CONSIDERATION OF GROUND WATER MANAGEMENT AREAS

EASTERN SNAKE RIVER PLAIN

Karl J. Dreher
Director
Idaho Department of Water Resources

August 2, 2001

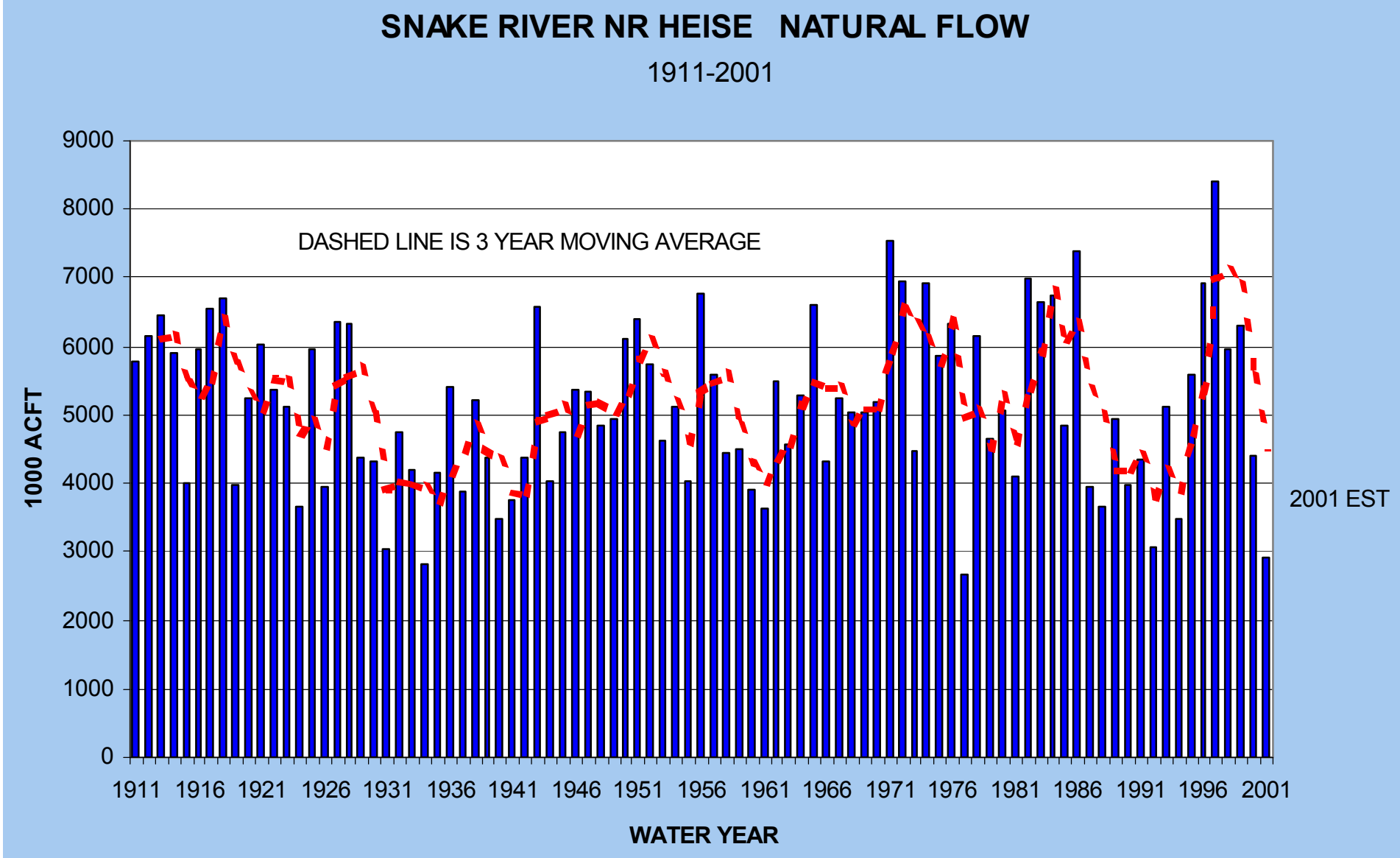
Ground Water Management Areas

- Critical Ground Water Area
  - ». . . any ground water basin, or designated part thereof, not having sufficient ground water to provide a reasonably safe supply for irrigation of cultivated lands, or other uses in the basin at the then current rates of withdrawal, . . . as may be determined and designated, from time to time, by the director of the department of water resources." Idaho Code § 42-233a

Ground Water Management Areas

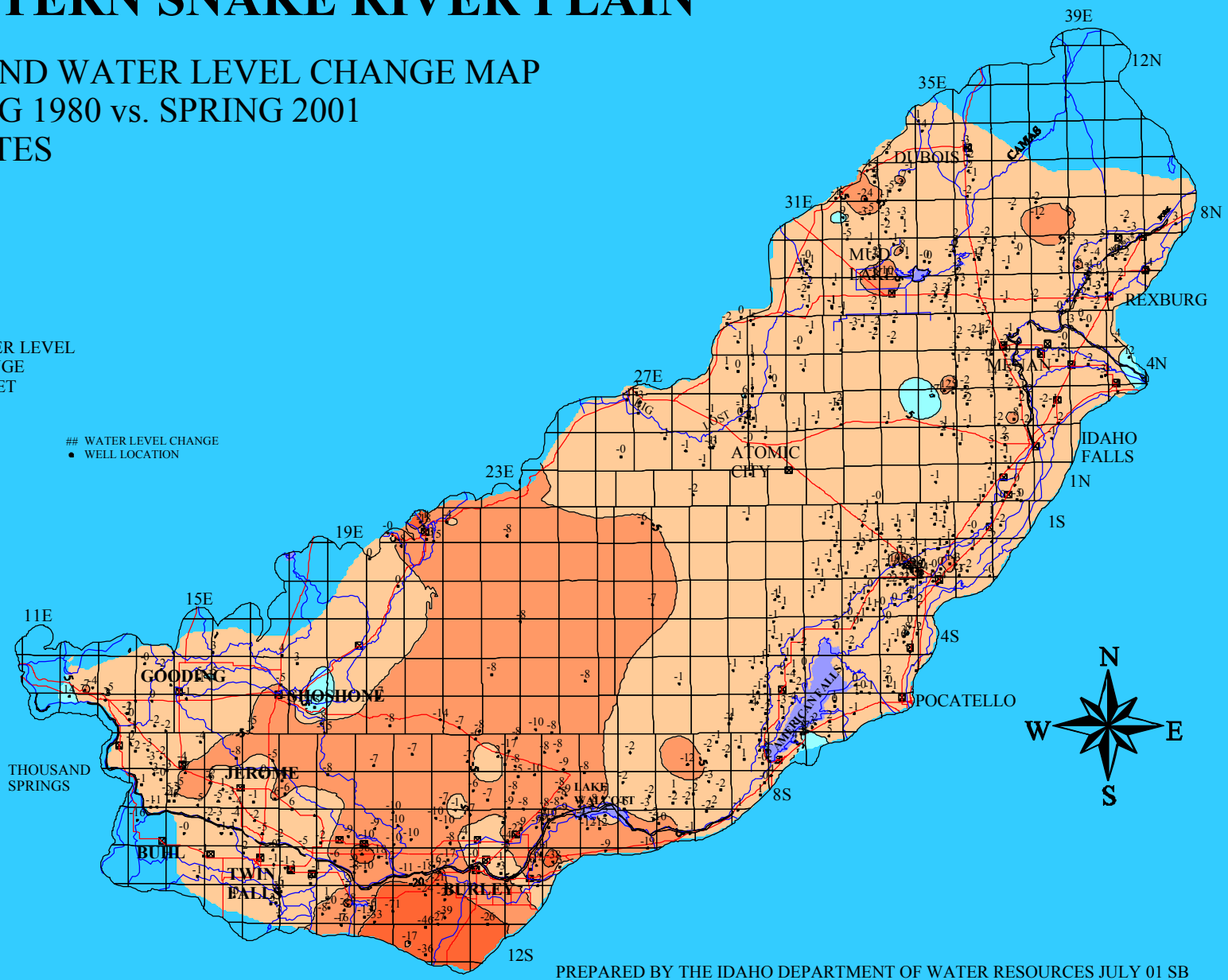
- Ground Water Management Area
  - » “. . . any ground water basin or designated part thereof which the director of the department of water resources has determined may be approaching the conditions of a critical ground water area.”

Idaho Code § 42-233b


SNAKE RIVER NR HEISE NATURAL FLOW
1911-2001
DASHED LINE IS 3 YEAR MOVING AVERAGE
1000 ACFT
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1911 1916 1921 1926 1931 1936 1941 1946 1951 1956 1961 1966 1971 1976 1981 1986 1991 1996 2001
WATER YEAR
2001 EST

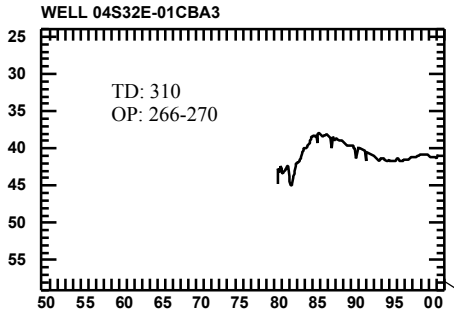
EASTERN SNAKE RIVER PLAIN

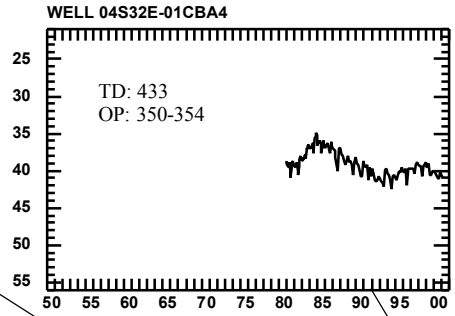
GROUND WATER LEVEL CHANGE MAP
SPRING 1980 vs. SPRING 2001
653 SITES

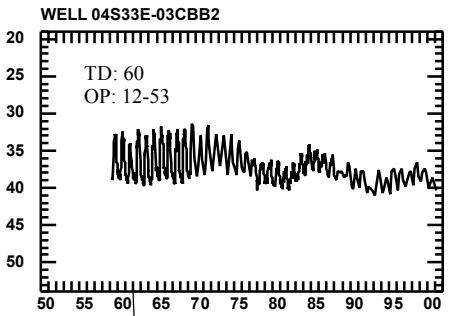


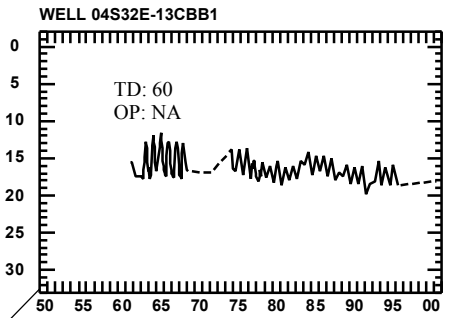
PREPARED BY THE IDAHO DEPARTMENT OF WATER RESOURCES JULY 01 SB

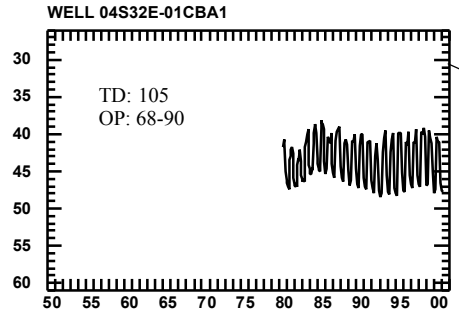
GROUND WATER HYDROGRAPHS

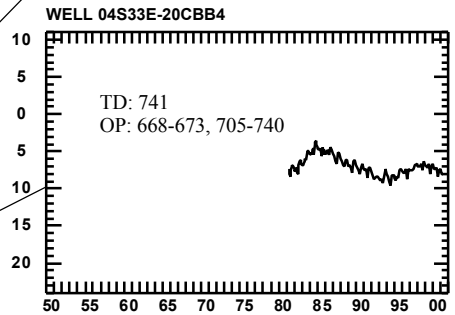


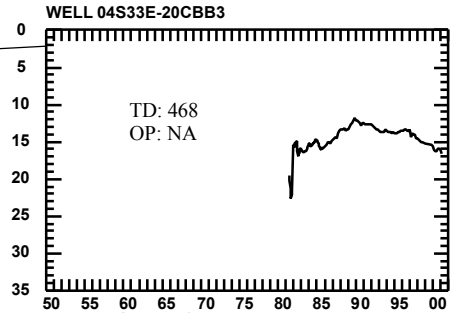


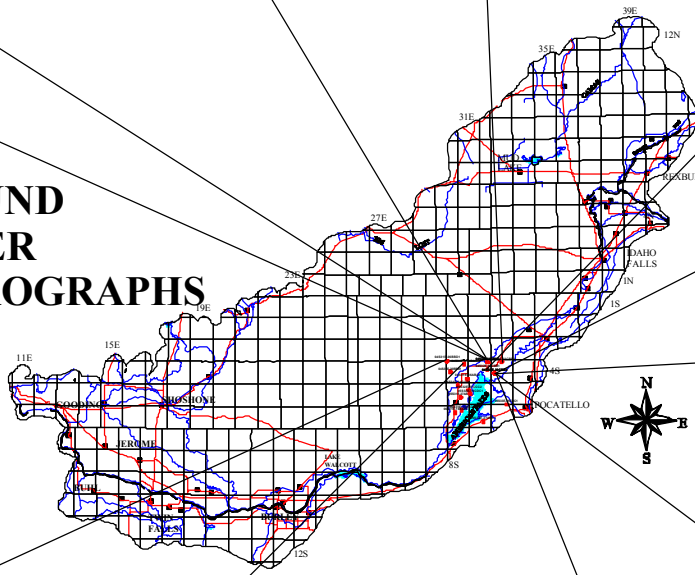






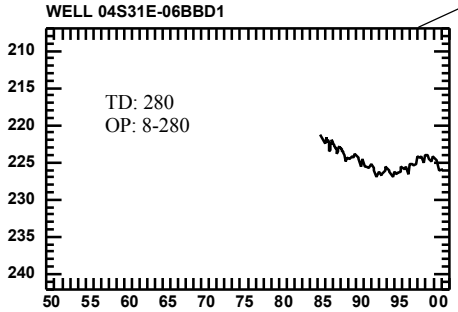


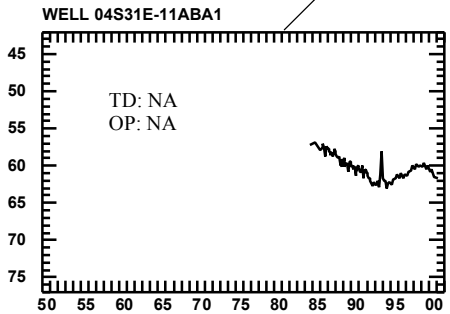


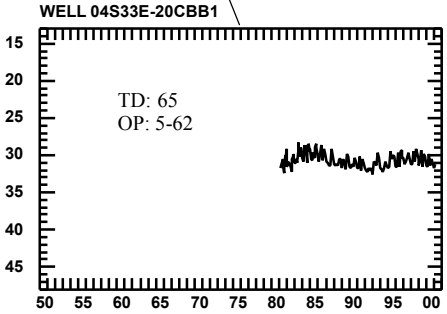


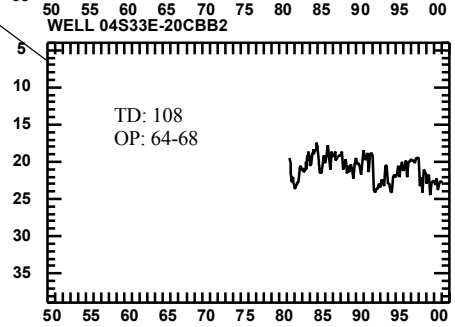
LEGEND

TD: TOTAL DEPTH
OP: INTERVAL AT WHICH THE WELL IS PERFORATED OR OPEN TO THE AQUIFER.
LEFT SIDE: DEPTH TO WATER
BASE: YEAR
ALL MEASUREMENTS IN FEET
CURRENT TO SPRING 2001

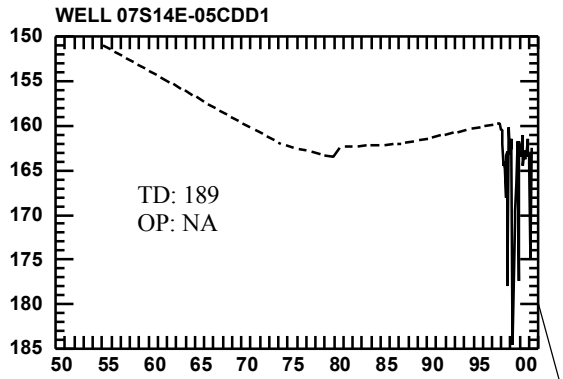


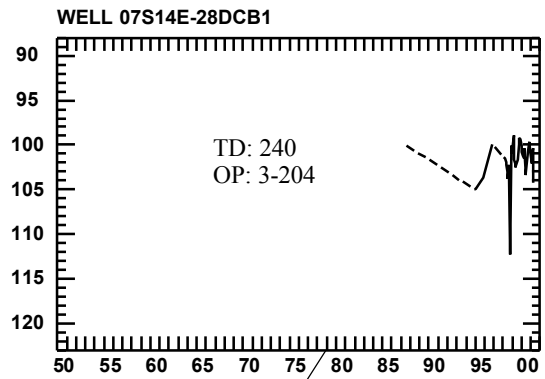


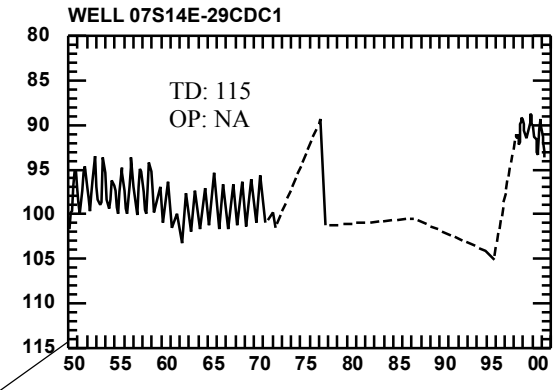


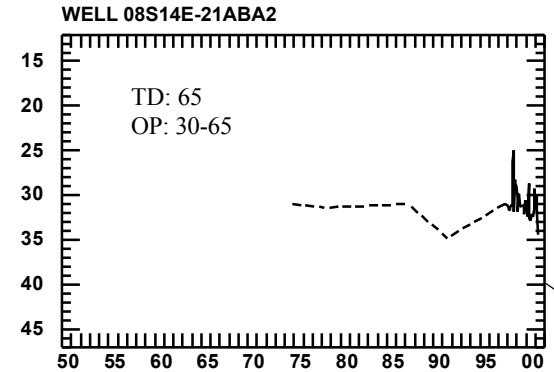


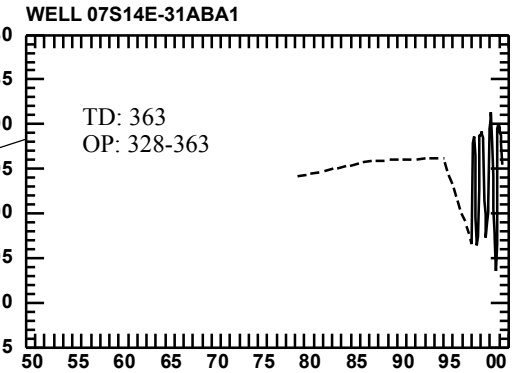
AMERICAN FALLS AREA - EAST

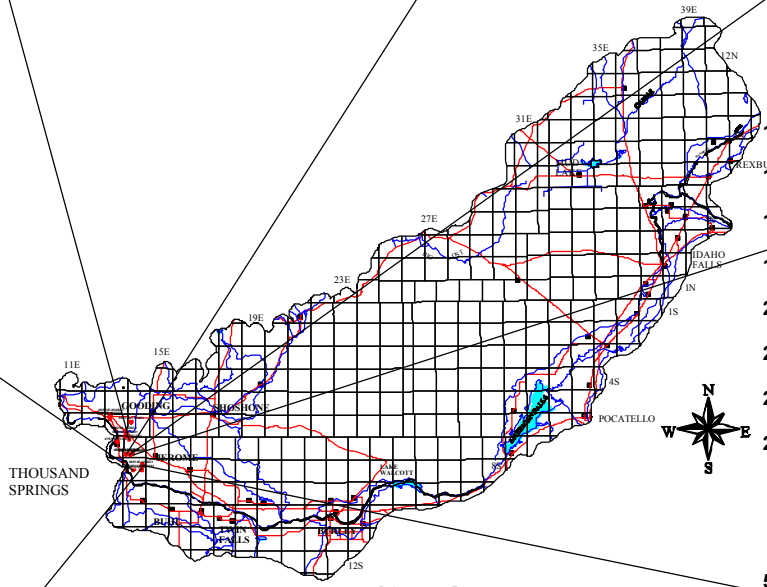


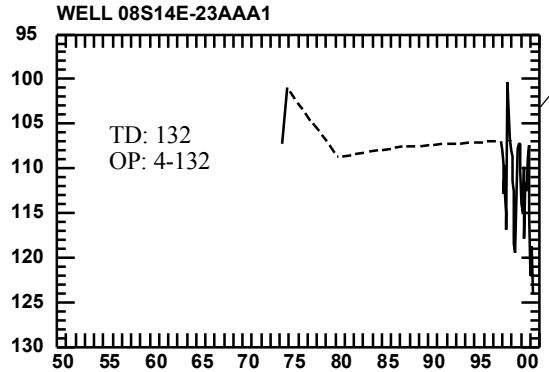


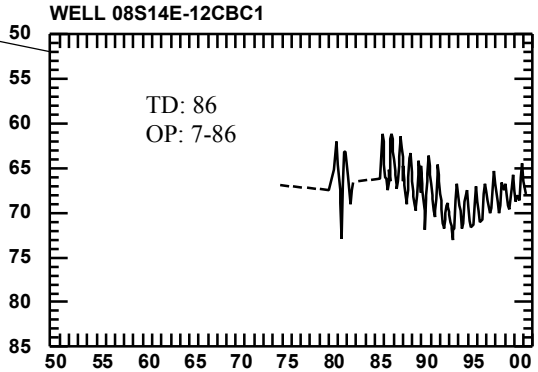












LEGEND

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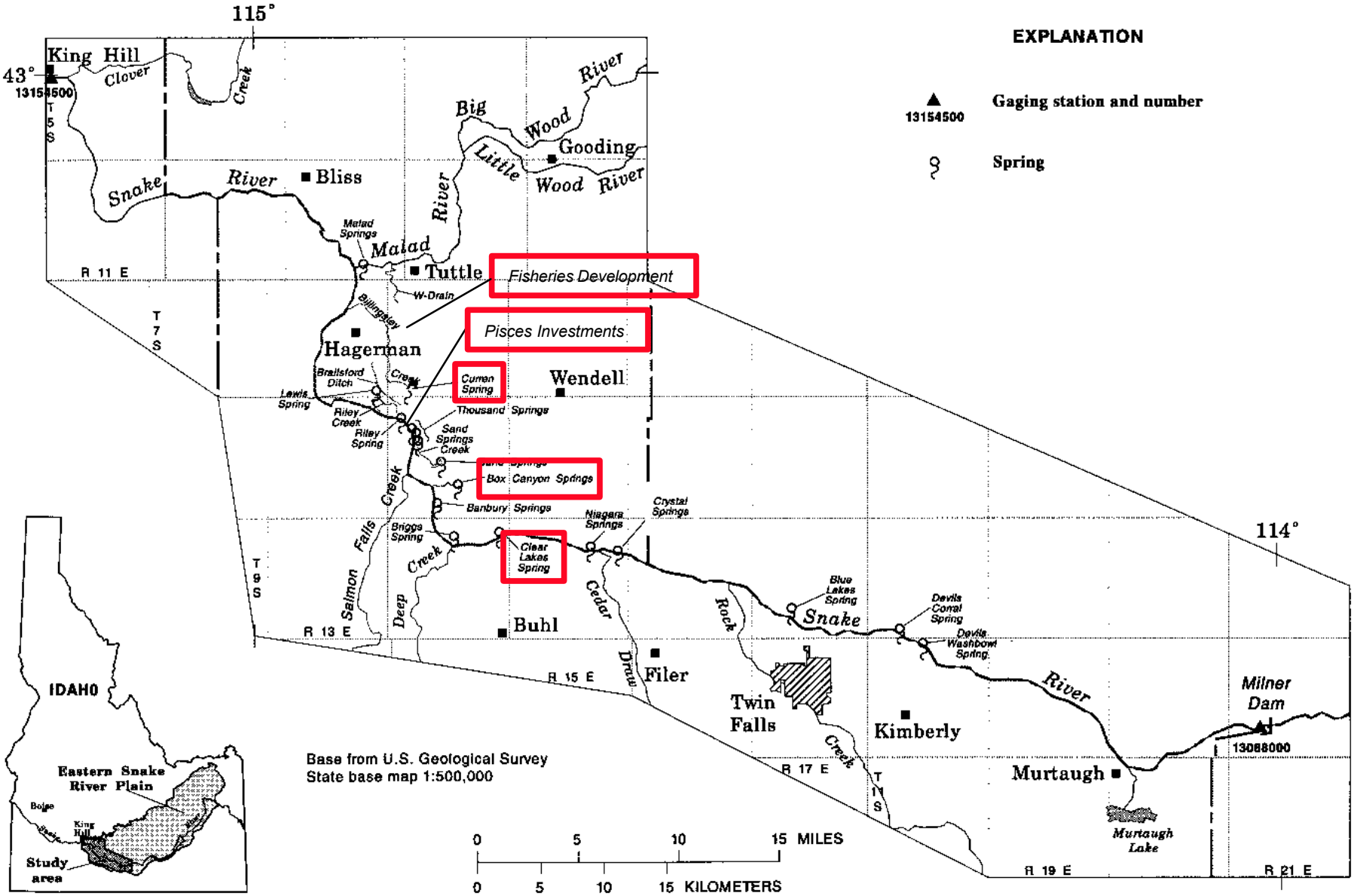
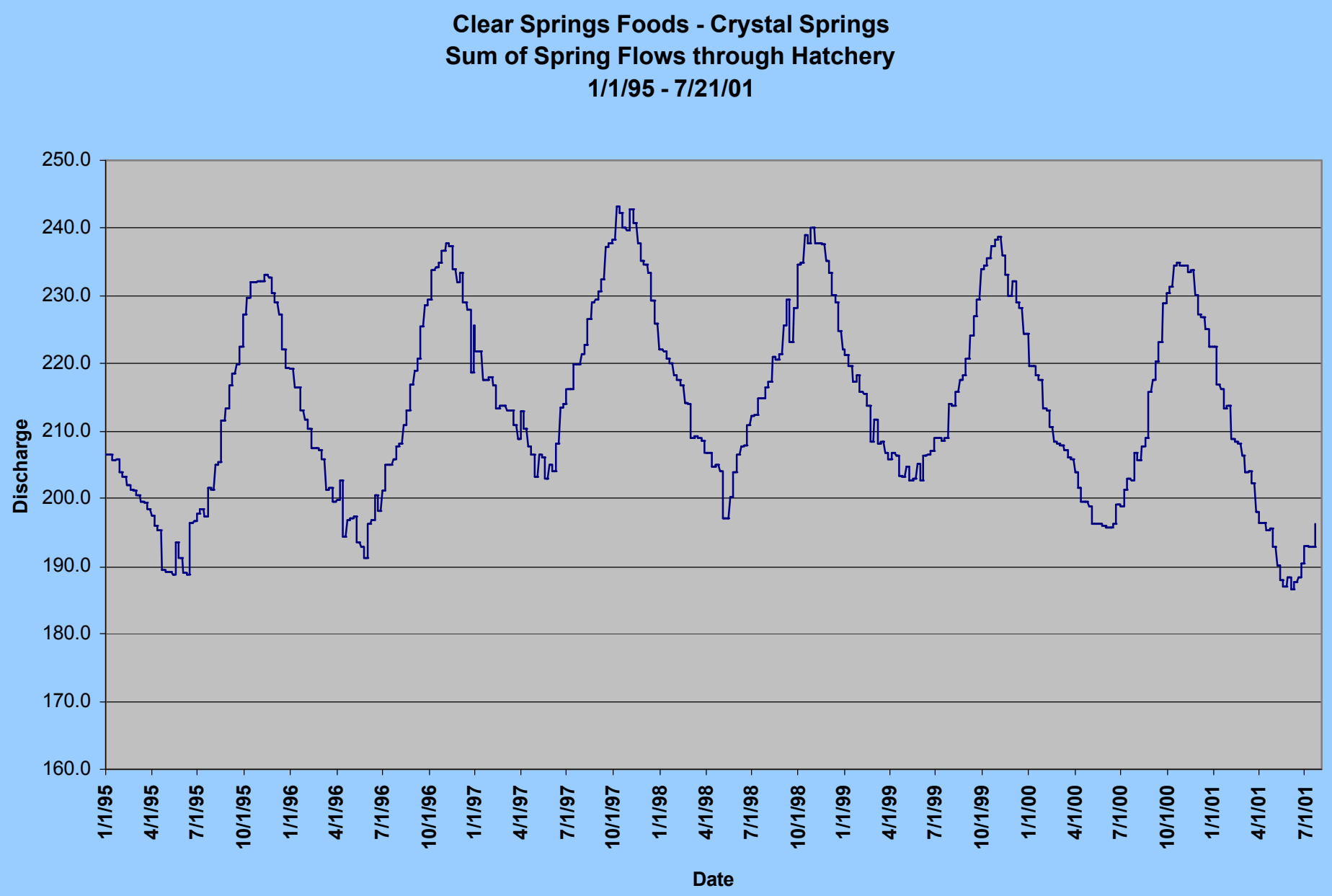
LEFT SIDE: DEPTH TO WATER
BASE: YEAR
ALL MEASUREMENTS IN FEET
CURRENT TO SPRING 2001

GROUND WATER HYDROGRAPHS

THOUSAND SPRINGS AREA- SOUTH



Study area and locations of selected springs and gaging stations.


Clear Springs Foods - Crystal Springs
Sum of Spring Flows through Hatchery
1/1/95 - 7/21/01
Discharge
250.0
240.0
230.0
220.0
210.0
200.0
190.0
180.0
170.0
160.0
1/1/95
4/1/95
7/1/95
10/1/95
1/1/96
4/1/96
7/1/96
10/1/96
1/1/97
4/1/97
7/1/97
10/1/97
1/1/98
4/1/98
7/1/98
10/1/98
1/1/99
4/1/99
7/1/99
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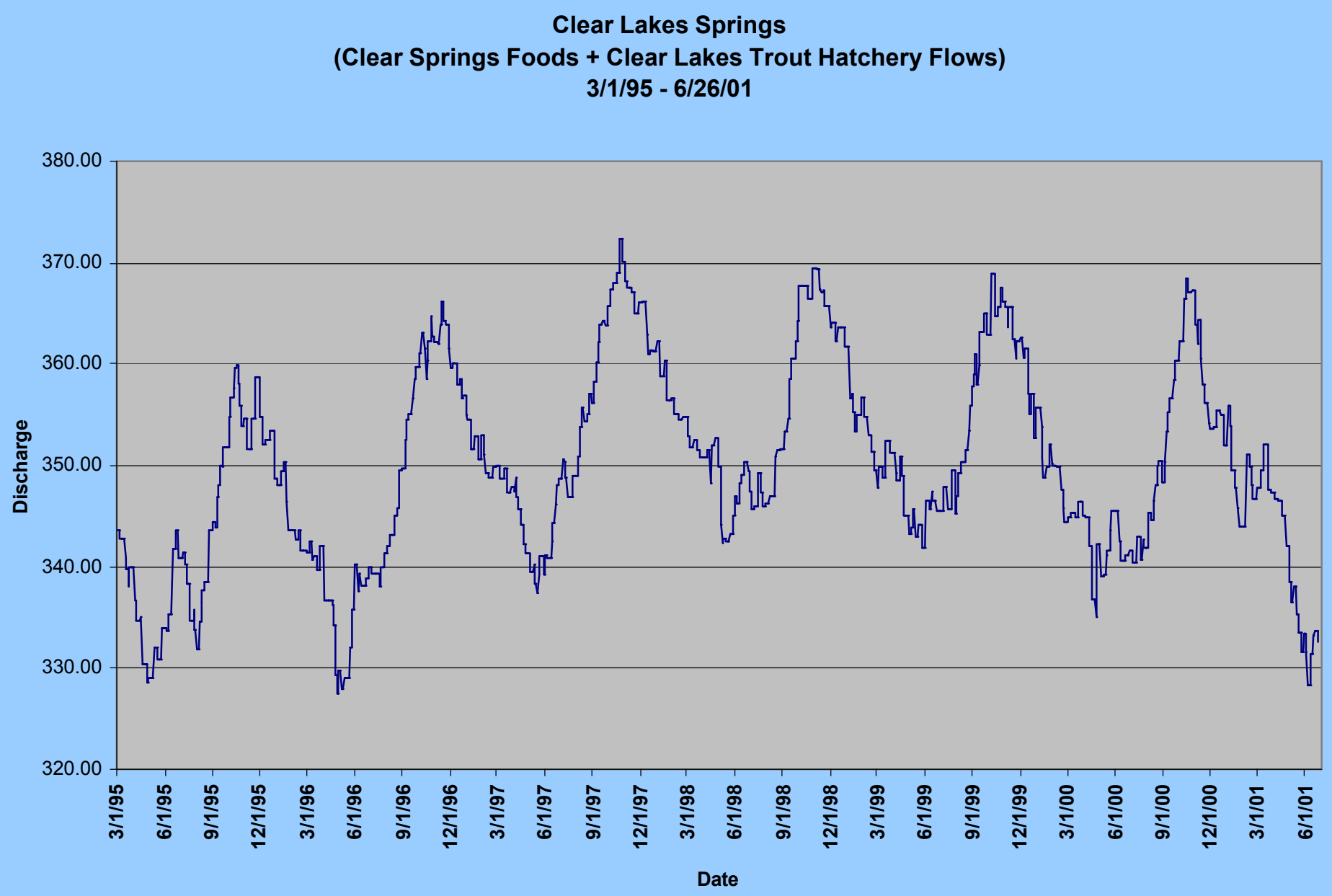
4/1/00
7/1/00
10/1/00
1/1/01
4/1/01
7/1/01
Date


Clear Lakes Springs
(Clear Springs Foods + Clear Lakes Trout Hatchery Flows)
3/1/95 - 6/26/01
Discharge
380.00
370.00
360.00
350.00
340.00
330.00
320.00
3/1/95
6/1/95
9/1/95
12/1/95
3/1/96
6/1/96
9/1/96
12/1/96
3/1/97
6/1/97
9/1/97
12/1/97
3/1/98
6/1/98
9/1/98
12/1/98
3/1/99
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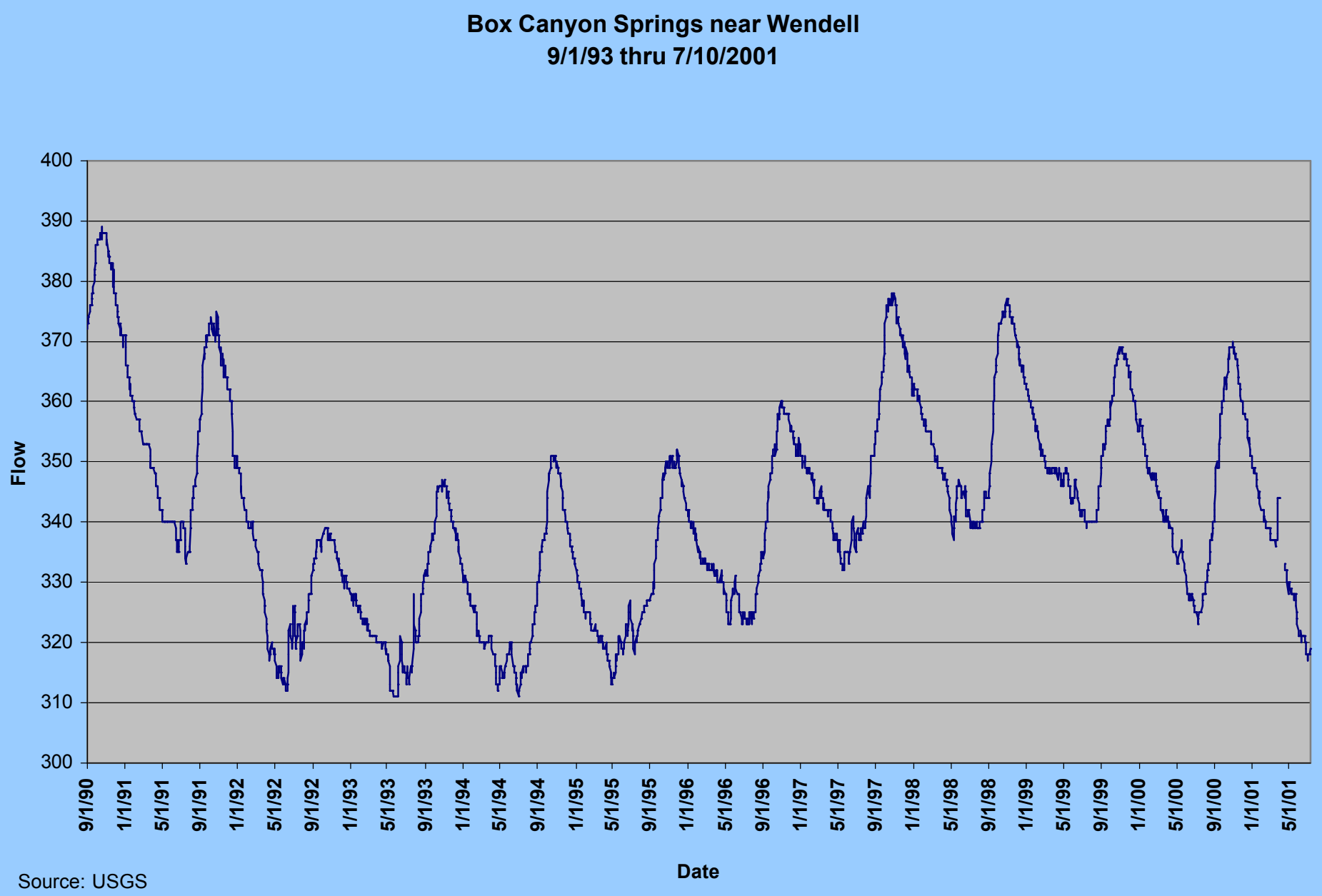
9/1/00
12/1/00
3/1/01
6/1/01
Date


Box Canyon Springs near Wendell
9/1/93 thru 7/10/2001
Flow
400
390
380
370
360
350
340
330
320
310
300
9/1/90
1/1/91
5/1/91
9/1/91
1/1/92
5/1/92
9/1/92
1/1/93
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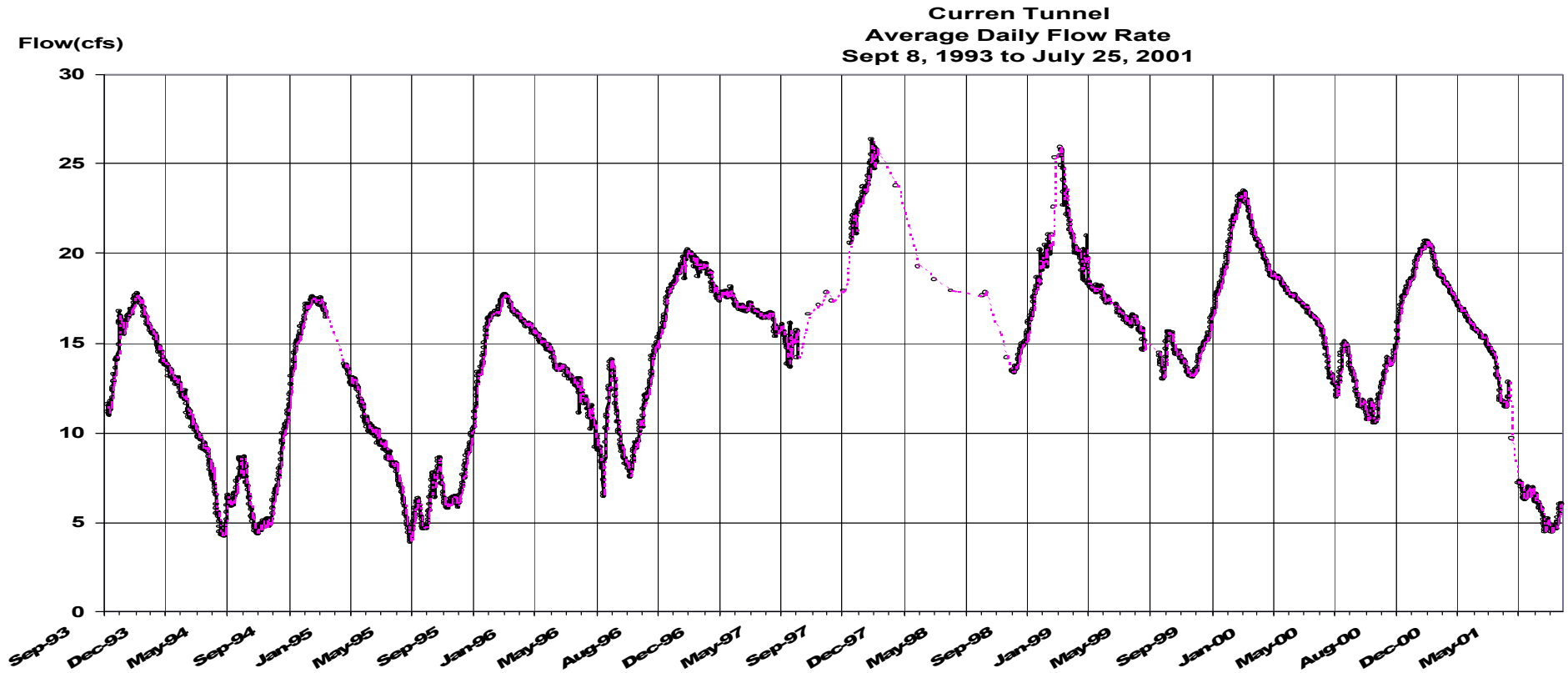
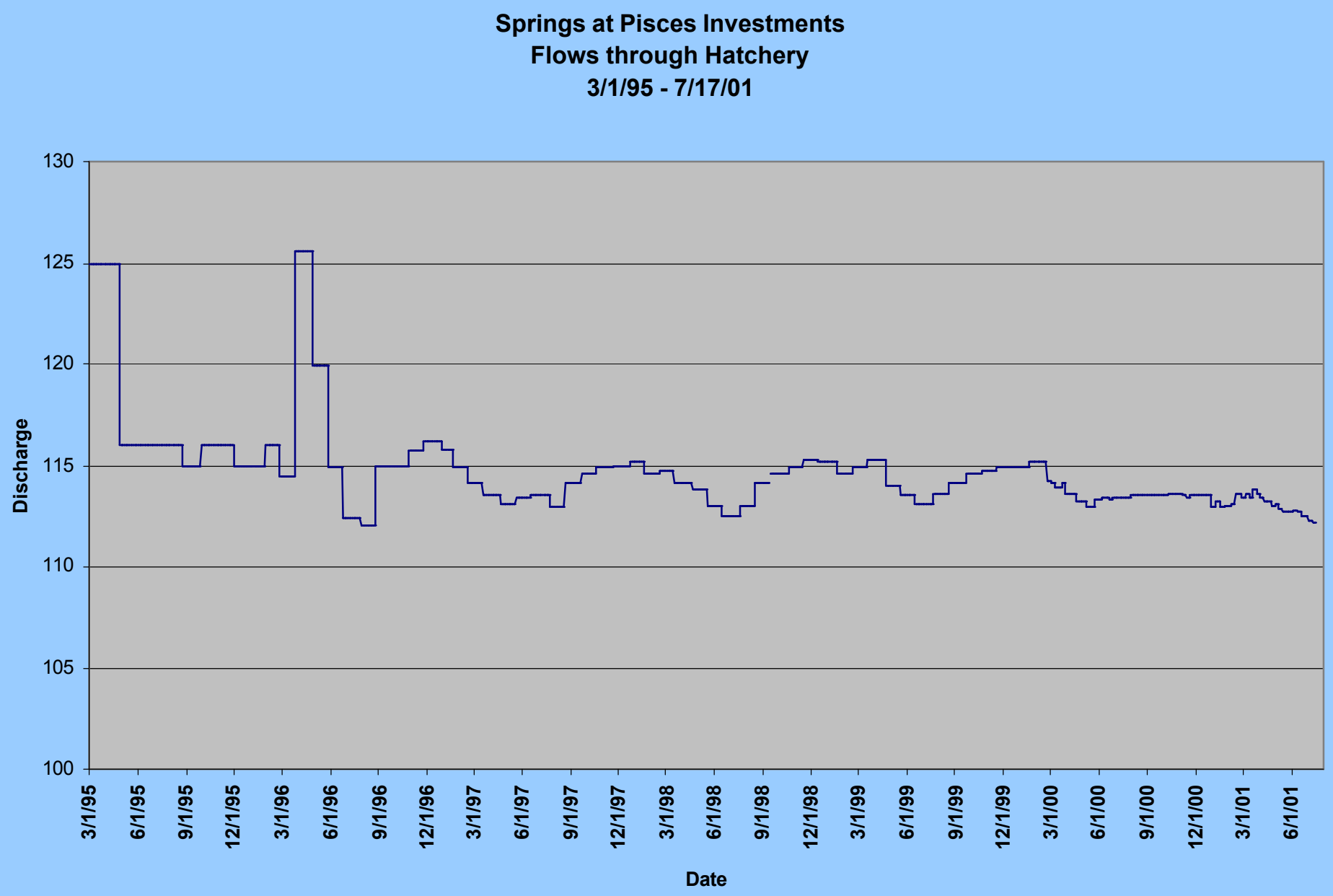
1/1/00
5/1/00
9/1/00
1/1/01
5/1/01
Date

Source: USGS


Curren Tunnel
Average Daily Flow Rate
Sept 8, 1993 to July 25, 2001
Flow(cfs)
30
25
20
15
10
5
0
Sep-93
Dec-93
May-94
Sep-94
Jan-95
May-95
Sep-95
Jan-96
May-96
Aug-96
Dec-96
May-97
Sep-97
Dec-97
May-98
Sep-98
Jan-99
May-99
Sep-99
Jan-00
May-00
Aug-00
Dec-00
May-01


Springs at Pisces Investments
Flows through Hatchery
3/1/95 - 7/17/01
Discharge
130
125
120
115
110
105
100
3/1/95
6/1/95
9/1/95
12/1/95
3/1/96
6/1/96
9/1/96
12/1/96
3/1/97
6/1/97
9/1/97
12/1/97
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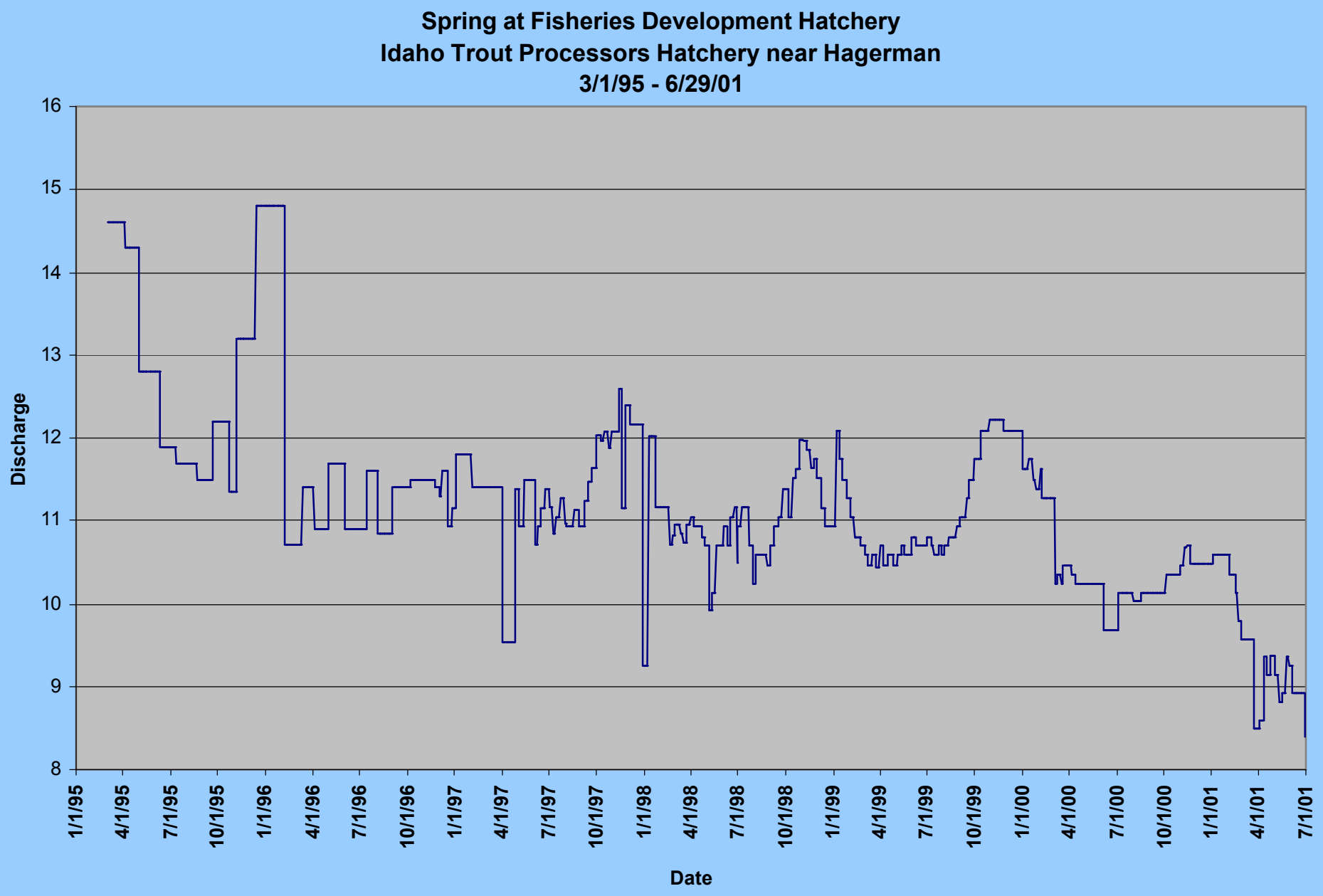
9/1/00
12/1/00
3/1/01
6/1/01
Date


Spring at Fisheries Development Hatchery
Idaho Trout Processors Hatchery near Hagerman
3/1/95 - 6/29/01
Discharge
16
15
14
13
12
11
10
9
8
1/1/95
4/1/95
7/1/95
10/1/95
1/1/96
4/1/96
7/1/96
10/1/96
1/1/97
4/1/97
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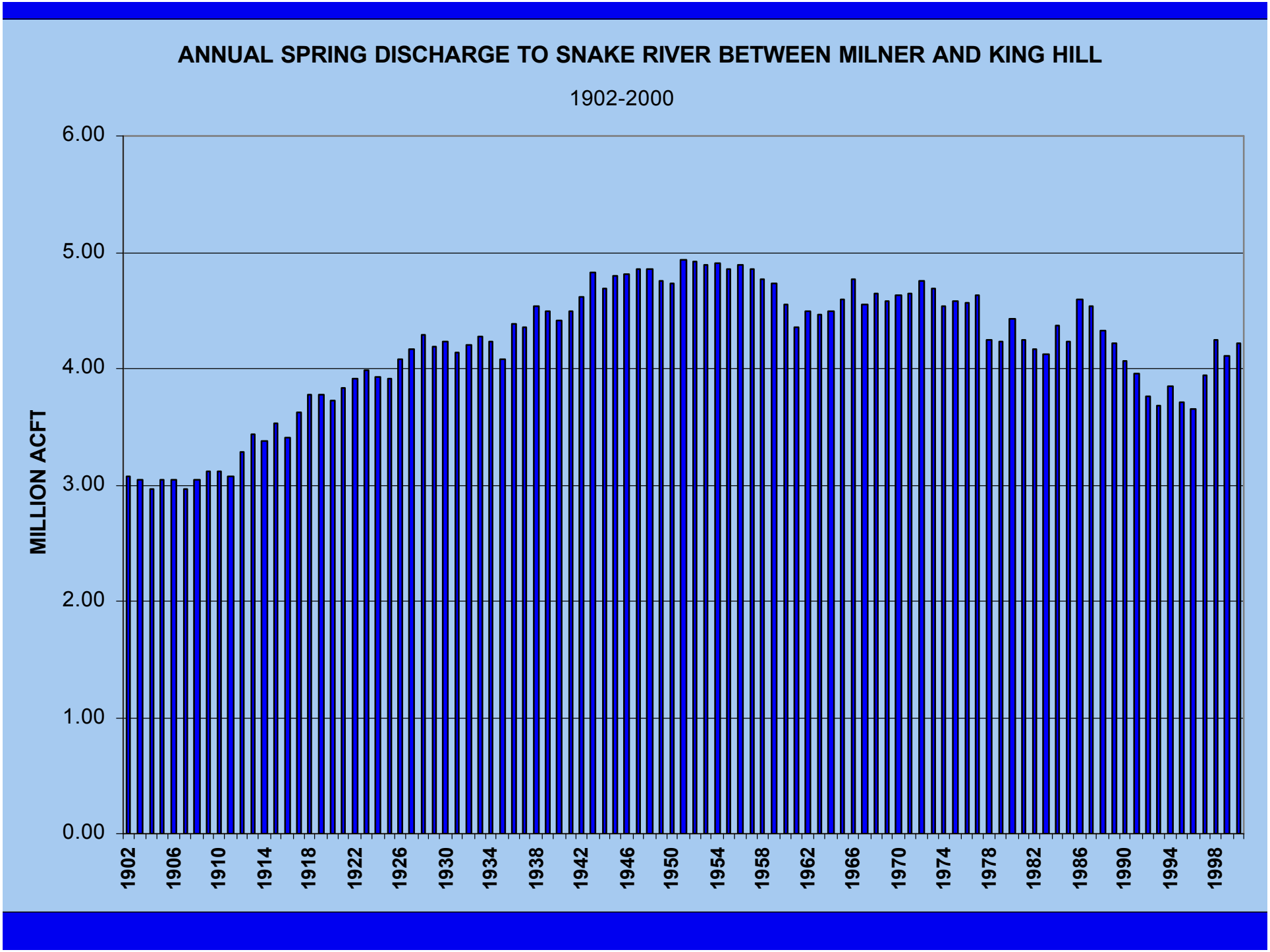
10/1/00
1/1/01
4/1/01
7/1/01
Date

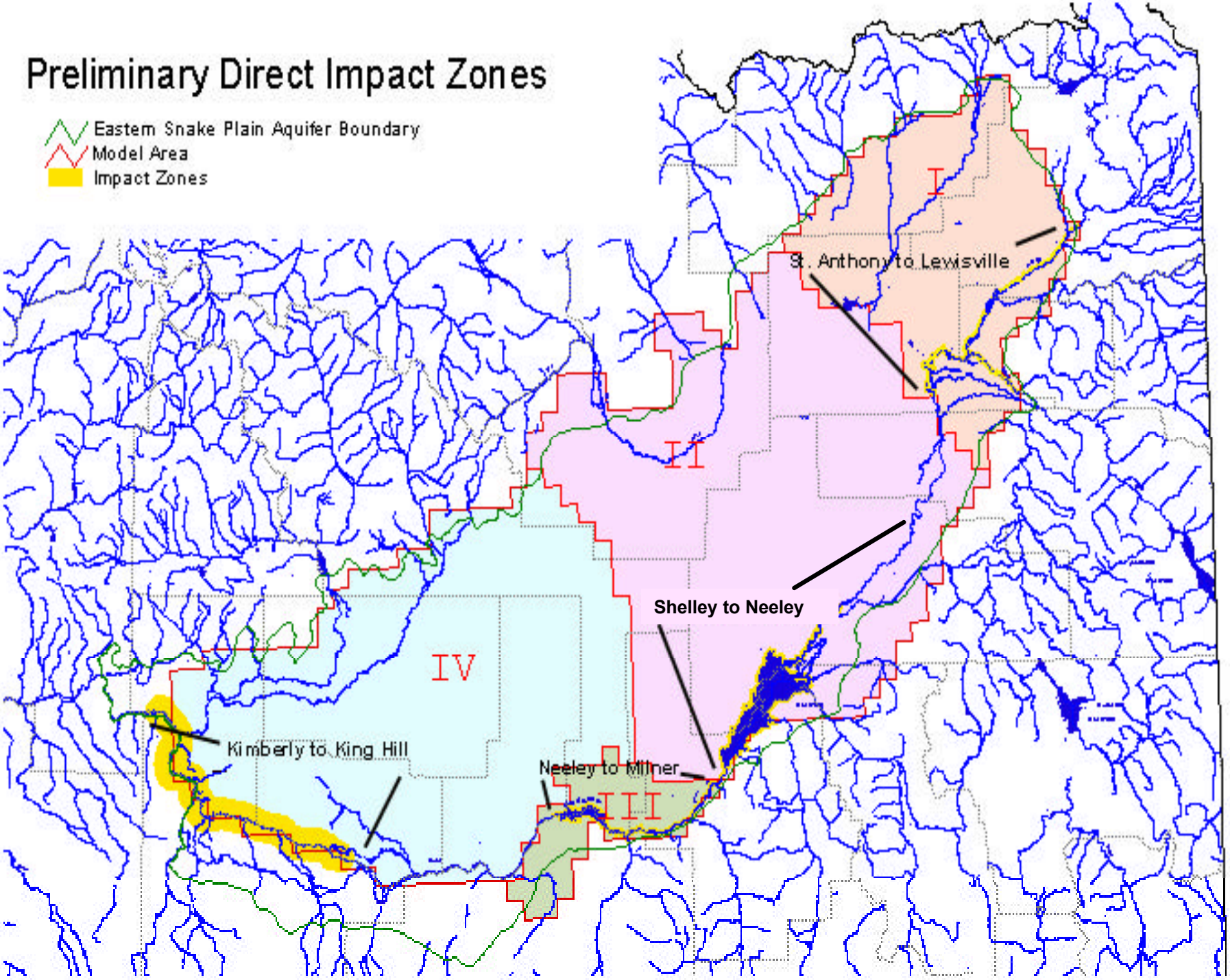

ANNUAL SPRING DISCHARGE TO SNAKE RIVER BETWEEN MILNER AND KING HILL
1902-2000
MILLION ACFT
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1902
1906
1910
1914
1918
1922
1926
1930
1934
1938
1942
1946
1950
1954
1958
1962
1966
1970
1974
1978
1982
1986
1990
1994
1998

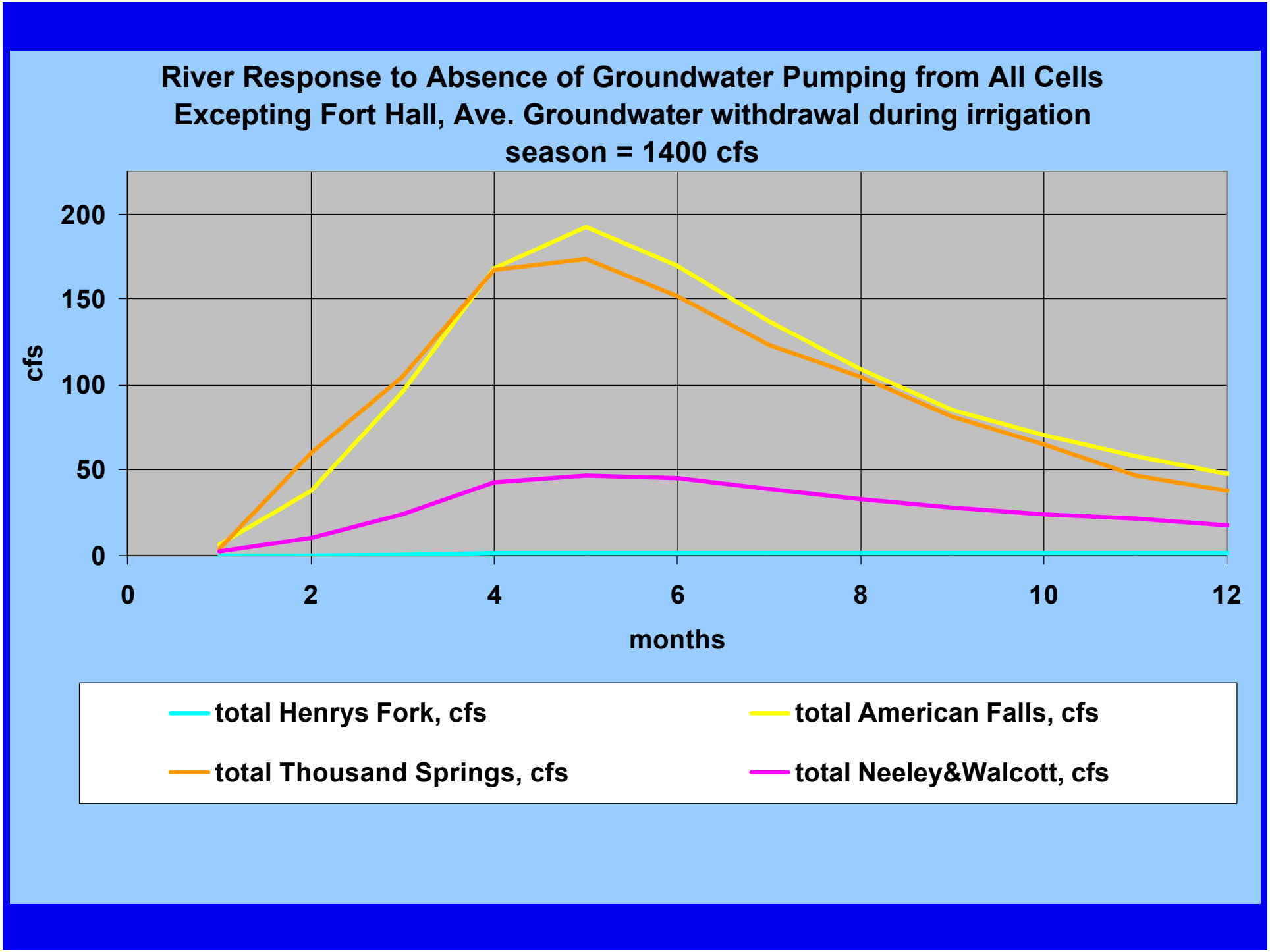
Ground Water Management Areas

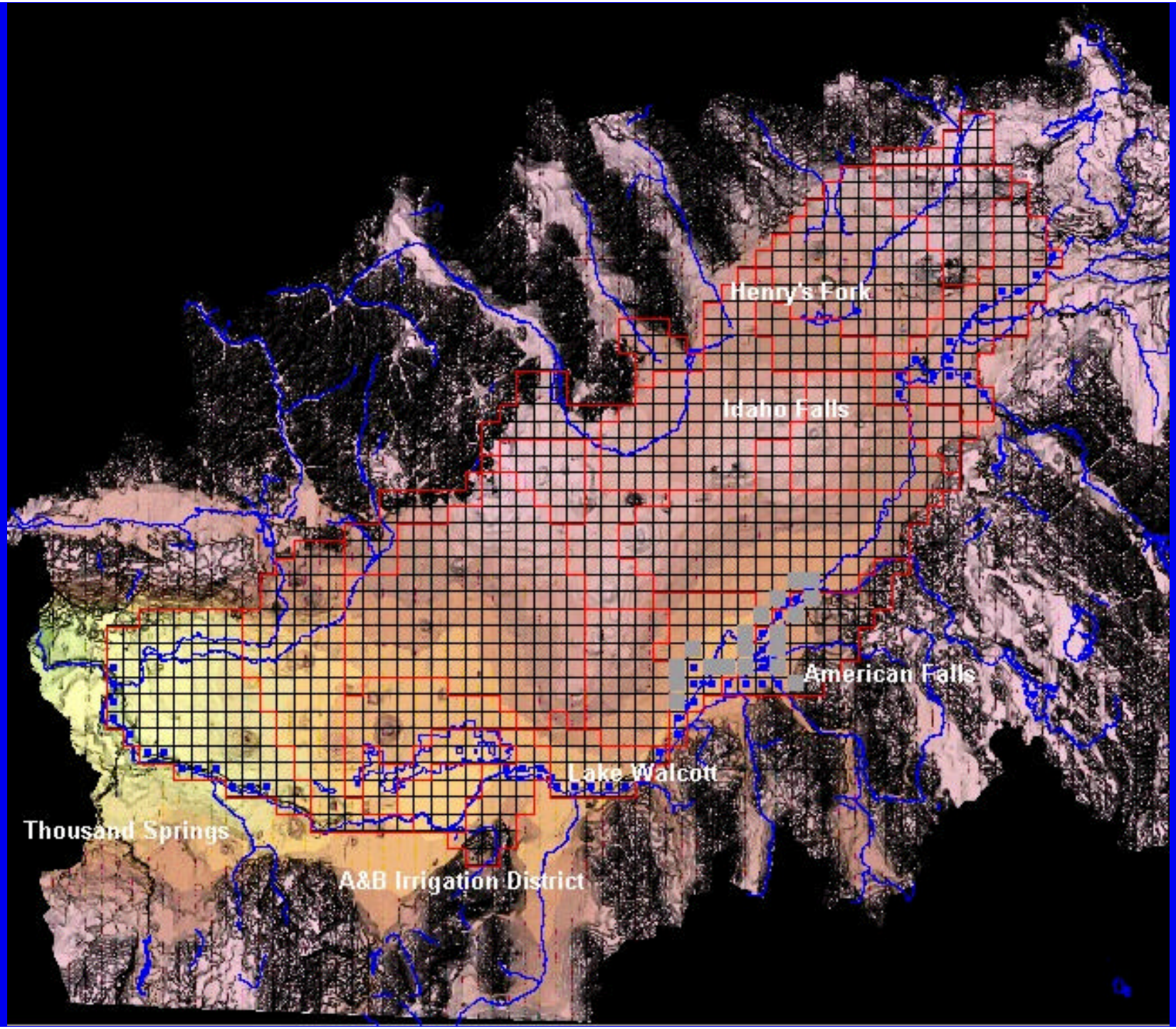
- Designation of one or more ground water management areas is warranted to provide the basis for administrative action in the event water supplies continue to be severely limited ***because of drought***.

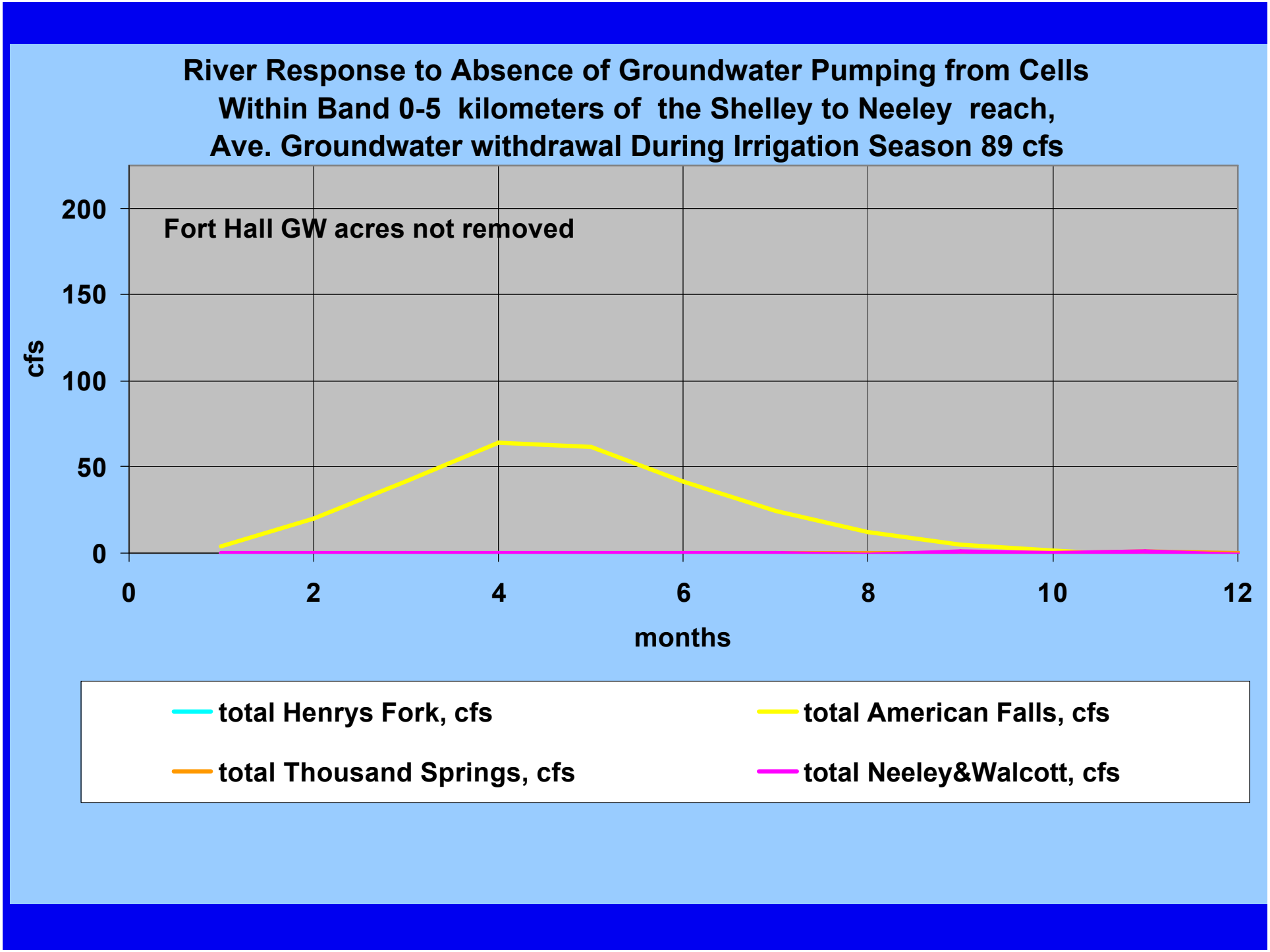
- Administrative action subsequent to designation needs to be ***flexible*** and reversible if water supply conditions improve prior to April 1, 2002.

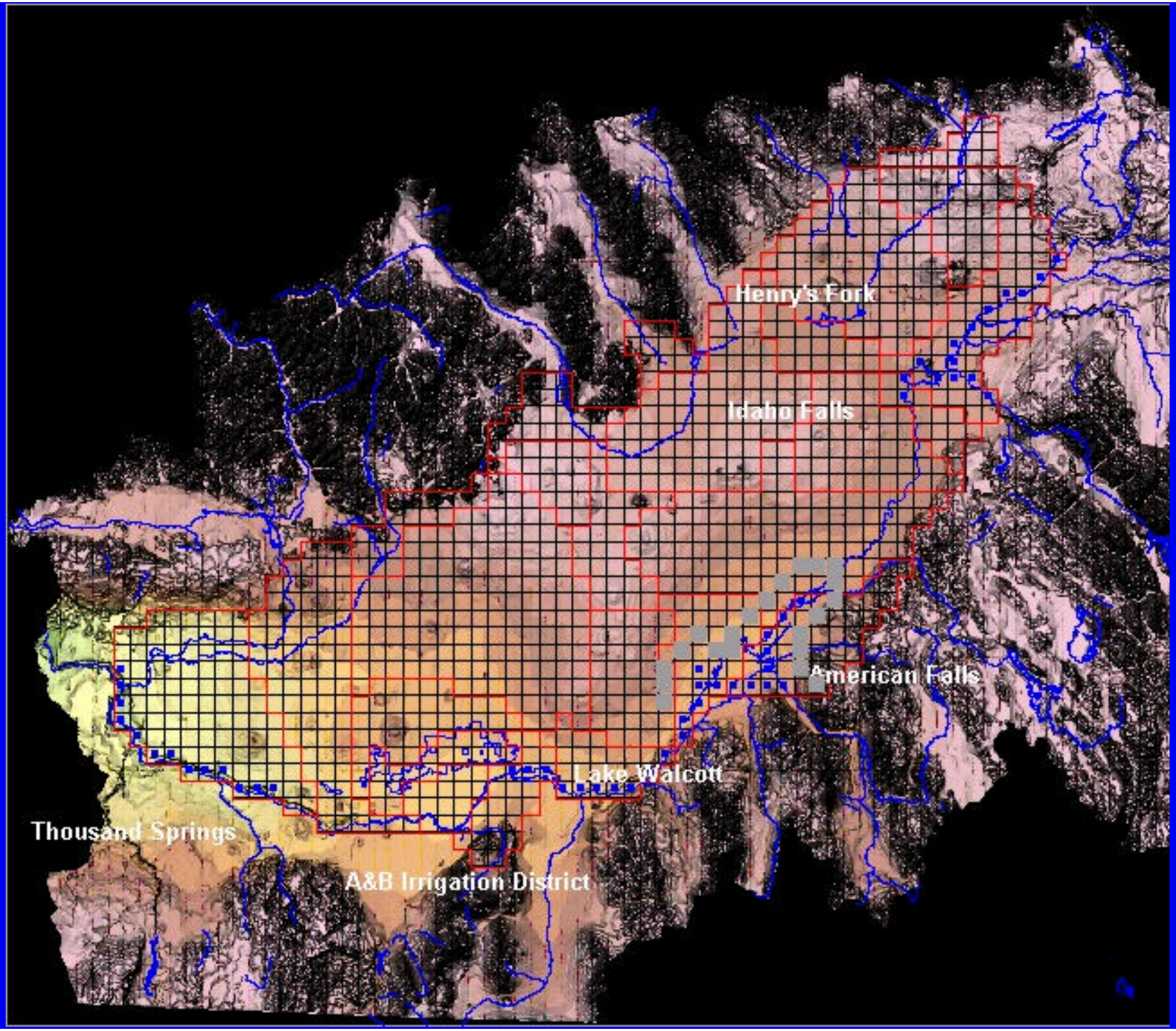
Preliminary Direct Impact Zones

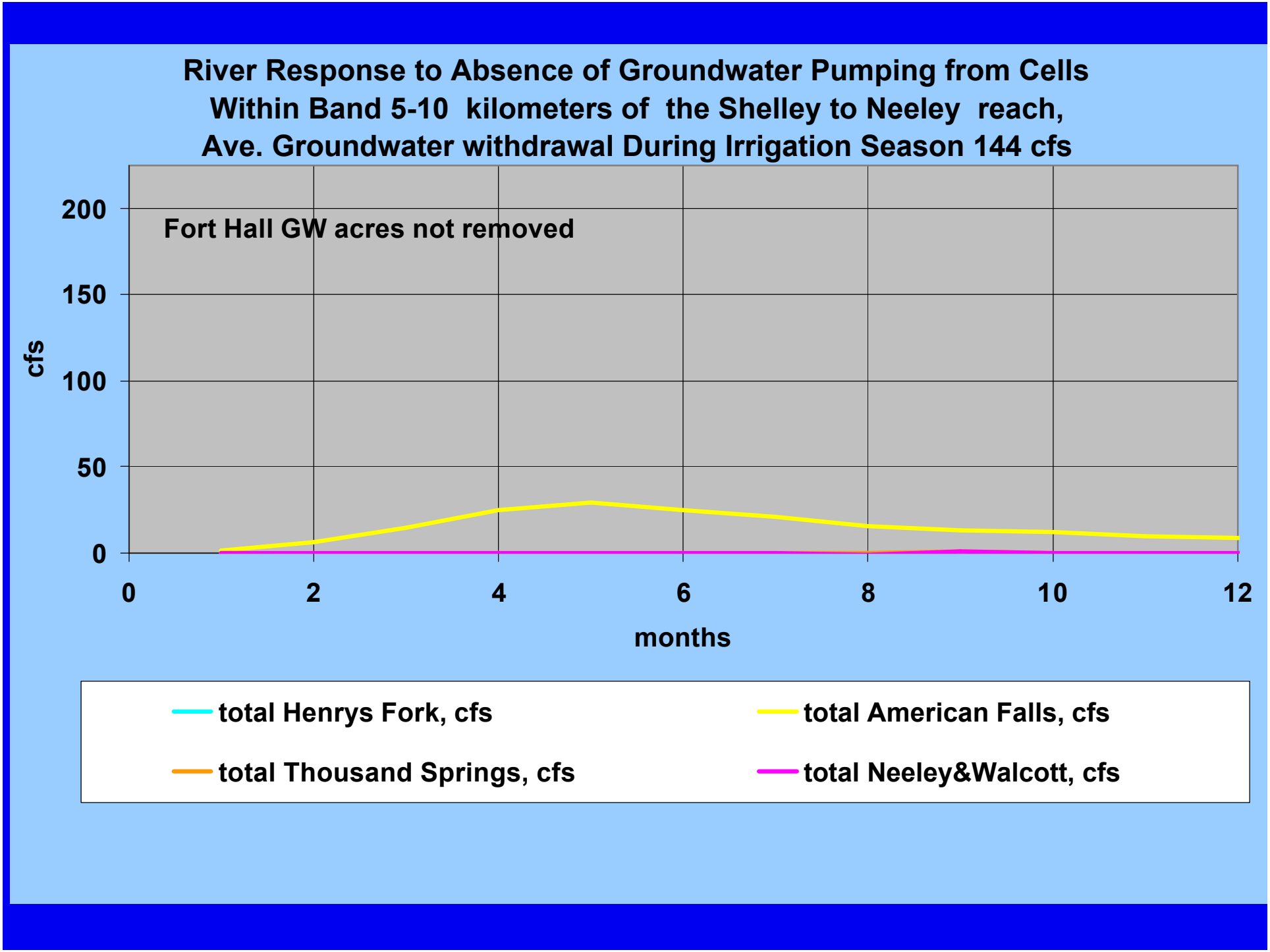


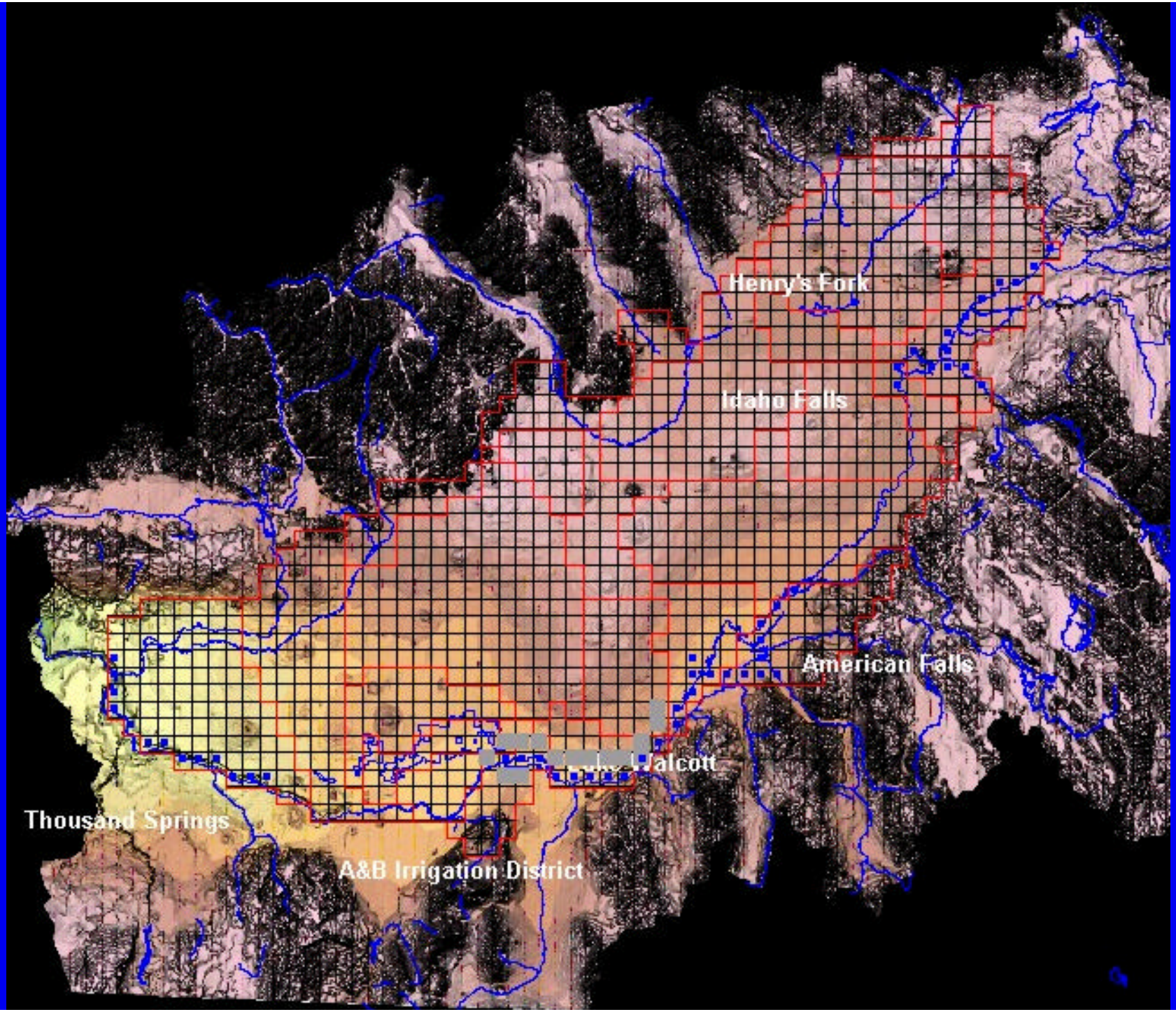

River Response to Absence of Groundwater Pumping from All Cells Excepting Fort Hall, Ave. Groundwater withdrawal during irrigation season = 1400 cfs
cfs
200
150
100
50
0
0
2
4
6
8
10
12
months
total Henrys Fork, cfs
total American Falls, cfs
total Thousand Springs, cfs
total Neeley&Walcott, cfs

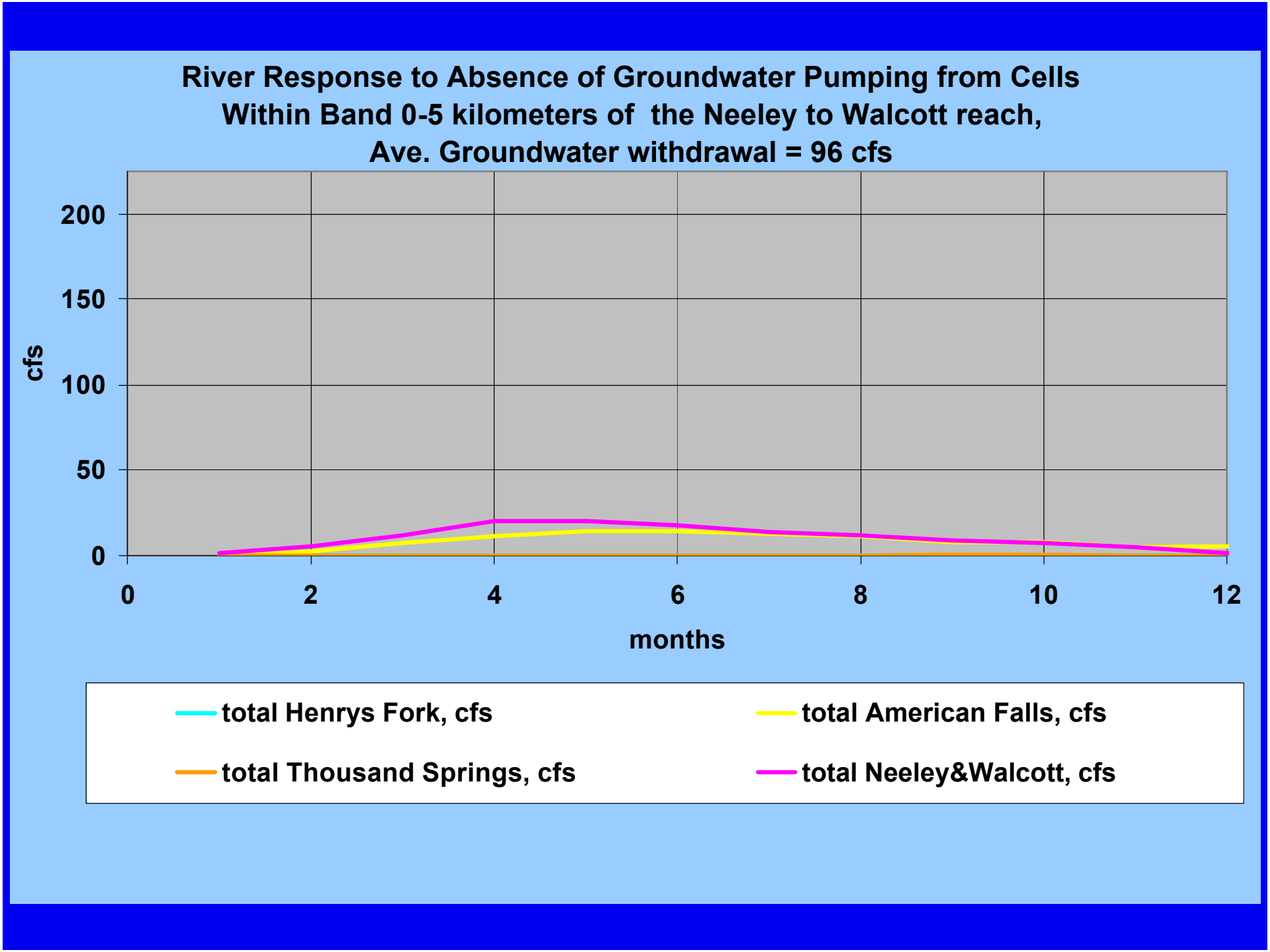

Henry's Fork
Idaho Falls
American Falls
Lake Walcott
Thousand Springs
A&B Irrigation District

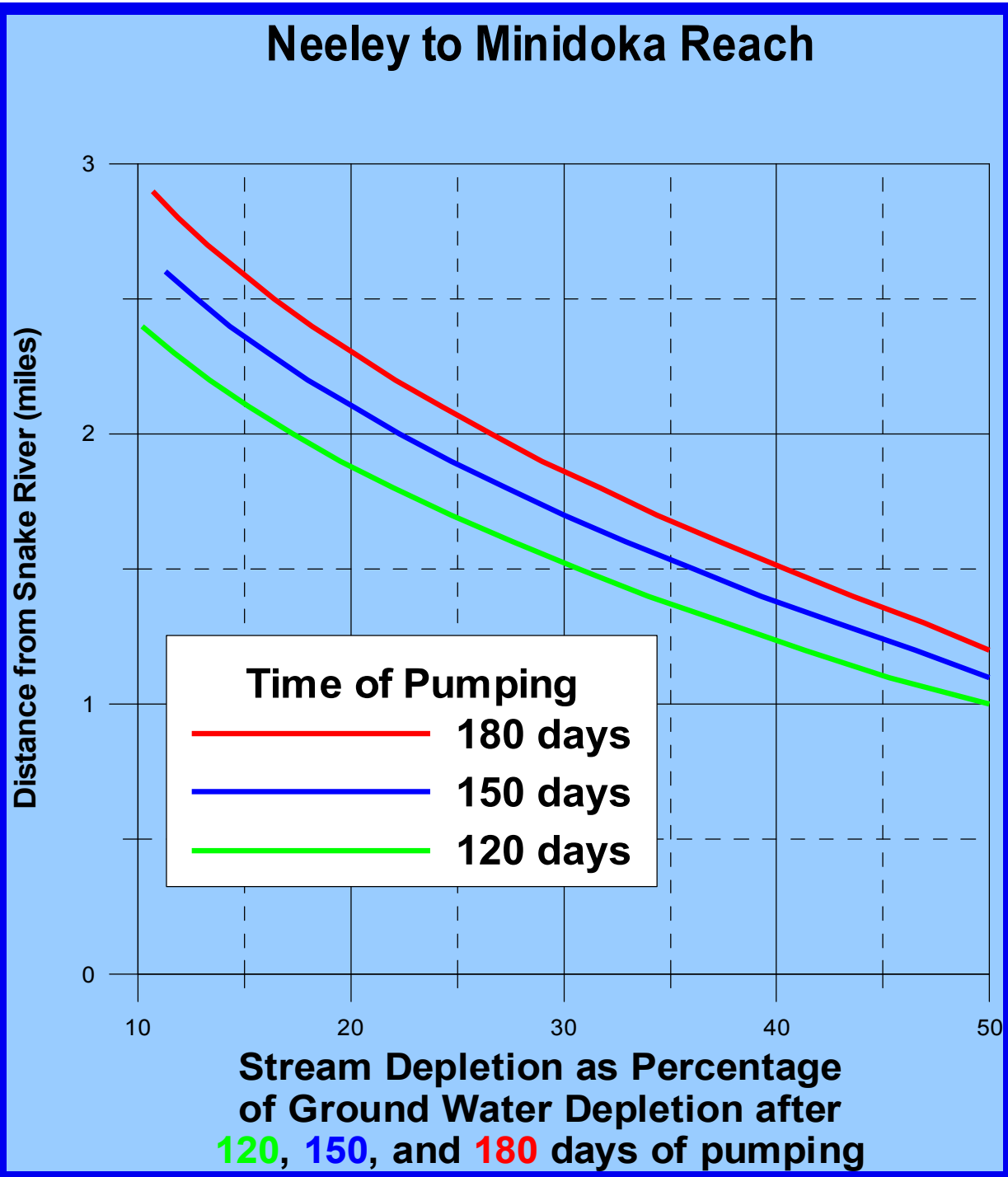

River Response to Absence of Groundwater Pumping from Cells
Within Band 0-5 kilometers of the Shelley to Neeley reach,
Ave. Groundwater withdrawal During Irrigation Season 89 cfs
Fort Hall GW acres not removed
cfs
200
150
100
50
0
0
2
4
6
8
10
12
months
total Henrys Fork, cfs
total American Falls, cfs
total Thousand Springs, cfs
total Neeley&Walcott, cfs

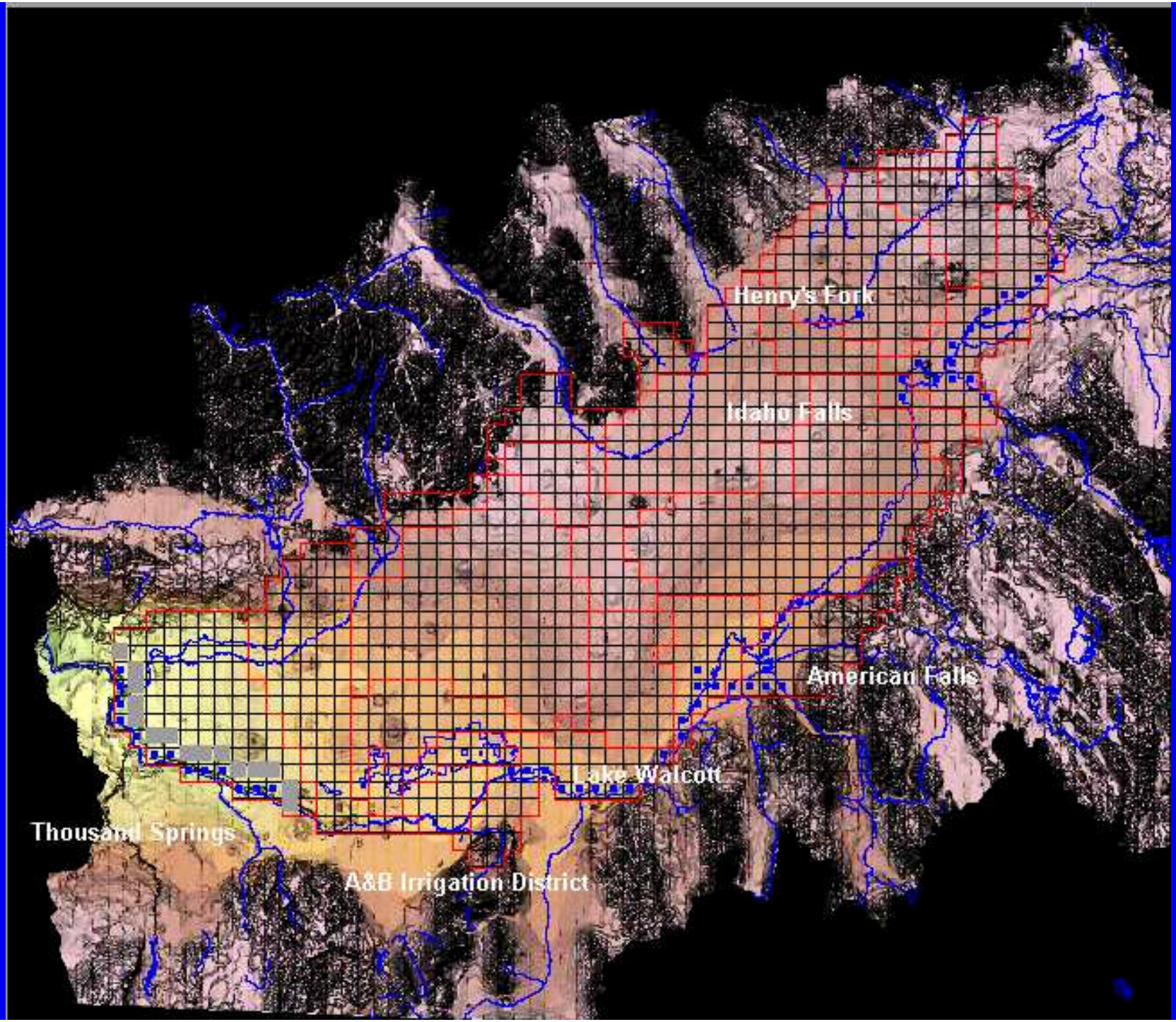

Henry's Fork
Idaho Falls
American Falls
Lake Walcott
Thousand Springs
A&B Irrigation District

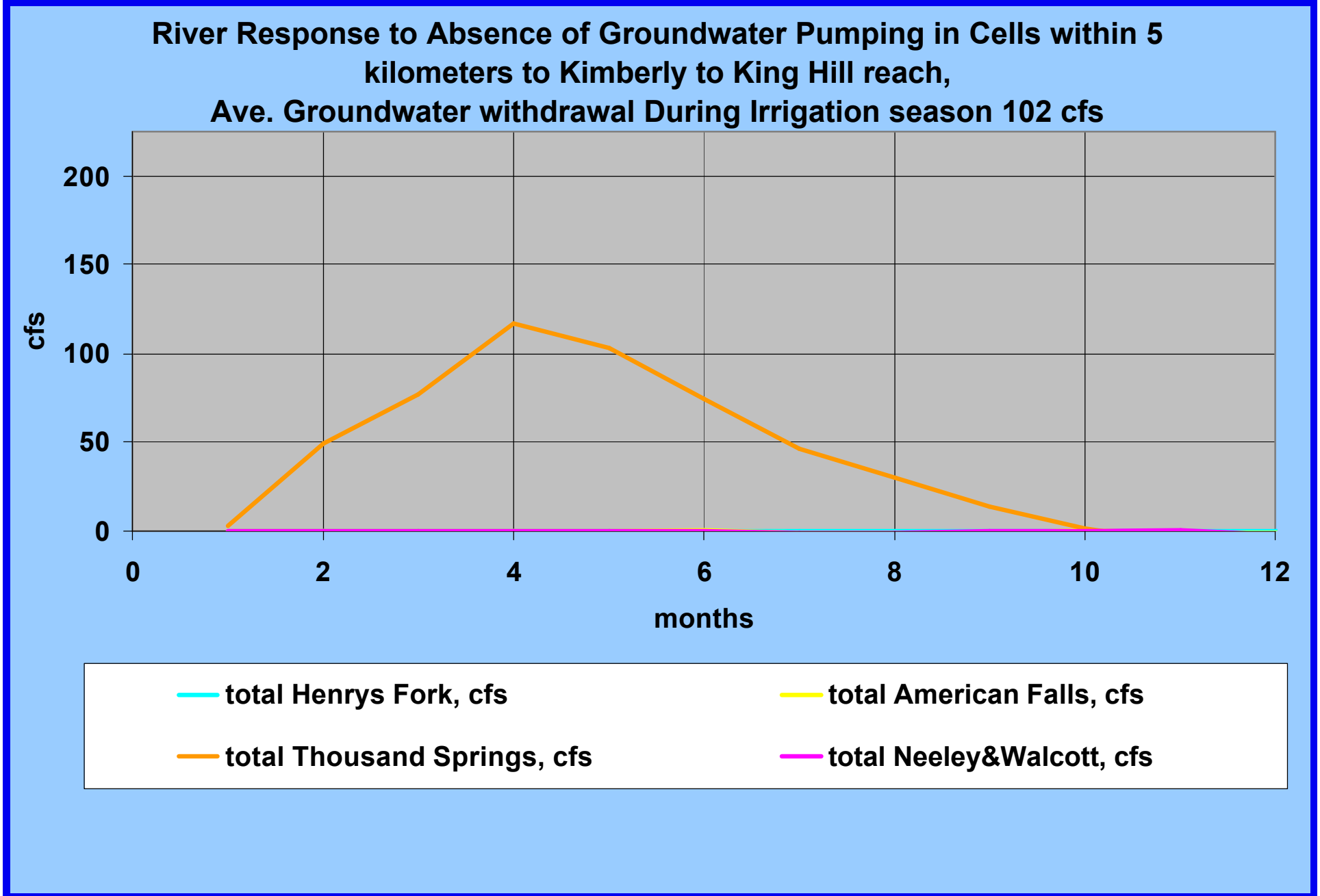

River Response to Absence of Groundwater Pumping from Cells
Within Band 5-10 kilometers of the Shelley to Neeley reach,
Ave. Groundwater withdrawal During Irrigation Season 144 cfs
Fort Hall GW acres not removed
cfs
200
150
100
50
0
0
2
4
6
8
10
12
months
total Henrys Fork, cfs
total American Falls, cfs
total Thousand Springs, cfs
total Neeley&Walcott, cfs


Henry's Fork
Idaho Falls
American Falls
Jalcott
Thousand Springs
A&B Irrigation District


River Response to Absence of Groundwater Pumping from Cells
Within Band 0-5 kilometers of the Neeley to Walcott reach,
Ave. Groundwater withdrawal = 96 cfs
cfs
200
150
100
50
0
0
2
4
6
8
10
12
months
total Henrys Fork, cfs
total American Falls, cfs
total Thousand Springs, cfs
total Neeley&Walcott, cfs


Neeley to Minidoka Reach
Distance from Snake River (miles)
3
2
1
0
10
20
30
40
50
Time of Pumping
180 days
150 days
120 days
Stream Depletion as Percentage
of Ground Water Depletion after
120, 150, and 180 days of pumping

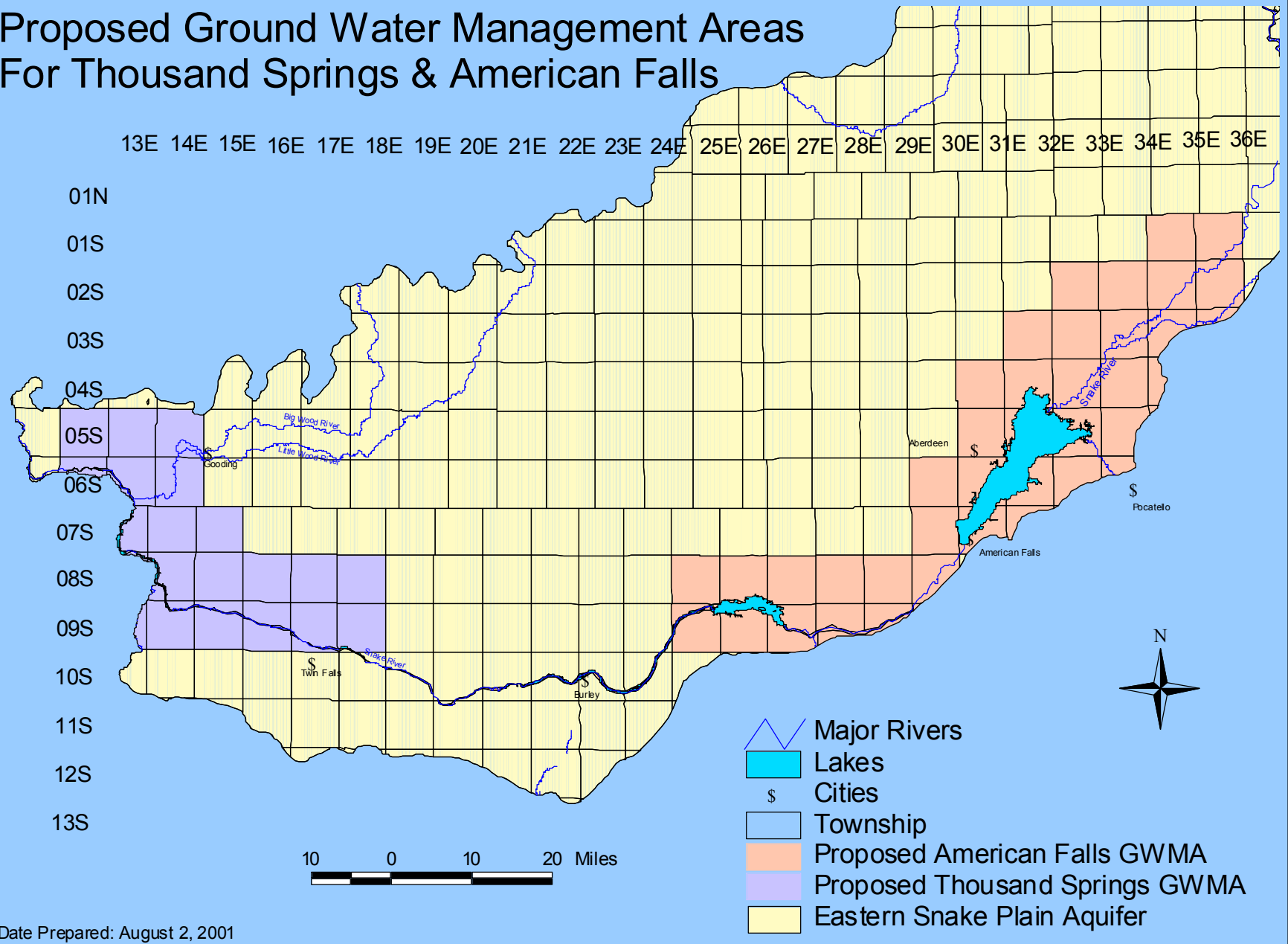

Henry's Fork
Idaho Falls
American Falls
Lake Walcott
Thousand Springs
A&B Irrigation District


River Response to Absence of Groundwater Pumping in Cells within 5 kilometers to Kimberly to King Hill reach,
Ave. Groundwater withdrawal During Irrigation season 102 cfs
cfs
200
150
100
50
0
0
2
4
6
8
10
12
months
total Henrys Fork, cfs
total American Falls, cfs
total Thousand Springs, cfs
total Neeley&Walcott, cfs

Ground Water Management Areas

- Two ground water management areas will be designated by administrative order issued tomorrow, August 3:
  - American Falls Ground Water Management Area
  - Thousand Springs Ground Water Management Area

Proposed Ground Water Management Areas For Thousand Springs & American Falls



Date Prepared: August 2, 2001

Ground Water Management Areas

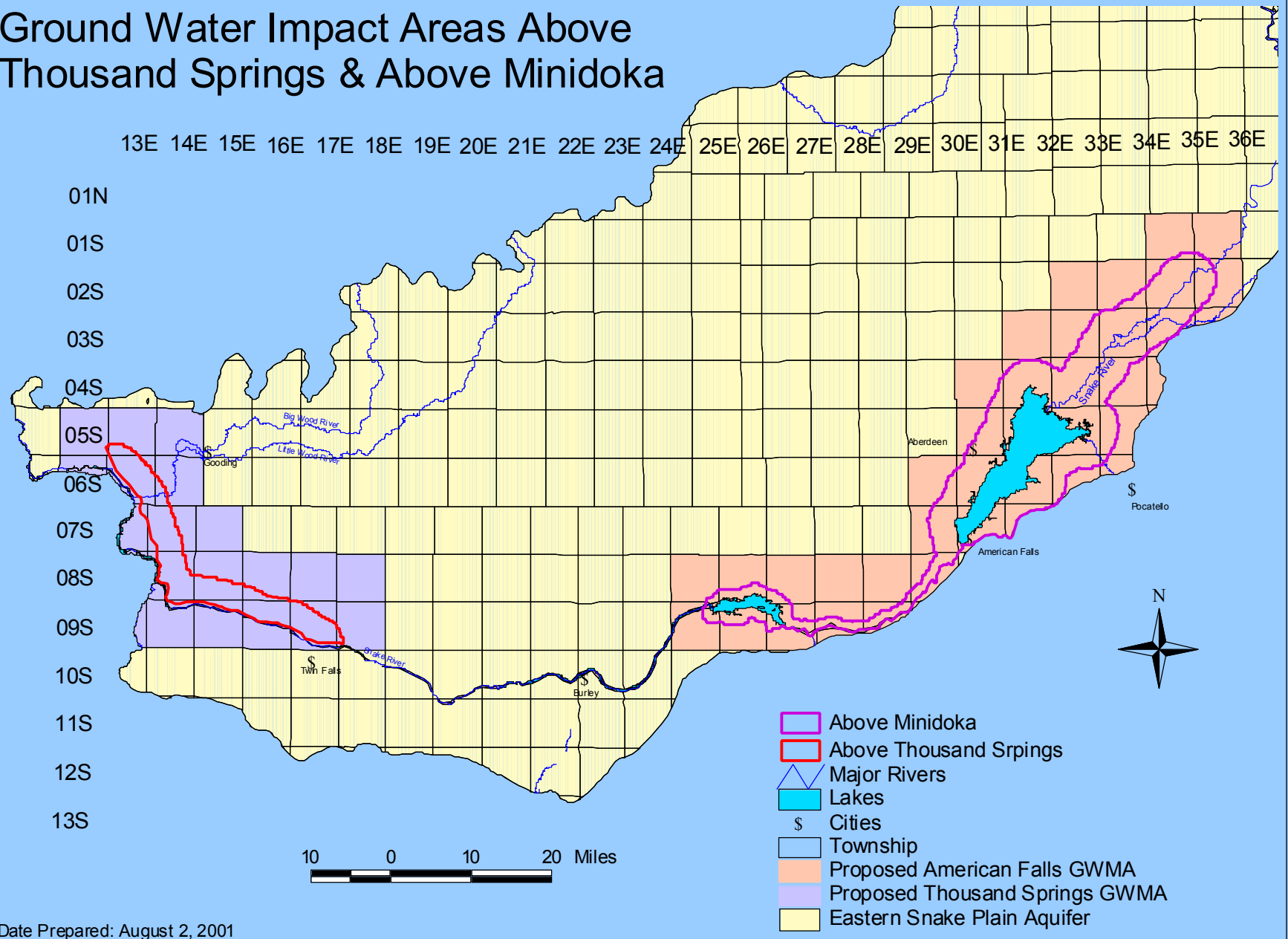
- Letters requesting designation of Basins 35 and 36 as ground water management areas will be treated as petitions for designation under Rule 30.06 of IDAPA 37.03.11 and considered, unless with-drawn, at a hearing in Boise on August 28.

- No further administrative action will be taken until after August 28.

Potential Curtailment of Junior-Priority Water Rights

Based on simulated river responses in the proposed American Falls Ground Water Management Area and simulated spring responses in the proposed Thousand Springs Ground Water Management Area, after August 28 and prior to September 1, holders of junior-priority ground water rights in two limited areas, may be ordered to cease ground water diversions greater than 0.1 cfs beginning on April 1 through December 31, 2002 as follows:

Ground Water Impact Areas Above Thousand Springs & Above Minidoka



Date Prepared: August 2, 2001

Potential Curtailment of Junior-Priority Water Rights

- If prior to August 30, ground water districts representing potentially affected holders of junior-priority water rights reach agreement with entities representing holders of senior-priority surface water rights to allow out-of-priority diversion of junior-priority ground water rights, curtailment orders for one or both ground water management areas will not be issued.

Potential Curtailment of Junior-Priority Water Rights

If prior to September 1, junior-priority ground water rights are ordered to cease diversions in 2002, curtailment orders will be contingent and will be rescinded in one or both of the ground water management areas under one or a combination of the following:

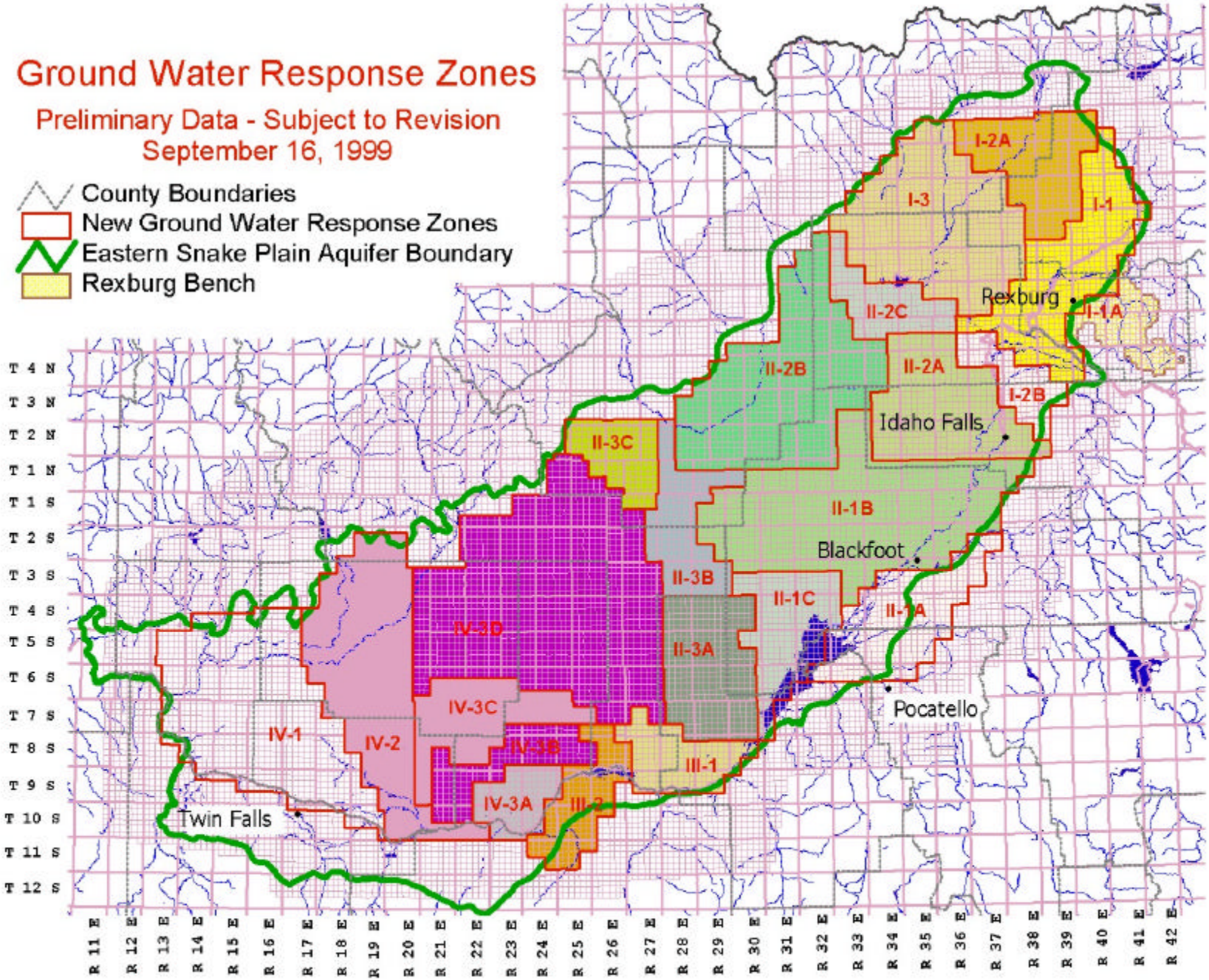
Potential Curtailment of Junior-Priority Water Rights

- The drought ends and holders of senior-priority surface water rights have a full water supply for irrigation considering both projected natural flow and reservoir storage (American Falls area only).

- The ground water supply in each ground water management area significantly improves (not expected).

Potential Curtailment of Junior-Priority Water Rights

- Ground water districts propose an alternative plan for reducing ground water withdrawals or replacing ground water depletions that would provide an equal response in hydraulically connected surface water sources.
- Ground water districts representing potentially affected holders of junior-priority water rights reach agreement with entities representing holders of senior-priority surface water rights to allow out-of-priority diversion of junior-priority ground water rights.


Ground Water Response Zones
Preliminary Data - Subject to Revision
September 16, 1999
County Boundaries
New Ground Water Response Zones
Eastern Snake Plain Aquifer Boundary
Rexburg Bench
I-2A
I-3
I-1
Rexburg
I-1A
II-2C
II-2B
II-2A
I-2B
Idaho Falls
II-3C
II-1B
Blackfoot
II-3B
II-1C
II-1A
IV-3D
II-3A
IV-3C
Pocatello
IV-1
IV-2
IV-3B
III-1
IV-3A
III-2
Twin Falls
T 4 N
T 3 N
T 2 N
T 1 N
T 1 S
T 2 S
T 3 S
T 4 S
T 5 S
T 6 S
T 7 S
T 8 S
T 9 S
T 10 S
T 11 S
T 12 S
R 11 E
R 12 E
R 13 E
R 14 E
R 15 E
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R 42 E