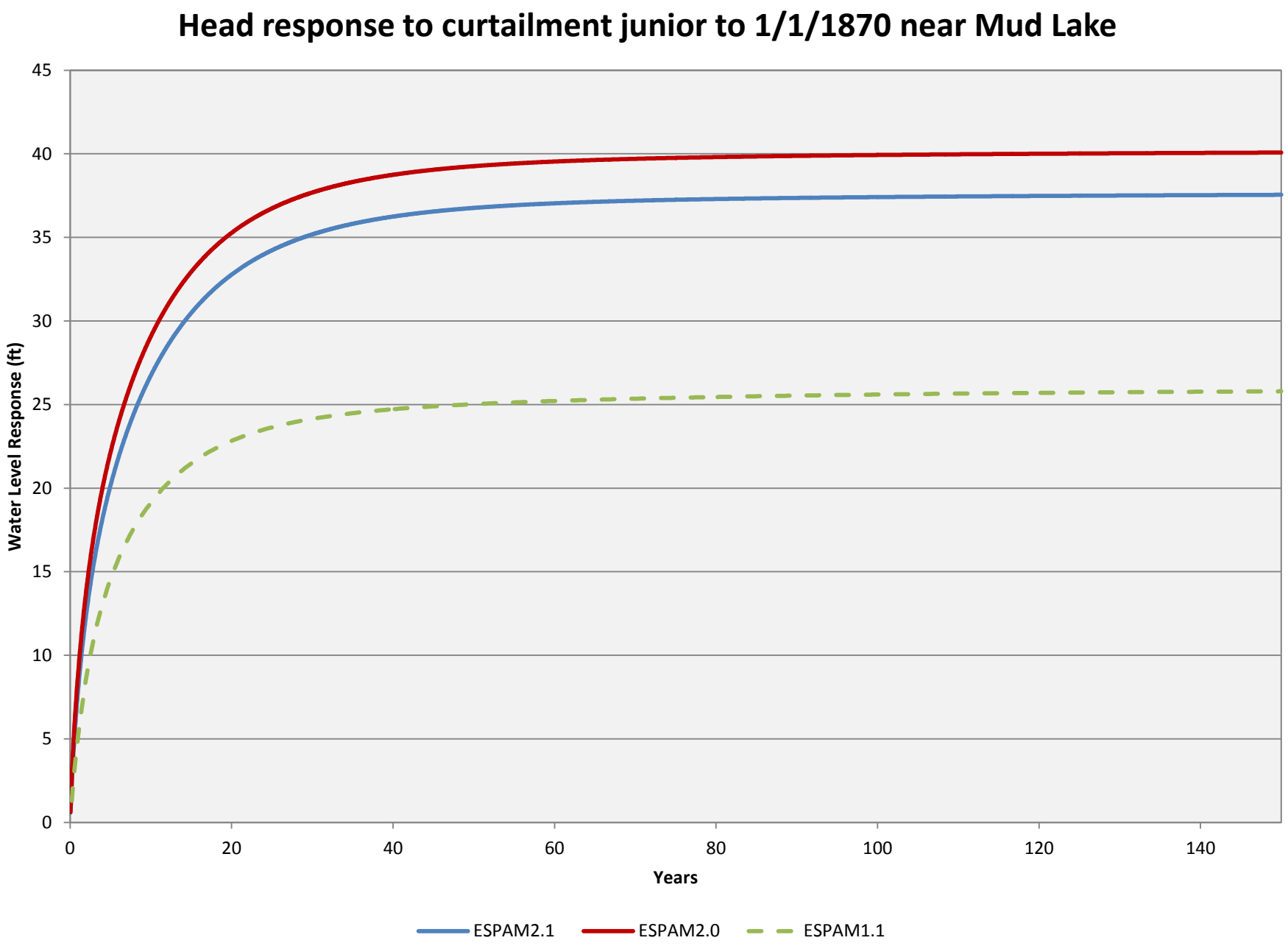


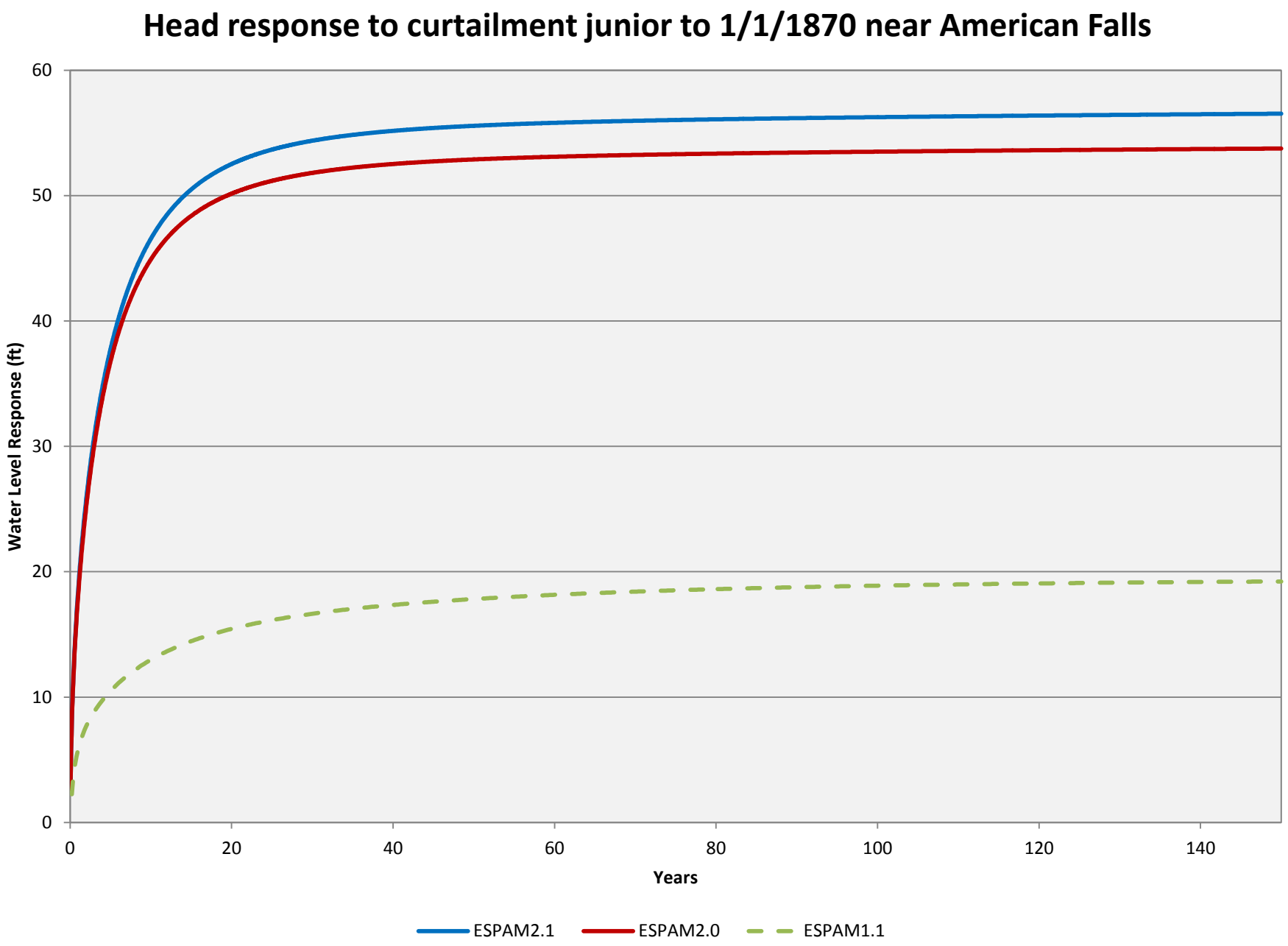
# Predicted response to curtailment, Buhl to Lower Salmon Falls springs

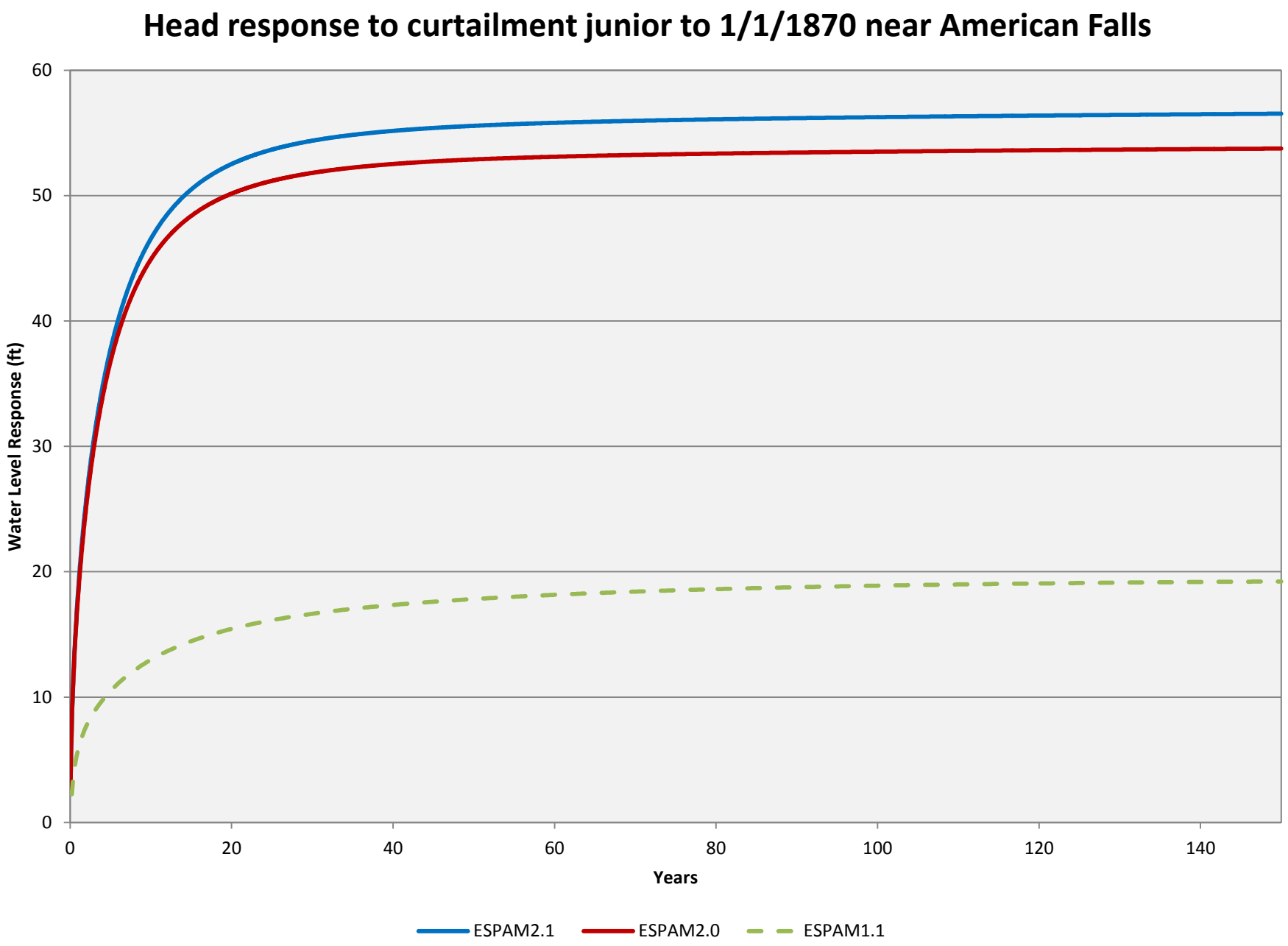


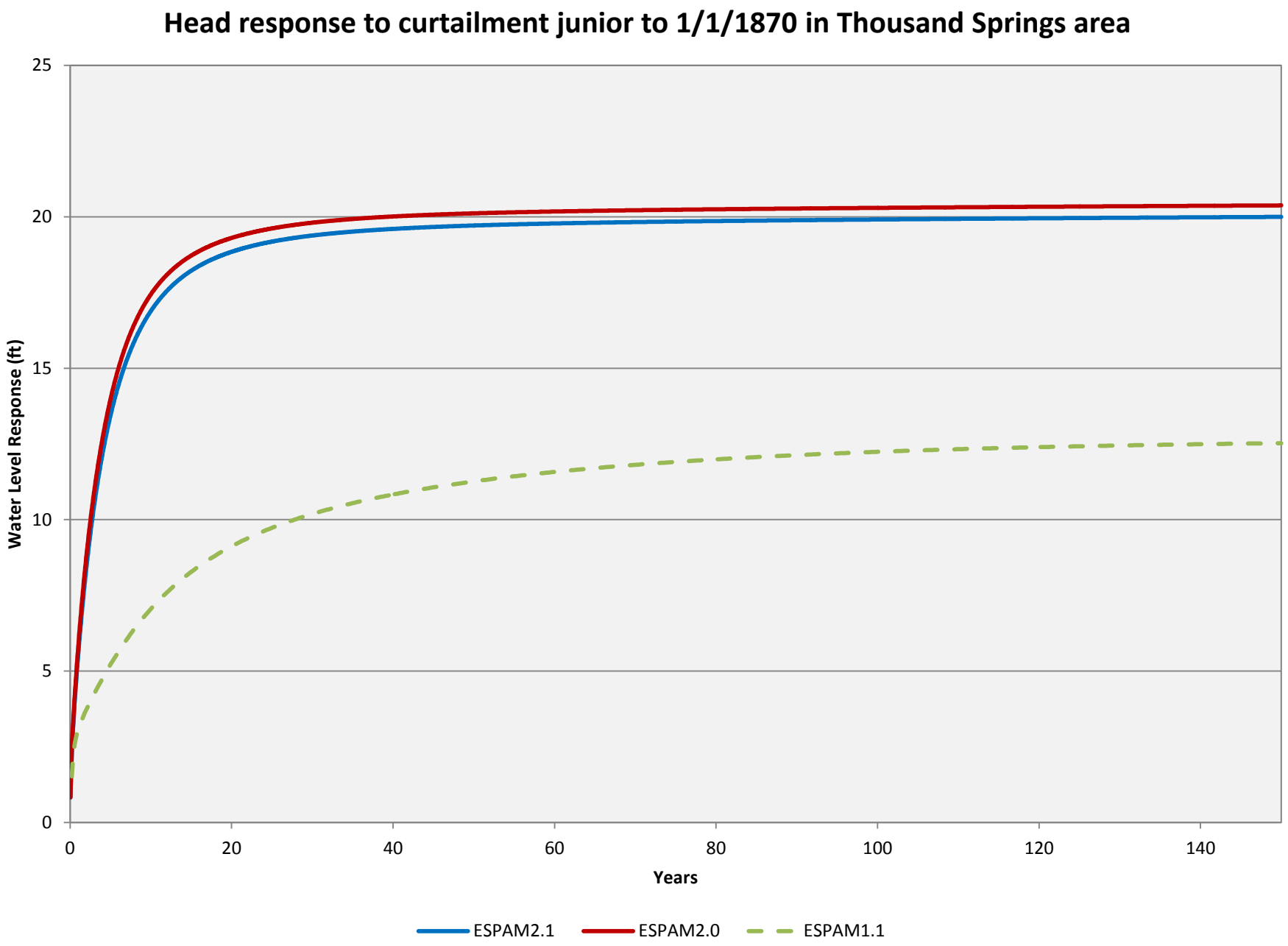

Predicted response to curtailment, LSF to King Hill springs
Response (cfs)
Years of continuous curtailment
0
10
20
30
40
50
60
70
80
90
100
0
20
40
60
80
100
120
140
12.5
13.2
48.8
ESPAM2.1 (1870)
ESPAM1.1 (1870)
90% of steady state (ESPAM2.0)
Steady state (ESPAM2.0)
ESPAM1.1 (90% of steady state)
90% of steady state (ESPAM2.0)
ESPAM2.0 (1870)

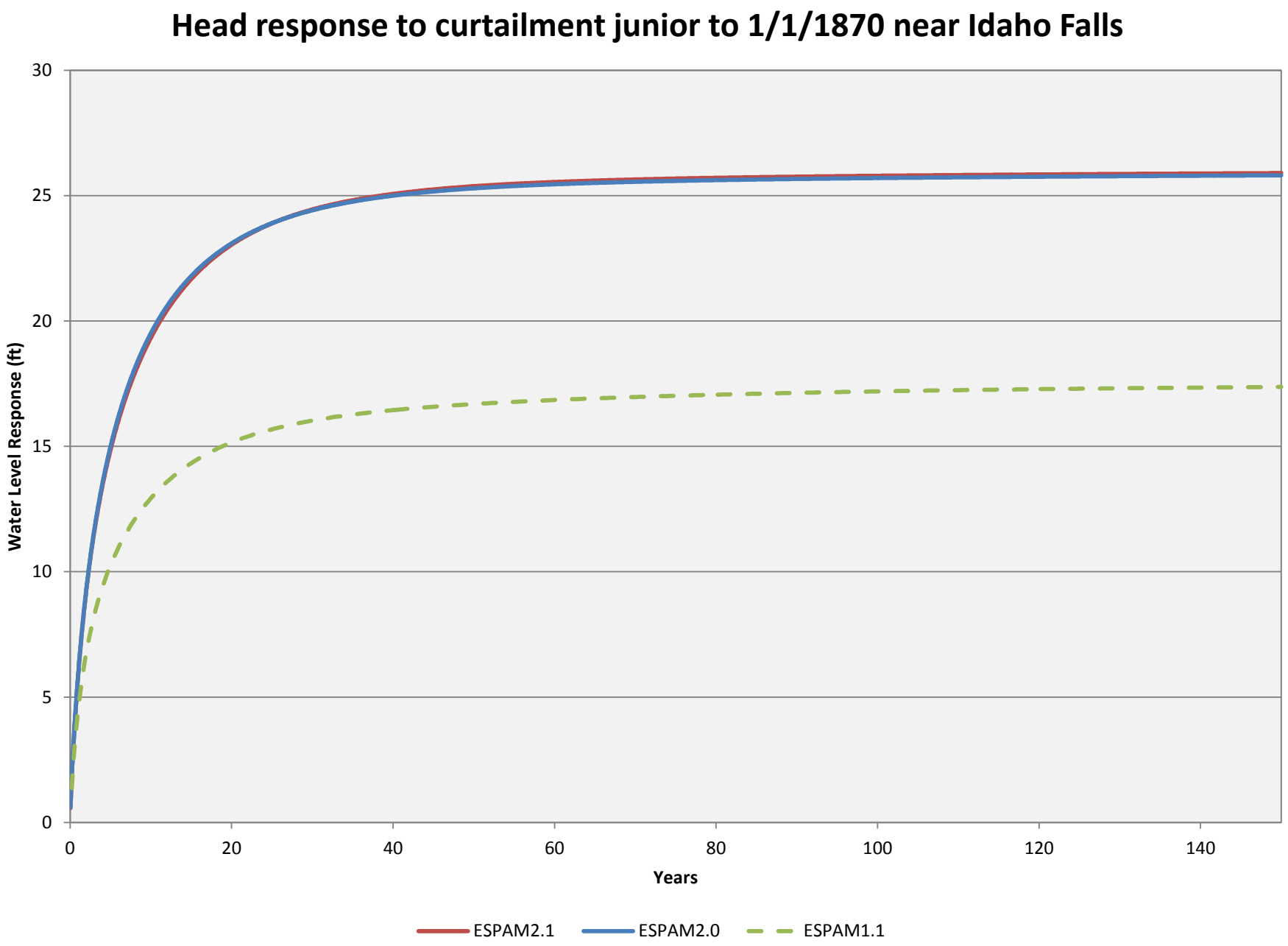

Selected locations for water level predictions
Mixed source lands
Groundwater irrigated lands
ESPAM2.0 boundary
N
W
E
S
near Mud Lake
near Idaho Falls
near Craters of the Moon
near American Falls
Thousand Springs area
A&B Irrigation District
0
20
40
Miles

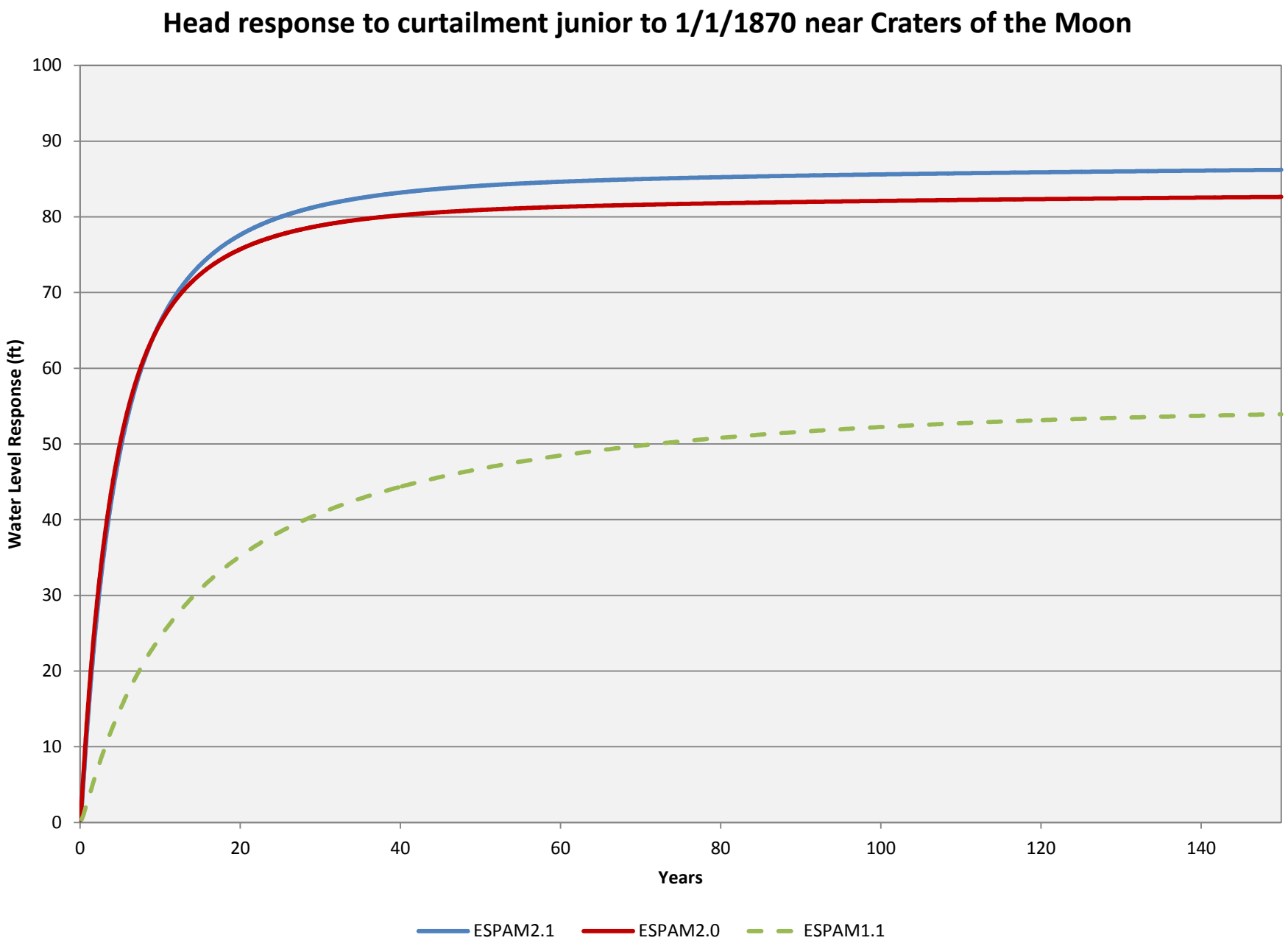

Head response to curtailment junior to 1/1/1870 near Mud Lake
Water Level Response (ft)
45
40
35
30
25
20
15
10
5
0
0
20
40
60
80
100
120
140
Years
ESPAM2.1
ESPAM2.0
ESPAM1.1


Head response to curtailment junior to 1/1/1870 near American Falls
Water Level Response (ft)
0
10
20
30
40
50
60
0
20
40
60
80
100
120
140
Years
ESPAM2.1
ESPAM2.0
ESPAM1.1


Head response to curtailment junior to 1/1/1870 near American Falls
Water Level Response (ft)
0
10
20
30
40
50
60
0
20
40
60
80
100
120
140
Years
ESPAM2.1
ESPAM2.0
ESPAM1.1


Head response to curtailment junior to 1/1/1870 in Thousand Springs area
Water Level Response (ft)
25
20
15
10
5
0
0
20
40
60
80
100
120
140
Years
ESPAM2.1
ESPAM2.0
ESPAM1.1


Head response to curtailment junior to 1/1/1870 near Idaho Falls
Water Level Response (ft)
30
25
20
15
10
5
0
0
20
40
60
80
100
120
140
Years
ESPAM2.1
ESPAM2.0
ESPAM1.1


Head response to curtailment junior to 1/1/1870 near Craters of the Moon
Water Level Response (ft)
100
90
80
70
60
50
40
30
20
10
0
0
20
40
60
80
100
120
140
Years
ESPAM2.1
ESPAM2.0
ESPAM1.1