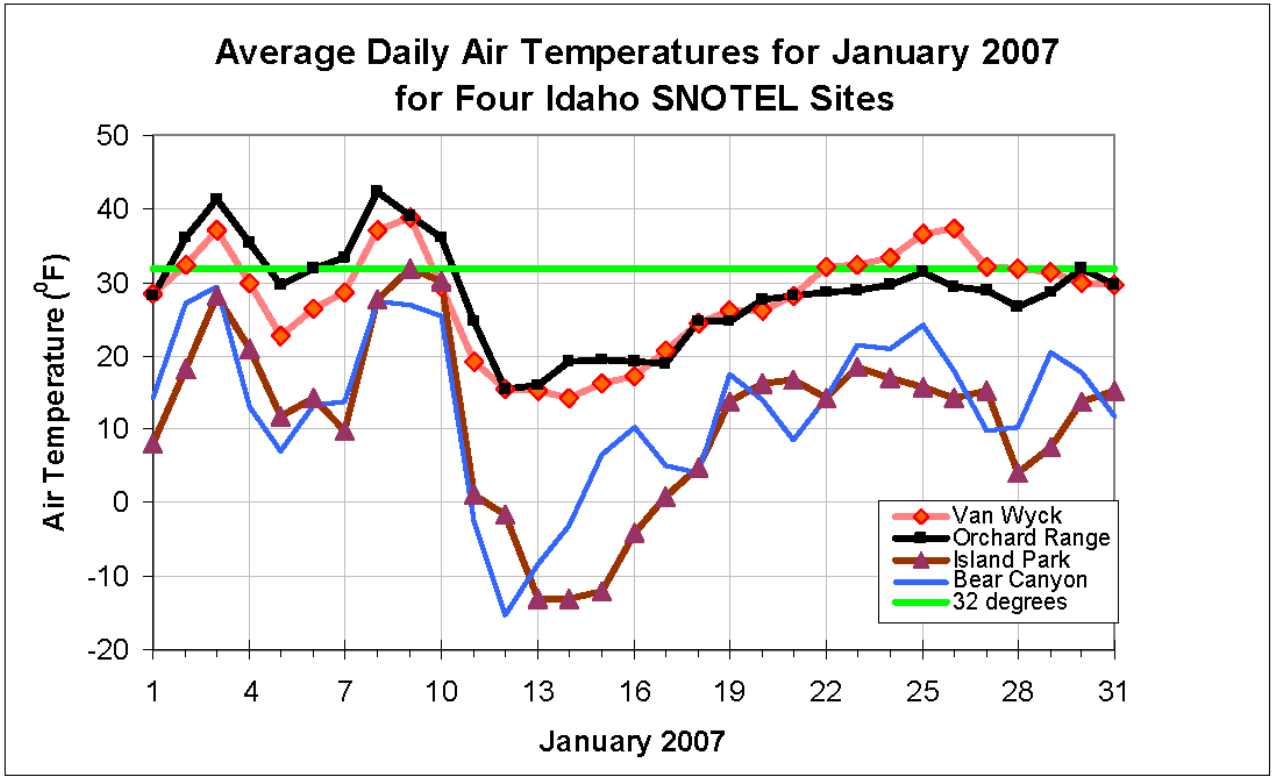
Idaho Department of Water Resources
Water Supply Meeting
February 15, 2007

Ron Abramovich
Water Supply Specialist
USDA NRCS
Snow Survey Boise, Idaho

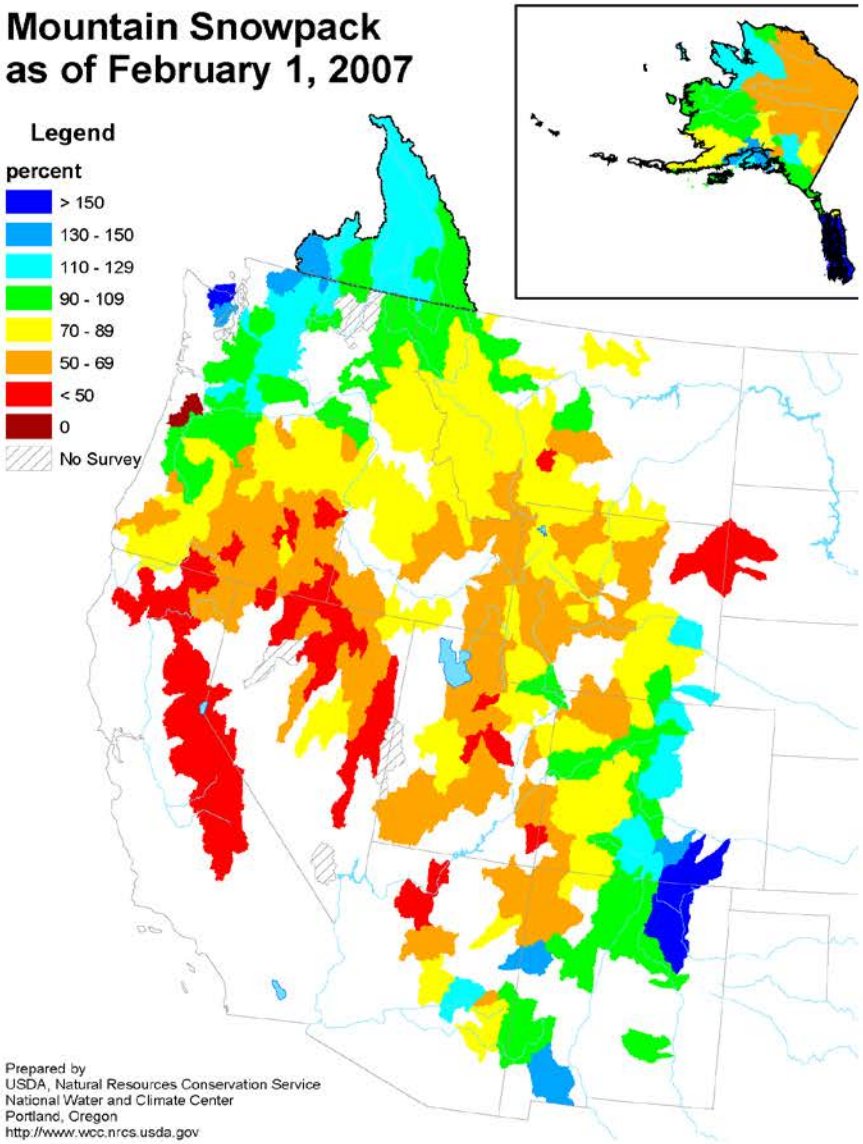
United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report
February 1, 2007



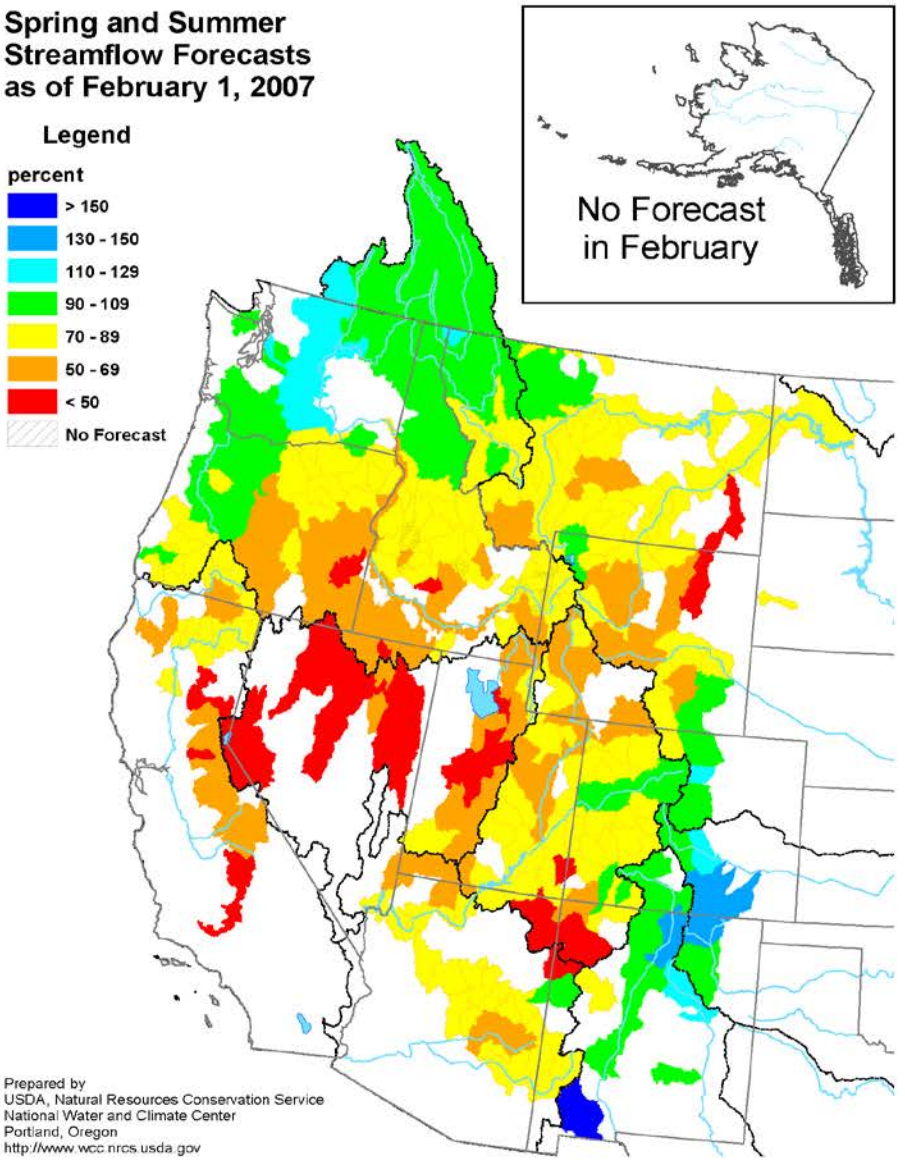
BRR!

Mountain Snowpack as of February 1, 2007



Prepared by
USDA, Natural Resources Conservation Service
National Water and Climate Center
Portland, Oregon
http://www.wcc.nrcs.usda.gov

Spring and Summer Streamflow Forecasts as of February 1, 2007



Prepared by
USDA, Natural Resources Conservation Service
National Water and Climate Center
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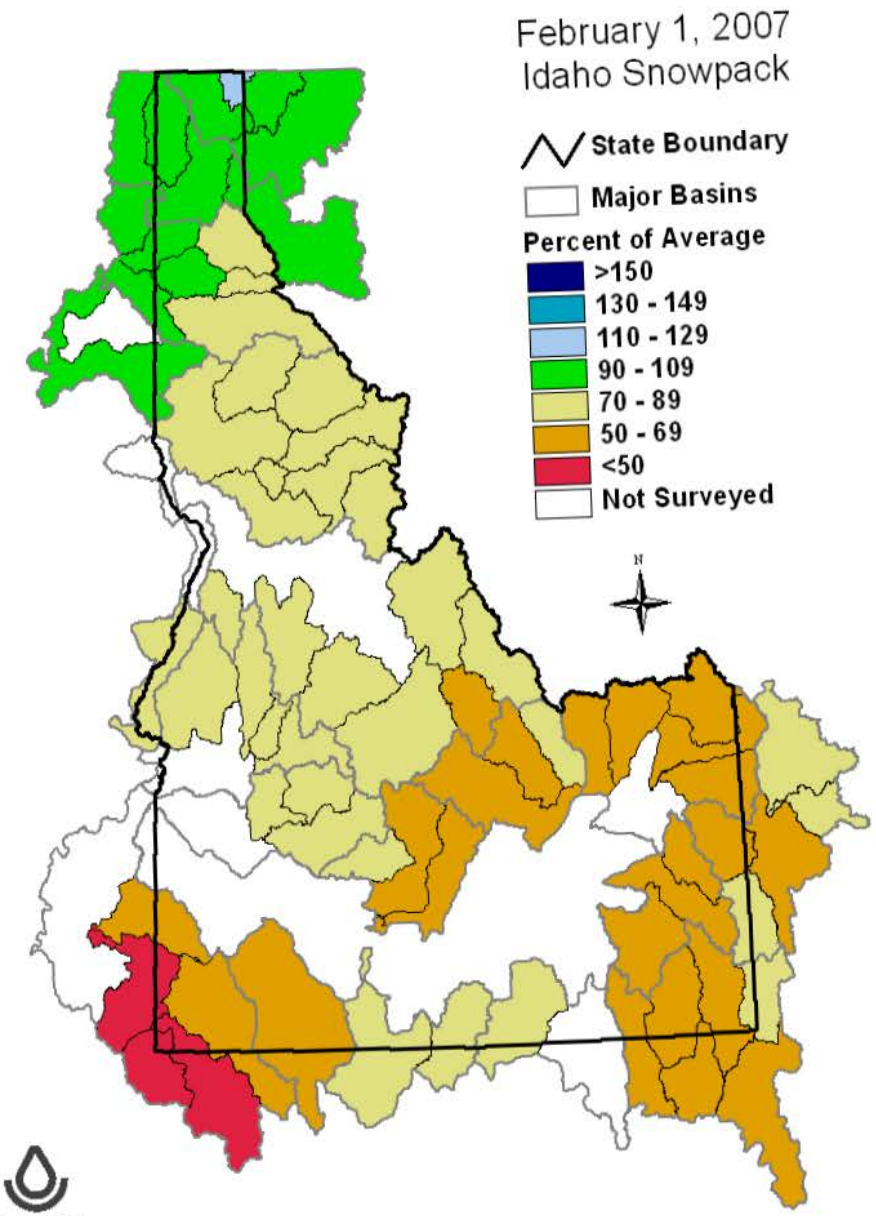
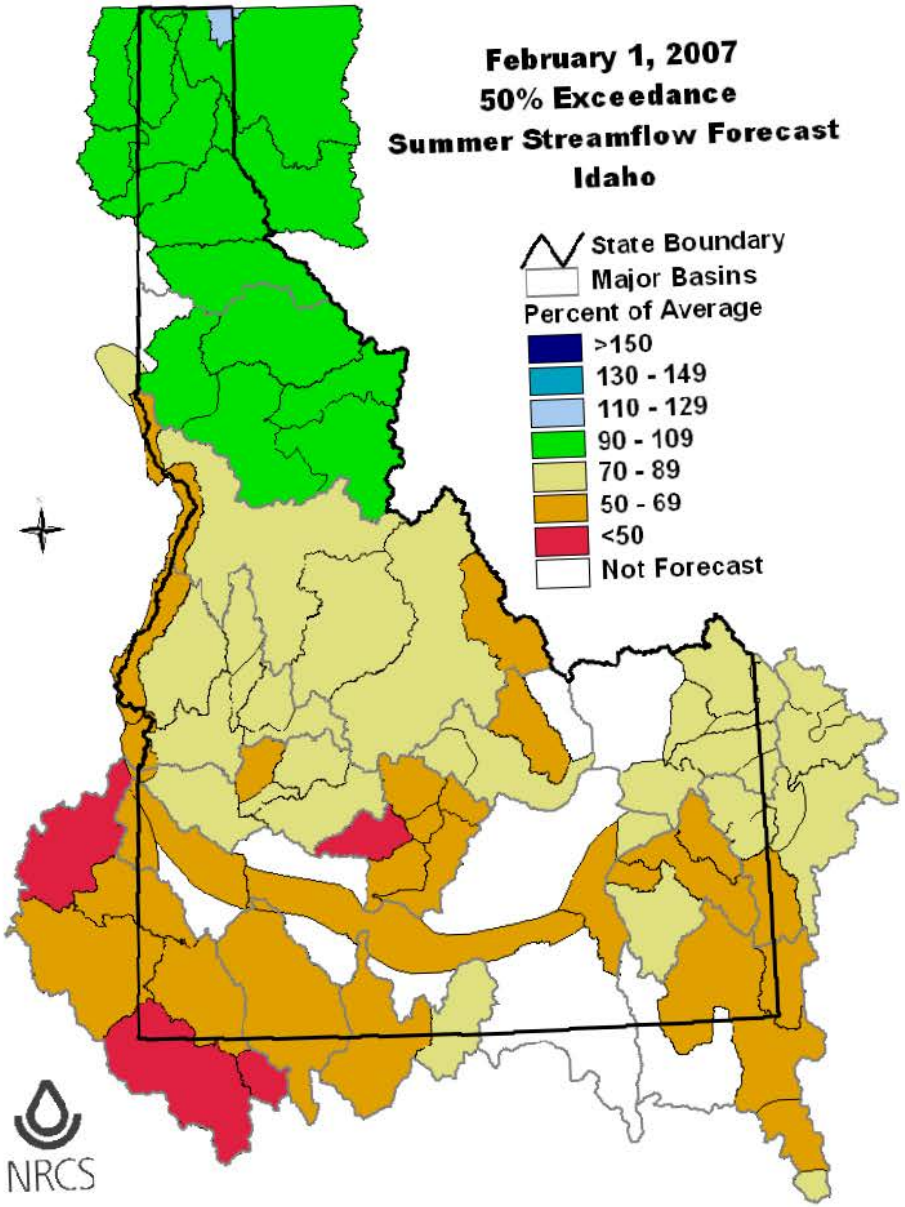
NRCS Natural Resources Conservation Service





NRCS Natural Resources Conservation Service

SNOTEL Snowpack Summary Report *for February 14, 2007*		
Region or Basin	February 14, 2007 SWE as % of Average	February 14, 2007 SWE as % of Seasonal Peak
IDAHO PANHANDLE REGION	83	62
CLEARWATER BASIN	80	59
SALMON BASIN	75	52
WEISER BASIN	74	54
PAYETTE BASIN	74	53
BOISE BASIN	69	50
BIG WOOD BASIN	67	49
LITTLE WOOD BASIN	61	42
BIG LOST BASIN	61	41
LITTLE LOST, BIRCH BASINS	73	47
MEDICINE LODGE, BEAVER, CAMAS BASINS	72	49
HENRYS FORK, TETON BASINS	73	52
SNAKE BASIN ABOVE PALISADES	72	50
WILLOW, BLACKFOOT, PORTNEUF BASINS	66	48
OAKLEY BASIN	77	56
SALMON FALLS BASIN	67	48
BRUNEAU BASIN	63	46
OWYHEE BASIN	49	36
BEAR RIVER BASIN	63	44

SWE = Snow Water Equivalent

NRCS Natural Resources Conservation Service

SNOTEL Precipitation Summary Report for January & February		
Region or Basin	January Precipitation % of Average	Feb 1 -14 Precipitation as % of Monthly Total
PANHANDLE REGION	75	20
CLEARWATER BASIN	71	25
SALMON BASIN	41	32
WEISER BASIN	31	35
PAYETTE BASIN	34	32
BOISE BASIN	32	26
BIG WOOD BASIN	27	21
LITTLE WOOD BASIN	29	24
BIG LOST BASIN	27	22
LITTLE LOST, BIRCH BASINS	39	44
MEDICINE LODGE, BEAVER, CAMAS BASINS	40	46
HENRYS FORK, TETON BASINS	46	49
SNAKE BASIN ABOVE PALISADES	54	42
WILLOW, BLACKFOOT, PORTNEUF BASINS	41	34
OAKLEY BASIN	44	32
SALMON FALLS BASIN	38	20
BRUNEAU BASIN	33	21
OWYHEE BASIN	26	27
BEAR RIVER BASIN	39	37

NRCS Natural Resources Conservation Service

IDAHO RESERVOIR STORAGE

Usable Contents

Reservoir or Basin	Percent of Capacity January 31, 2006	Percent of Average January 31, 2006
Coeur d' Alene	26	53
Bear Lake	37	59
Salmon Falls	40	132
Blackfoot	48	77
Oakley	53	141
Magic	60	135
Mackay	61	98
Boise (3)	62	107
Owyhee	65	107
Dworshak	69	110
Payette (2)	70	111
American Falls	72	107
Palisades & Jackson (2)	72	106
Little Wood	82	151

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Idaho Surface Water Supply Index (SWSI)

For January 1 and February 1, 2007

BASIN or/ REGION	January SWSI Value	February SWSI Value	Recent Years With Similar *February* SWSI Value	Agricultural Water Supply Shortage May Occur When SWSI is Less Than
PANHANDLE	-1.1	-0.5	1983	NA
CLEARWATER	-1.3	0.1	2003	NA
SALMON	0.2	-0.5	2002/2003	NA
WEISER	0.2	-1.4	2005	NA
PAYETTE	0.0	-0.9	2004	NA
BOISE	0.2	-0.5	2003	-2.0
BIG WOOD	-0.2	-0.7	2000	-0.2
LITTLE WOOD	0.5	-0.7	1981	-1.8
BIG LOST	0.0	-1.1	2005	-0.2
LITTLE LOST	0.5	-2.0	2000	-0.5
HENRYS FORK	-0.1	-1.3	2005	-3.3
SNAKE –Heise	0.0	-0.9	1993	-1.8
OAKLEY	1.1	0.2	1996	-1.0
SALMON FALLS	0.9	0.1	1995	-1.5
BRUNEAU	-1.1	-1.1	2004	NA
BEAR RIVER	-1.7	-1.8	2002	-3.3

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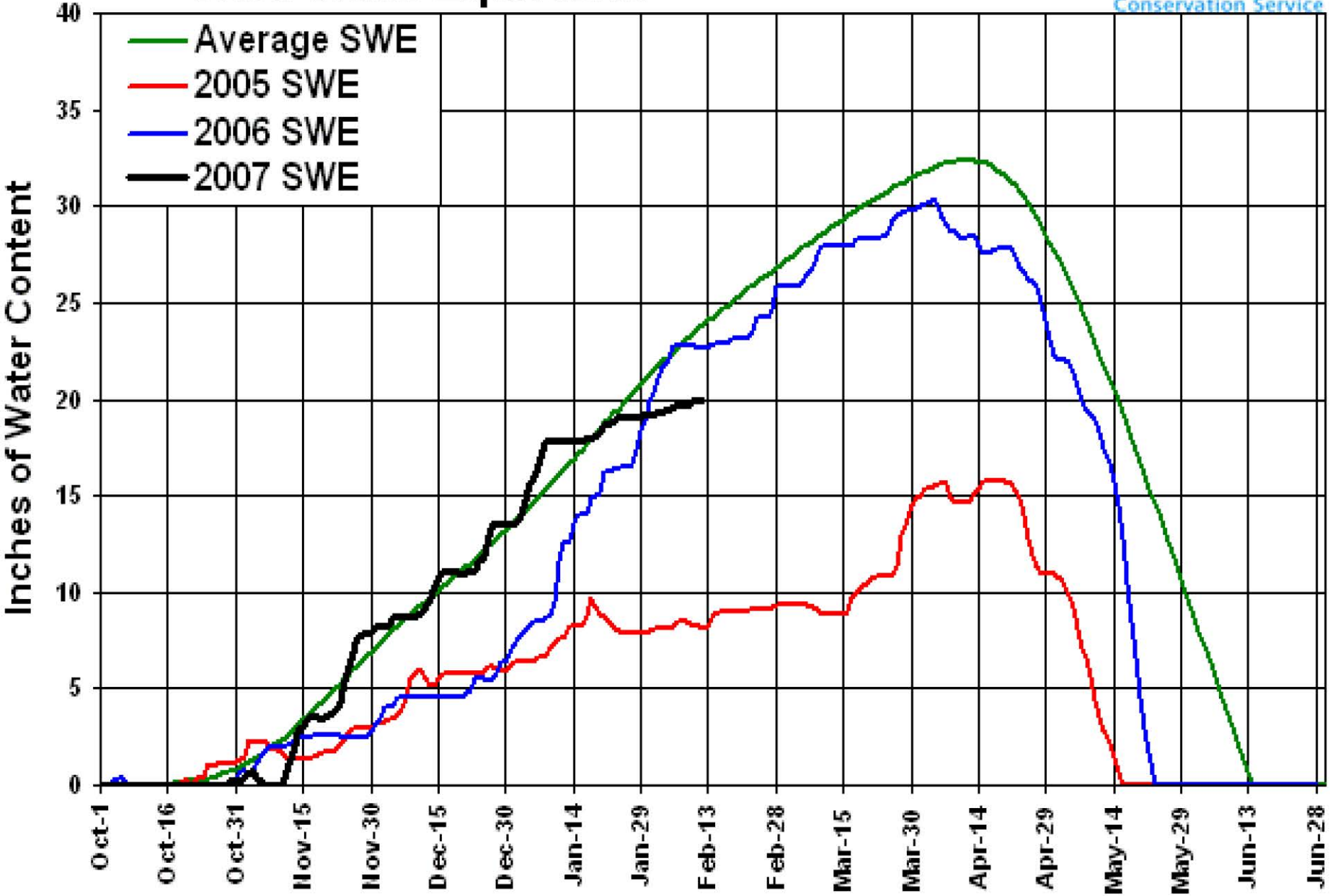
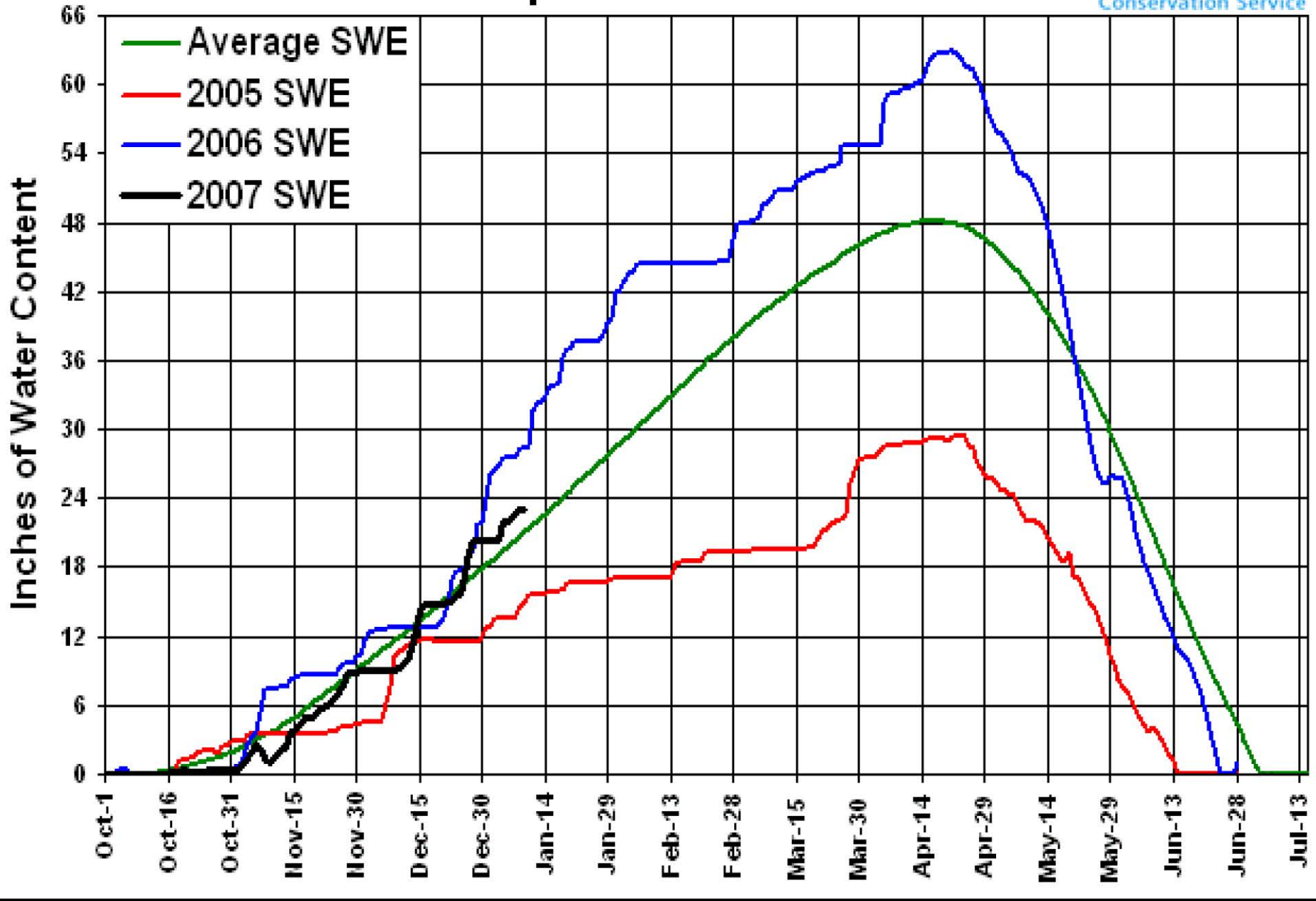
Lookout Pass SNOTEL El. 5140
Snow Water Equivalent

NRCS
Natural Resources Conservation Service



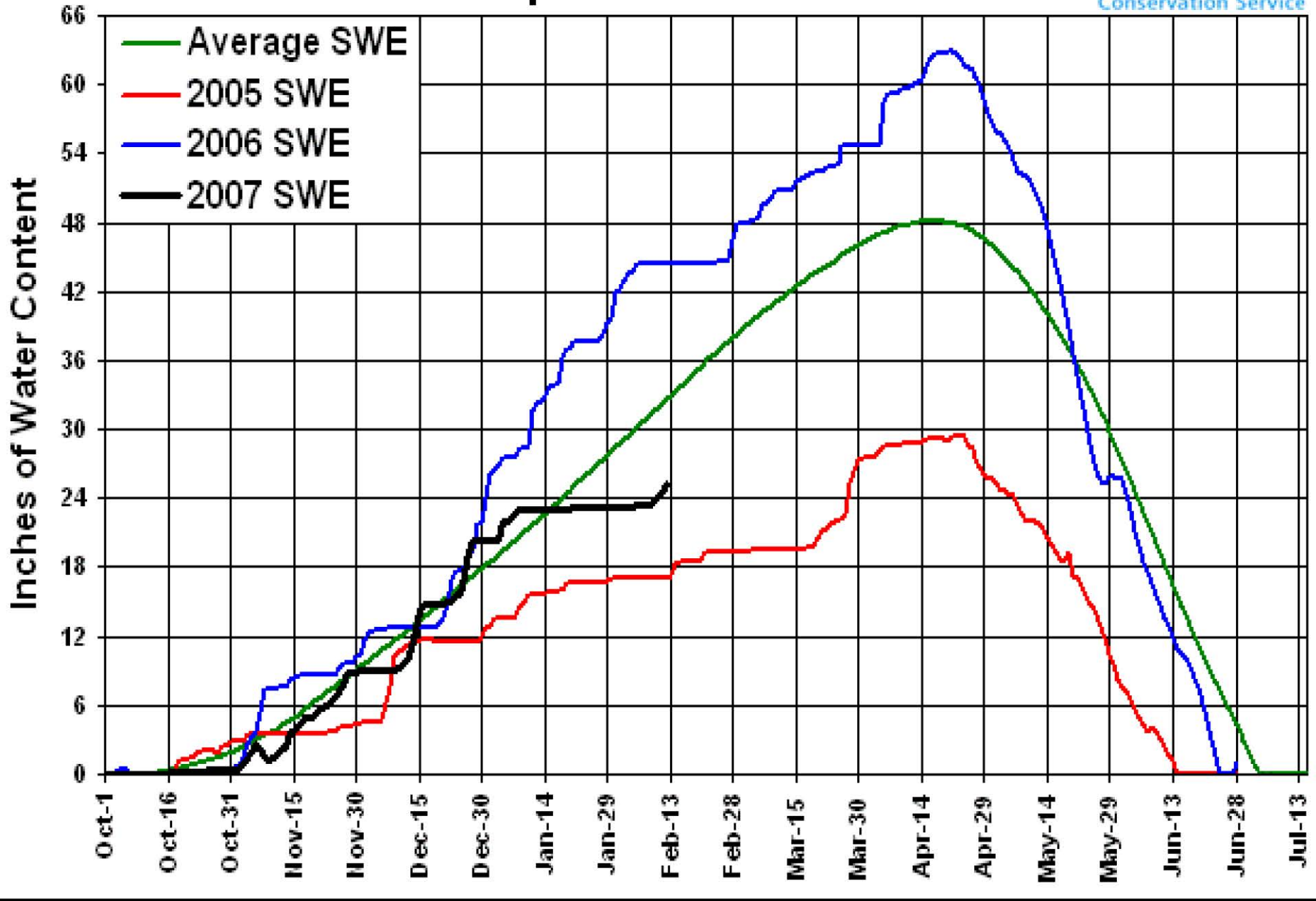
Deadwood Summit SNOTEL El. 6860
Snow Water Equivalent

NRCS
Natural Resources Conservation Service



Deadwood Summit SNOTEL El. 6860
Snow Water Equivalent

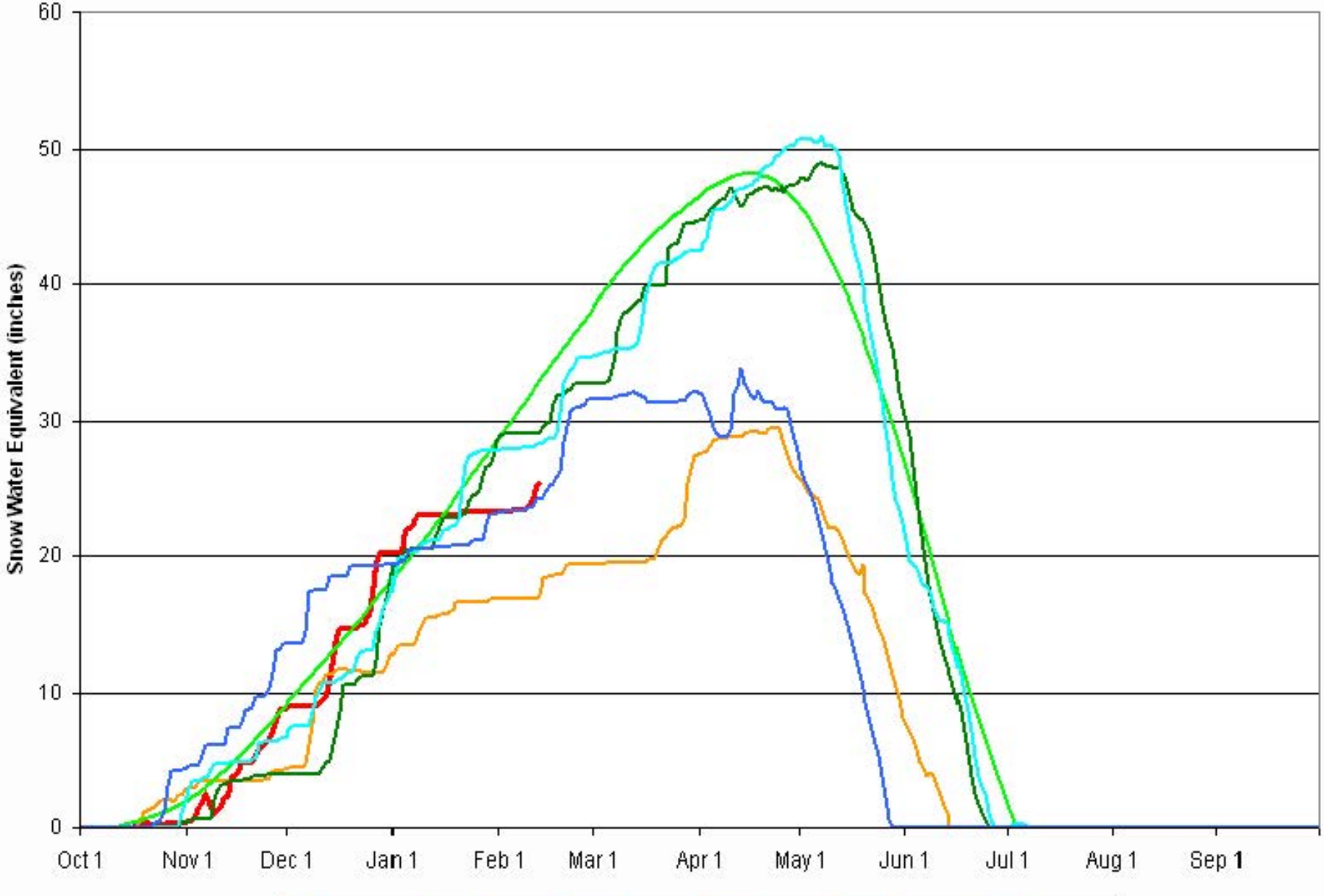
NRCS
Natural Resources Conservation Service



NRCS
Natural Resources Conservation Service

DEADWOOD SUMMIT SNOTEL

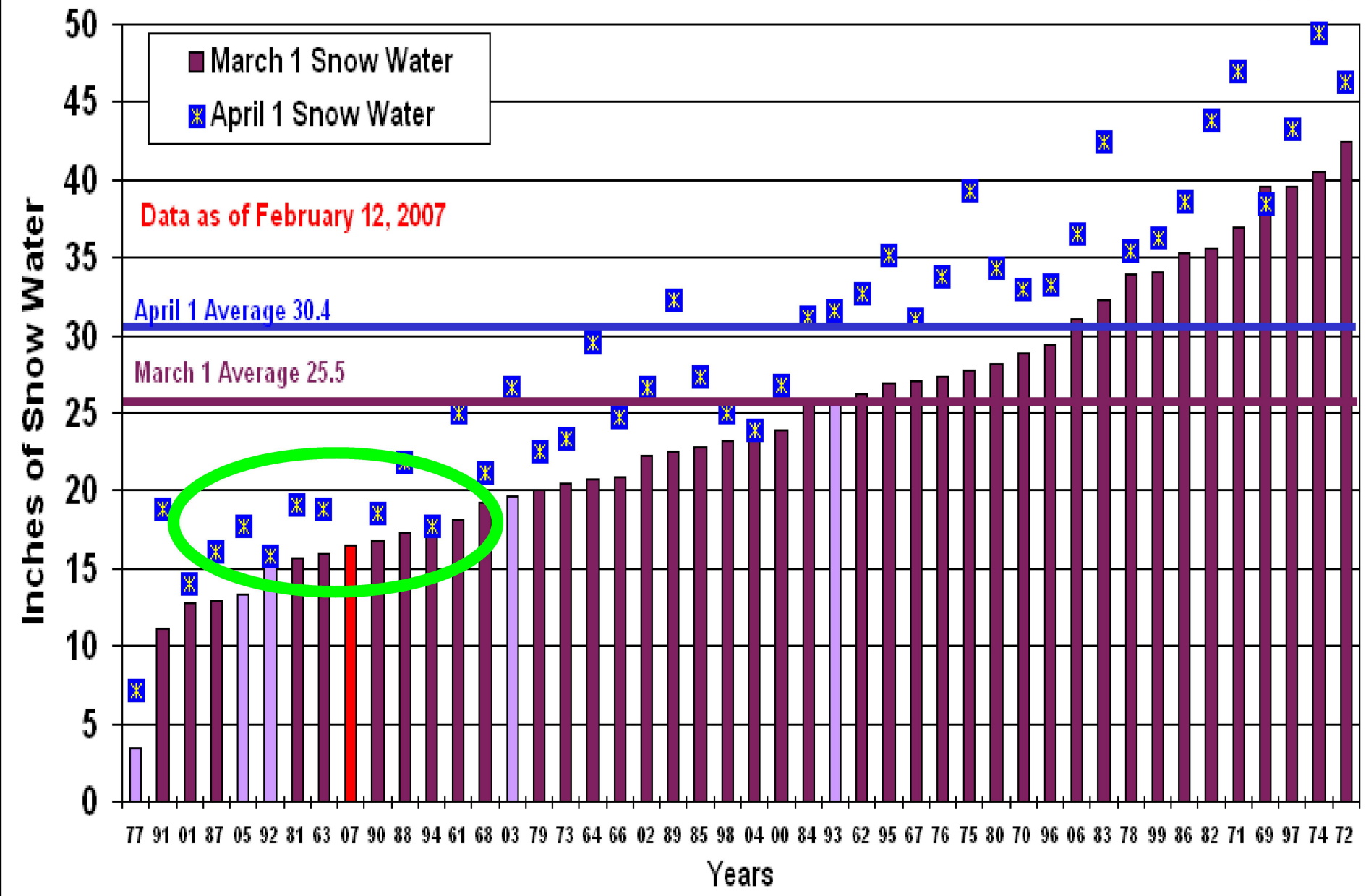
2007 - Mild el Nino
All Others are Mild el Nino Years



Boise Basin 7 Station Snow Index for Years 1961 -2007

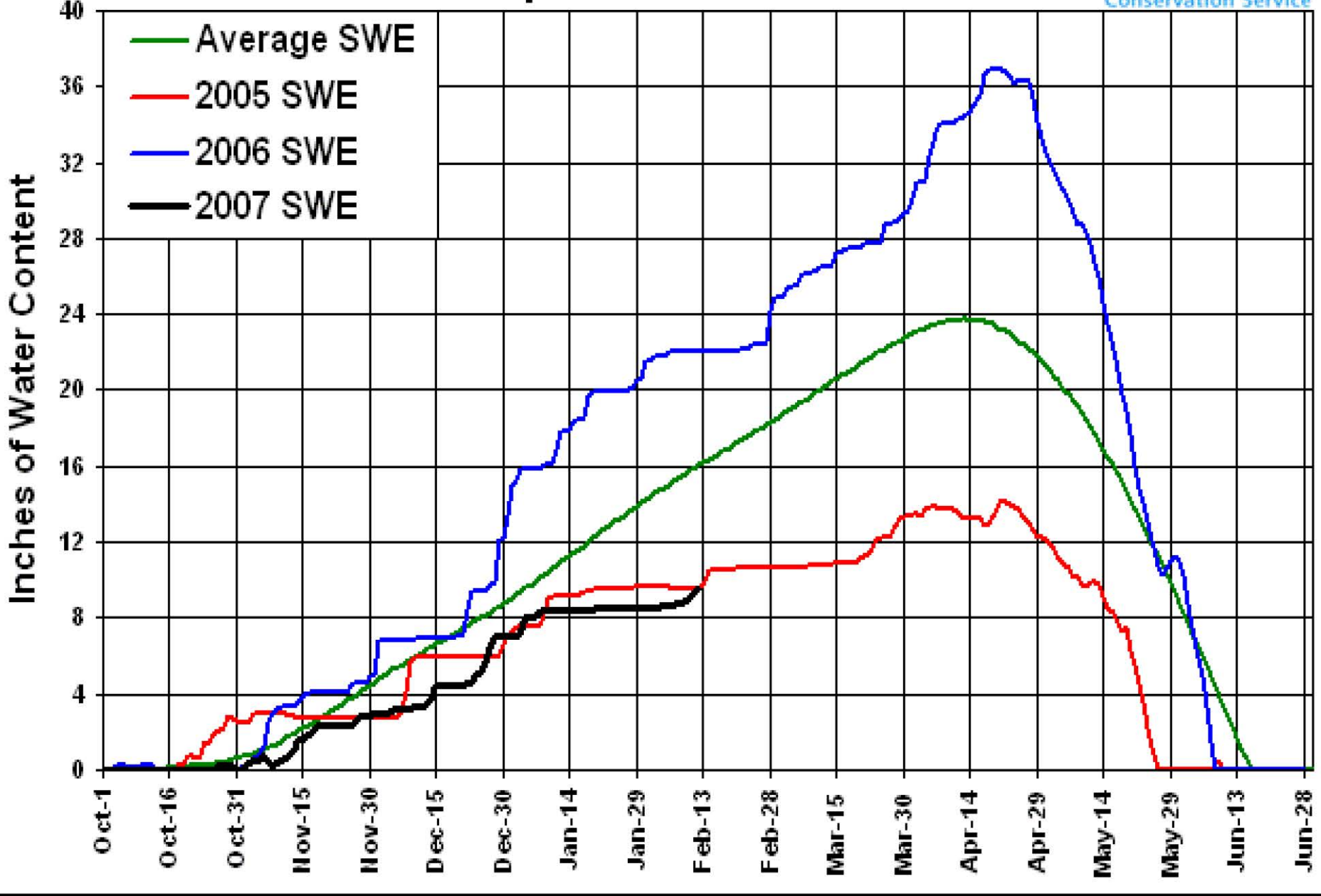
Atlanta, Dollarhide, Graham, Jackson, Mores Creek, Trinity Mountain, Vienna Mine

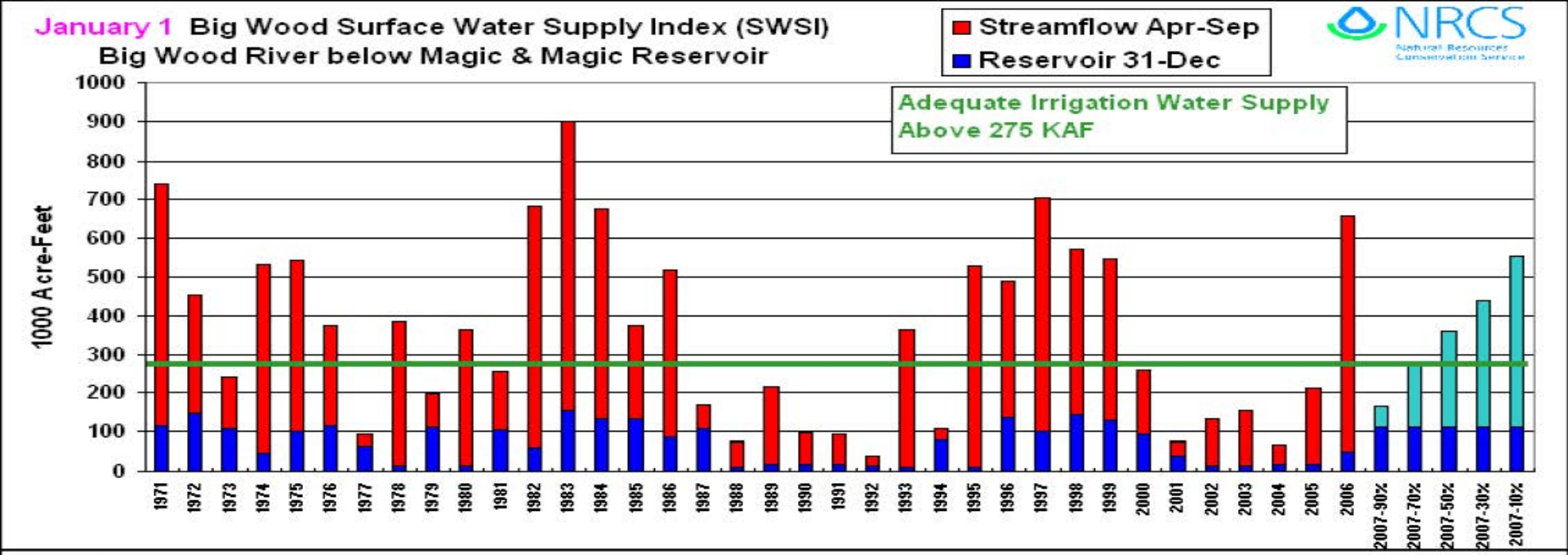
NRCS Natural Resources Conservation Service

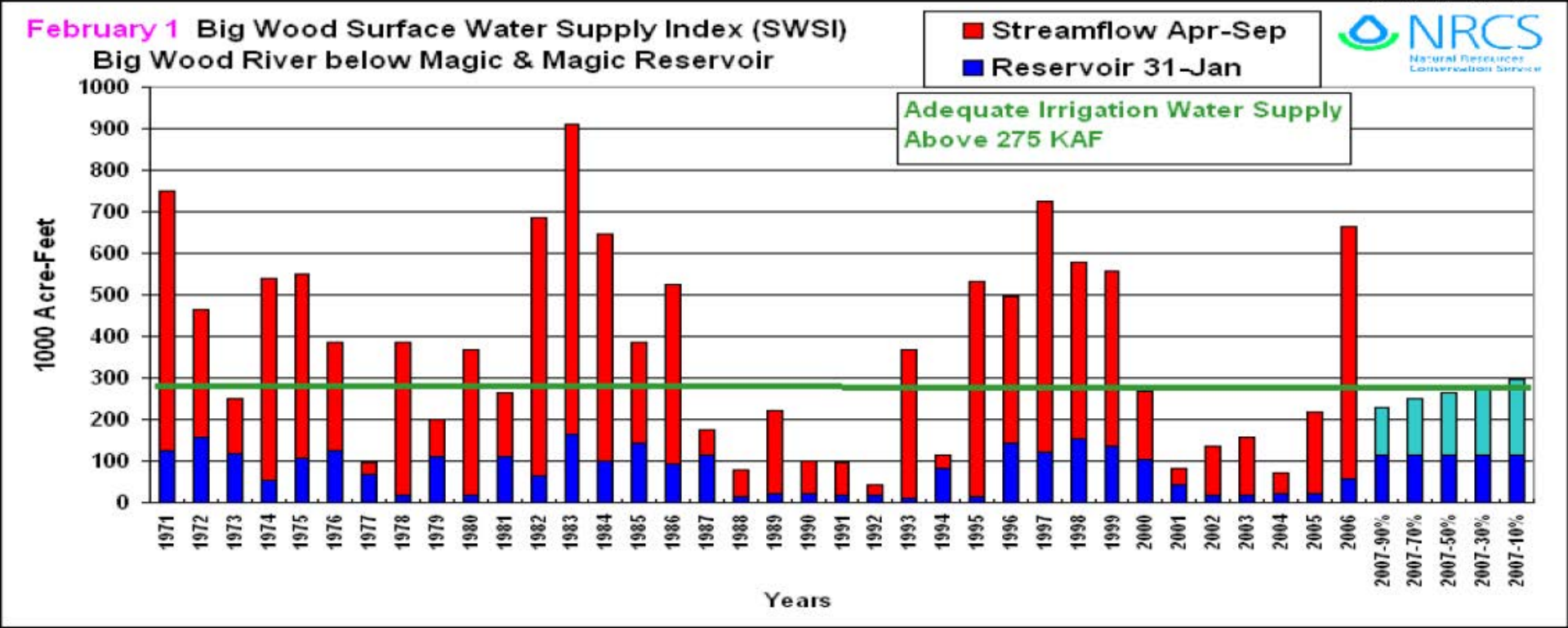


Lost - Wood Divide SNOTEL El. 7900
Snow Water Equivalent

NRCS
Natural Resources Conservation Service

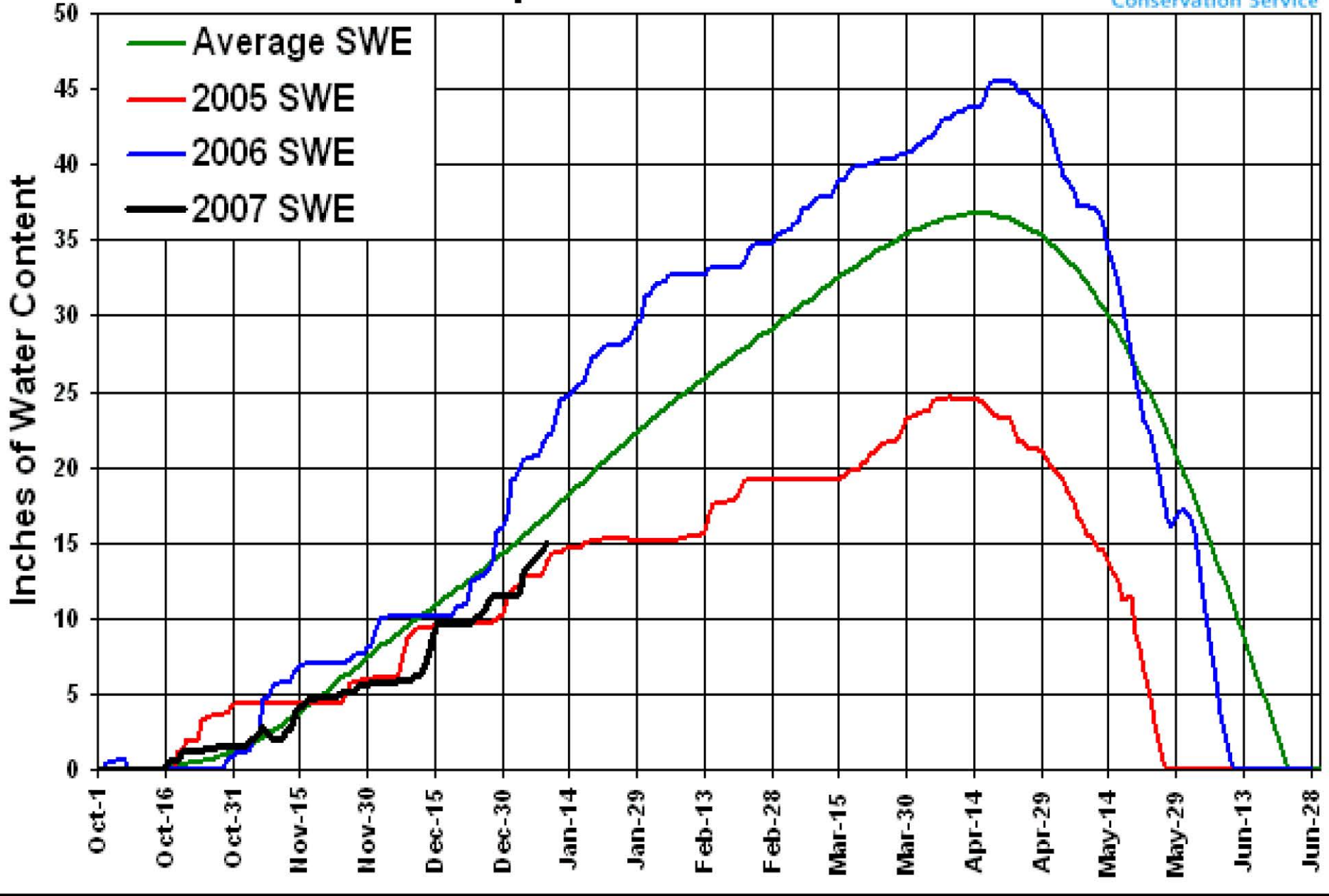



January 1 Big Wood Surface Water Supply Index (SWSI)
Big Wood River below Magic & Magic Reservoir
Streamflow Apr-Sep
Reservoir 31-Dec
NRCS
Natural Resources Conservation Service
Adequate Irrigation Water Supply
Above 275 KAF
1000 Acre-Feet
1000
900
800
700
600
500
400
300
200
100
0
1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007-90% 2007-70% 2007-50% 2007-30% 2007-10%


February 1 Big Wood Surface Water Supply Index (SWSI)
Big Wood River below Magic & Magic Reservoir
Streamflow Apr-Sep
Reservoir 31-Jan
NRCS
Natural Resources Conservation Service
Adequate Irrigation Water Supply
Above 275 KAF
1000 Acre-Feet
1000
900
800
700
600
500
400
300
200
100
0
1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007-90% 2007-70% 2007-50% 2007-30% 2007-10%
Years

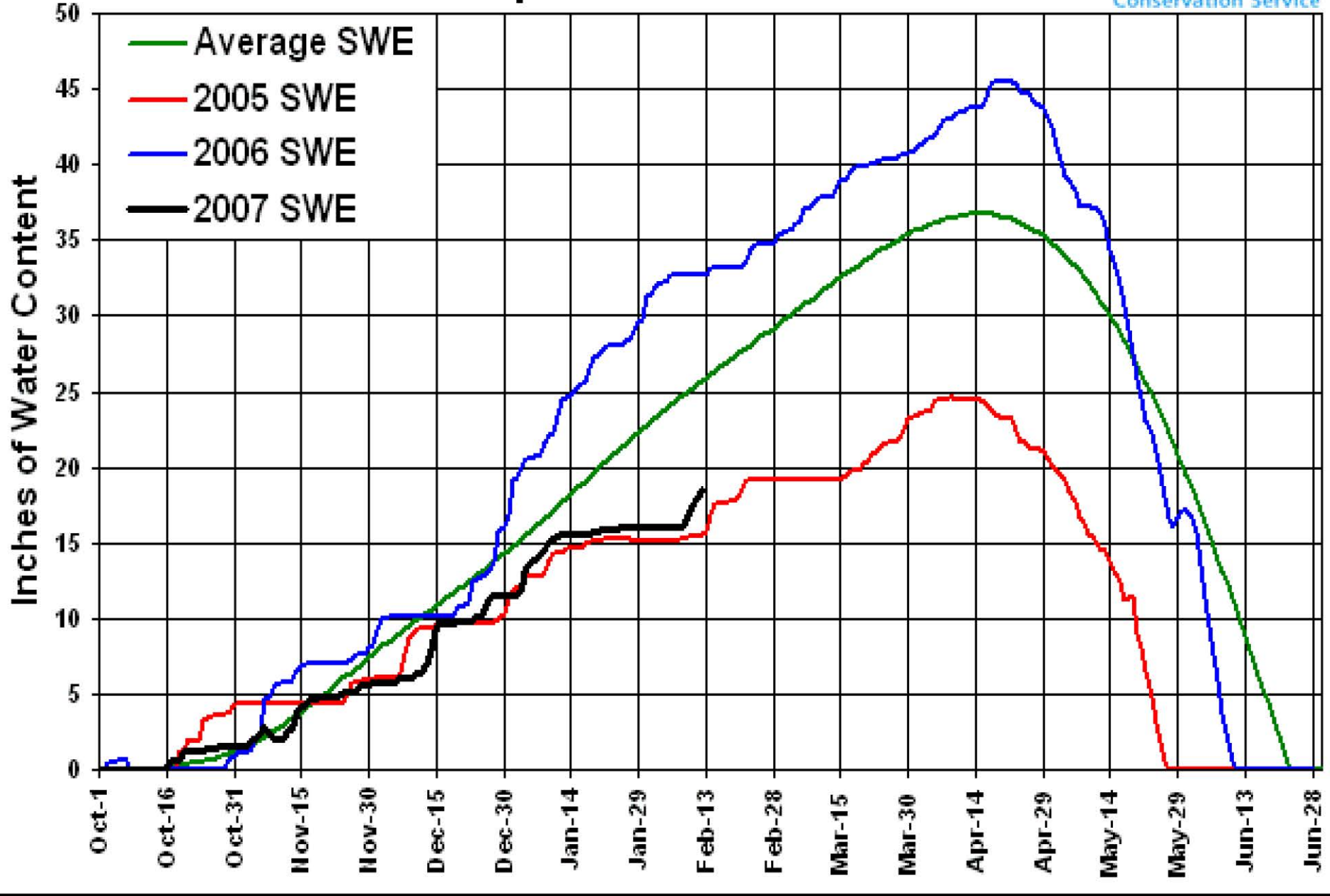
Lewis Lake Divide SNOTEL El. 7850
Snow Water Equivalent

NRCS
Natural Resources Conservation Service

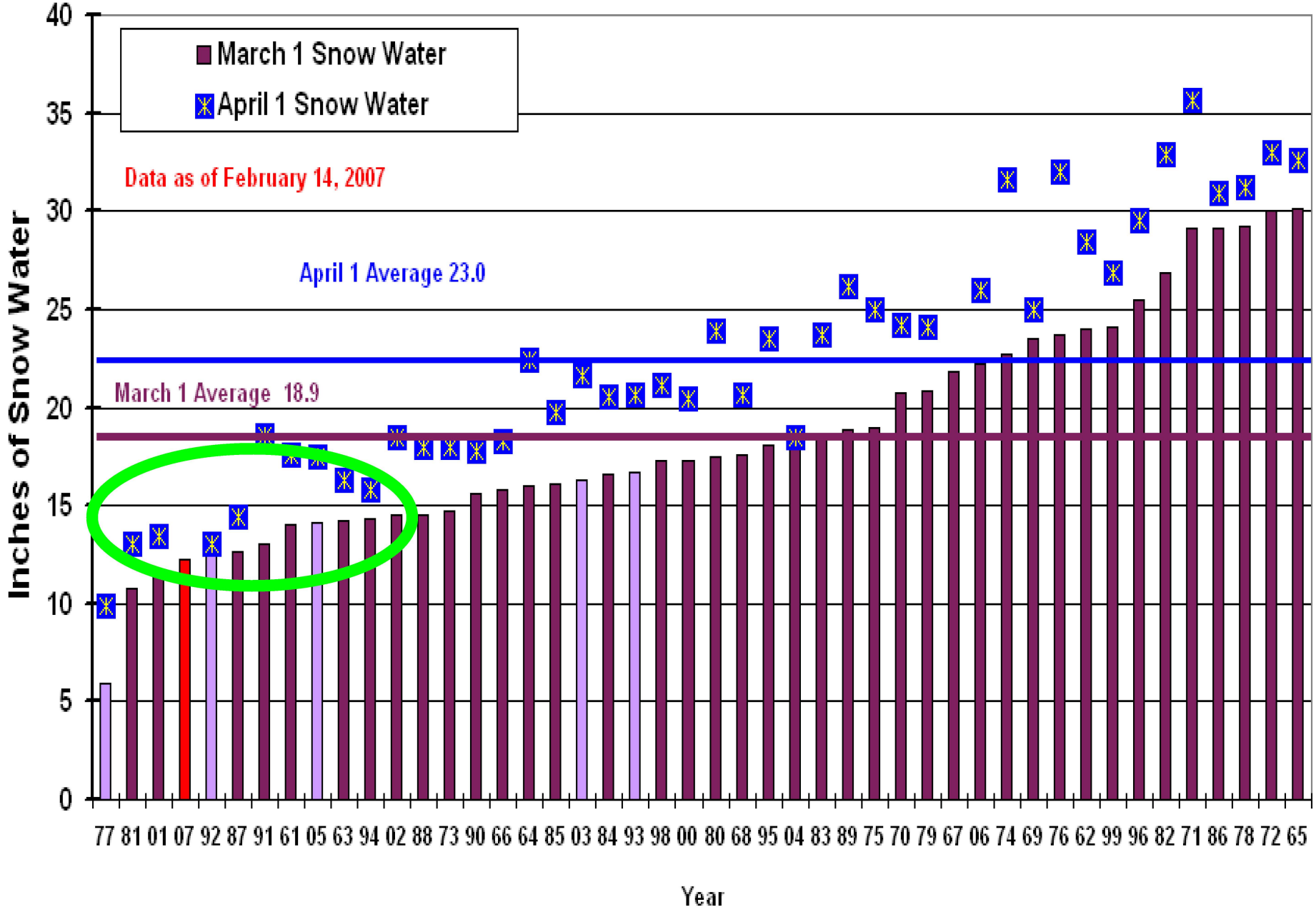


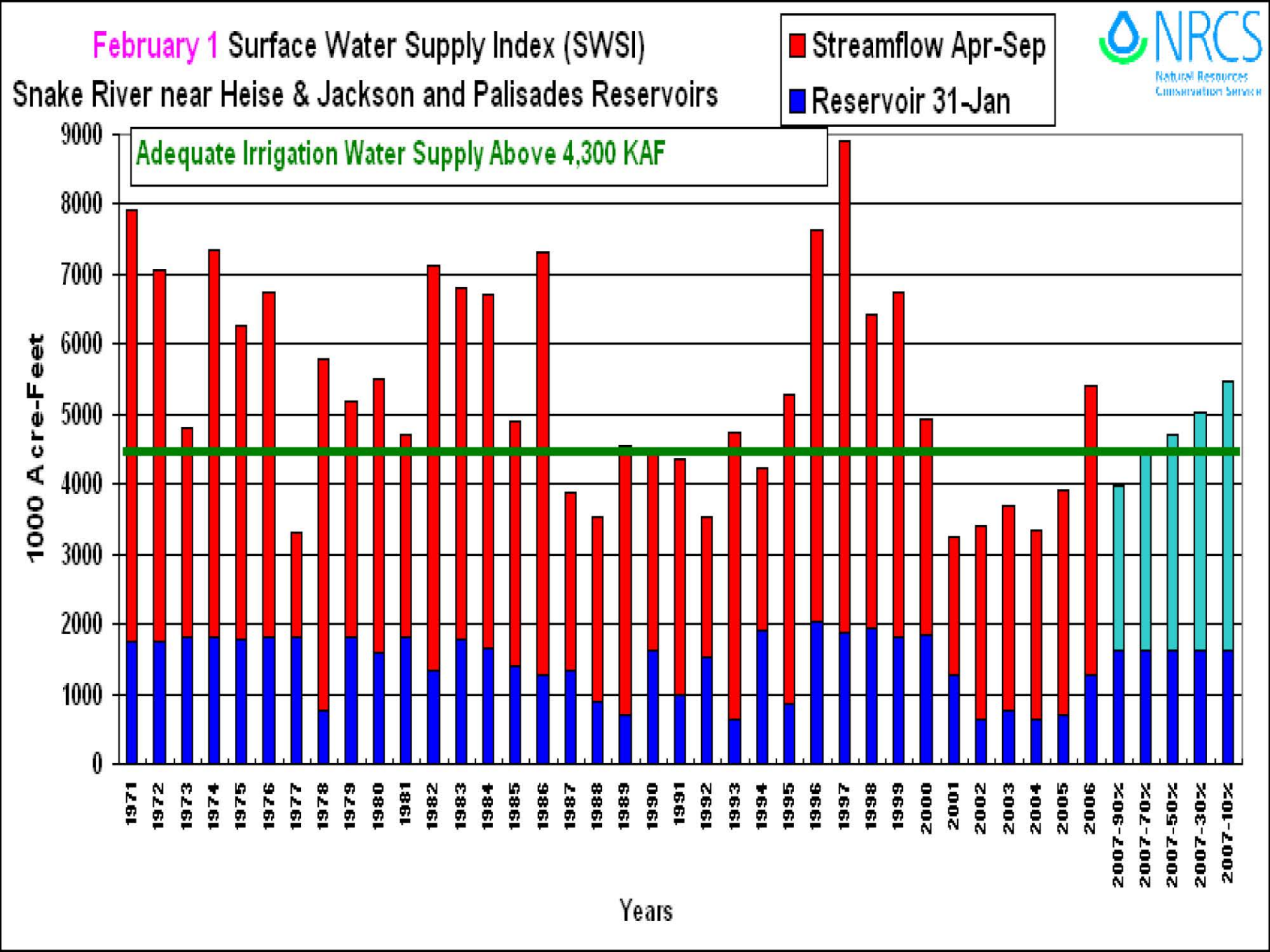
Lewis Lake Divide SNOTEL El. 7850
Snow Water Equivalent

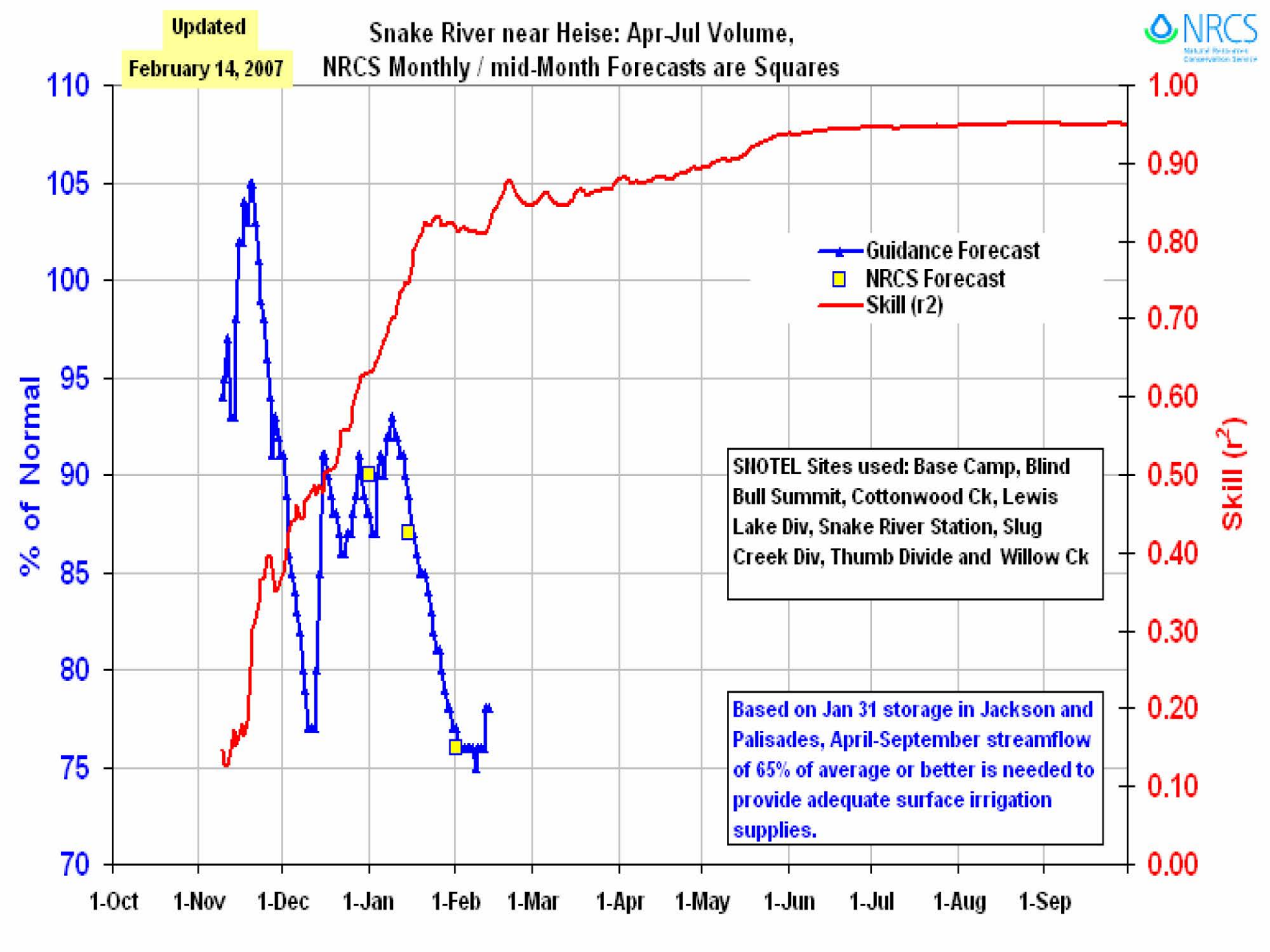
NRCS
Natural Resources Conservation Service



17 Station March Snow Index for Snake River Basin above Heise, ID 1961-2006




February 1 Surface Water Supply Index (SWSI)
Snake River near Heise & Jackson and Palisades Reservoirs
Streamflow Apr-Sep
Reservoir 31-Jan
NRCS
Natural Resources Conservation Service
Adequate Irrigation Water Supply Above 4,300 KAF
1000 Acre-Feet
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007-90%
2007-70%
2007-50%
2007-30%
2007-10%
Years


Updated
February 14, 2007
Snake River near Heise: Apr-Jul Volume,
NRCS Monthly / mid-Month Forecasts are Squares
NRCS
% of Normal
Skill (r^2)
110
105
100
95
90
85
80
75
70
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
Guidance Forecast
NRCS Forecast
Skill (r2)
SNOTEL Sites used: Base Camp, Blind Bull Summit, Cottonwood Ck, Lewis Lake Div, Snake River Station, Slug Creek Div, Thumb Divide and Willow Ck
Based on Jan 31 storage in Jackson and Palisades, April-September streamflow of 65% of average or better is needed to provide adequate surface irrigation supplies.

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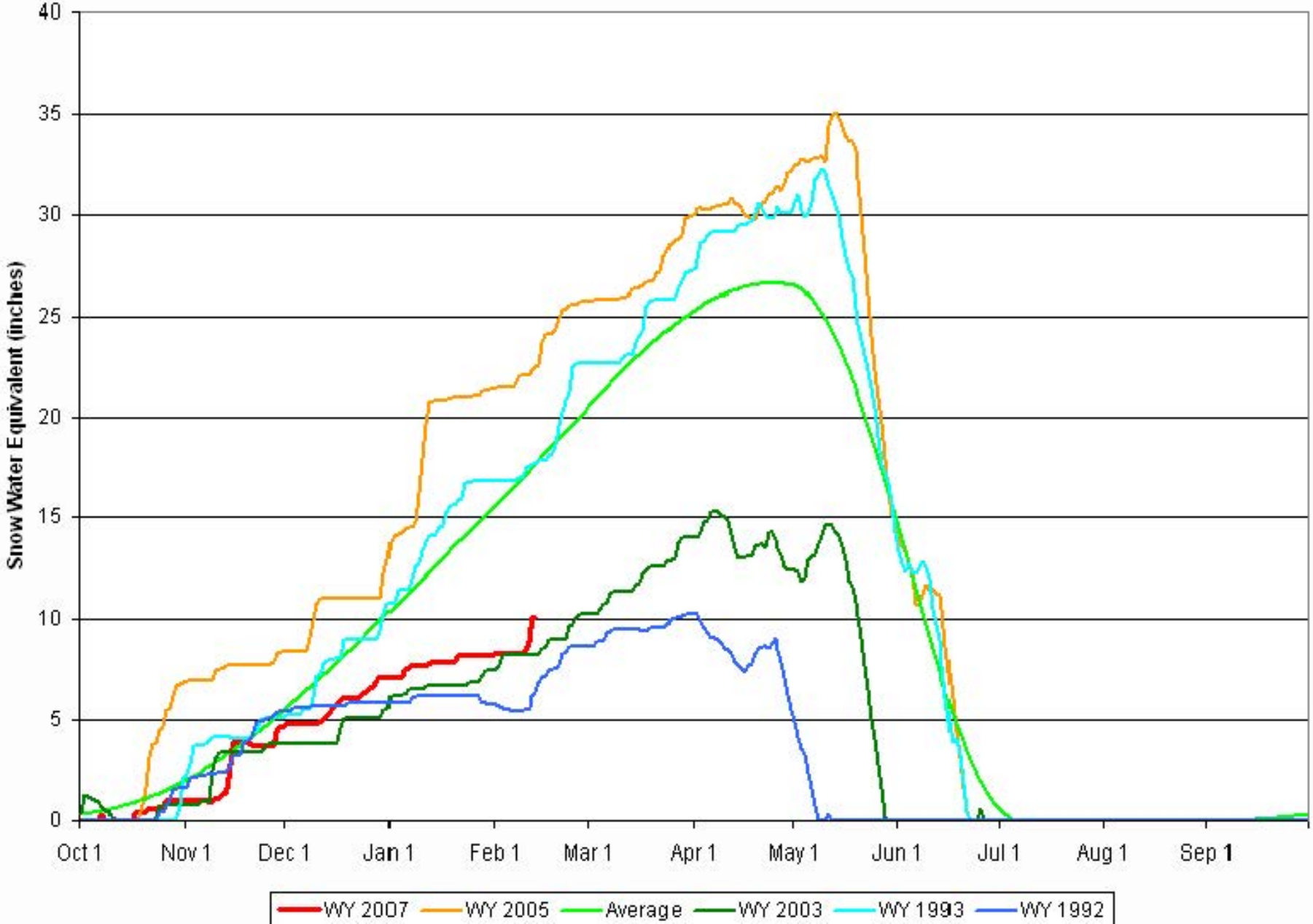
Natural Resources Conservation Service

TRIAL LAKE SNOTEL

2007 - Mild el Nino
All Others are Mild el Nino Years

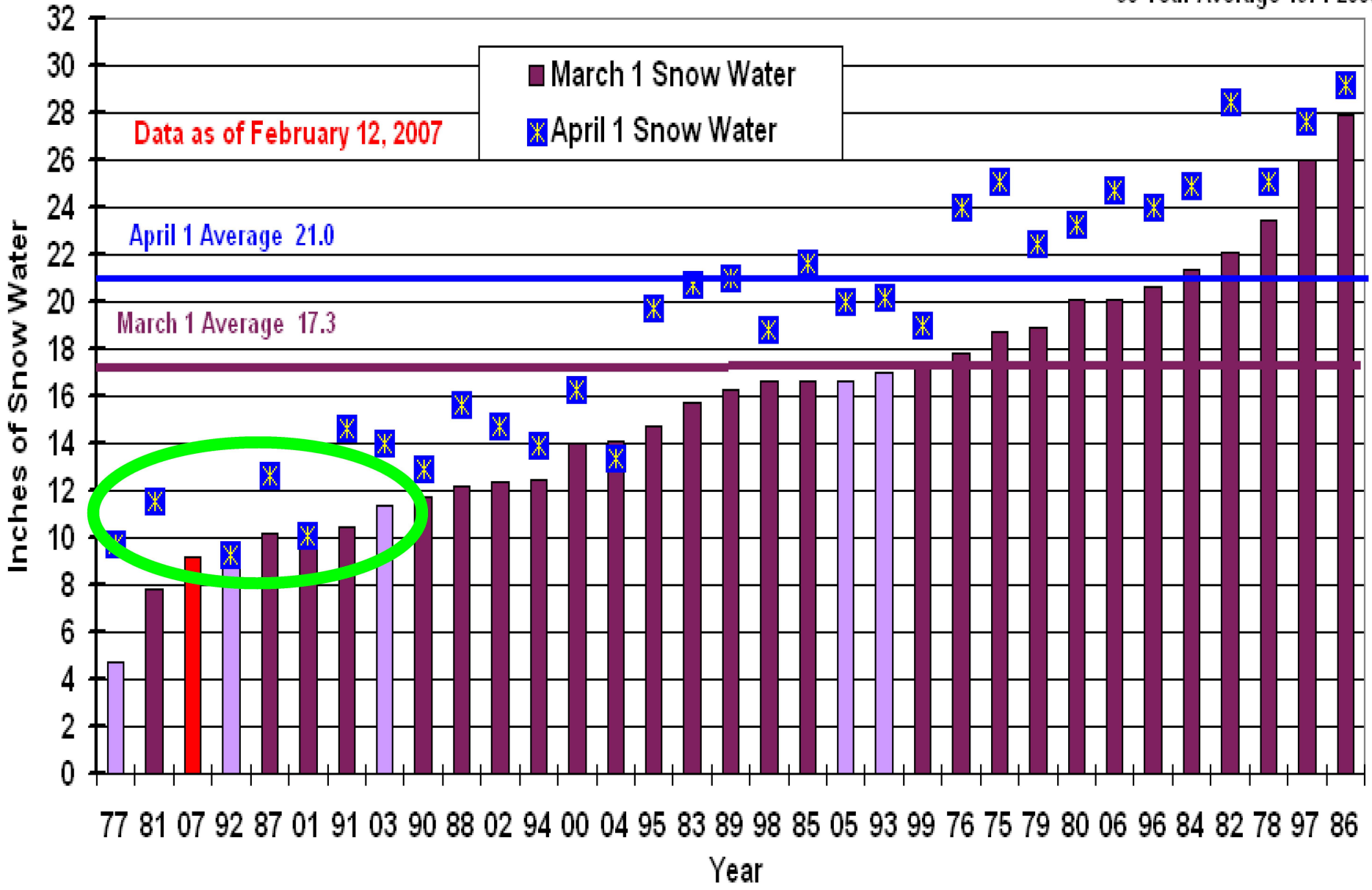


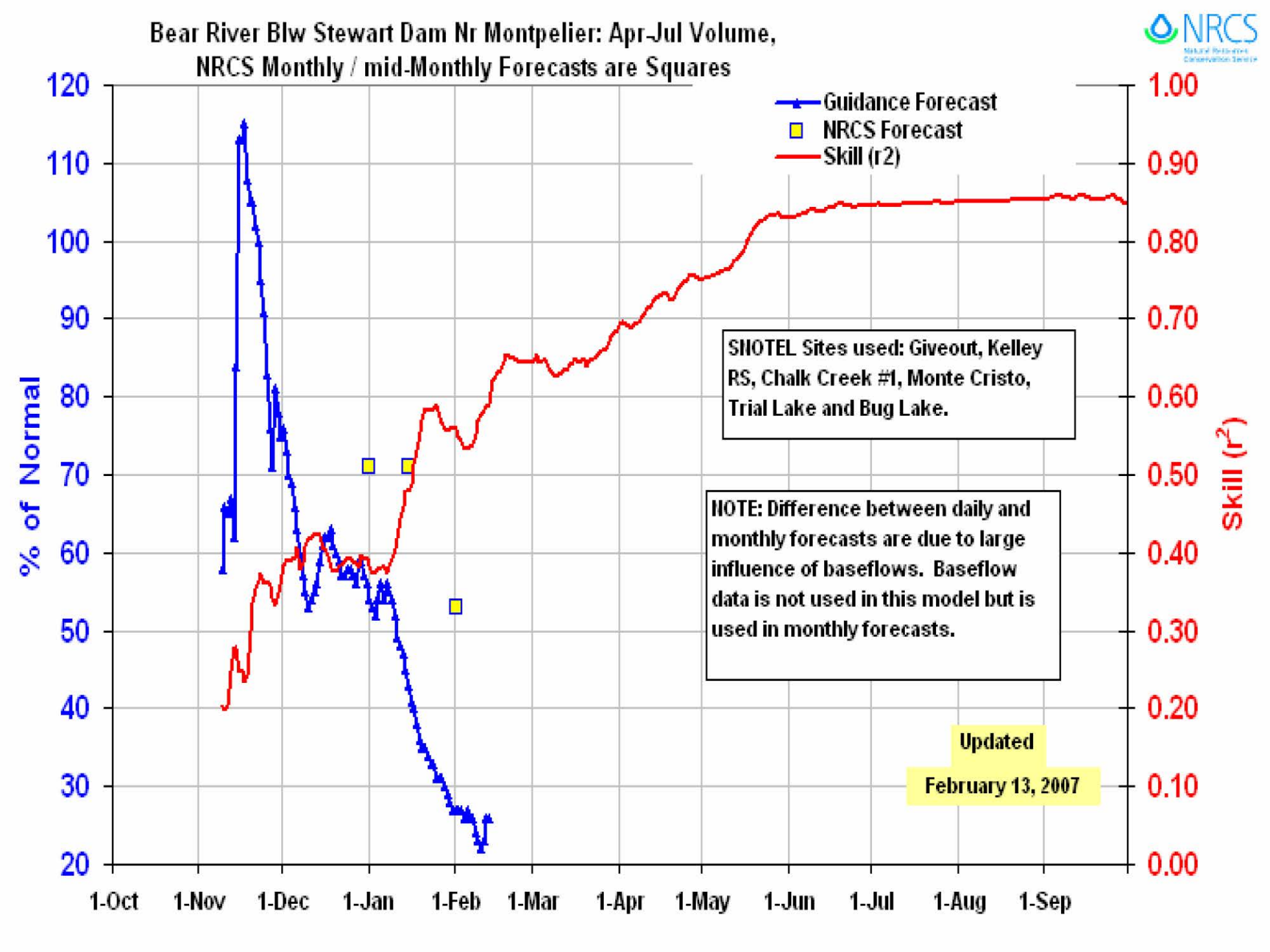
Bear River Basin above Preston 15 Snow Index for Years 1975 - 2007

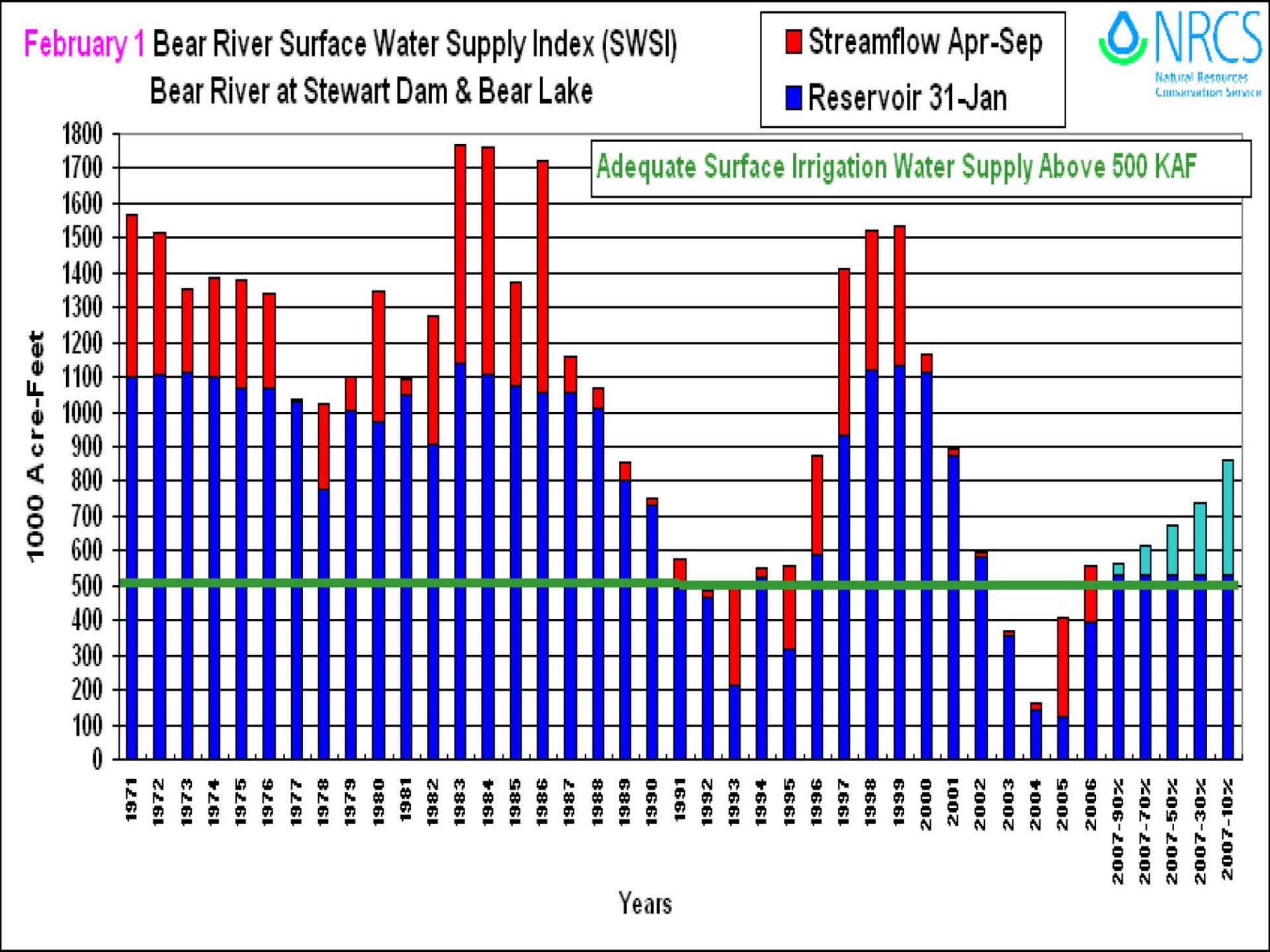
Emigrant, Franklin, Givout, Oxford, Sedgwick, Slug Creek, Bug Lake, Dry Bread Pond, Hayden Fork, Lily Lake, Monte Cristo, Trail Lake, Kelly RS, Salt River, Spring Creek

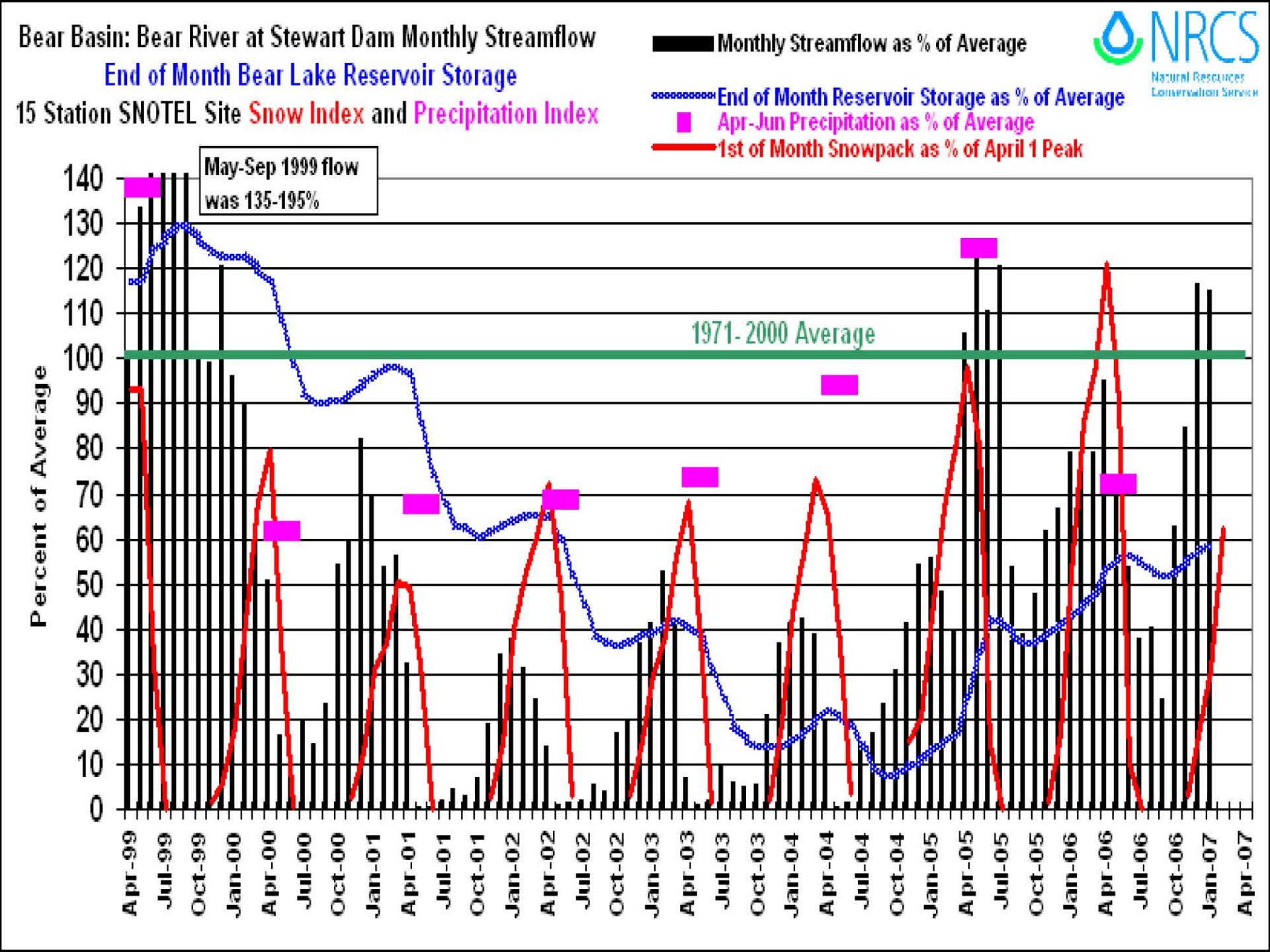
NRCS Natural Resources Conservation Service

30 Year Average 1971-2000




Bear River Blw Stewart Dam Nr Montpelier: Apr-Jul Volume,
NRCS Monthly / mid-Monthly Forecasts are Squares
NRCS
Guidance Forecast
NRCS Forecast
Skill (r2)
% of Normal
Skill (r^2)
120
110
100
90
80
70
60
50
40
30
20
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1-Oct
1-Nov
1-Dec
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
SNOTEL Sites used: Giveout, Kelley RS, Chalk Creek #1, Monte Cristo, Trial Lake and Bug Lake.
NOTE: Difference between daily and monthly forecasts are due to large influence of baseflows. Baseflow data is not used in this model but is used in monthly forecasts.
Updated
February 13, 2007


February 1 Bear River Surface Water Supply Index (SWSI)
Bear River at Stewart Dam & Bear Lake
Streamflow Apr-Sep
Reservoir 31-Jan
NRCS
Natural Resources Conservation Service
Adequate Surface Irrigation Water Supply Above 500 KAF
1000 Acre-Feet
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007-90%
2007-70%
2007-50%
2007-30%
2007-10%
Years


Bear Basin: Bear River at Stewart Dam Monthly Streamflow
End of Month Bear Lake Reservoir Storage
15 Station SNOTEL Site Snow Index and Precipitation Index
Monthly Streamflow as % of Average
End of Month Reservoir Storage as % of Average
Apr-Jun Precipitation as % of Average
1st of Month Snowpack as % of April 1 Peak
NRCS
Natural Resources Conservation Service
May-Sep 1999 flow was 135-195%
1971- 2000 Average
Percent of Average
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Apr-99
Jul-99
Oct-99
Jan-00
Apr-00
Jul-00
Oct-00
Jan-01
Apr-01
Jul-01
Oct-01
Jan-02
Apr-02
Jul-02
Oct-02
Jan-03
Apr-03
Jul-03
Oct-03
Jan-04
Apr-04
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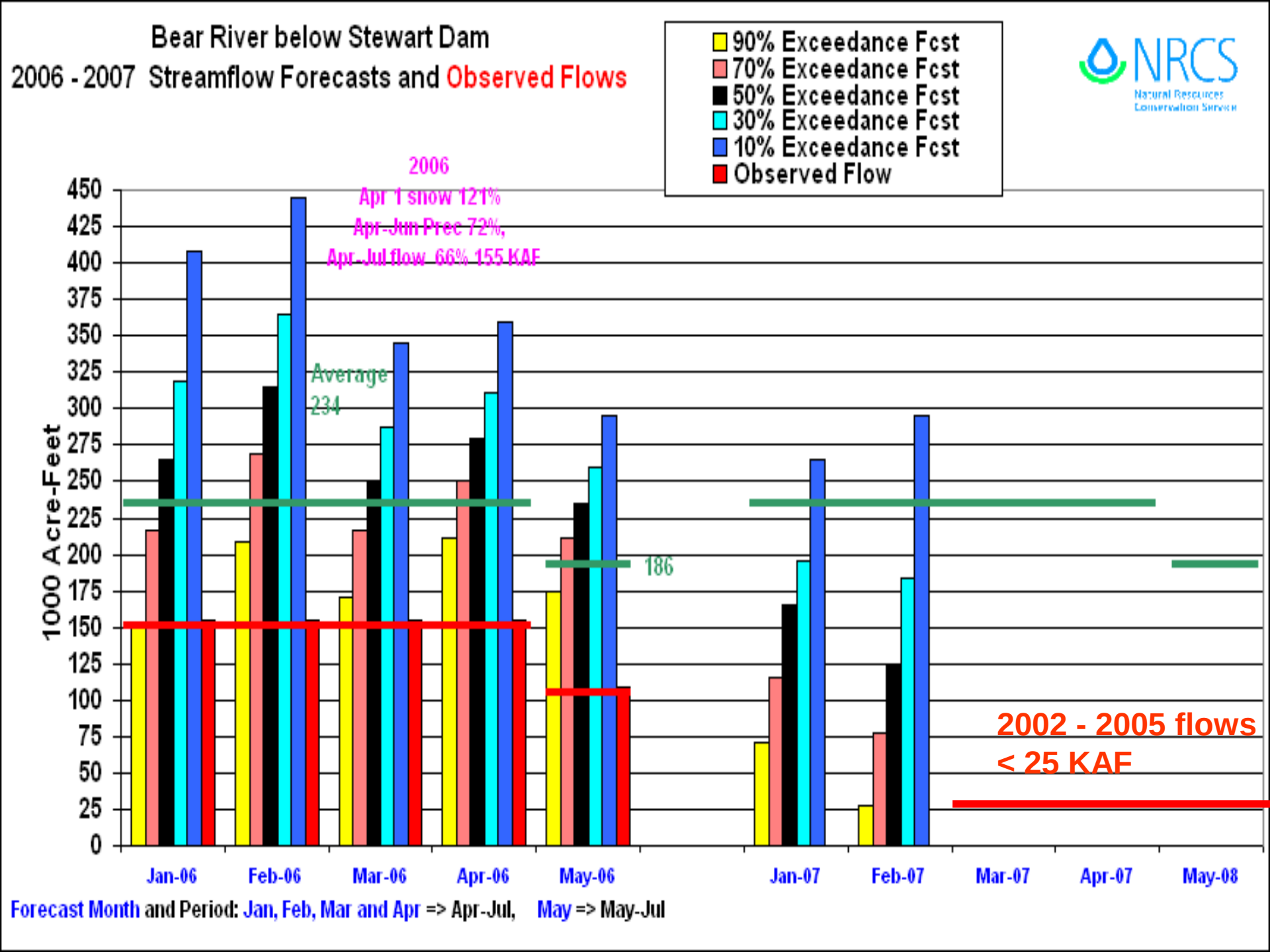
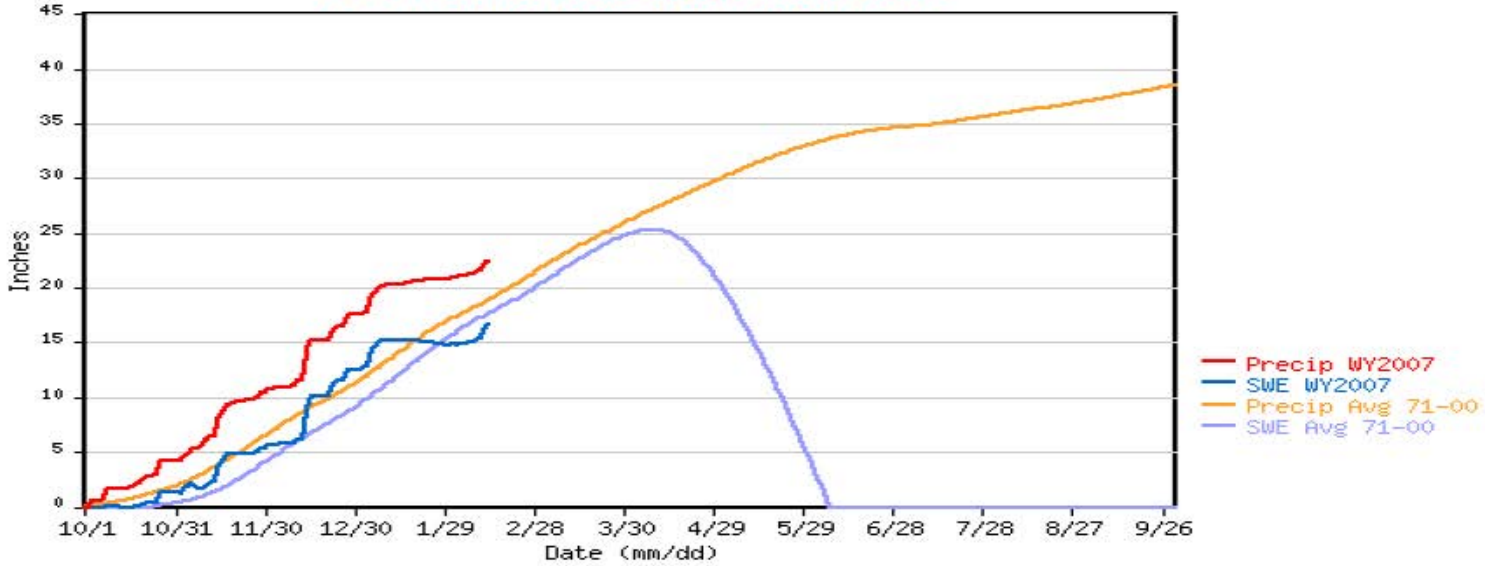
Jul-06
Oct-06
Jan-07
Apr-07


Bear River below Stewart Dam
2006 - 2007 Streamflow Forecasts and Observed Flows
90% Exceedance Fcst
70% Exceedance Fcst
50% Exceedance Fcst
30% Exceedance Fcst
10% Exceedance Fcst
Observed Flow
NRCS
Natural Resources Conservation Service
2006
Apr 1 snow 121%
Apr-Jun Prec 72%,
Apr-Jul flow 66% 155 KAF
Average
234
186
2002 - 2005 flows
< 25 KAF
1000 Acre-Feet
450
425
400
375
350
325
300
275
250
225
200
175
150
125
100
75
50
25
0
Jan-06
Feb-06
Mar-06
Apr-06
May-06
Jan-07
Feb-07
Mar-07
Apr-07
May-08
Forecast Month and Period: Jan, Feb, Mar and Apr => Apr-Jul, May => May-Jul

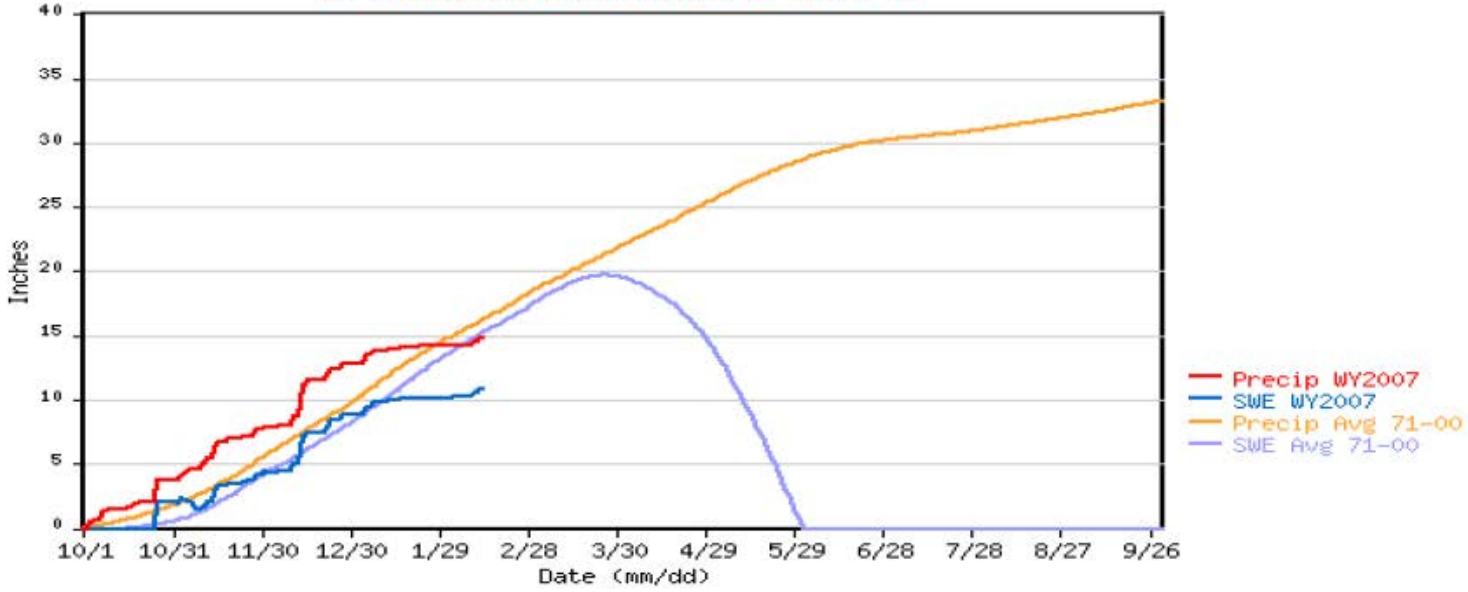
HOWELL CANYON SNOTEL for Water Year 2007

*** Provisional Data, Subject to Change ***



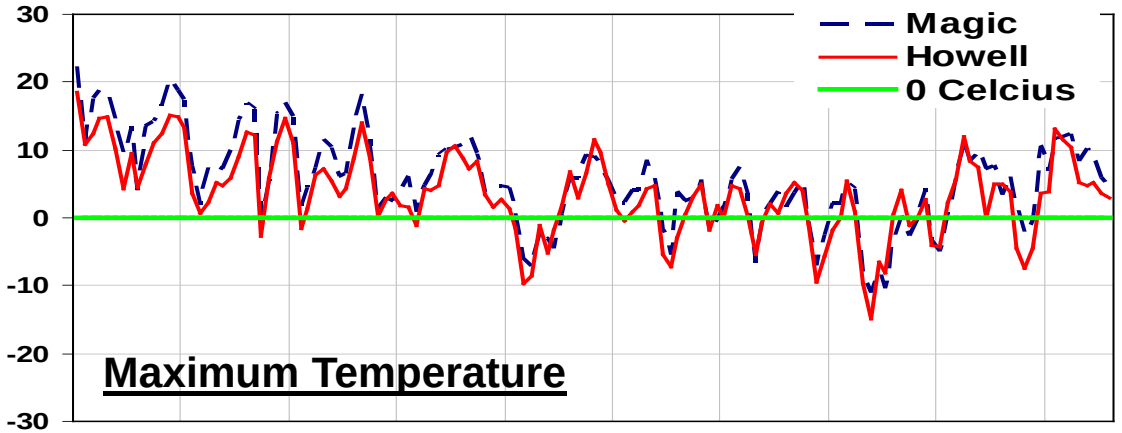
MAGIC MOUNTAIN SNOTEL for Water Year 2007

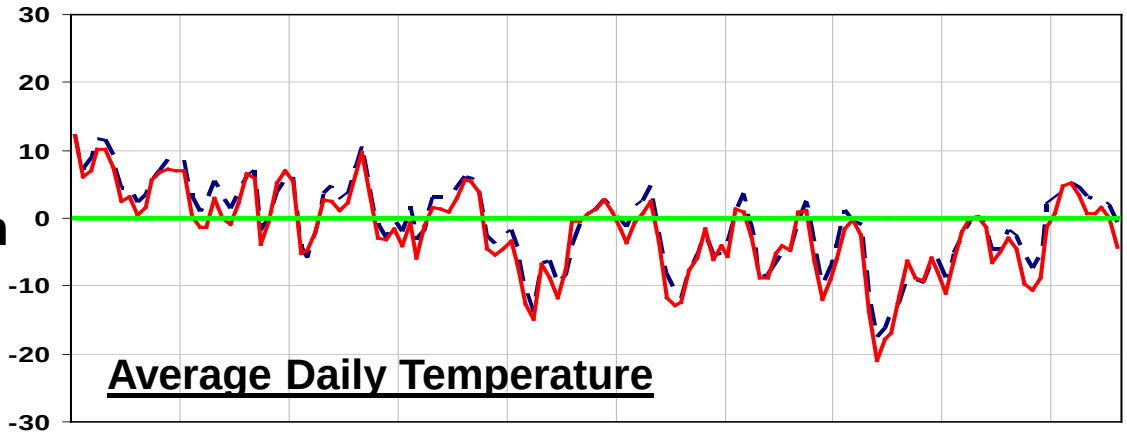
*** Provisional Data, Subject to Change ***

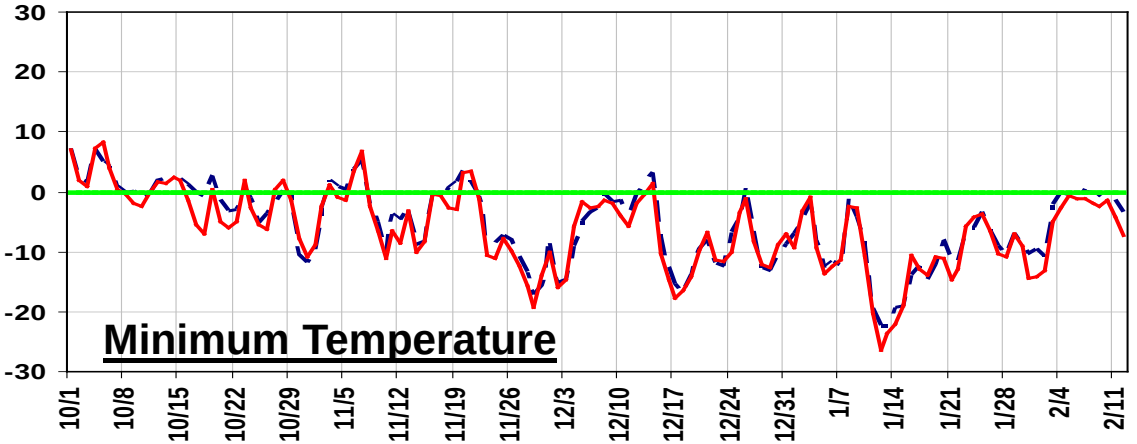


NRCS Natural Resources Conservation Service

Water Year 2007 Air Temperatures



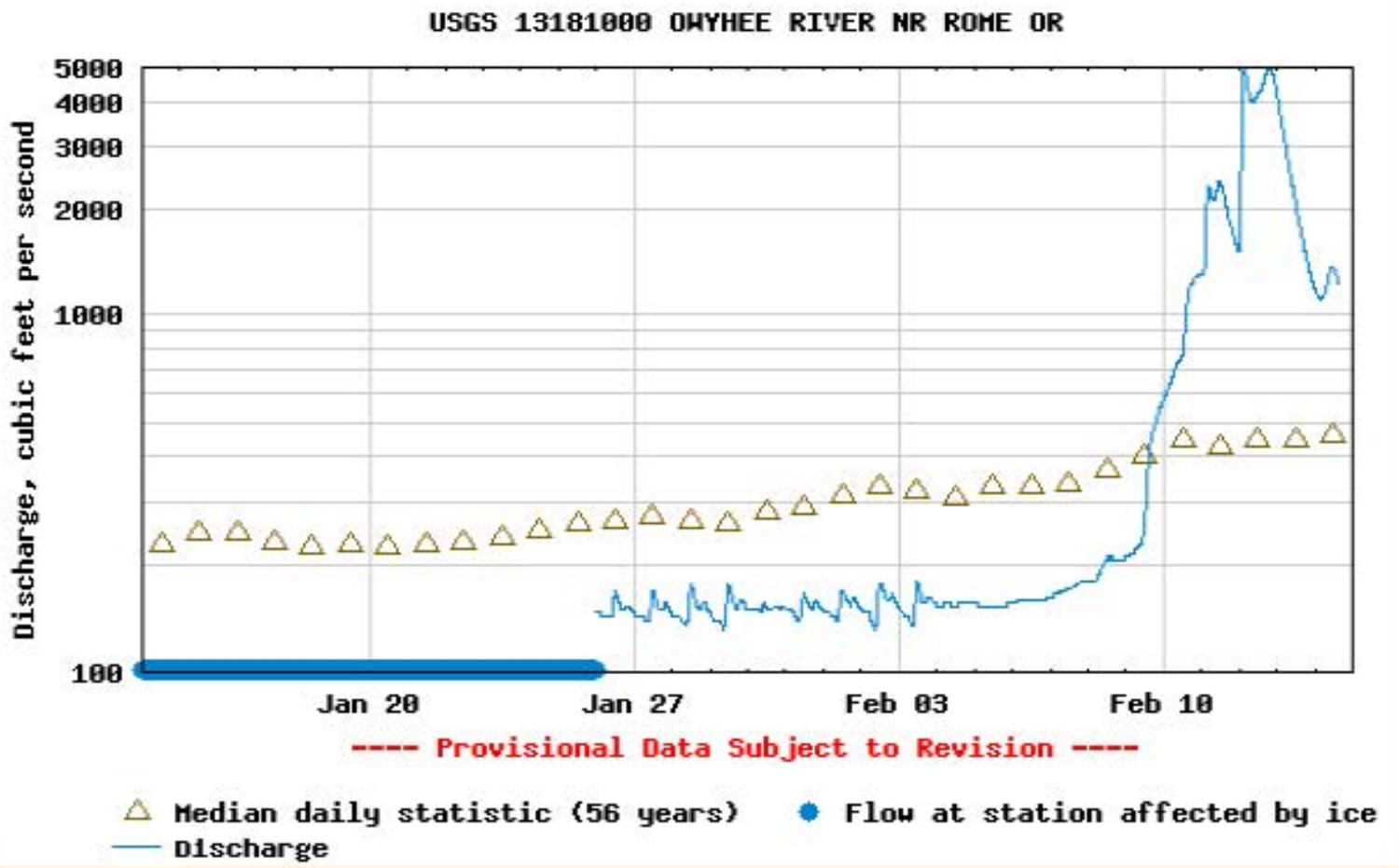




- Magic's Max Temp about 2^0 C greater than Howell
- Magic's Max Temp warmer than Howell in fall
- Magic's Elevation = 6880 ft
- Howell's Elevation = 7980 ft
- Magic is closest site, 30 miles east of Howell

NRCS Natural Resources Conservation Service

Most recent instantaneous value: 1,230 02-14-2007 15:00



Create presentation-quality graph

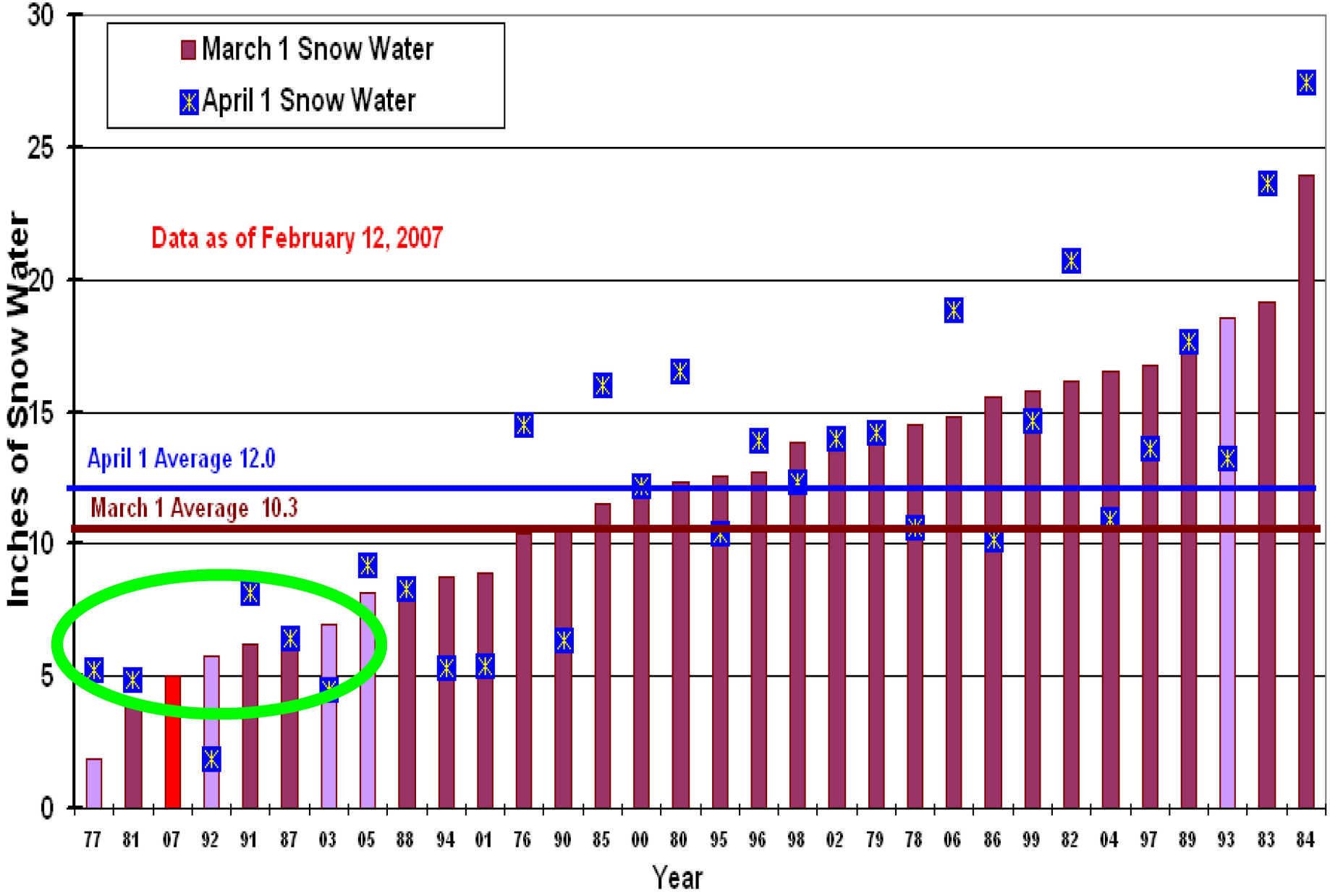
Parameter 00060; DD 01

Daily discharge statistics, in cfs, for Feb 14 based on 56 years of record more

Min (1955)	20%	Median	Mean	Most Recent Instantaneous Value	80%	Max (1951)
121	220.	461	914	1,230	1630	5280

Snow Index --- Owyhee River, Idaho / Oregon / Nevada --- 1976 -2007

Big Bend, Jack Creek Upper, Laurel Draw, Mud Flat, South Mtn, and Taylor Canyon SNOTEL sites



Let It Snow --- Here!

NRCS Natural Resources Conservation Service