

**JOINT STATE ATRAZINE BIG BLUE RIVER  
MONITORING PROJECT**

**A Cooperative Joint State Monitoring Project  
Section 104(b)(3) of the Clean Water Act  
EPA Assistance Agreement No. CP997369-01-0**

**PREPARED FOR**  
**Nebraska Department of Environmental Quality**  
**Nebraska Department of Agriculture**  
**Kansas Department of Agriculture**

**Tuttle Creek Lake**

**PREPARED BY**

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**KANSAS STATE UNIVERSITY**

**FINAL REPORT  
1997-2004**

**Toneka, Kansas Water Treatment Plant**

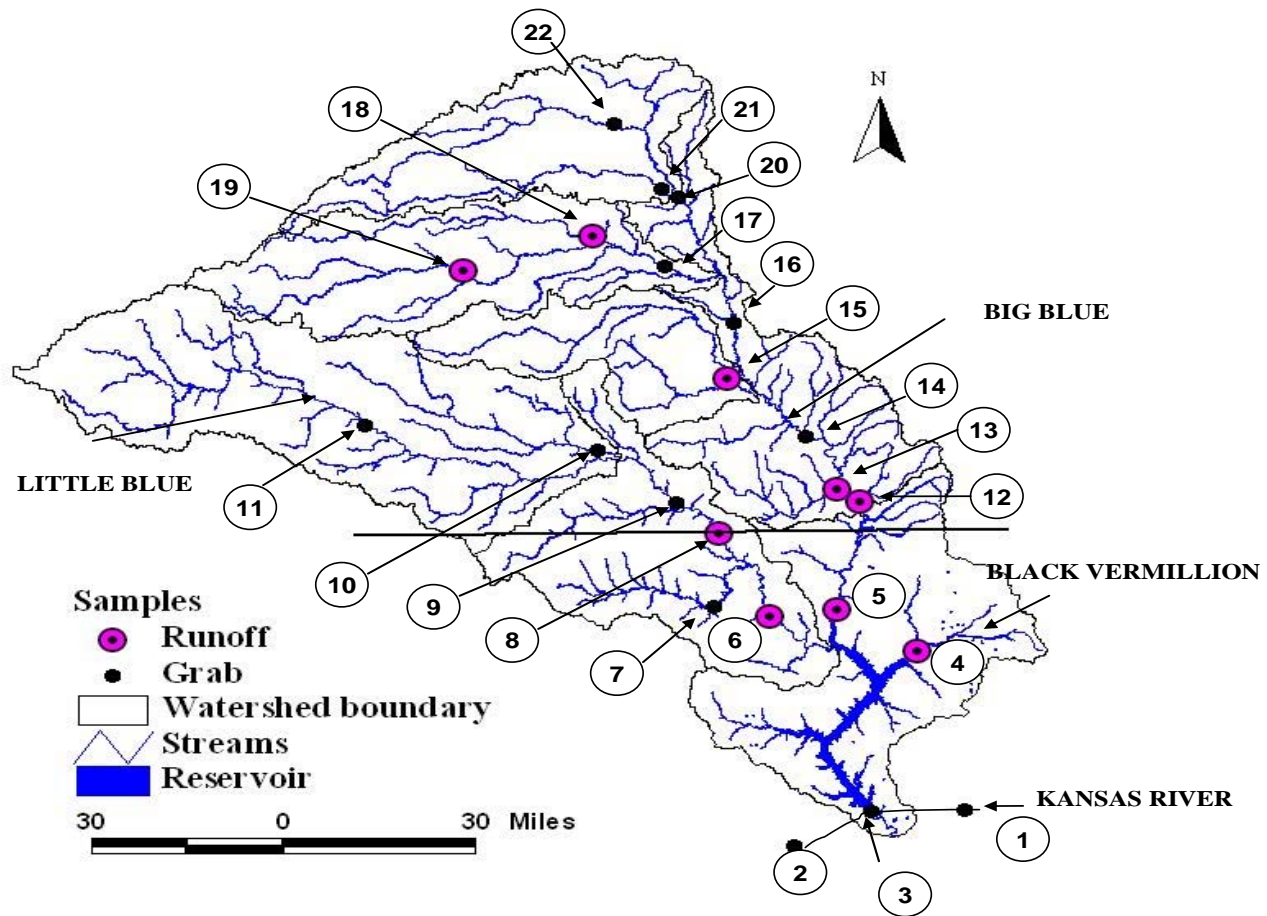


Figure 1. Big Blue River monitoring map.

Table 1. Site number and location for Big Blue River monitoring project.

Site Number	Site Location
JSBBRA01	Kansas River @ Wamego, KS
JSBBRA02	Kansas River @ K18 near Ft. Riley, KS
JSBBRA03	Big Blue River @ Tuttle Creek Reservoir near Manhattan, KS
JSBBRA04	Black Vermillion River @ Frankfort, KS
JSBBRA05	Big Blue River @ Marysville, KS
JSBBRA06	Little Blue River @ Barnes, KS
JSBBRA07	Mill Creek @ Washington, KS
JSBBRA08	Little Blue River @ Hollenberg, KS
JSBBRA09	Little Blue River @ Fairbury, NE
JSBBRA10	Big Sandy Creek @ Alexandria, NE
JSBBRA11	Little Blue River near Deweese, NE
JSBBRA12	Big Blue River @ Barneston, Nebraska
JSBBRA 13	Big Indian Creek @ Wymore, Nebraska
JSBBRA14	Big Blue River @ Beatrice, Nebraska
JSBBRA15	Turkey Creek near Wilber, NE
JSBBRA16	Big Blue River near Crete, NE
JSBBRA17	West Fork Big Blue River near Dorchester, NE
JSBBRA18	Beaver Creek near Beaver Crossing, NE
JSBBRA19	West Fork Big Blue River near Lushton, NE
JSBBRA20	Big Blue River @ Seward, NE
JSBBRA21	Lincoln Creek near Seward, NE
JSBBRA22	Big Blue River @ Surprise, NE

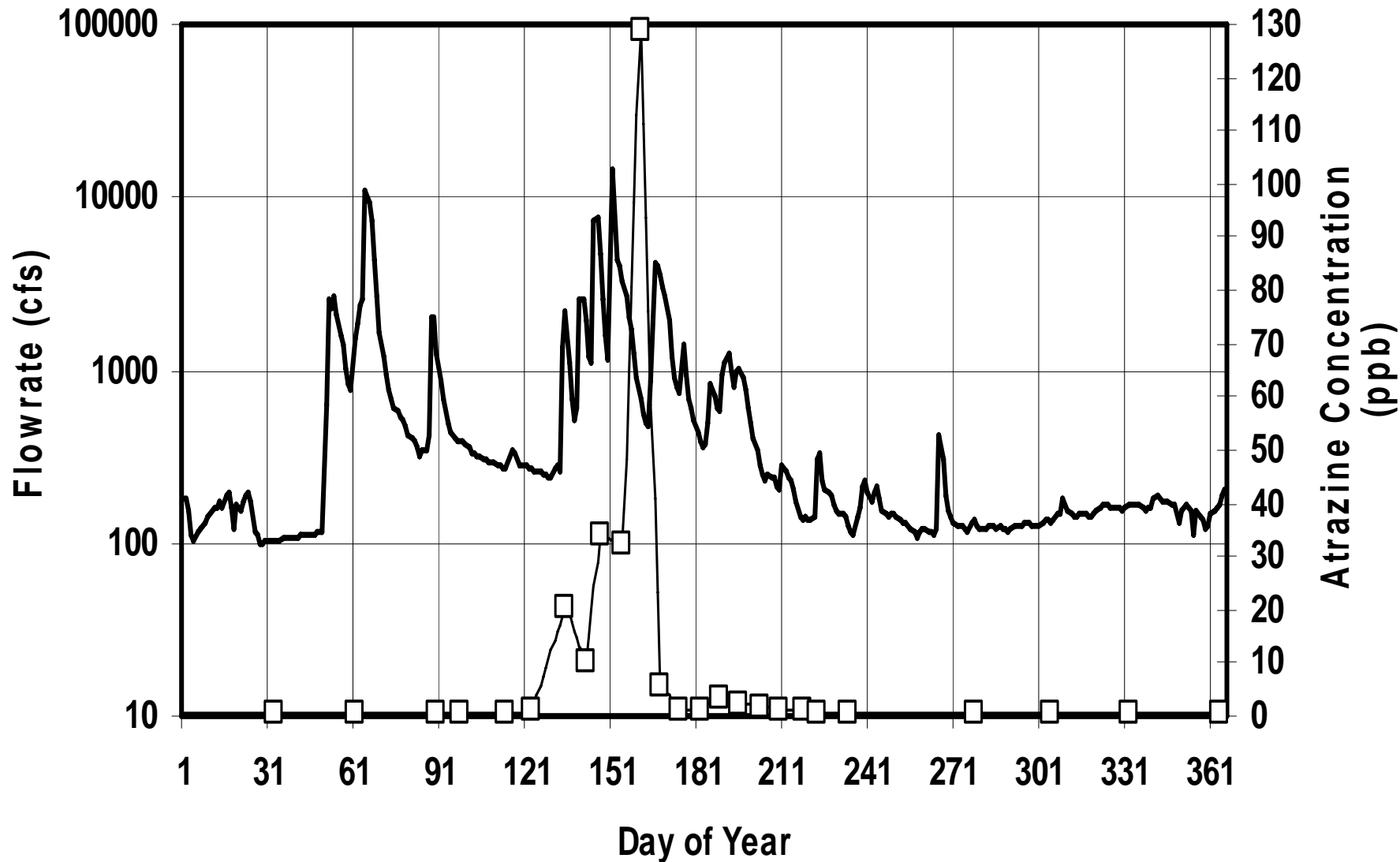
Table 2. Big Blue River monitoring location attributes.

Site	Site Location	Drainage Area (sq. mi.)	% of Basin
1	Lat: 39°11'52" Long: 96°18'16"	55,280	-
2	Lat: 39°03'09" Long: 96°46'33"	44,870	-
3	Lat: 39°14'14" Long: 96°34'16"	9,640	100
4	Lat: 39°41'03" Long: 96°26'15"	410	4
5	Lat: 39°50'31" Long: 96°39'39"	4,777	50
6	Lat: 39°46'33" Long: 96°51'29"	3,324	34
7	Lat: 39°48'50" Long: 97°02'20"	344	4
8	Lat: 39°58'48" Long: 97°00'16"	2,752	29
9	Lat: 40°06'54" Long: 97°10'13"	2,350	24
10	Lat: 40°14'06" Long: 97°23'20"	607	6
11	Lat: 40°19'58" Long: 98°04'00"	979	10
12	Lat: 40°02'40" Long: 96°35'12"	4,370	45
13	Lat: 40°06'31" Long: 96°40'18"	384	4
14	Lat: 40°15'22" Long: 96°44'47"	3,830	40
15	Lat: 40°28'48" Long: 97°00'43"	460	5
16	Lat: 40°35'47" Long: 96°57'33"	2,716	28
17	Lat: 40°43'52" Long: 97°10'38"	1,206	13
18	Lat: 40°47'49" Long: 97°20'56"	664	7
19	Lat: 40°41'55" Long: 97°43'49"	468	5
20	Lat: 40°54'10" Long: 97°06'40"	1,099	11
21	Lat: 40°54'57" Long: 97°08'43"	446	5
22	Lat: 41°06'05" Long: 97°18'35"	345	4

# Monitoring Parameters

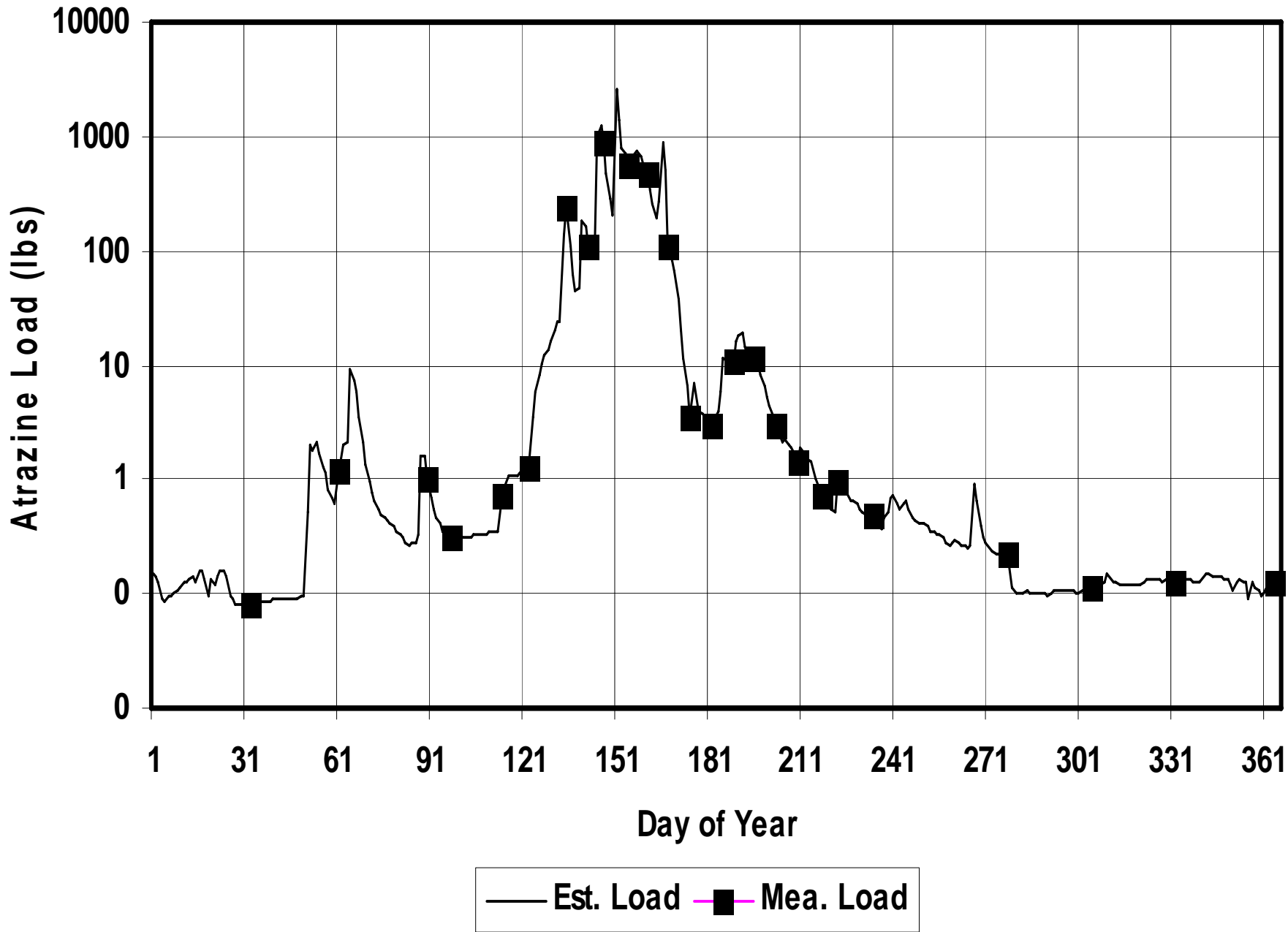
1. Stream flow
2. Pesticide concentration
  - atrazine (broad leaf herbicide)
  - metolachlor (grass herbicide)
  - acetochlor (grass herbicide)
  - alachlor (grass herbicide).

# Big Blue River, Marysville, KS 2004

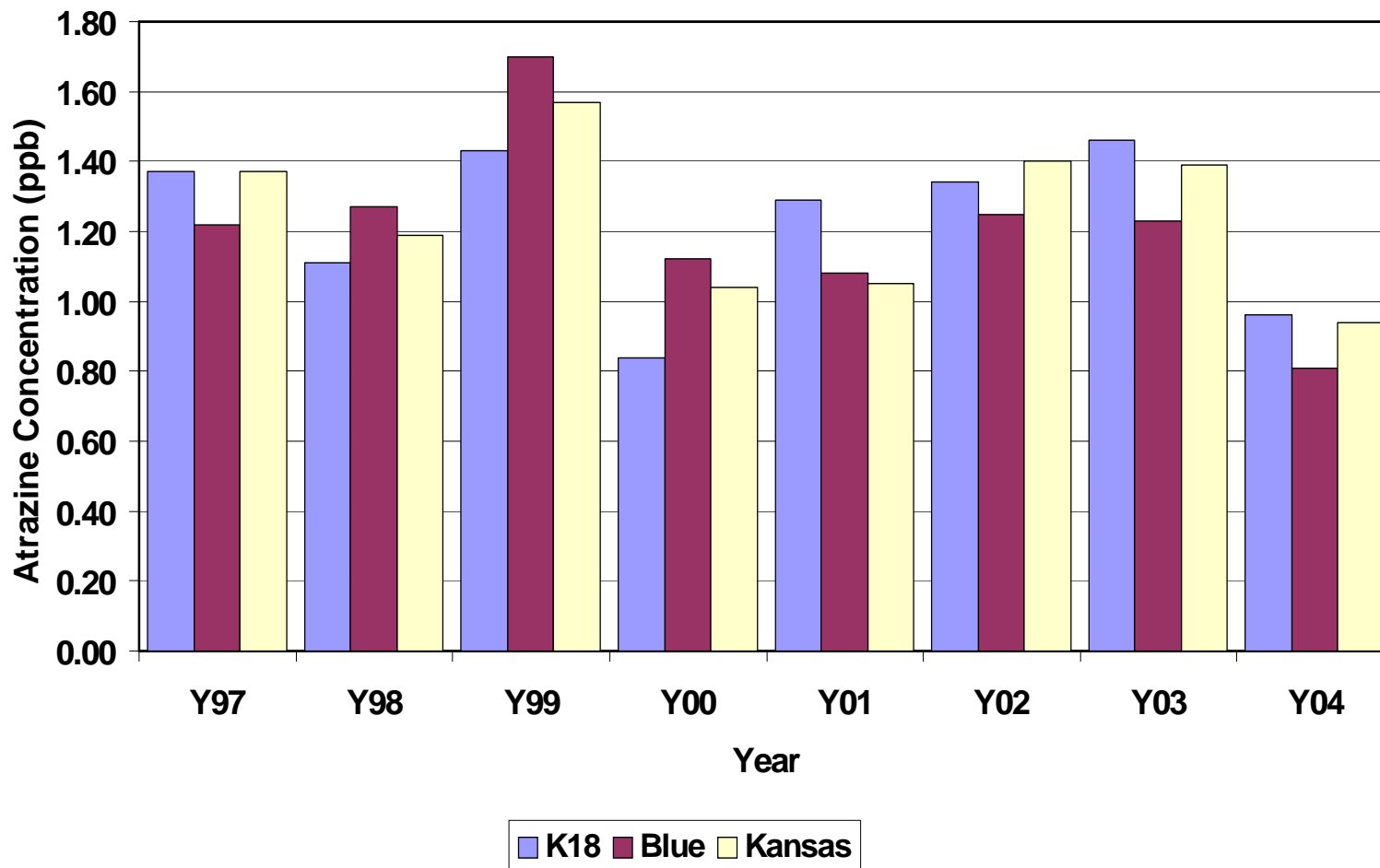


— Flow — Est. Conc. □ Mea. Conc.

# Big Blue River, Marysville, KS 2004



### Lower Kansas Monitoring Sites



**Figure 2. Average annual atrazine concentrations at the Kansas River at K18, Tuttle Creek Lake outflow, and the Kansas River at Wamego, Kansas.**

### Tuttle Creek Inflow Atrazine Concentration

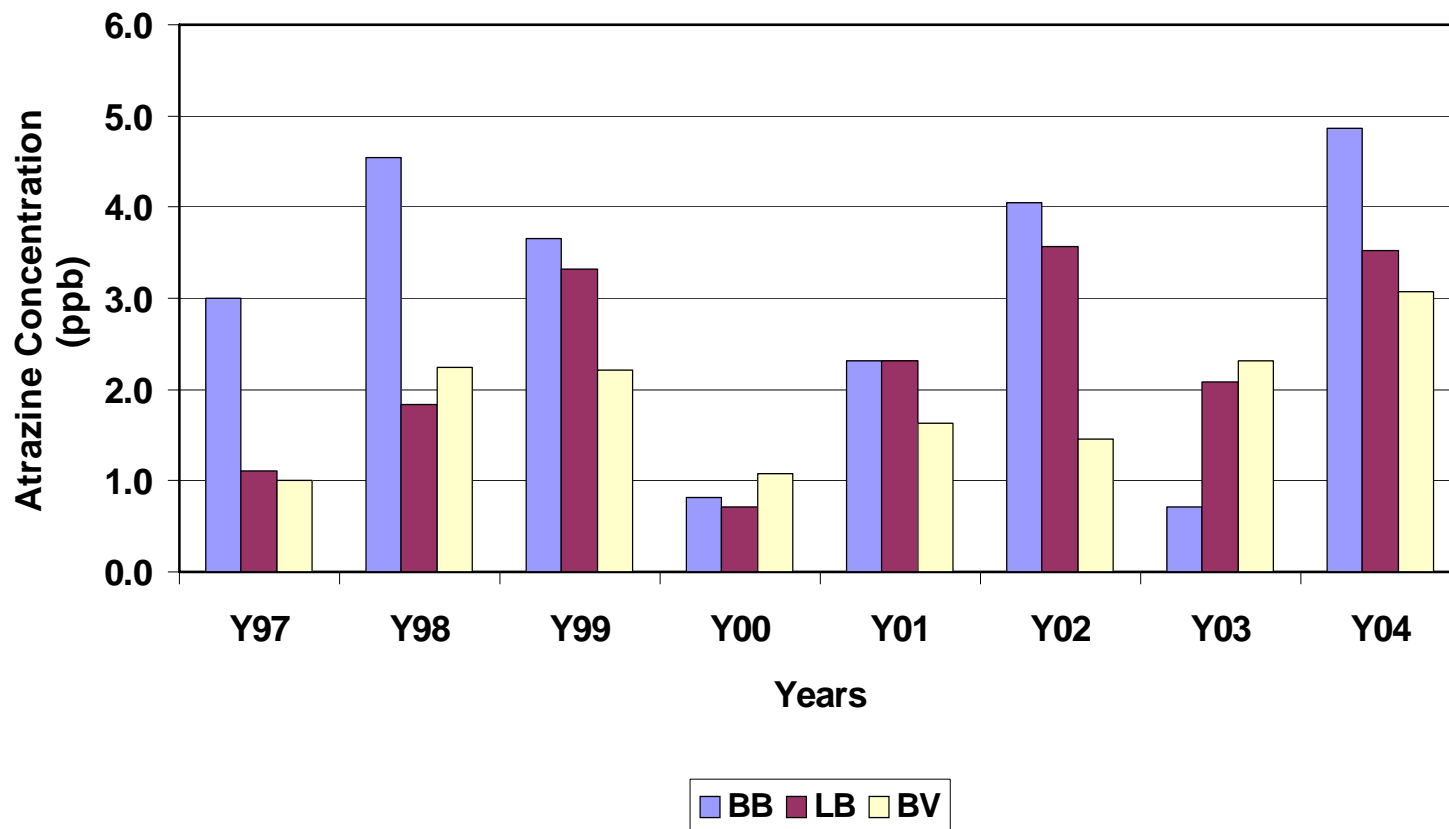


Figure 3. Annual average atrazine concentration for tributaries flowing into Tuttle Creek Lake.

### Tuttle Creek Reservoir Inflow

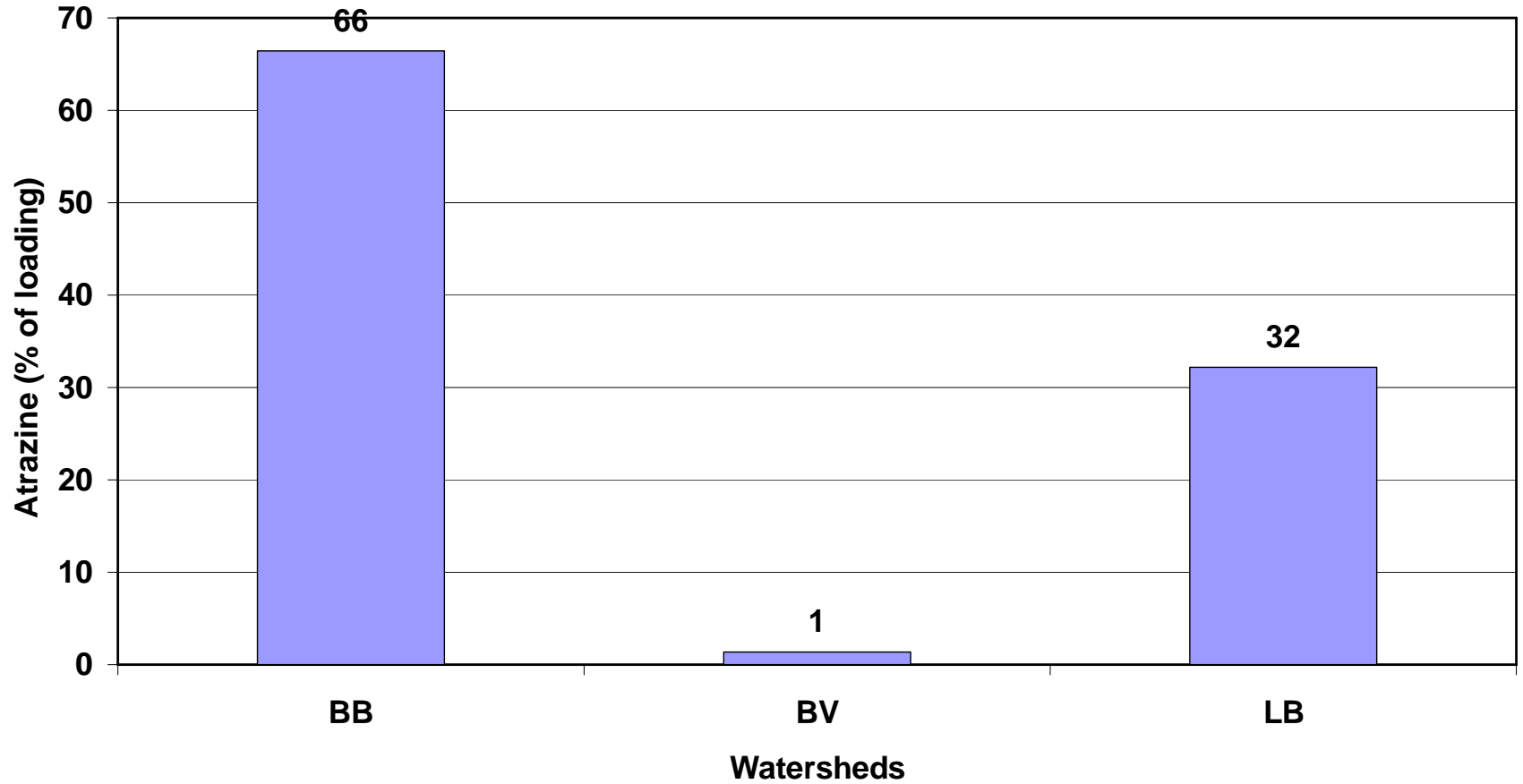


Figure 4. Tributary contribution to total loading in Tuttle Creek Lake during 2004.

## Big Blue Atrazine Concentrations

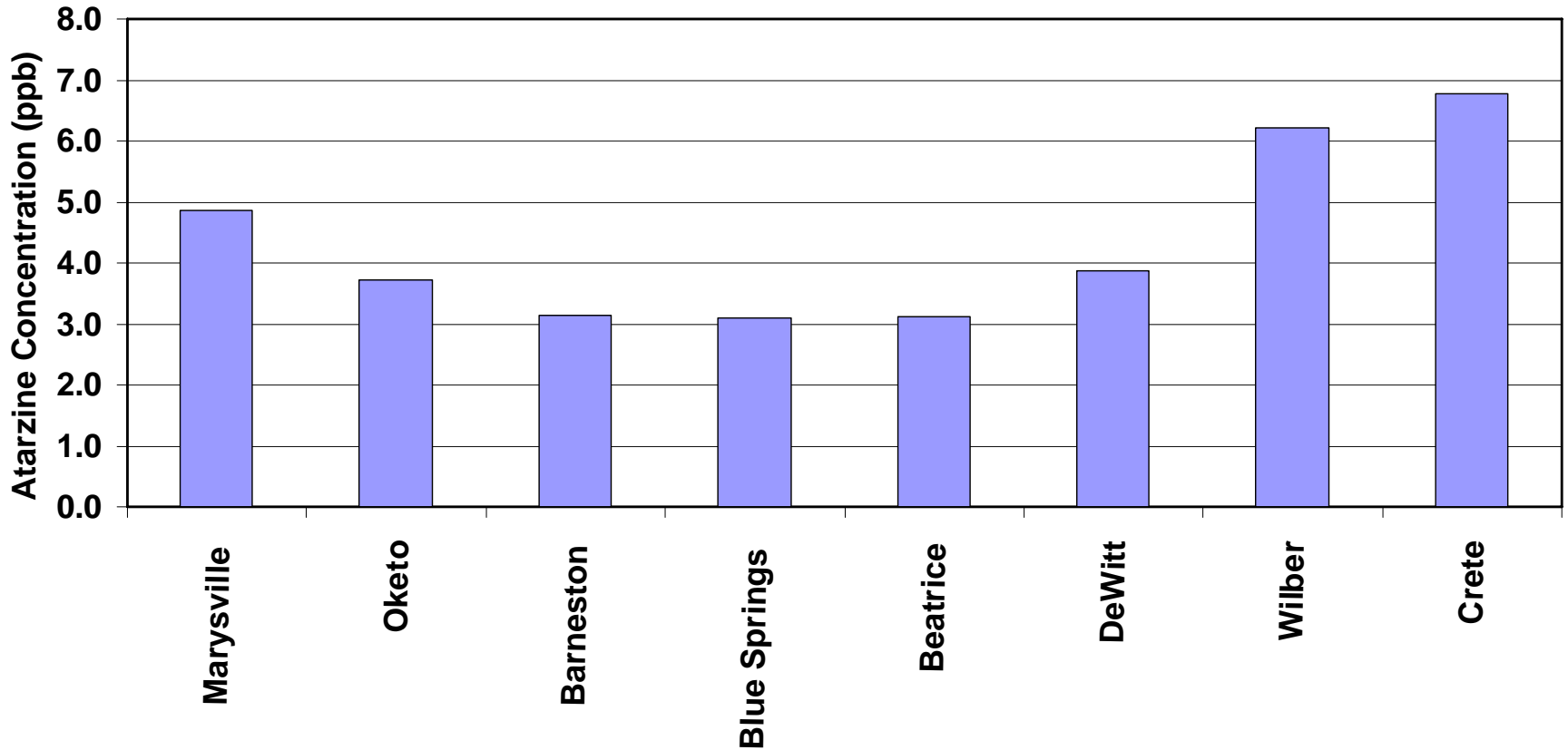


Figure 7. Annual average concentrations along the Big Blue River during 2004.

## Big Blue Atrazine Loads

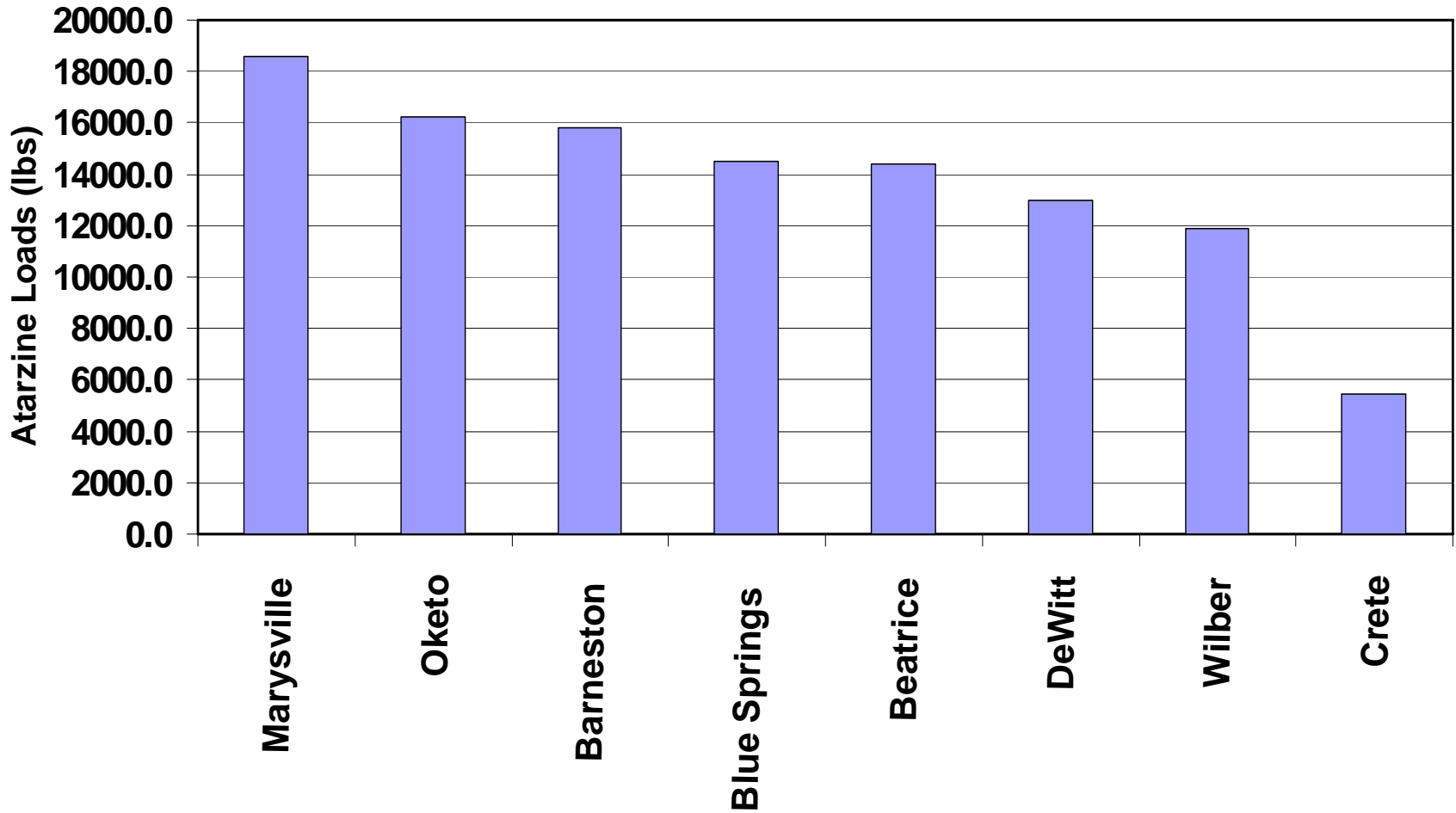


Figure 8 shows the 2004 spatial loading along the Big Blue River.

# TEMPORAL BIG BLUE LOADING

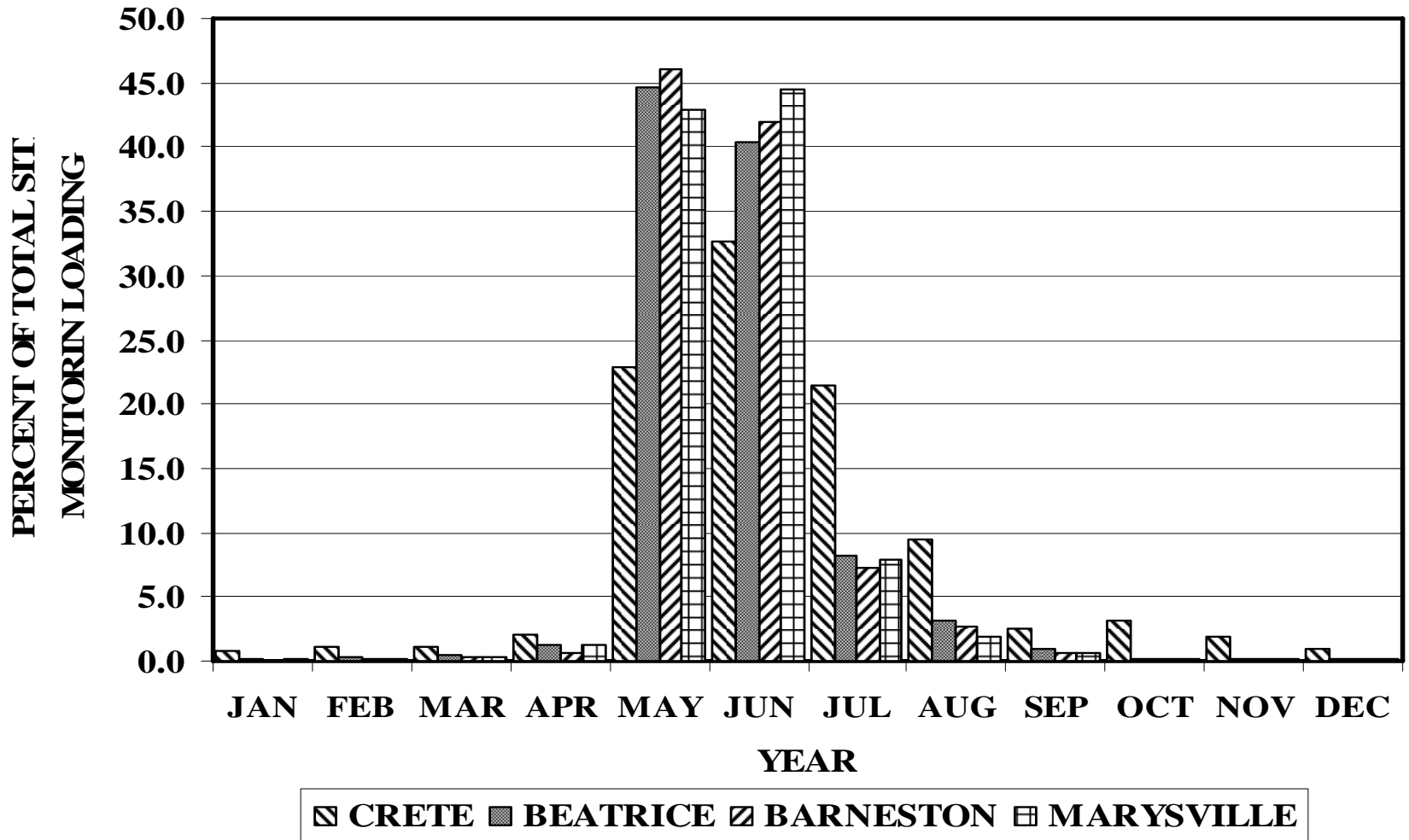


Figure 9. Temporal loading along the Big Blue River.

# CONCLUSION

Big Blue Atrazine

