Update 2009

Water Portfolio Summary

June 16, 2009

California Water Plan Highlights

California's Water Resources, pages 6 and 7

Purpose

- Briefly summarize eight years of water portfolio data
  - Statewide by Year
  - One Year by Region
- Make sure the graphics tell the story of California's water

Some History

- California Water Plan Update 1998 and prior updates used “normalized” water
  - The chosen year was reviewed to remove “peaks” and “valleys” and the water uses adjusted to what would happen in a normal year.
  - This allowed drought scenarios to be developed.
  - Public response when Update 1998 was released encouraged DWR to find a better way

Some More History

- In Update 2005, we found that better way
  - Advisory Committee (Agricultural, Municipal, Environmental and Public representatives) advised staff on what the Water Plan needs to provide
  - Together we chose to use actual years' data
    - Water portfolios
    - Future scenarios (computer modeling)
    - Management Strategies

Update 2005 Water Portfolios

- Actual Years
  - 1998 (wet year), 2000 (avg. year), 2001 (dry year)
  - Balances (dedicated water uses = supplies needed to provide for those uses)
    - Ag, Urban, Managed Wetlands, Required Instream Flow, Wild & Scenic Rivers, and Required Delta Outflow uses
    - Local, imported, SWP, CVP, Groundwater, Colorado River, etc, supplies
  - Portfolios (all water)
  - Data accumulated by Planning Area (56 areas)

Update 2009 Water Portfolios

- Changes since Update 2005
  - Data accumulated by Detailed Analysis Unit by County (478 areas)
  - Water Supply type detailed by sector (Ag, Urban, Instream, etc)
  - Switching from ‘Applied Water’ method to ‘Inflow-Outflow’ model
  - Reporting by Planning Area, Hydrologic Region and Statewide

Water Portfolio Data

- In Highlights, portfolio data will be reported in million acre-feet
- In Volume 3, Regional Reports, data will be reported in thousand acre-feet by region

Some Definitions

Applied Water Use

- The quantity of water delivered to the intake of a city's water system or factory; the farm or wetland headgate; or the portion of stream flow dedicated to instream use or reserved under the federal or State legislation.

Some Definitions

Net Water Use

- The amount of water needed in a water service area to meet all requirements. It includes the consumptive use of applied water, the irrecoverable water from the distribution system, and the outflow leaving the service area; does not include reuse of water within a service area

Some Definitions

Depletion

- The quantity of water consumed, discharged to salt sink within a service area, or moved outside the service area and no longer available as a source of supply within the service area.

Some Definitions

Water Balances

- Analysis of the total developed/dedicated supplies, uses and operational characteristics for a region. Shows what water was applied to actual uses so use=supply.

Some Definitions

Water Portfolio

- The sum total of all water that passes through the State. Since some types of water are difficult to nearly impossible to quantify, there are place holders in some spaces in the portfolio tables. These tables will be contained in the Appendices.

Section of 2002 Statewide Water Portfolio Table

The flow diagram is regional data only.

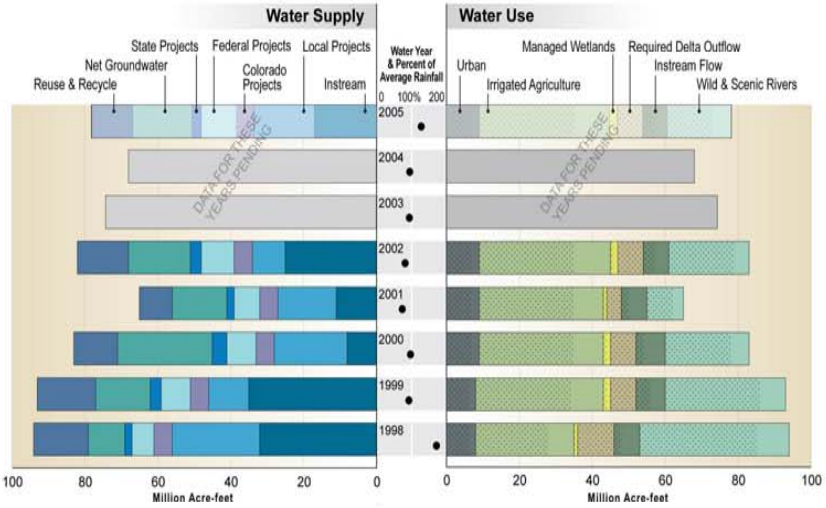
Inflows:	In Thousand Acre-feet	NC 2002	SF 2002	CC 2002	SC 2002	SR 2002	SJ 2002	TL 2002	NL 2002	SL 2002
1	Colorado River Deliveries	-	-	-	1,307.1	-	-	-	-	-
2	Total Desalination	-	-	-	-	-	-	-	-	-
3	Water from Refineries	-	-	-	-	-	-	-	-	-
4a	Inflow From Oregon	-	-	-	-	-	-	-	-	-
b	Inflow From Mexico	-	-	-	-	-	-	-	-	-
5	Precipitation	50,520.0	6,061.0	8,741.1	5,034.1	49,488.2	18,068.5	10,020.5	5,751.9	4,963.6
6a	Runoff - Natural	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
b	Runoff - Incidental	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Total Groundwater Natural Recharge	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Groundwater Subsurface Inflow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	Local Deliveries	18,464.2	994.7	36.1	197.7	7,169.7	3,833.6	1,658.3	400.4	120.5
10	Local Imports	46.8	532.1	-	248.8	11.0	-	-	-	-
11a	Central Valley Project :: Base Deliveries	-	-	-	-	3,992.0	32.2	-	-	-
b	Central Valley Project :: Project Deliveries	-	136.2	48.8	-	625.8	1,969.1	1,895.7	-	-
12	Other Federal Deliveries	335.8	47.7	64.4	-	247.0	3.0	-	-	-
13	State Water Project Deliveries	-	207.1	43.1	1,535.5	20.1	8.6	947.6	-	75.4
14a	Water Transfers - Regional	-	-	-	-	-	-	-	-	-
b	Water Transfers - Imported	-	-	-	-	-	-	-	-	-
15a	Releases for Delta Outflow - CVP									
b	Releases for Delta Outflow - SWP									
c	Applied Water Instream Flow	1,421.6	787.3	10.7	3.6	3,590.2	582.7	-	84.7	95.2
16	Releases for Delta Outflow - EWA	-	-	-	-		-	-	-	-
17a	Conveyance Return Flows to Developed Supply (other HR) - Urban (1	-	-	-	-	-	-	-	-	-
b	Conveyance Return Flows to Developed Supply (other HR) - Ag (1	-	-	-	-	-	-	-	-	-
c	Conveyance Return Flows to Developed Supply (other HR) - Managed We	-	-	-	-	-	-	-	-	-
18a	Conveyance Seepage - Urban	-	-	-	-	0.8	-	-	-	-
b	Conveyance Seepage - Ag	8.1	-	0.3	-	493.2	14.6	-	5.3	-
c	Conveyance Seepage - Managed Wetlands	-	-	-	-	41.6	-	-	-	-
19a	Recycled Water - Urban Wastewater	-	10.9	9.1	218.8	0.2	-	-	-	13.3
b	Recycled Water - Urban Desalination	-	-	-	-	-	-	-	-	-
20a	Return Flow to Developed Supply (Other HR) - Ag	-	-	-	-	-	203.6	-	-	-
b	Return Flow to Developed Supply (other HR) - Wetlands, W&S, Instream	-	-	-	-	-	22.3	-	-	-
c	Return Flow to Developed Supply (other HR) - Urban	-	-	-	-	-	-	-	-	-
21a	Deep Percolation of Applied Water - Ag	80.6	9.0	288.7	85.8	397.3	778.4	2,572.3	40.5	48.5
b	Deep Percolation of Applied Water - Wetlands	0.7	0.5	0.3	-	3.2	-	59.3	0.3	-
c	Deep Percolation of Applied Water - Urban	30.2	201.9	82.3	411.5	157.2	256.7	367.6	13.8	77.6
22a	Reuse of Return Flows within Region - Ag	130.7	1.8	3.1	-	1,940.1	811.3	-	59.5	-
b	Reuse of Return Flows within Region - Wetlands, W&S, Instream	118.7	0.8	50.0	11.2	6,332.1	1,147.9	1,019.3	177.3	24.2
c	Reuse of Return Flows within Region - Urban	25.3	20.6	16.8	-	144.6	36.9	76.5	13.9	10.5

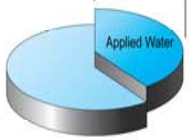
California's Water Resources

Text to go here

California Water Balance by Year

California's water resources vary significantly from year to year. Eight recent years show a sample of this variability for water supply and water use. The water supply shows where water came from each year to meet applied water uses. Water Use shows how much water was used by urban and agricultural sectors and dedicated to the environment.

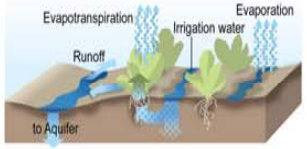




Yearly Precipitation and Inflows in California

Each year, applied water is only a portion of California's total precipitation and inflows. The rest—about 120 maf in an average year—either evaporates, is used by native vegetation, provides rainfall for agriculture and managed wetlands, percolates into groundwater basins, or flows out of state or to salt sinks.

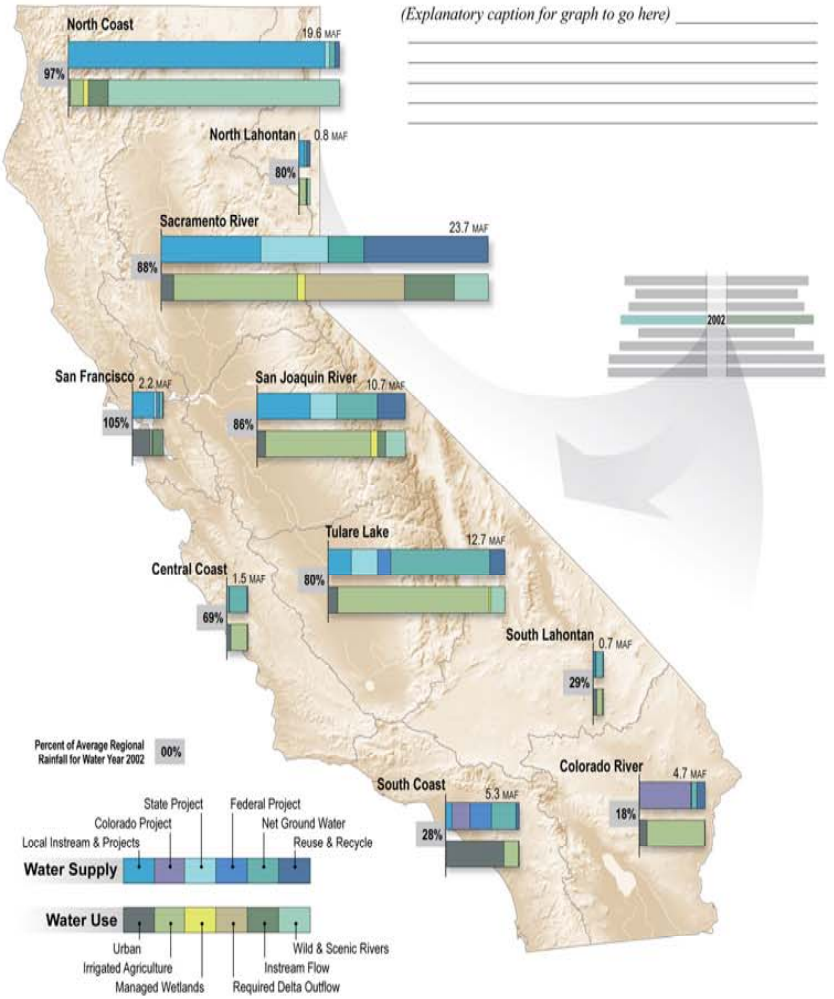
Indicates depleted water use *(water consumed through evapotranspiration, flowing to salt sinks or otherwise not available as a source of supply)*



Variable and Extreme

Water Balance by Region (for Water Year 2002)

(Explanatory caption for graph to go here)



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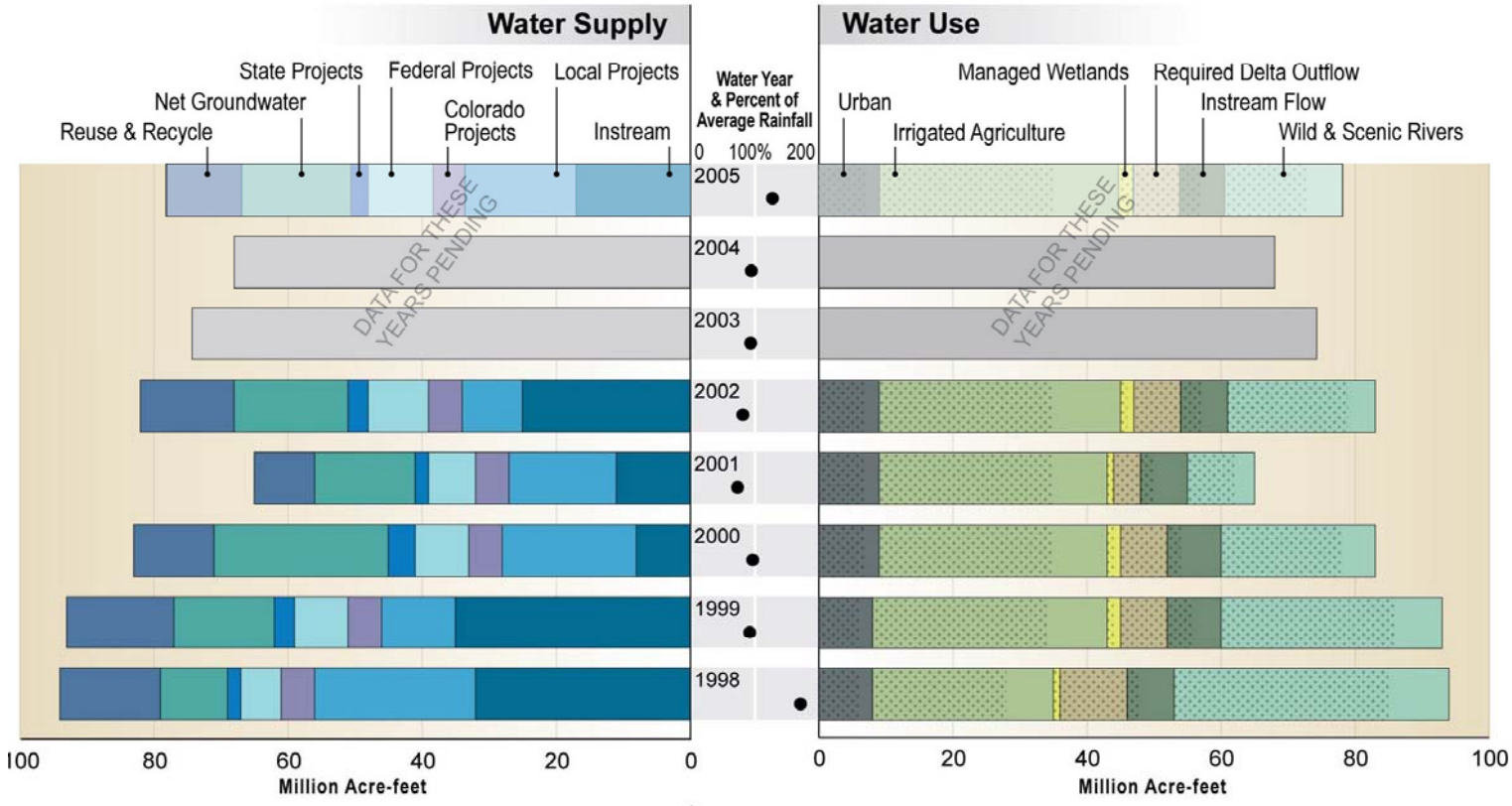

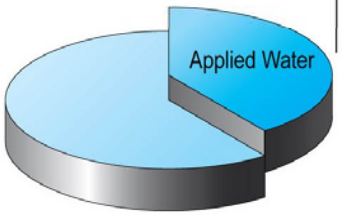

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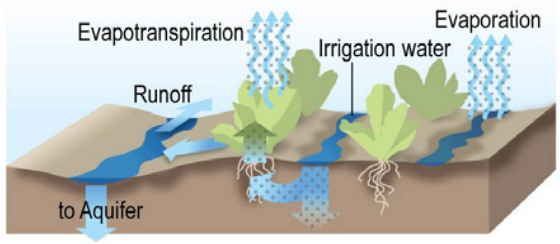
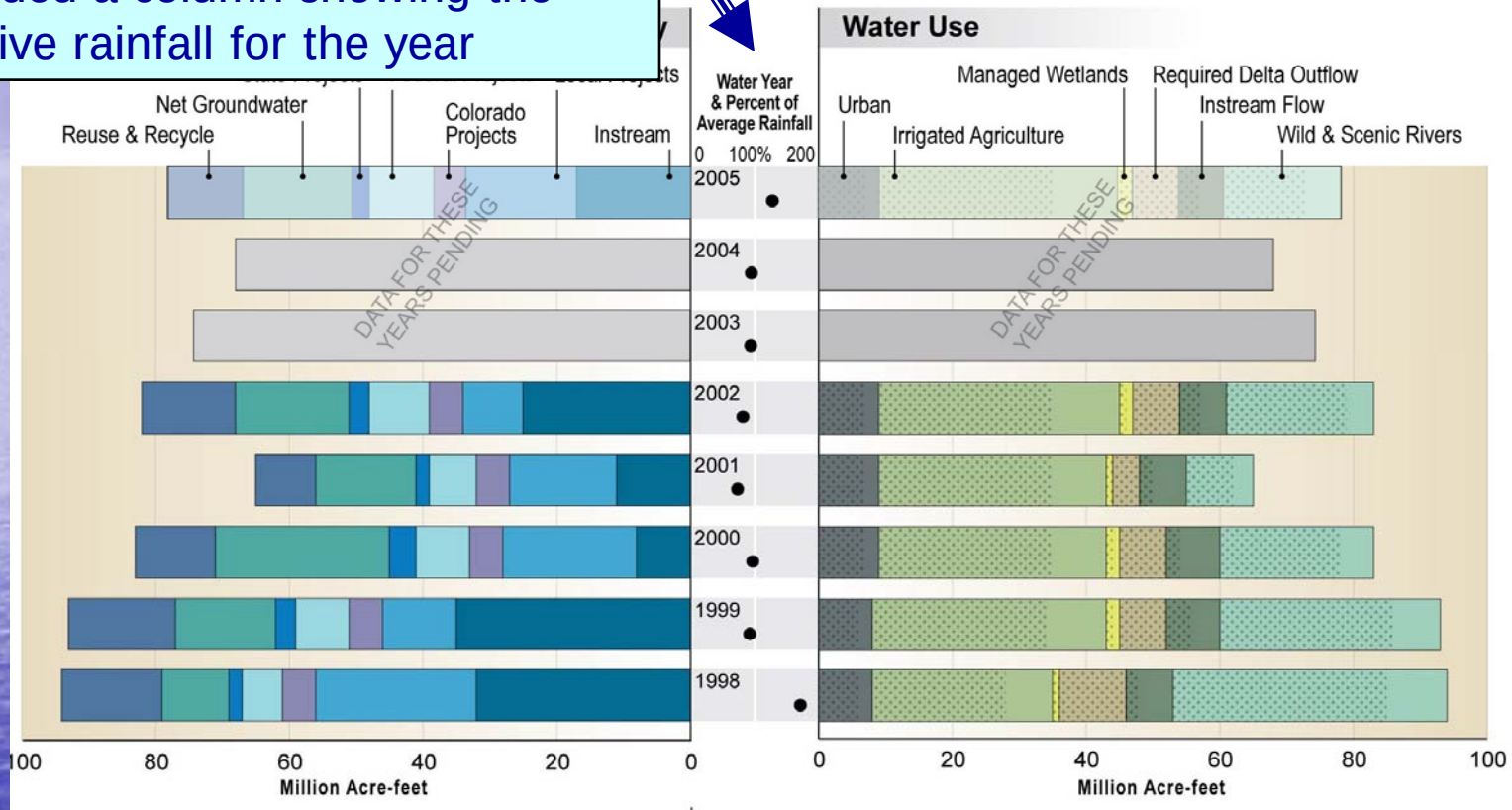


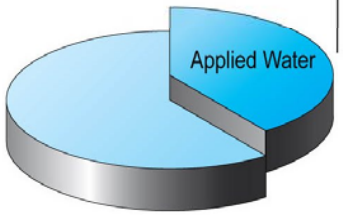
These Bar Charts summarize the water balances by year.

California Water Balance by Year

Between the water use and supply sides of the bar chart, we've included a column showing the relative rainfall for the year

ear to year. Eight recent years show a sample of this variability for where water came from each year to meet applied water uses. Water gricultural sectors and dedicated to the environment.





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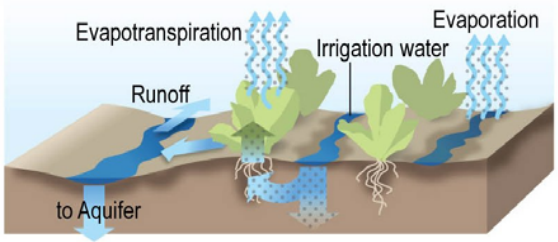

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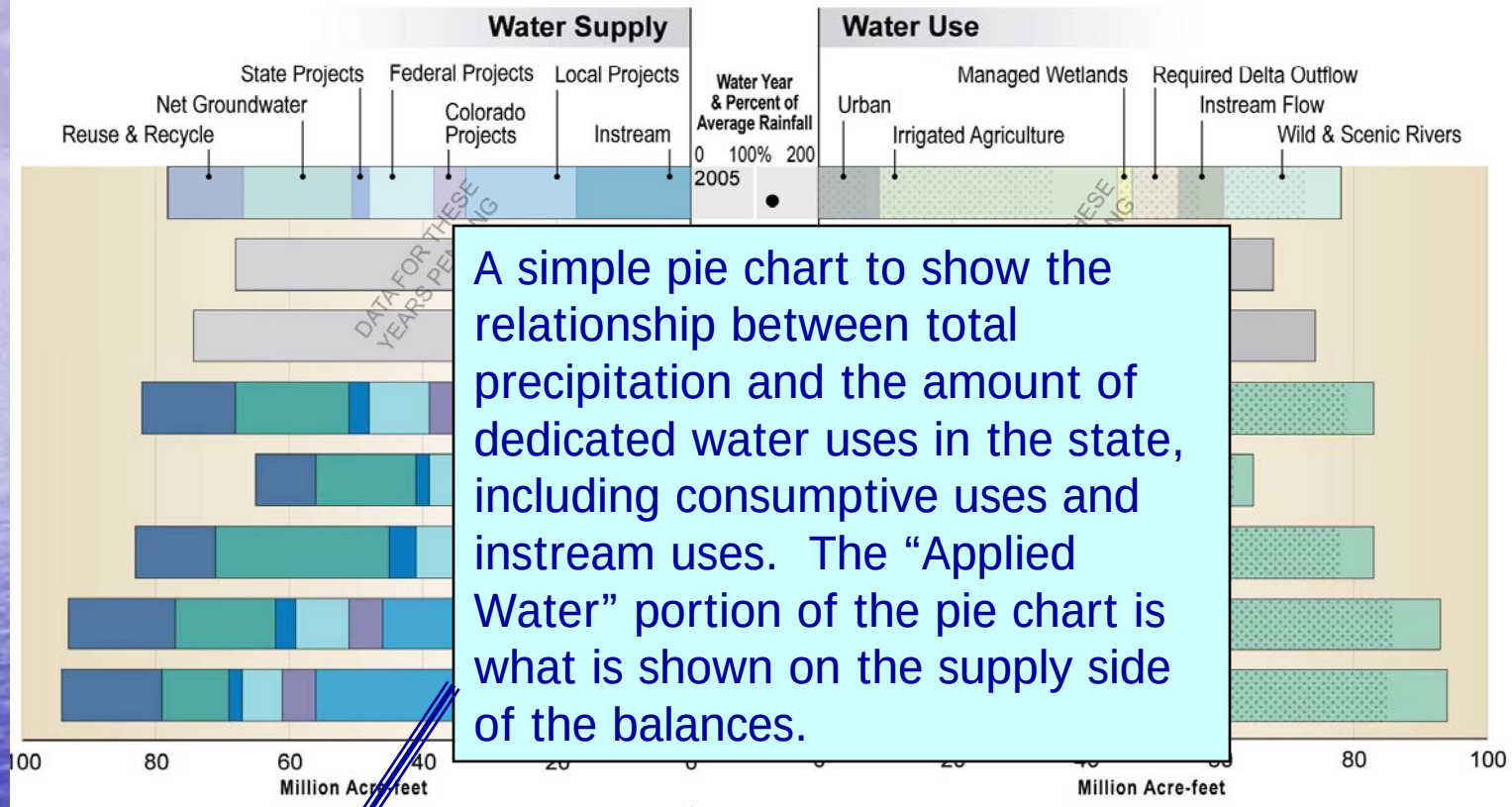
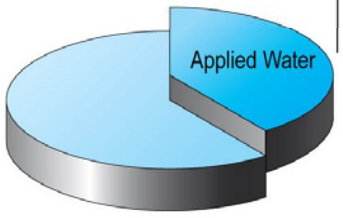


A simple pie chart to show the relationship between total precipitation and the amount of dedicated water uses in the state, including consumptive uses and instream uses. The "Applied Water" portion of the pie chart is what is shown on the supply side of the balances.



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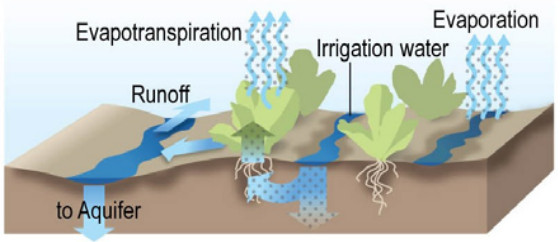

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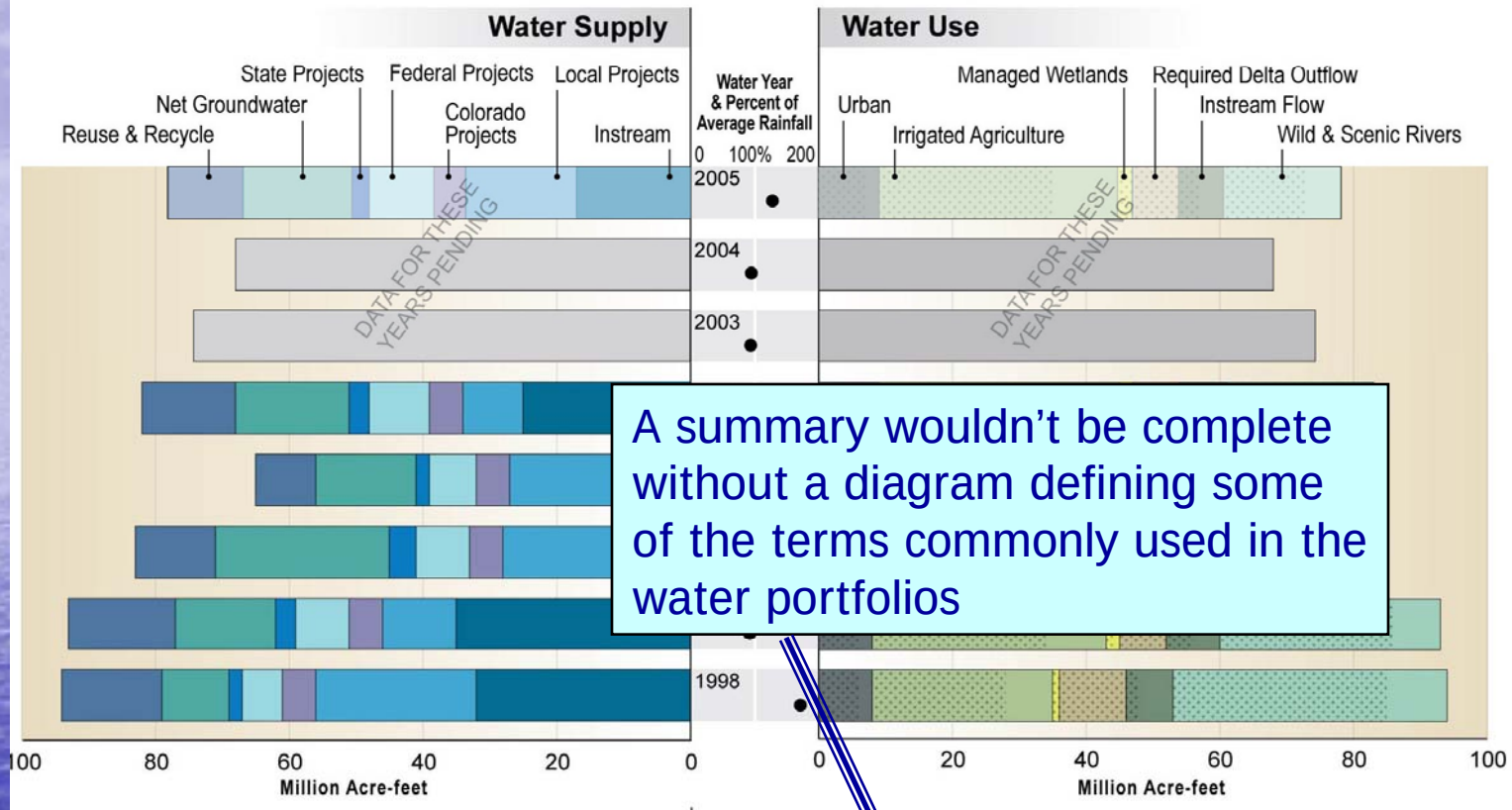
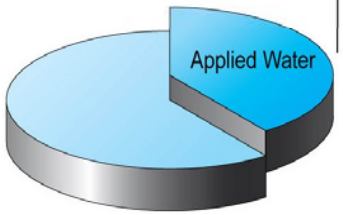


A summary wouldn't be complete without a diagram defining some of the terms commonly used in the water portfolios



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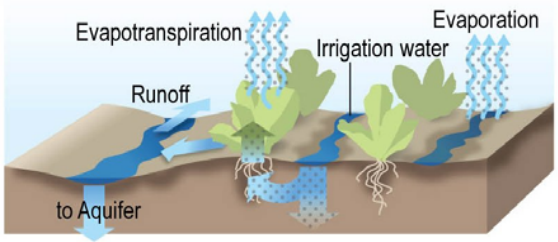
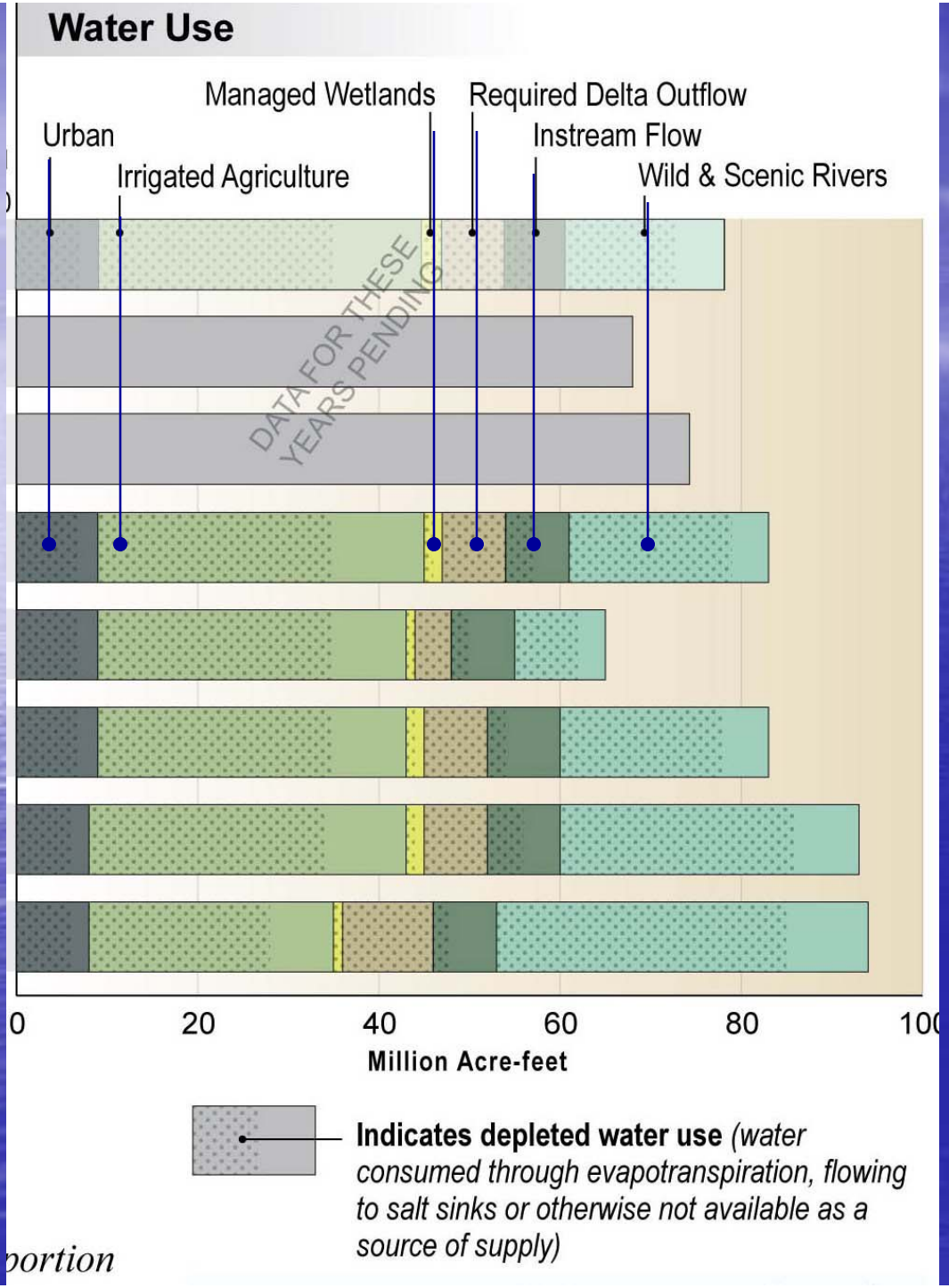
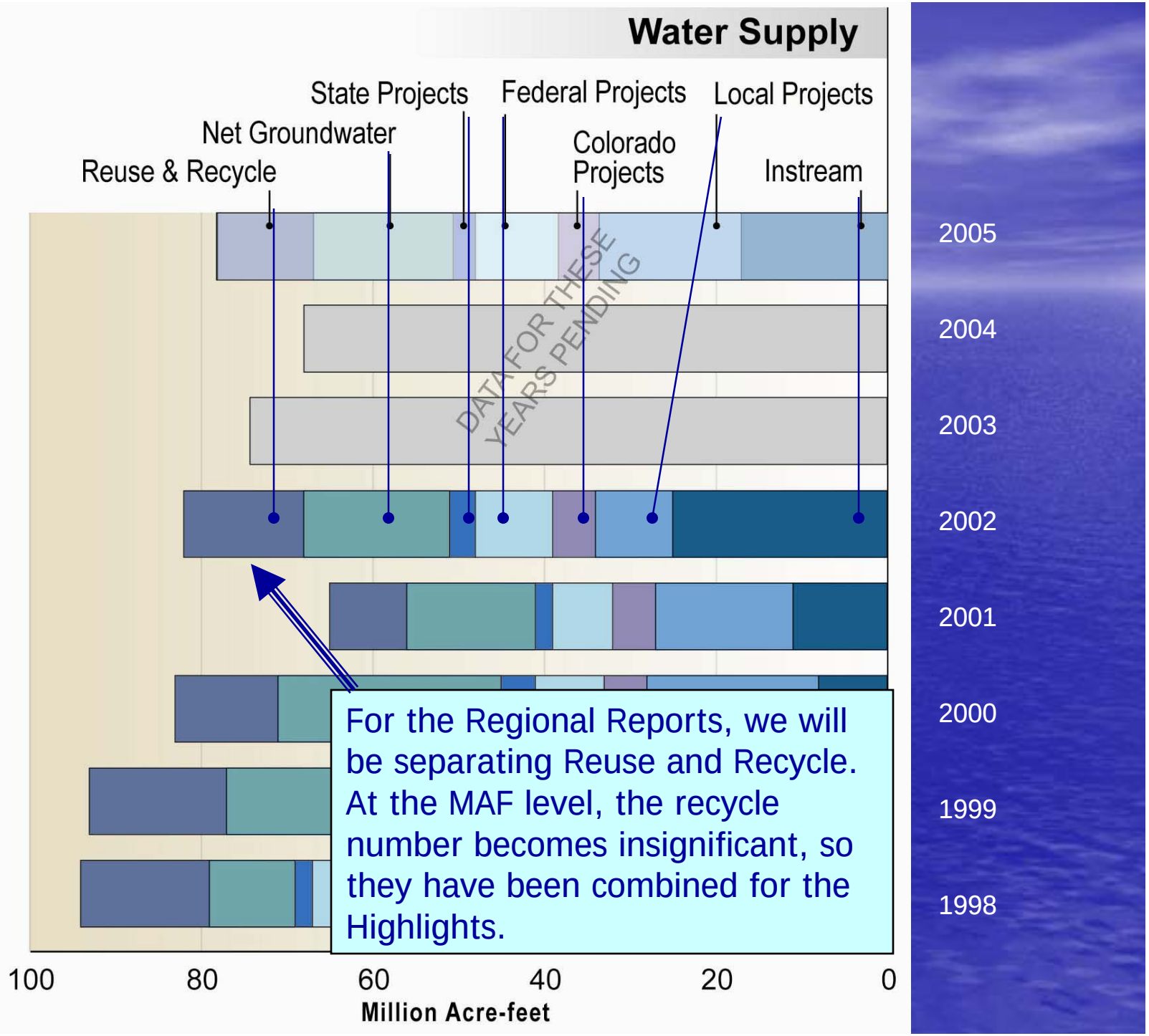
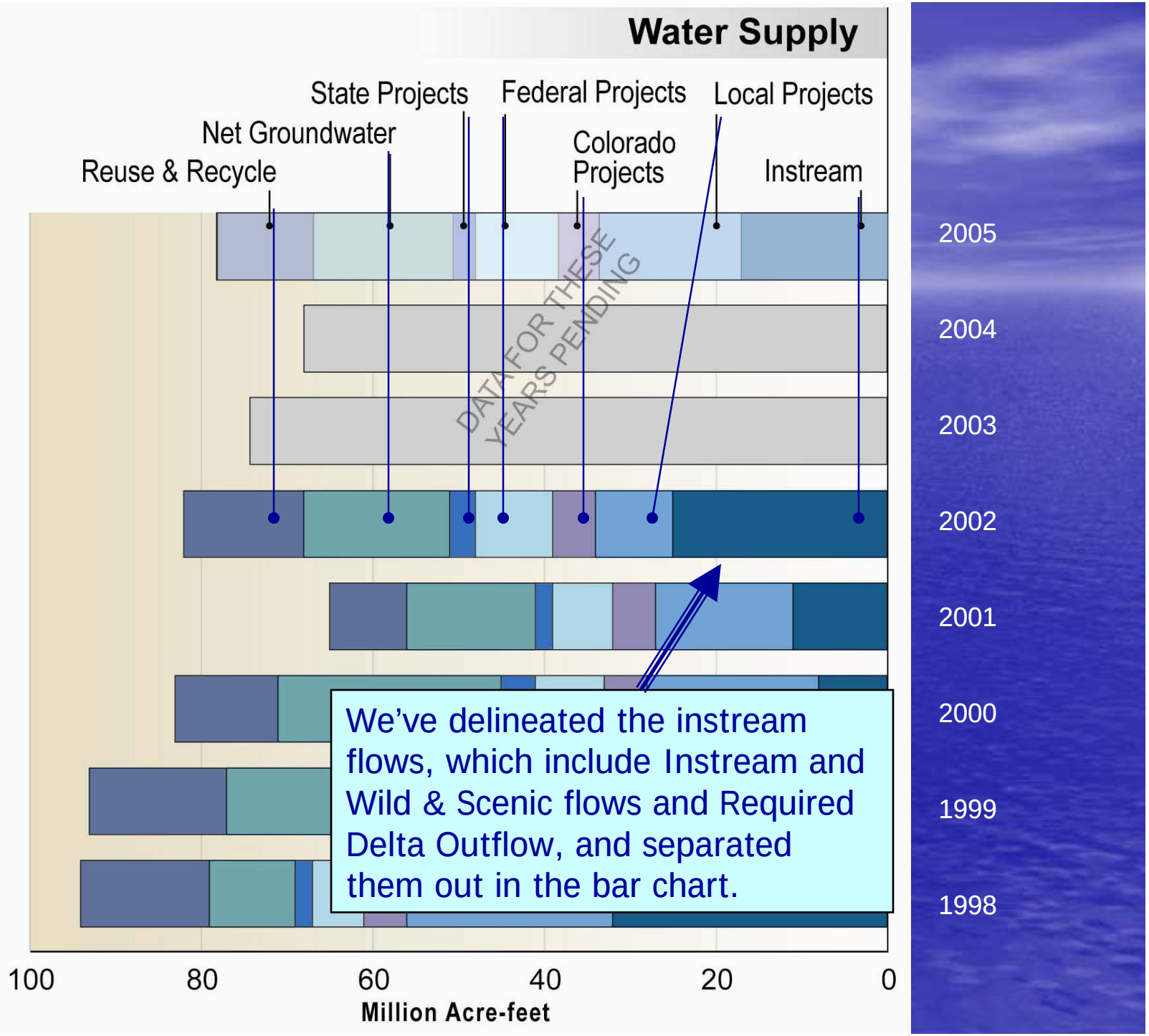




The colored bars represent the Applied Water for the category and the cross hatching is the amount of that Applied Water that has been depleted


Water Supply
Reuse & Recycle
Net Groundwater
State Projects
Federal Projects
Colorado Projects
Local Projects
Instream
DATA FOR THESE YEARS PENDING
2005
2004
2003
2002
2001
2000
1999
1998
100
80
60
40
20
0
Million Acre-feet
For the Regional Reports, we will be separating Reuse and Recycle. At the MAF level, the recycle number becomes insignificant, so they have been combined for the Highlights.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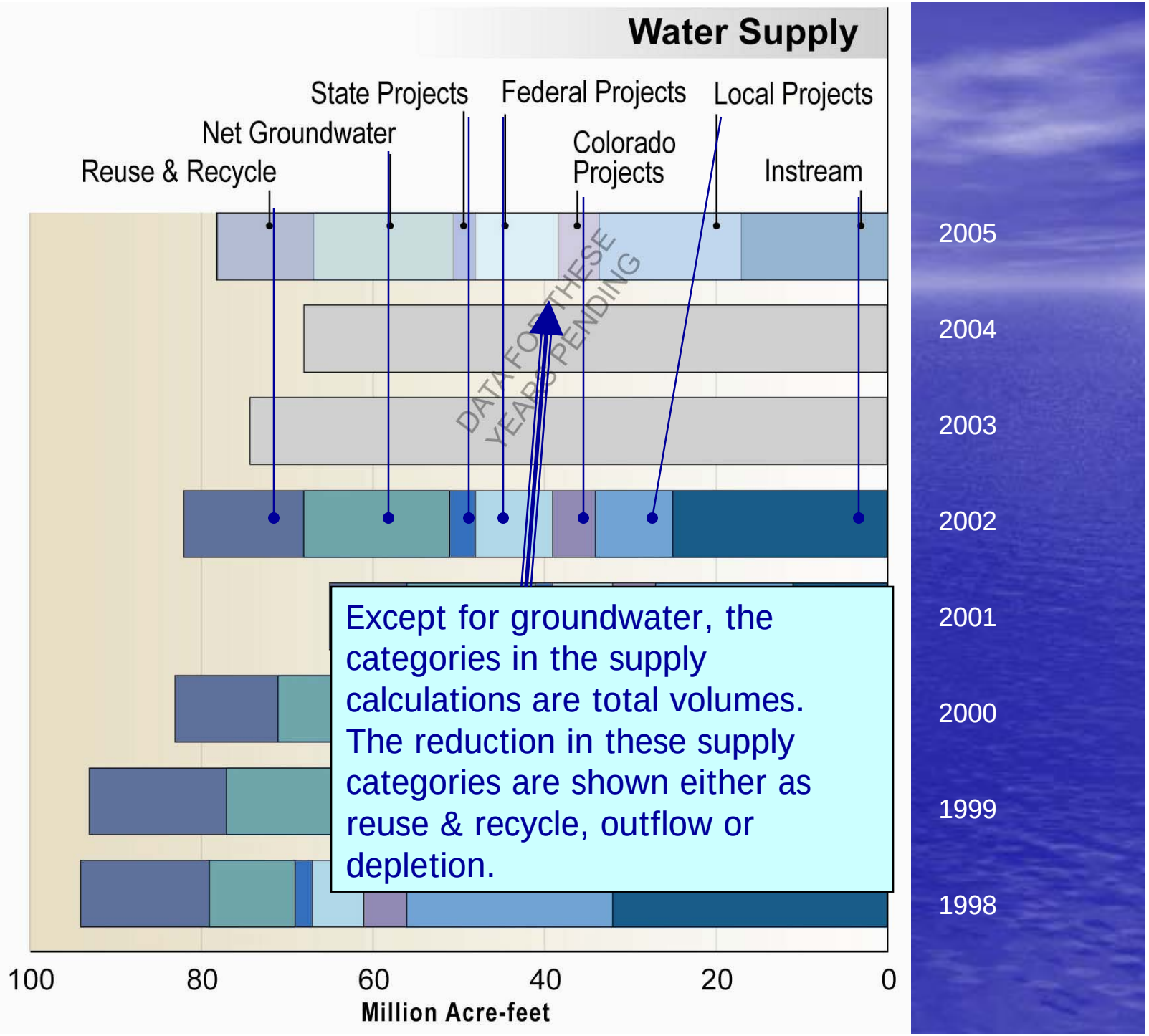
2005
2004
2003
2002
2001
2000
1999
1998
We've delineated the instream flows, which include Instream and Wild & Scenic flows and Required Delta Outflow, and separated them out in the bar chart.
100
80
60
40
20
0
Million Acre-feet

Water Supplies for Instream Flows

- Update 2005 balances contained a water supply category called "Required Environmental Instream Flow".
- In Update 2009, the data entry sheets were modified to designate supply by category (SWP, local imports, etc) and sector (ag, urban, managed wetlands, instream, wild and scenic, required delta outflow).
- Instream Flows
  - include instream and wild & scenic flows and Required Delta Outflow
  - Usually local supply or Central Valley Project – base flows.
  - While these don't compare exactly to the Update 2005 Required Environmental Instream Flow category, they do give some basis of comparison.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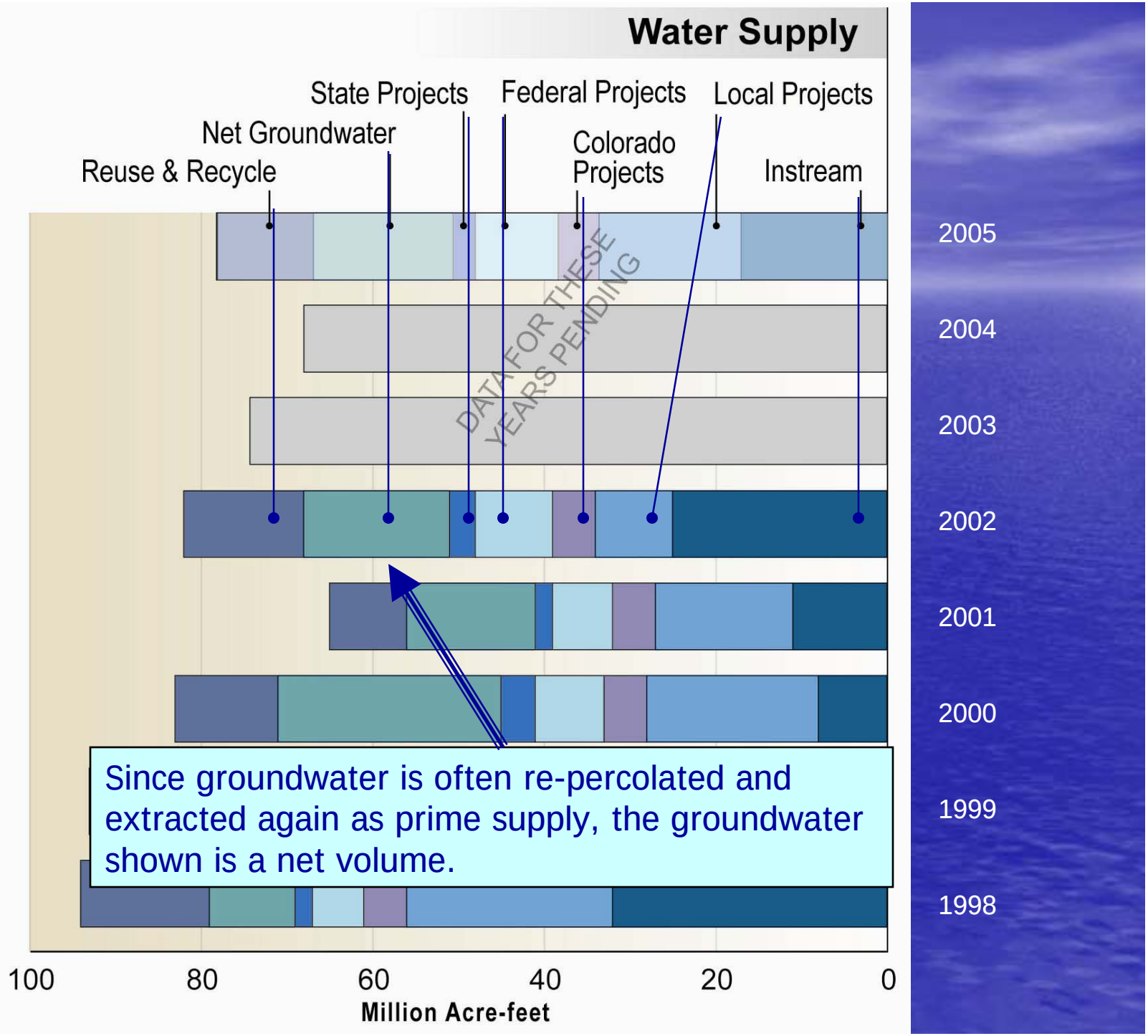
2005
2004
2003
2002
2001
2000
1999
1998
Except for groundwater, the categories in the supply calculations are total volumes. The reduction in these supply categories are shown either as reuse & recycle, outflow or depletion.
100
80
60
40
20
0
Million Acre-feet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2002
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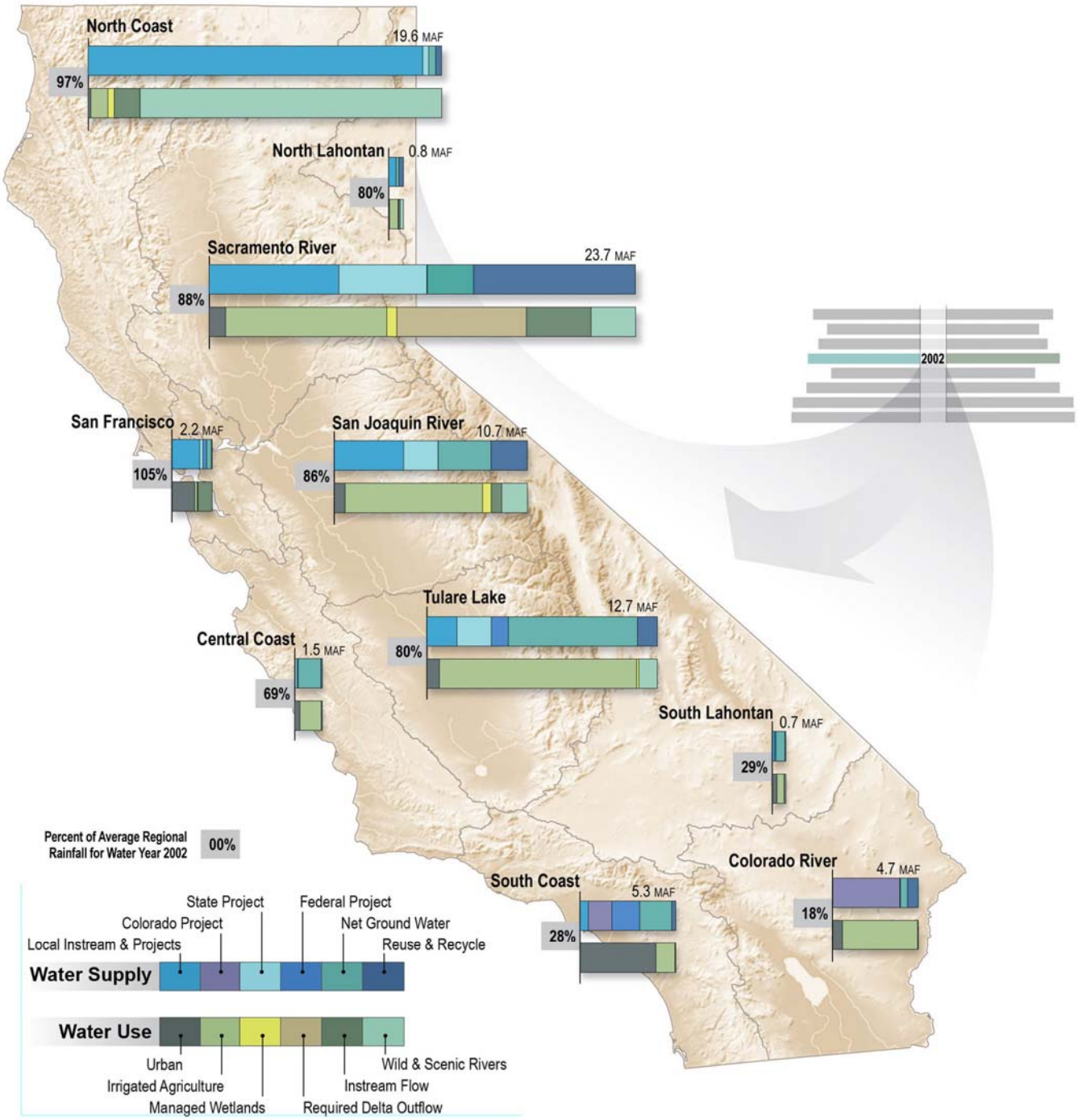
1998
Since groundwater is often re-percolated and extracted again as prime supply, the groundwater shown is a net volume.
100
80
60
40
20
0
Million Acre-feet

Groundwater Supply

- The groundwater shown is a net volume
- It is equal to the groundwater extracted minus
  - deep percolation of applied surface and groundwater,
  - deep percolation of groundwater recharge and
  - conveyance deep percolation.
- We will be including a chart in each regional report showing what this means for each region in each year.



This chart graphically compares the water uses and supplies between hydrologic regions for the 2002 water year.