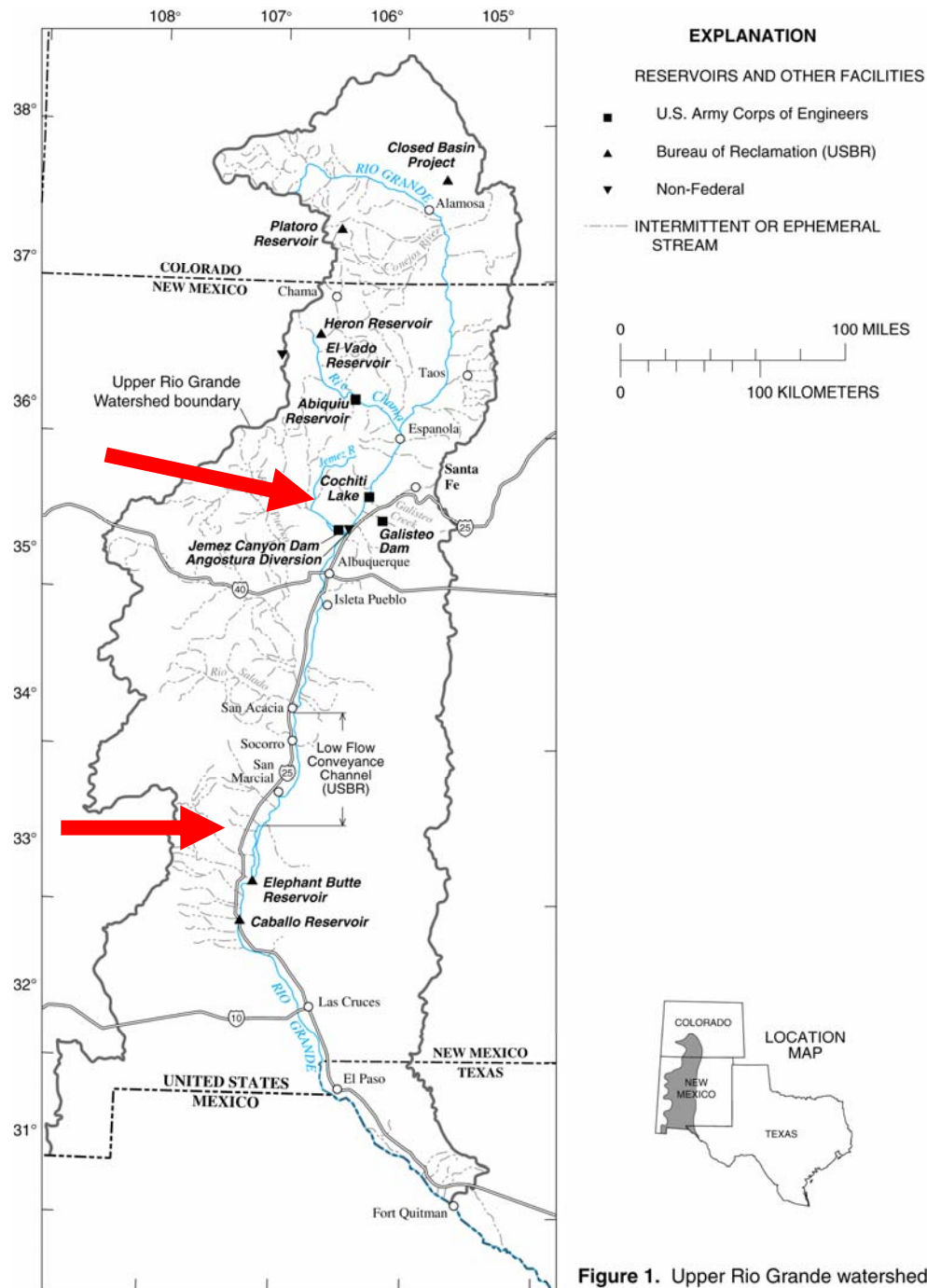


**Ground- and Surface-  
Water Interaction  
Simulation in the  
Middle Rio Grande  
Valley**





# Current SW/GW interaction simulation effort for the Middle Valley

Middle Valley for discussion from Dam at Cochiti Lake to the upper end of Elephant Butte Reservoir



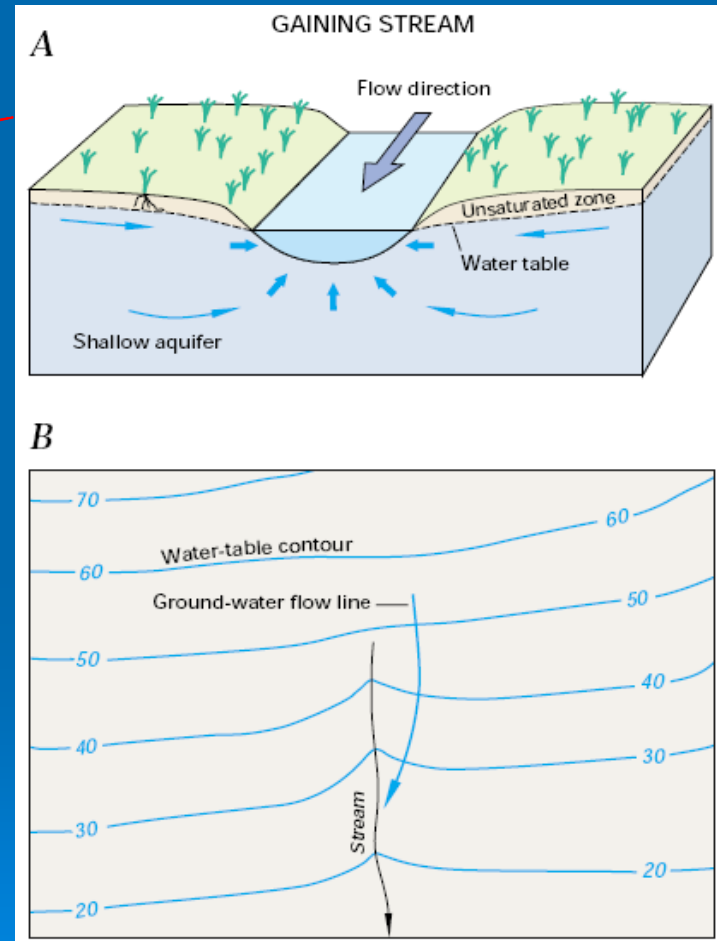
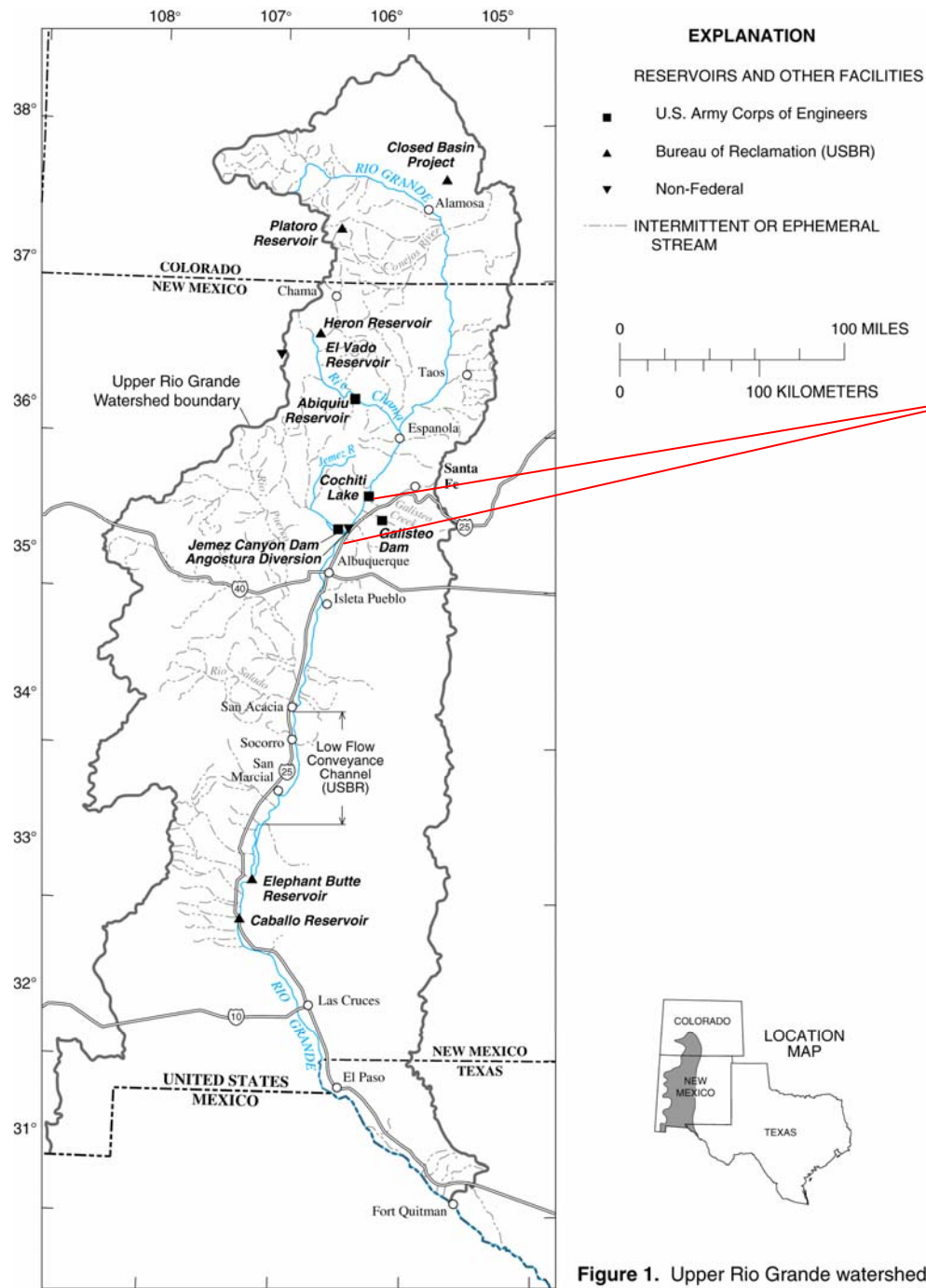


Figure 1. Upper Rio Grande watershed

Winter et al. 1998.

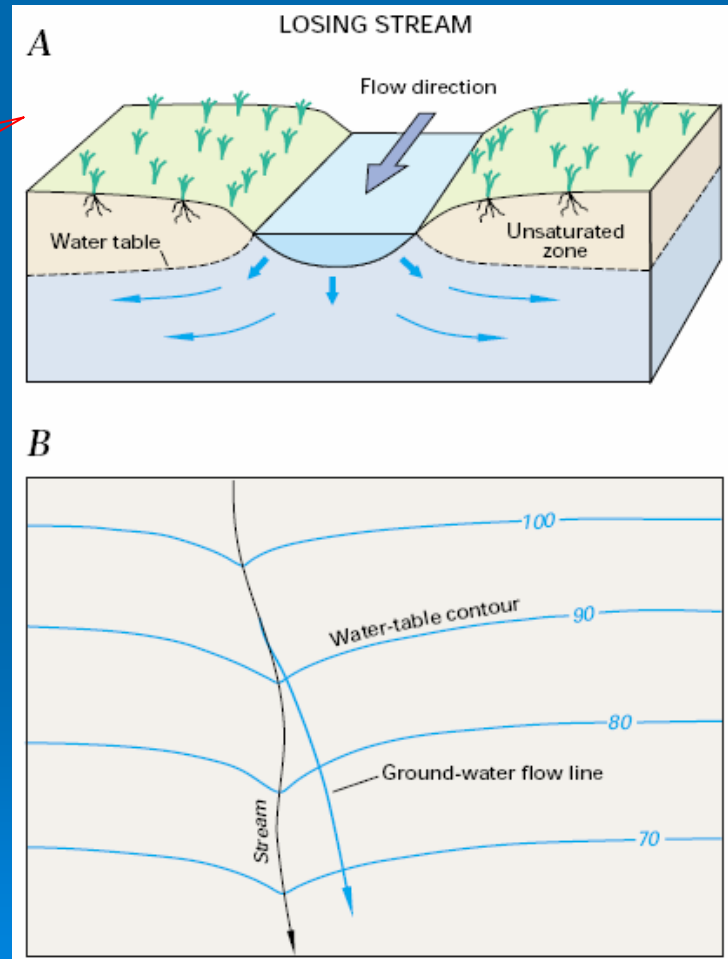
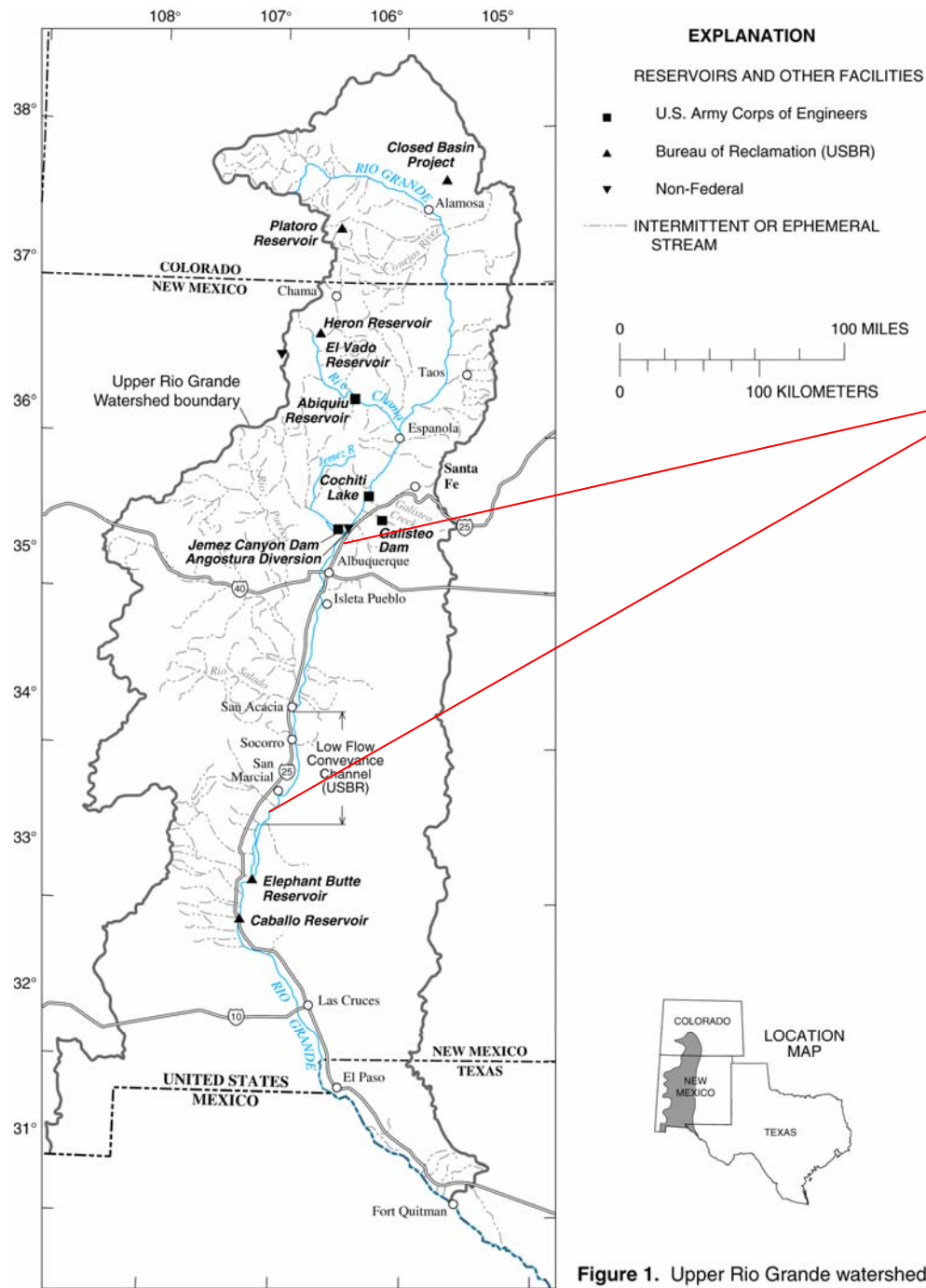
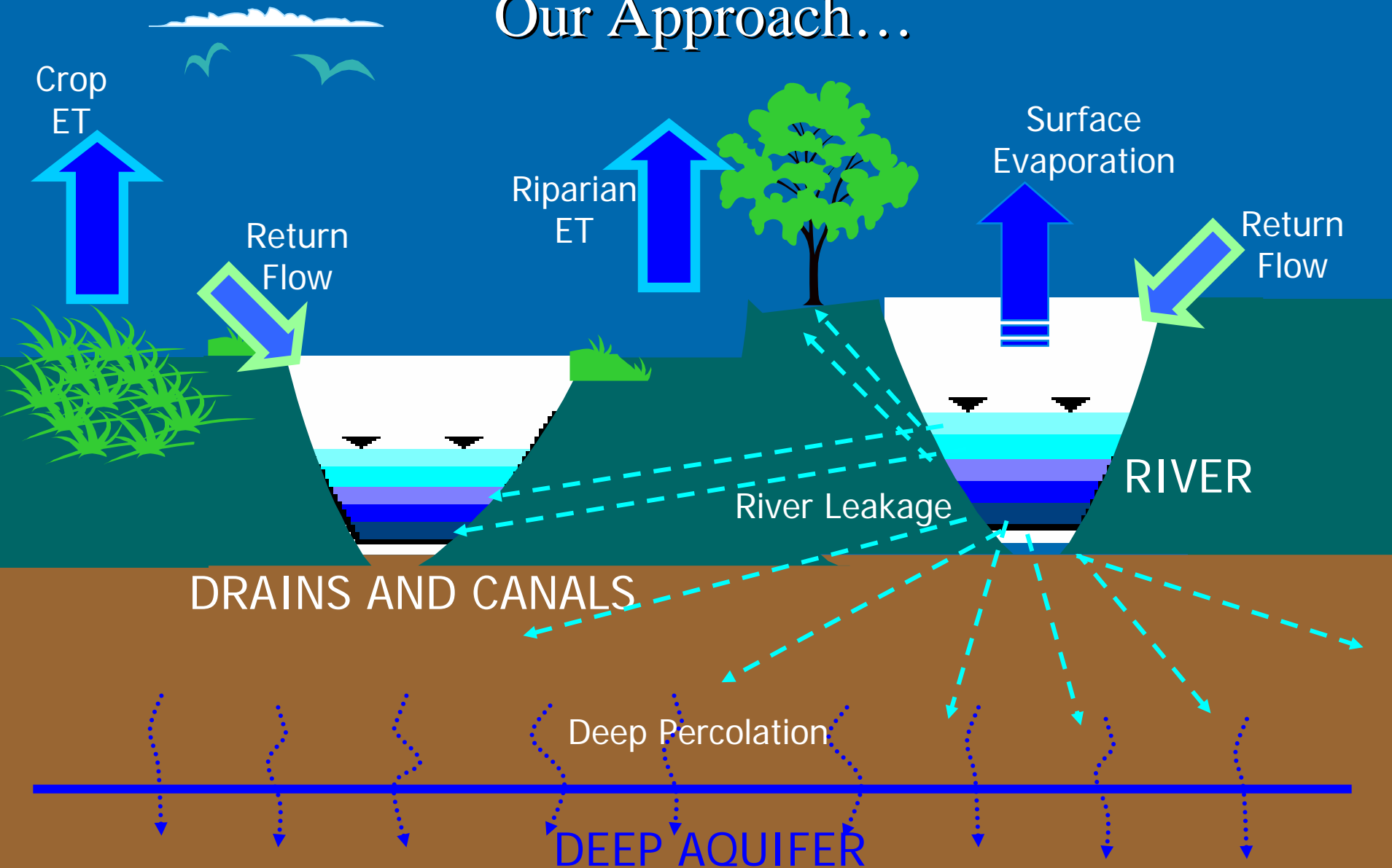


Figure 1. Upper Rio Grande watershed

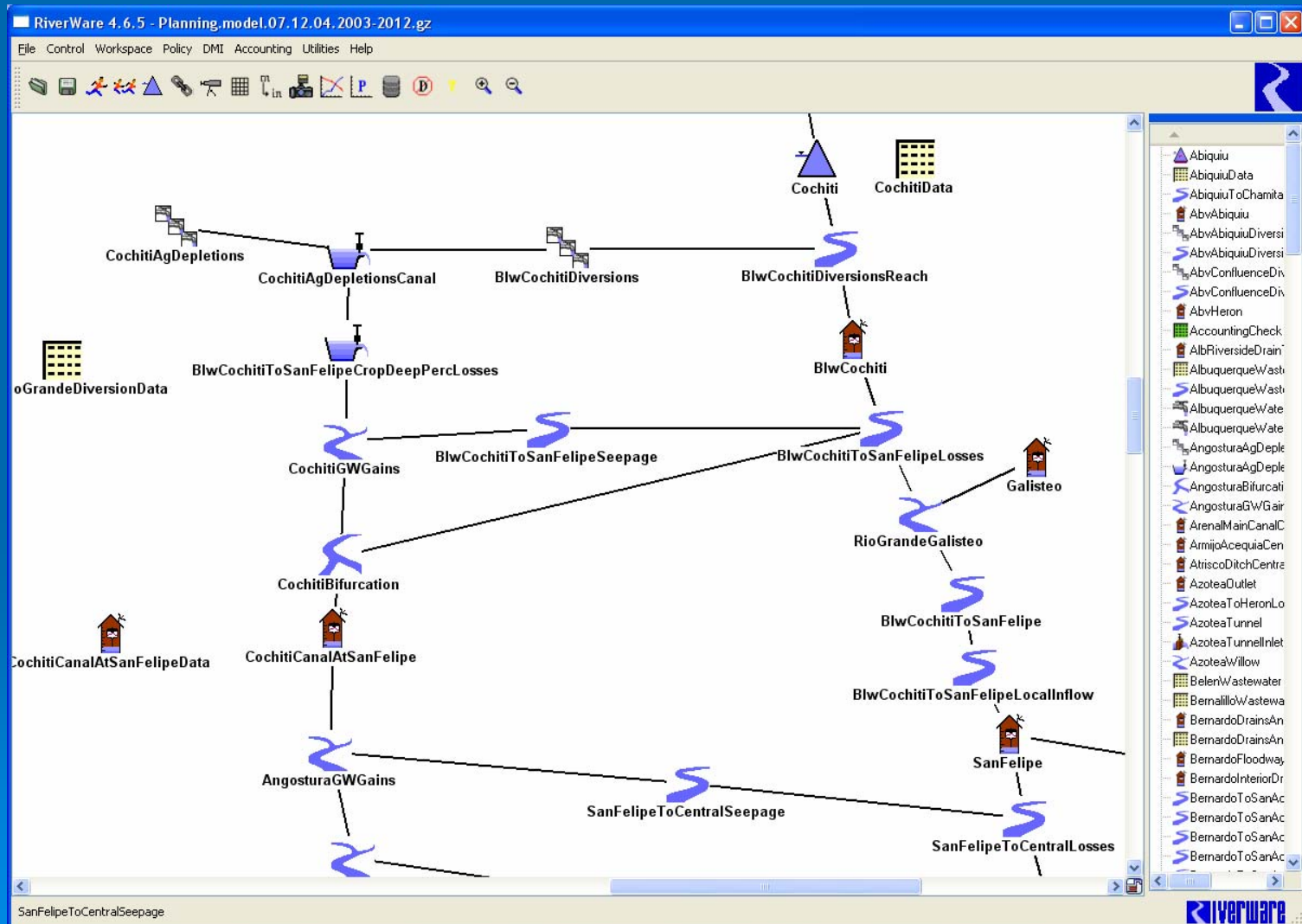
Winter et al. 1998.

# Middle Rio Grande Valley Water Balance:

## Our Approach...



# Current techniques of simulation of SW/GW interaction in URGWOM

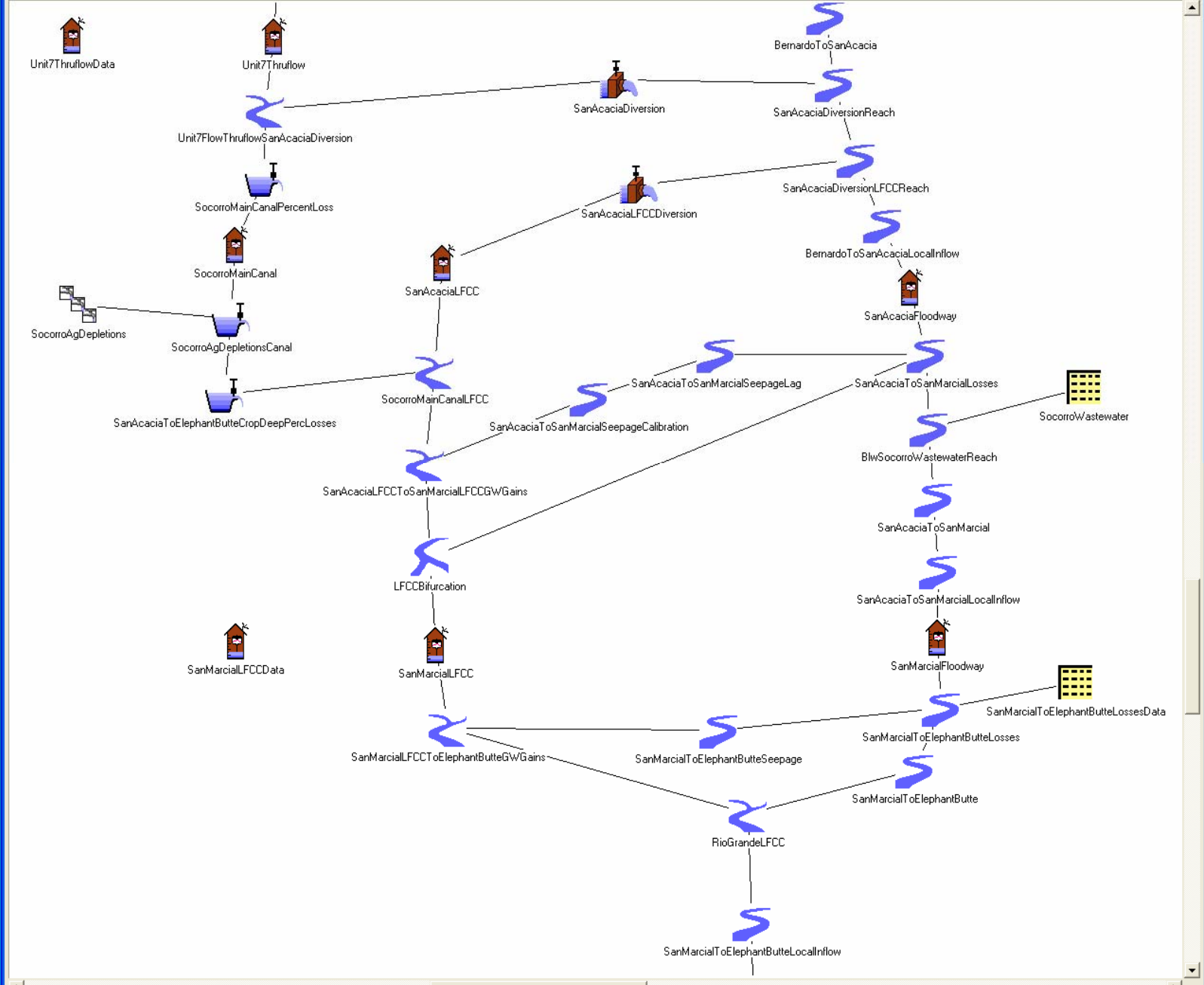




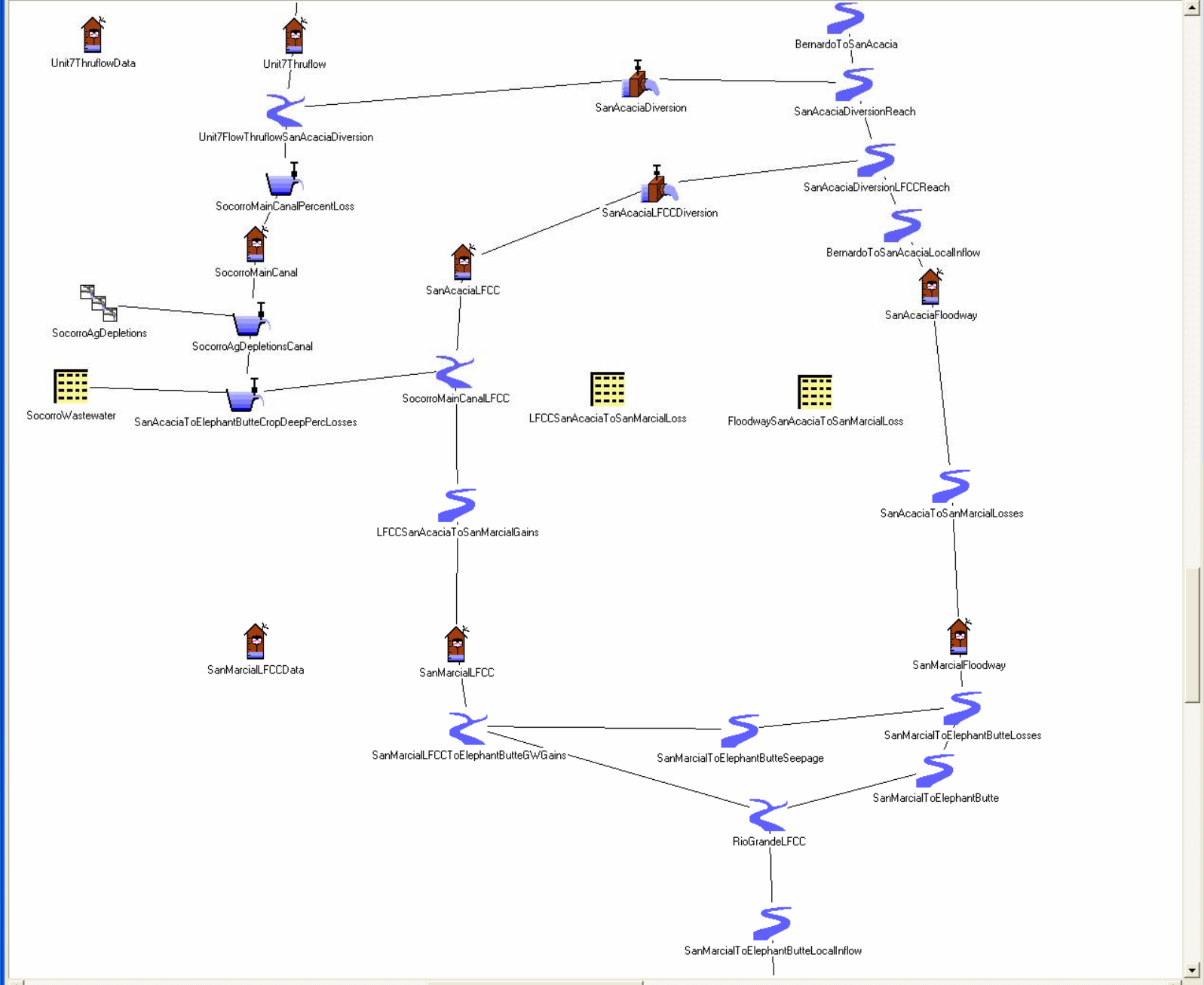
# San Acacia to San Marcial Reach

- Low Flow Conveyance Channel
- Leakage loop not functional
  - River – LFCC interaction
- Another approach needed









### Open Object - LFCCSanAcaciaToSanMarcialLoss

File Edit View Slot Account

Object Name: LFCCSanAcaciaToSanMarcialLoss

Slots Methods Accounts

December 31, 2022

Slot Name	Value	Units
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		

### Edit LFCCSanAcaciaToSanMarcialLoss::January

File Edit View

Name: January

Value:

	UpstreamLFCC cfs	UpstreamFloodway cfs	DownstreamLFCC cfs
0	0.00	0.00	70.00
1	0.00	250.00	175.00
2	0.00	500.00	190.00
3	0.00	1000.00	208.00
4	0.00	2000.00	233.00
5	0.00	4000.00	267.00
6	0.00	8000.00	318.00
7	0.00	12000.00	360.00
8	250.00	0.00	70.00
9	250.00	250.00	119.00
10	250.00	500.00	132.00
11	250.00	1000.00	149.00
12	250.00	2000.00	173.00
13	250.00	4000.00	208.00
14	250.00	8000.00	262.00
15	250.00	12000.00	306.00
16	500.00	0.00	70.00
17	500.00	250.00	76.00
18	500.00	500.00	88.00
19	500.00	1000.00	105.00
20	500.00	2000.00	129.00
21	500.00	4000.00	165.00
22	500.00	8000.00	220.00
23	500.00	12000.00	265.00
24	1000.00	0.00	70.00
25	1000.00	250.00	7.00
26	1000.00	500.00	18.00
27	1000.00	1000.00	34.00
28	1000.00	2000.00	58.00
29	1000.00	4000.00	95.00
30	1000.00	8000.00	151.00
31	1000.00	12000.00	197.00
32	2000.00	0.00	70.00
33	2000.00	250.00	-102.00
34	2000.00	500.00	-91.00
35	2000.00	1000.00	-75.00
36	2000.00	2000.00	-51.00
37	2000.00	4000.00	-13.00
38	2000.00	8000.00	45.00
39	2000.00	12000.00	92.00

Rule Editor - "Planning.ruleset.06.30.04.NoRafting.gz : MiddleValleyLoss : FloodwaySanMarcialToSanMarc...

File Edit Rule RuleSet Not Loaded

Name: FloodwaySanMarcialToSanMarcialLoss1

Body:

```
SanAcaciaToSanMarcialLosses.Local Inflow [ @"Current Timestep" ]  
= TableInterpolation3D  
    ( % "FloodwaySanAcaciaToSanMarcialLoss" . GetMonthAsString  
      ( @"Previous Timestep" )  
      0.0000000 ,  
      SanAcaciaLFCC.Gage Outflow [ @"Previous Timestep" ] ,  
      1.0000000 ,  
      SanAcaciaFloodway.Gage Inflow [ @"Previous Timestep" ] ,  
      2.0000000 ,  
      @"Previous Timestep" )  
RuleFiredSlot ( "SanMarcialFloodway" ) [ ] = 1.0000000
```

Execute Rule Only When:

```
NOT RuleHasFired ( "SanMarcialFloodway" )
```

# URGWOM proposed methods for SW/GW interaction simulation

- Simulation of physical system
- Addition of methods to existing RiverWare objects to allow a more robust simulation of surface-water and ground-water interaction
- Dynamic interface between RiverWare and MODFLOW

# The End

