
Load Duration Curves

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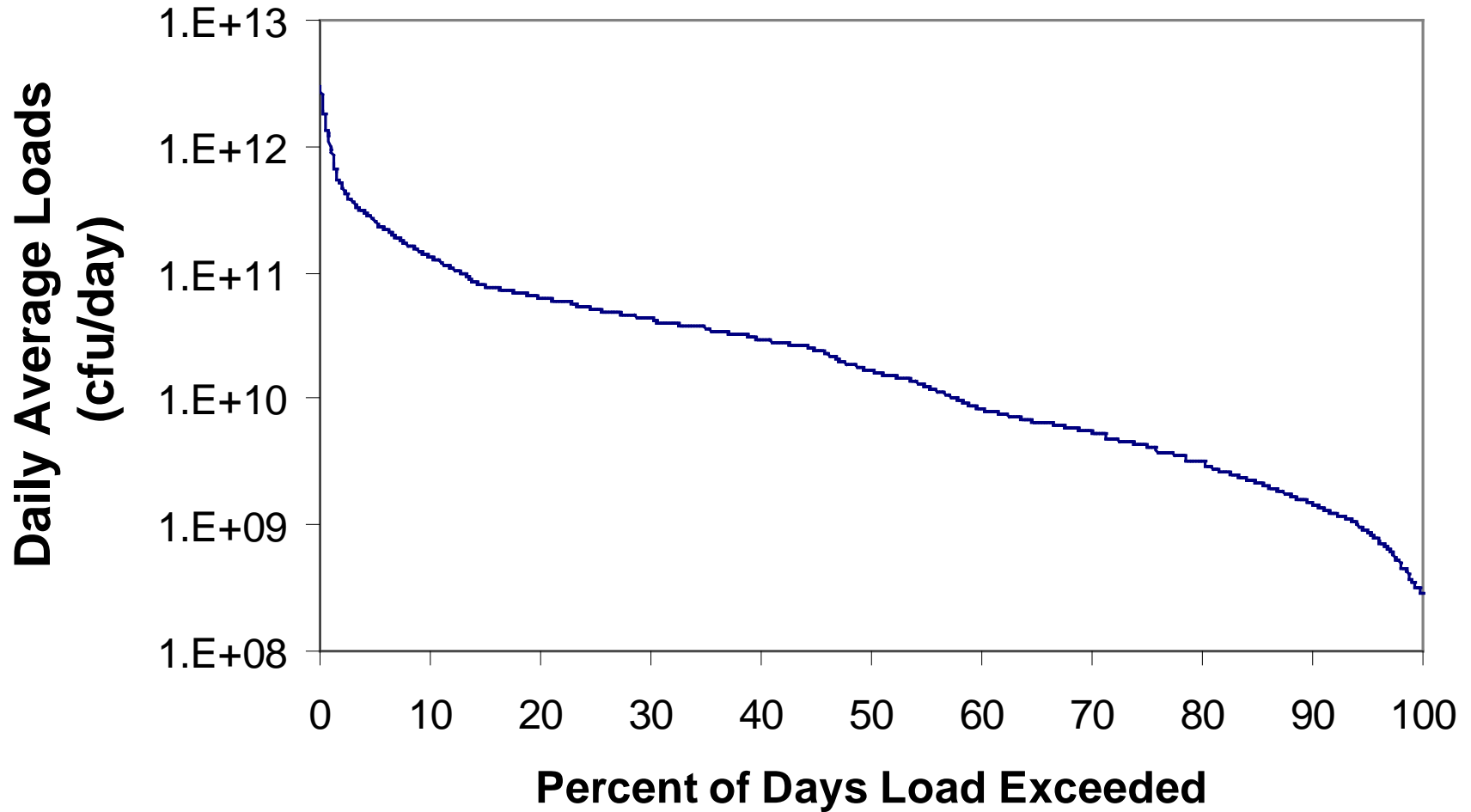
Allen Berthold

Lucas Gregory

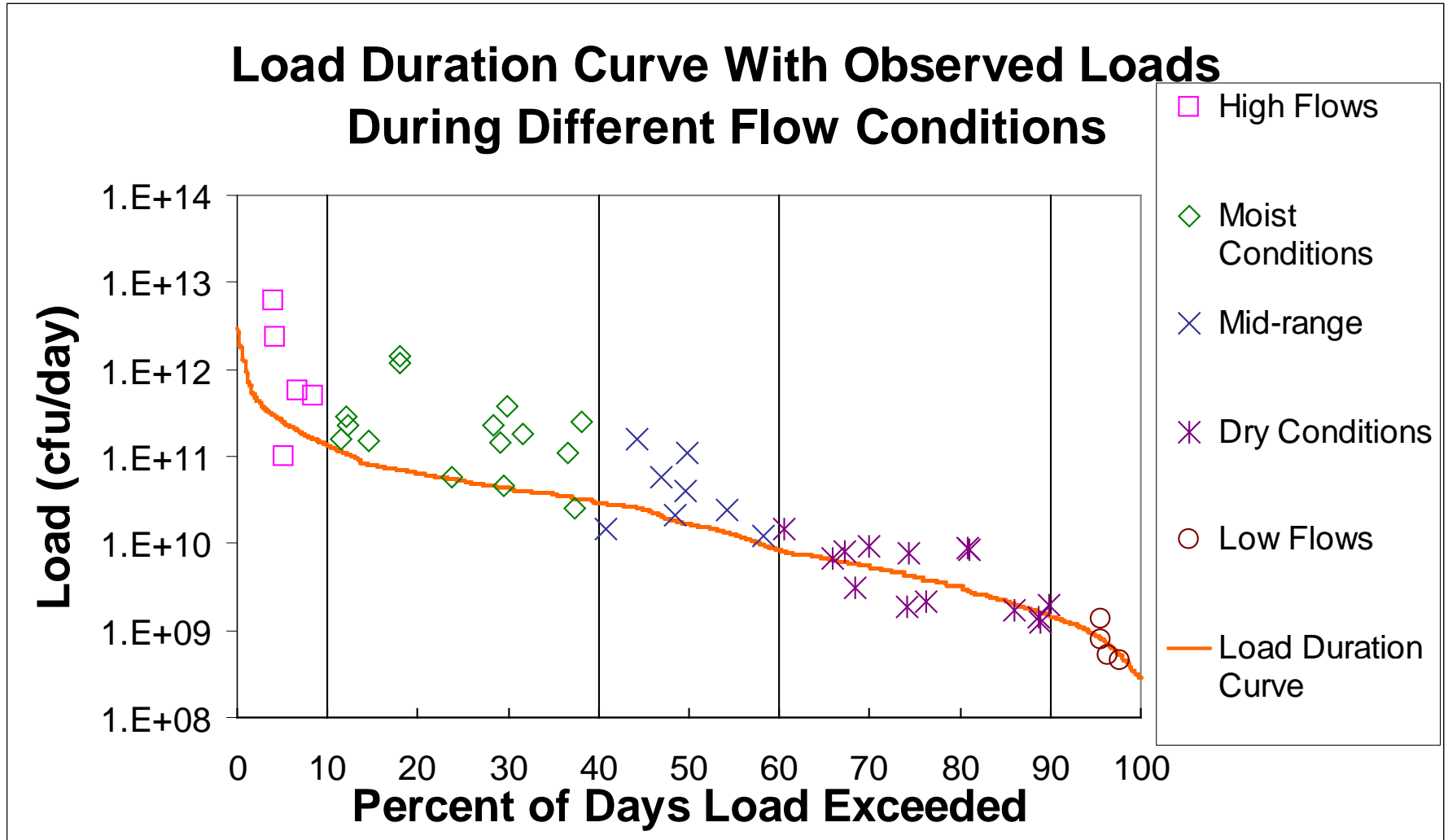
Texas Water Resources Institute

Example Load Duration Curve

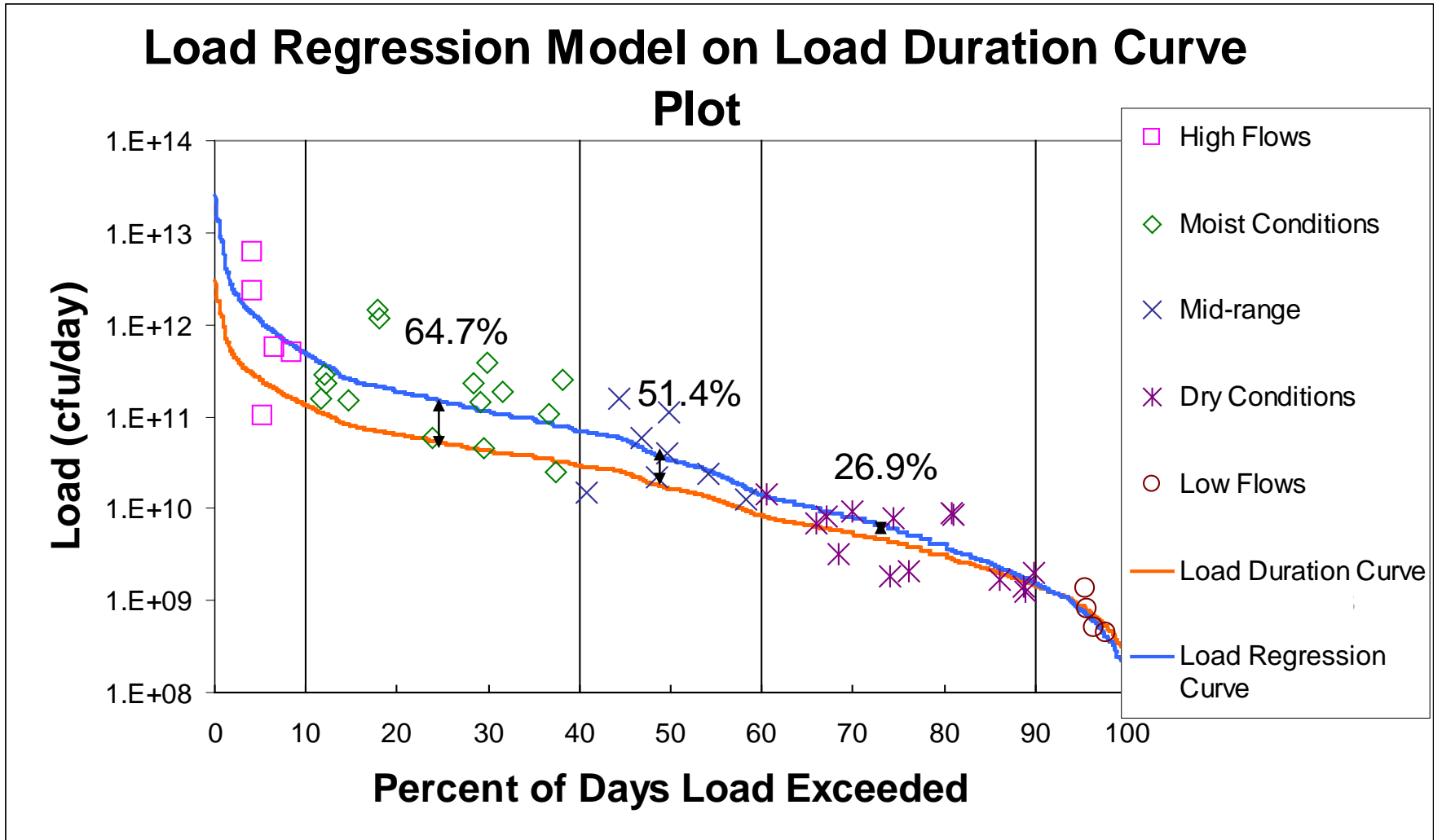
Load Duration Curve



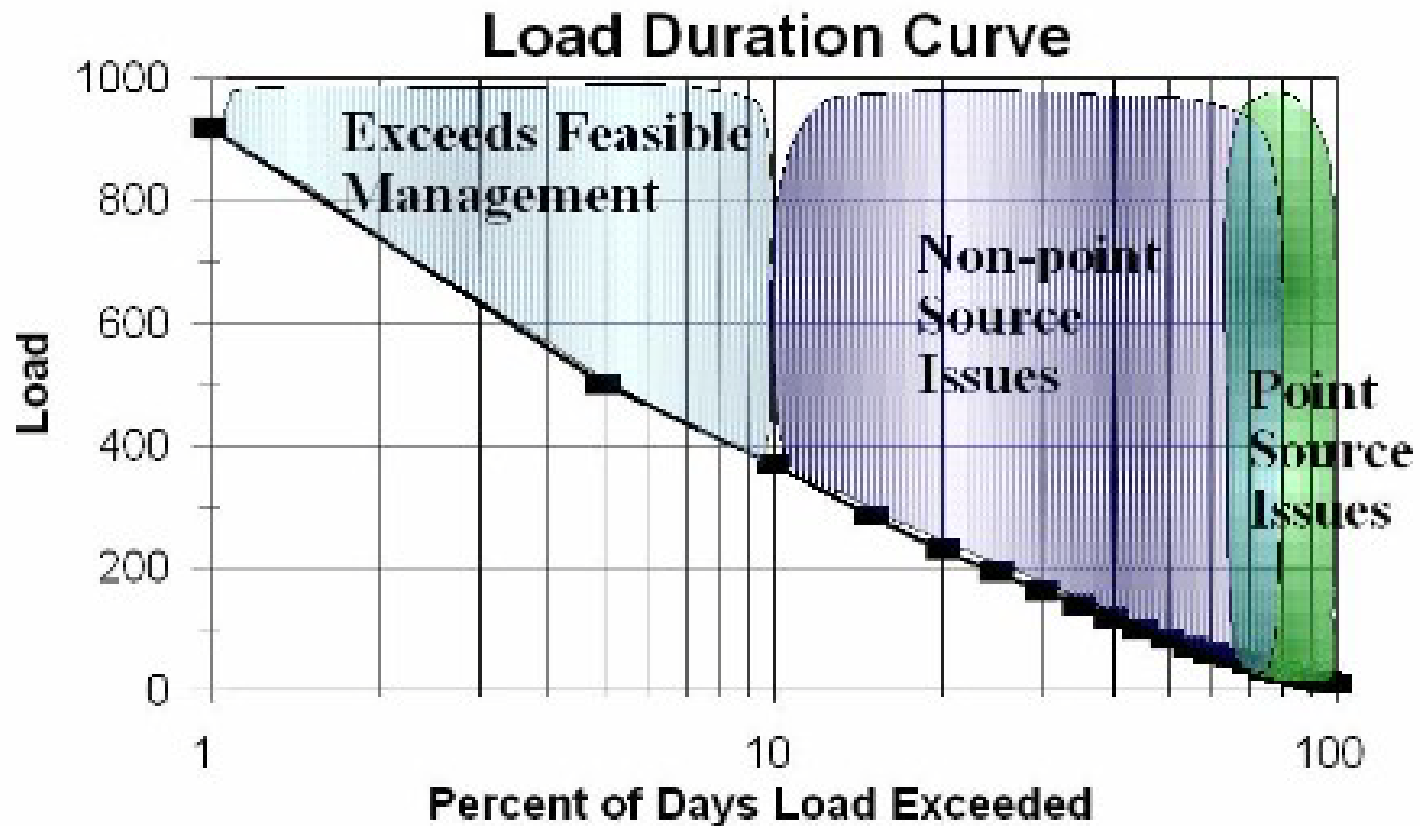
Example Load Duration Curve



Example Load Regression Model



LDC Usefulness (source ID based on LDC)

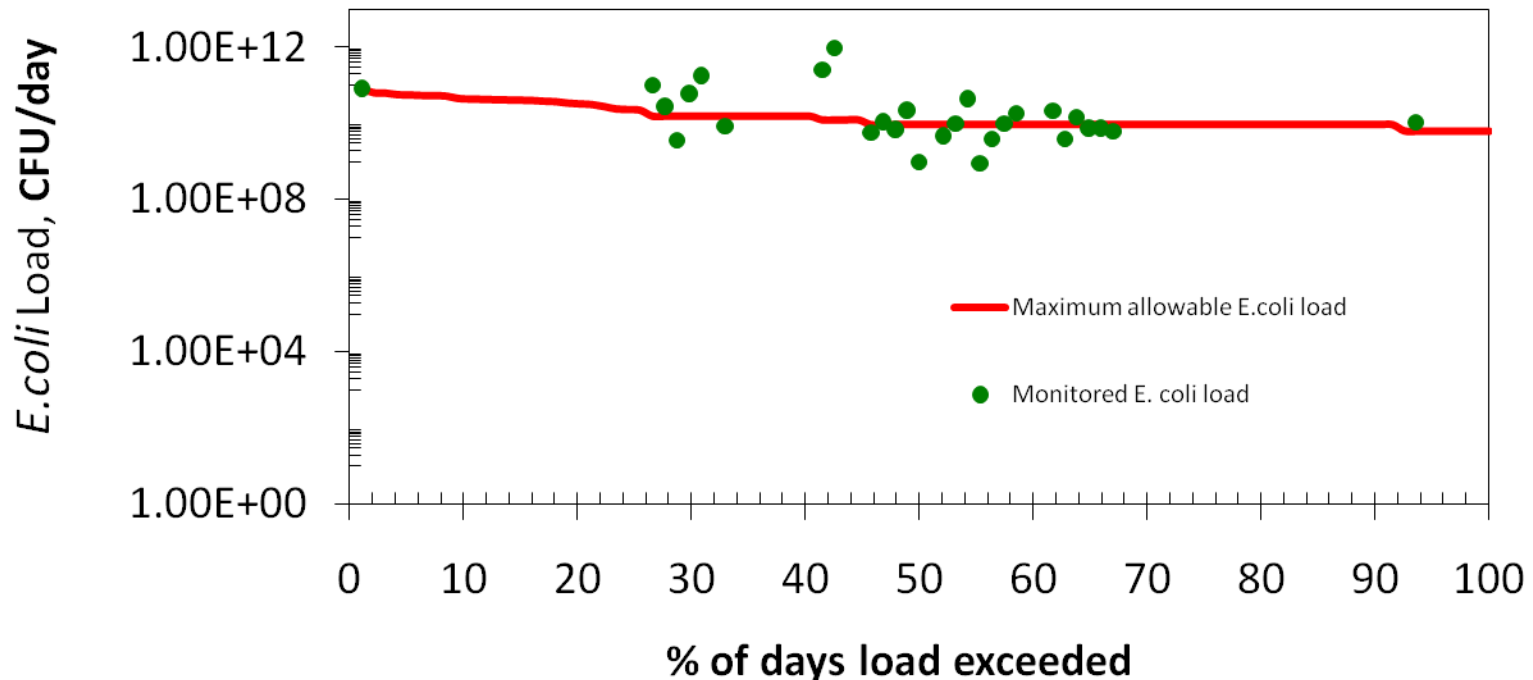


Load Duration Curve Analysis

Five Watersheds in Little Brazos River

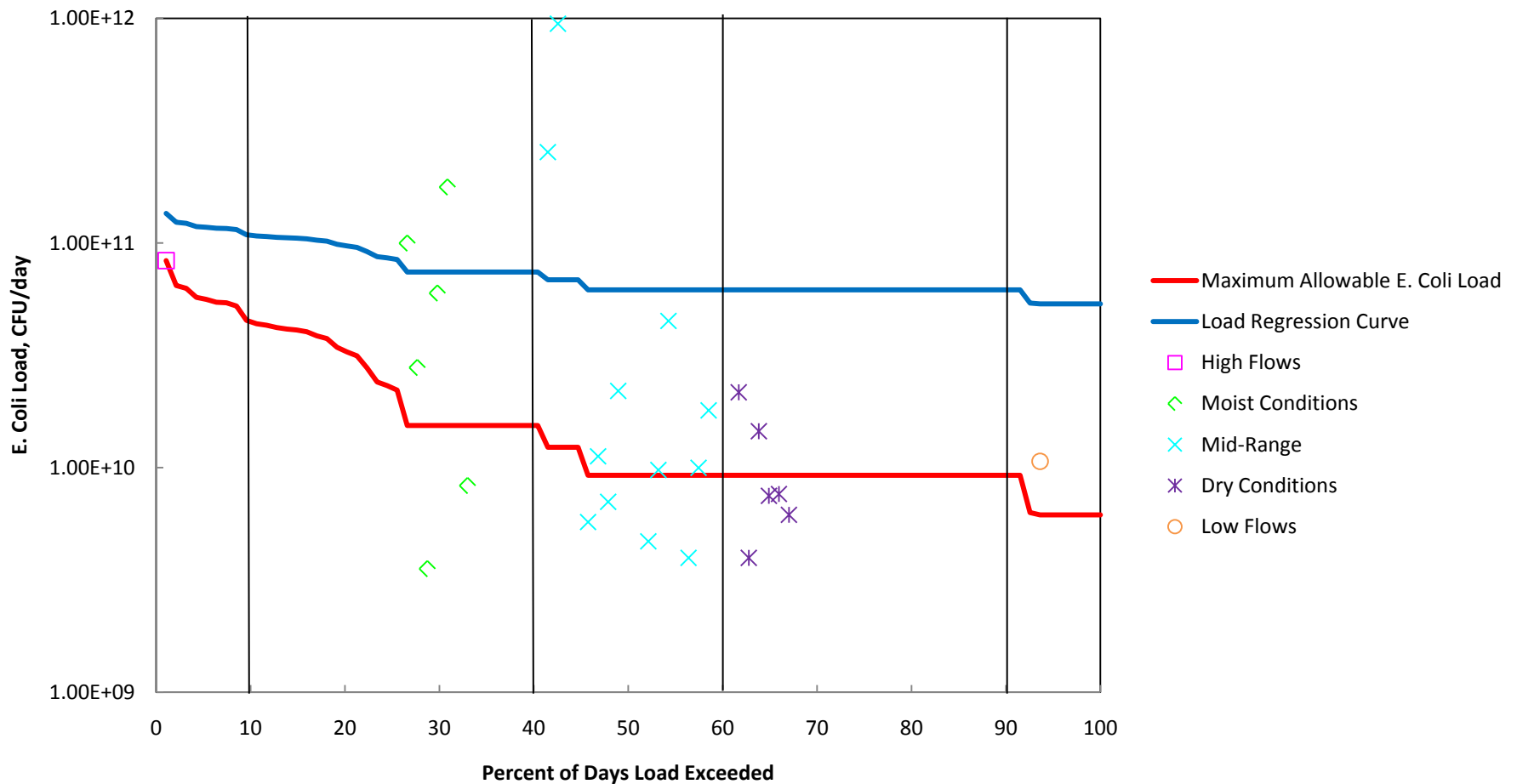
Walnut Creek (Historic Data: 2001-2007)

Load Duration Curve (Walnut Creek Site 16403)



Walnut Creek (Historic Data: 2001–2007)

Load Reduction Curve (Walnut Creek)

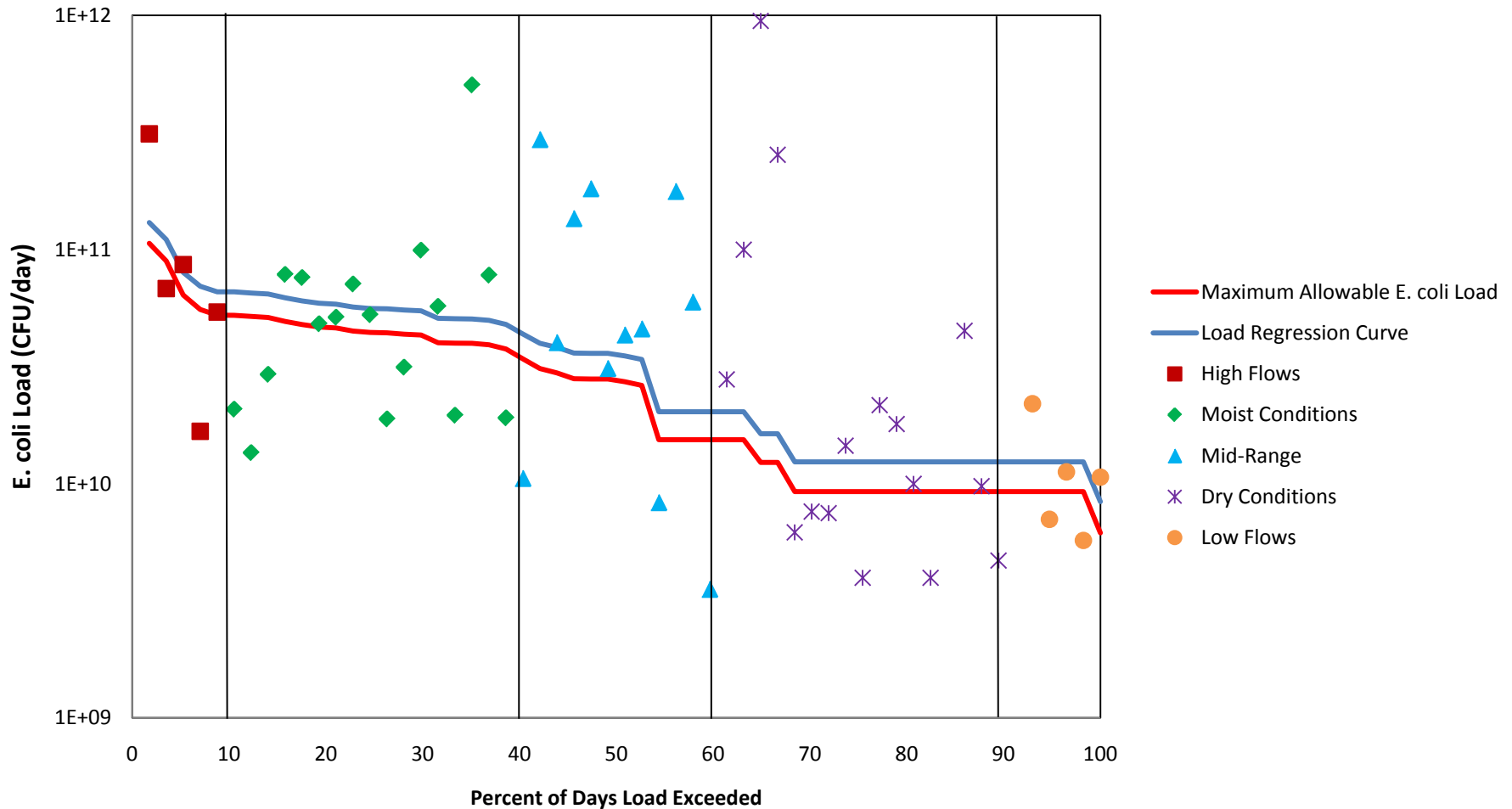


Walnut Creek (Site 16403; 2001-2007)

Flow Condition	Percent Reduction	Flow (cfs)
High Flows	50.9	27.1 – 14.4
Moist Conditions	71.6	5
Mid-Range	84.1	3
Dry Conditions	85.1	2.9
Low Flows	87.8	2

Walnut Creek (Historic plus Current Data: 2001–2010)

Load Reduction Curve (Walnut Creek 16403)

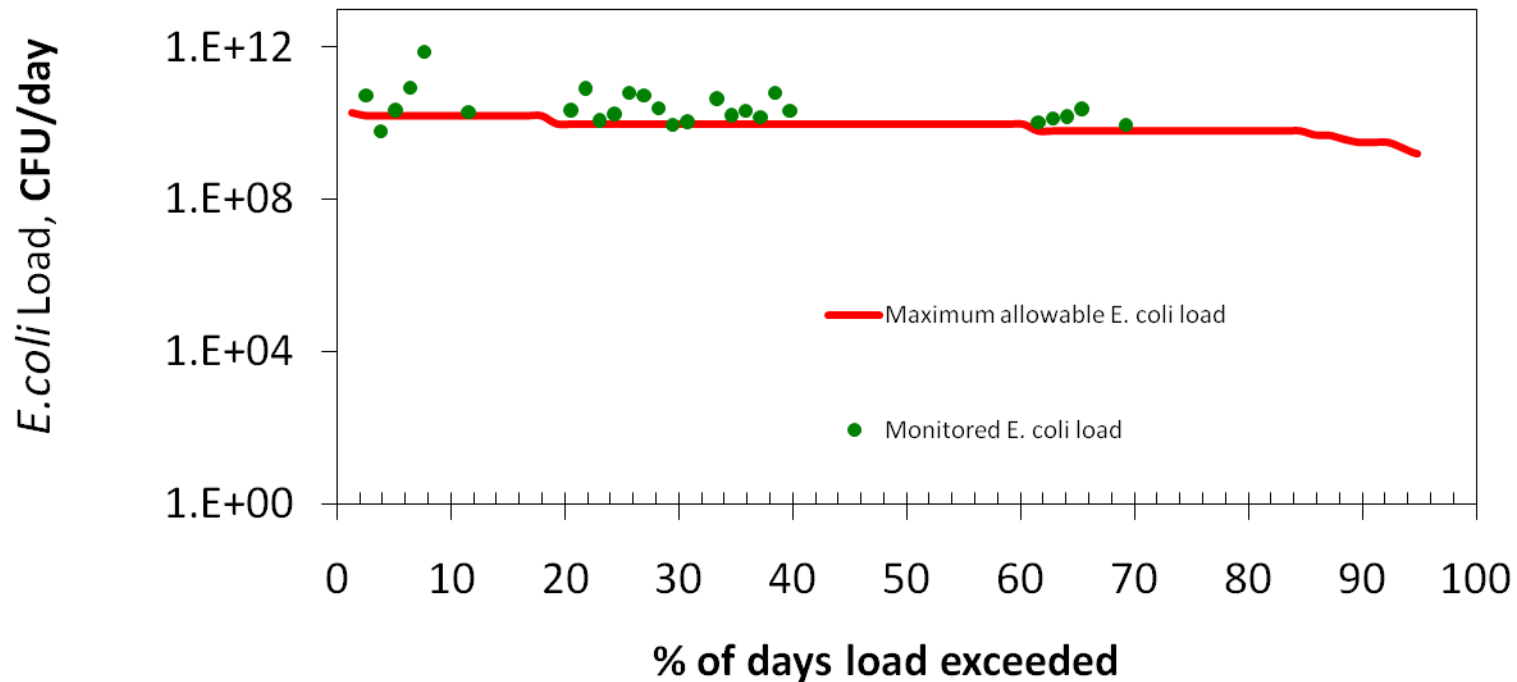


Walnut Creek (Site 16403; 2001-2010)

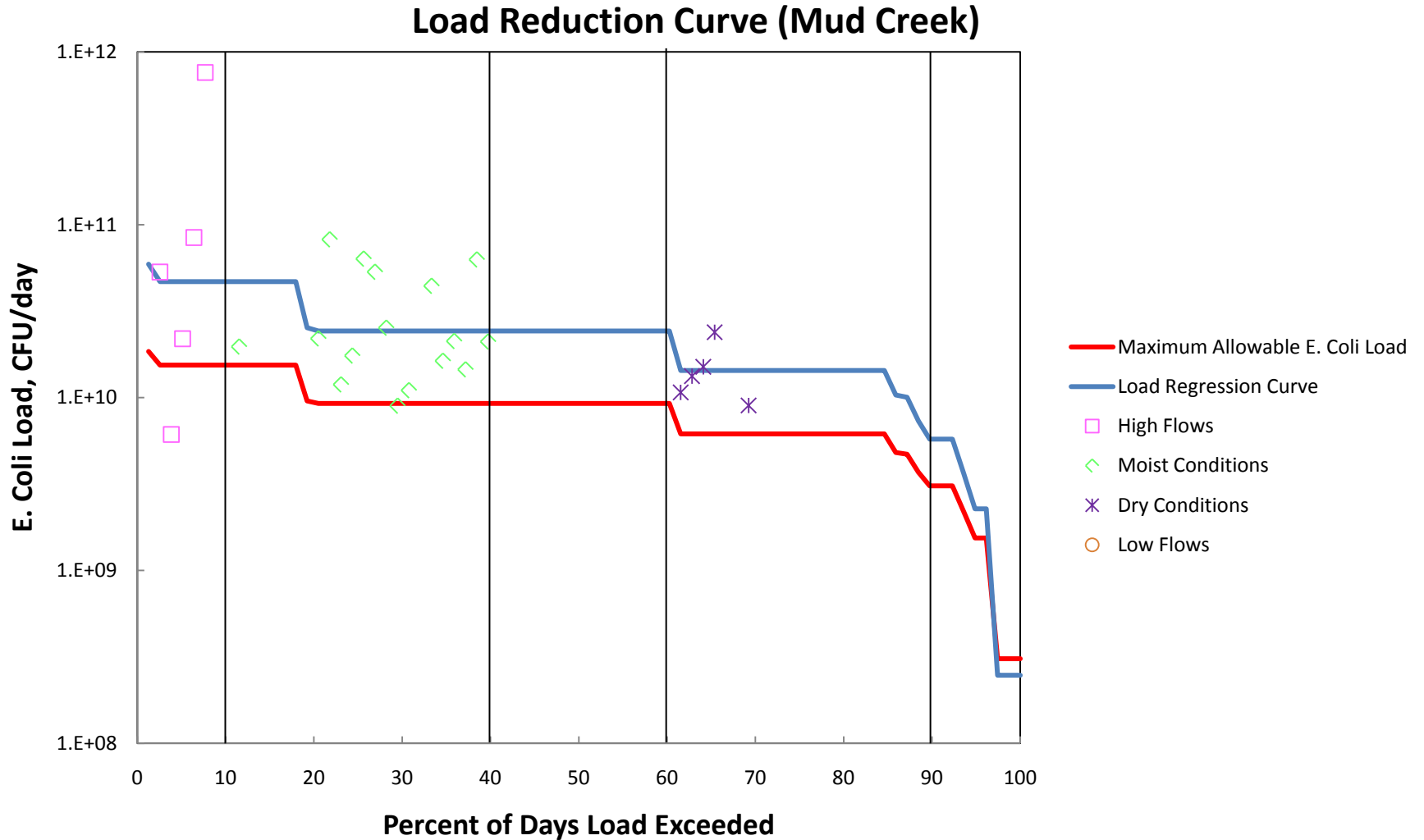
Flow Condition	Percent Reduction	Flow (cfs)
High Flows	20	34.5 - 17
Moist Conditions	21	12.2
Mid-Range	23	5
Dry Conditions	25	3
Low Flows	26	2

Mud Creek (Historic Data: 2002-2007)

Load Duration Curve (Mud Creek Site 16402)



Mud Creek (Historic Data: 2002-2007)

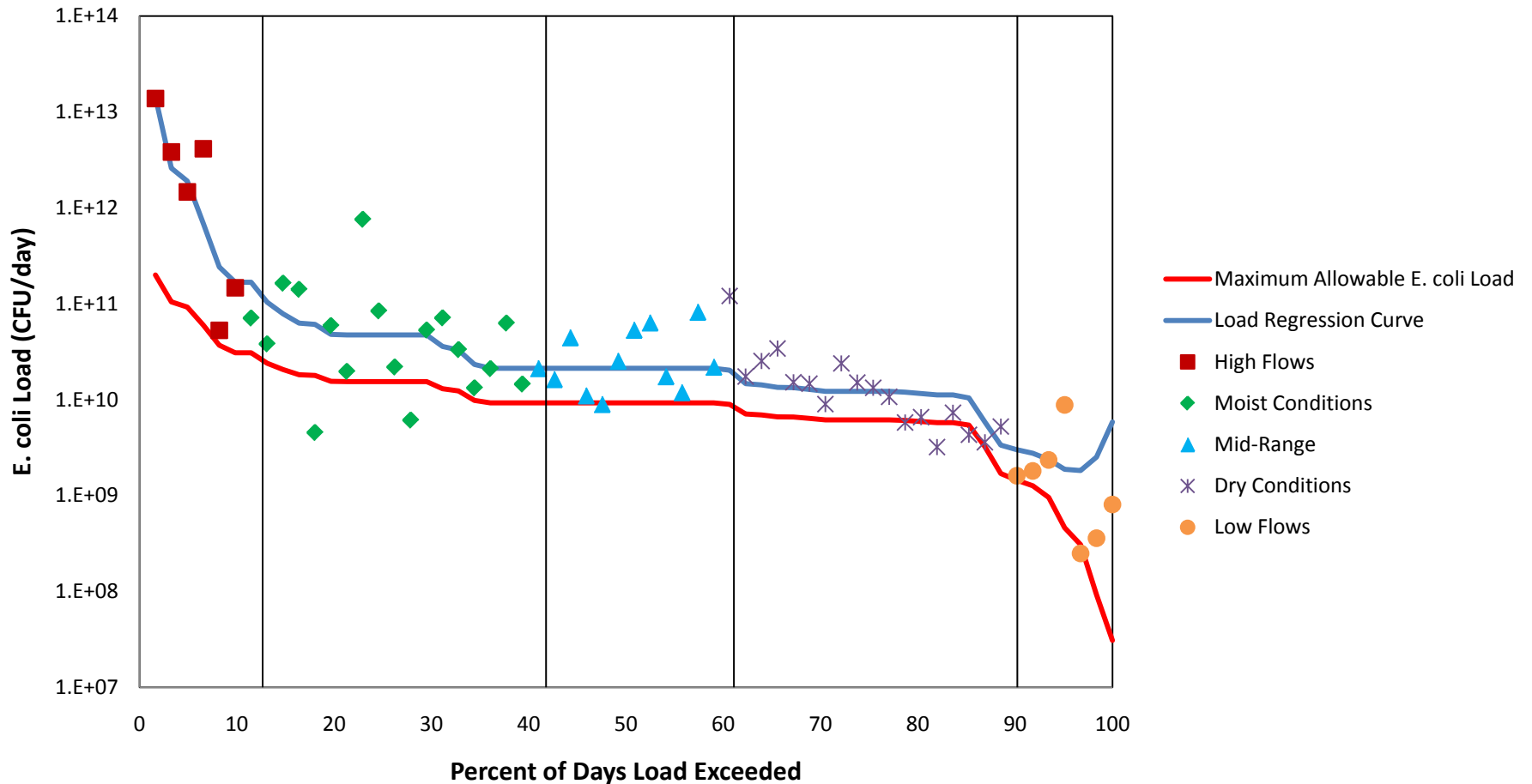


Mud Creek (*Site 16402; 2002-2007*)

Flow Condition	Percent Reduction	Flow (cfs)
High Flows	67	6 - 5
Moist Conditions	63	3
Mid-Range	62	2.9
Dry Conditions	56	1
Low Flows	39	0

Mud Creek (Historic plus current data: 2002-2010)

Load Reduction Curve (Mud Creek Site 16402)

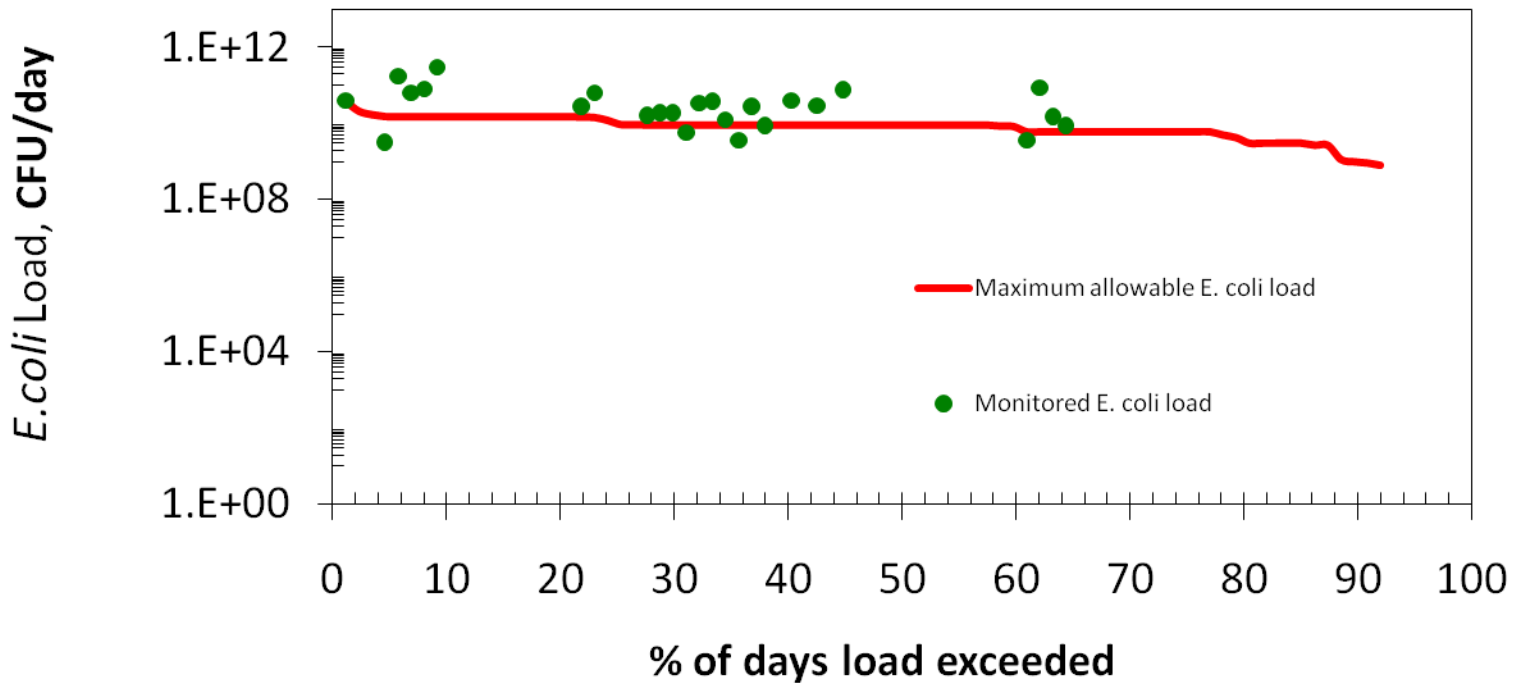


Mud Creek (*Site 16402; 2002-2010*)

Flow Condition	Percent Reduction	Flow (cfs)
High Flows	91	65 - 10
Moist Conditions	67	3
Mid-Range	57	2.9
Dry Conditions	50	0.6
Low Flows	74	0

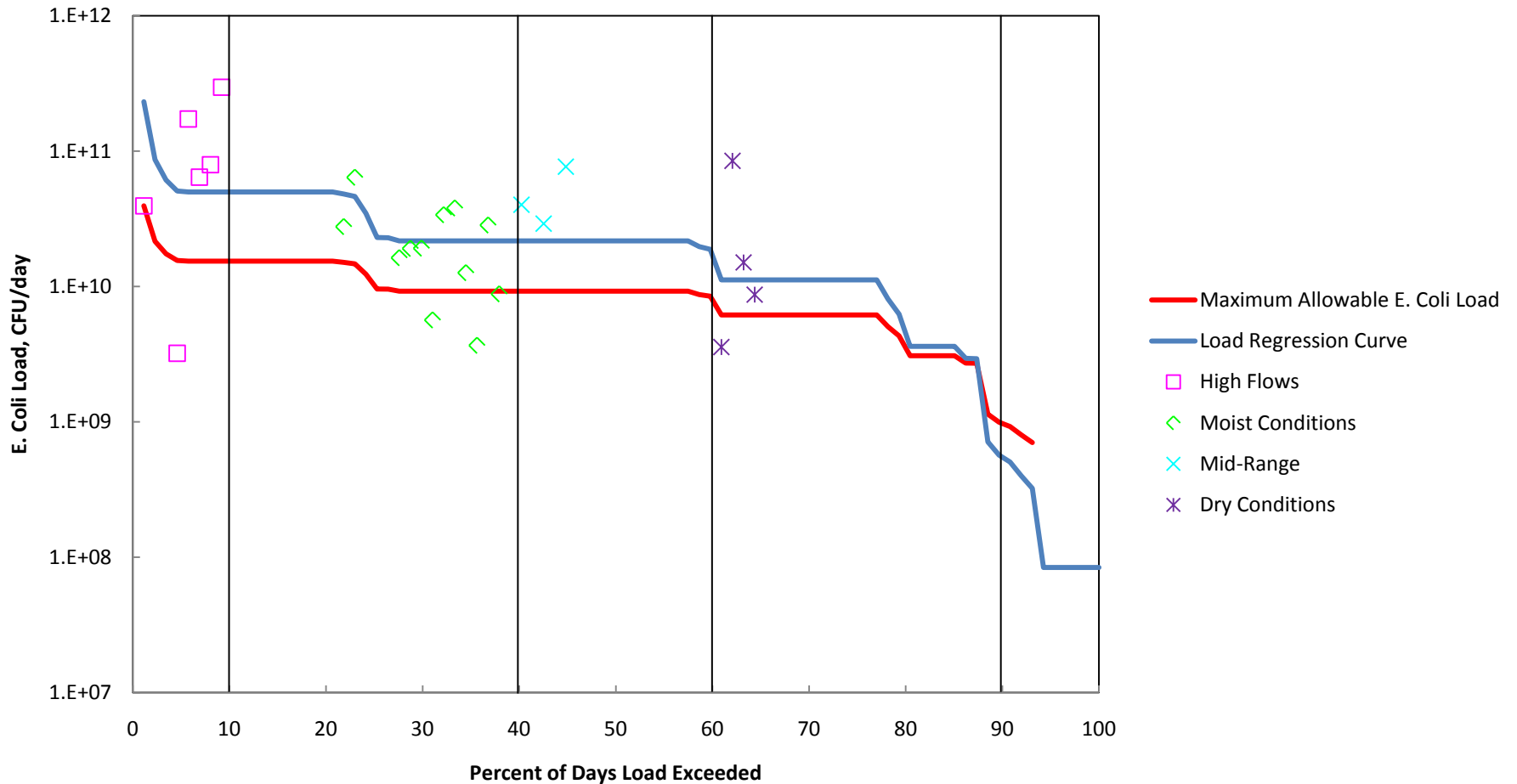
Pin Oak Creek (Historic Data: 2002-2007)

Load Duration Curve (Pin Oak Creek Site 16401)



Pin Oak Creek (Historic Data: 2002–2007)

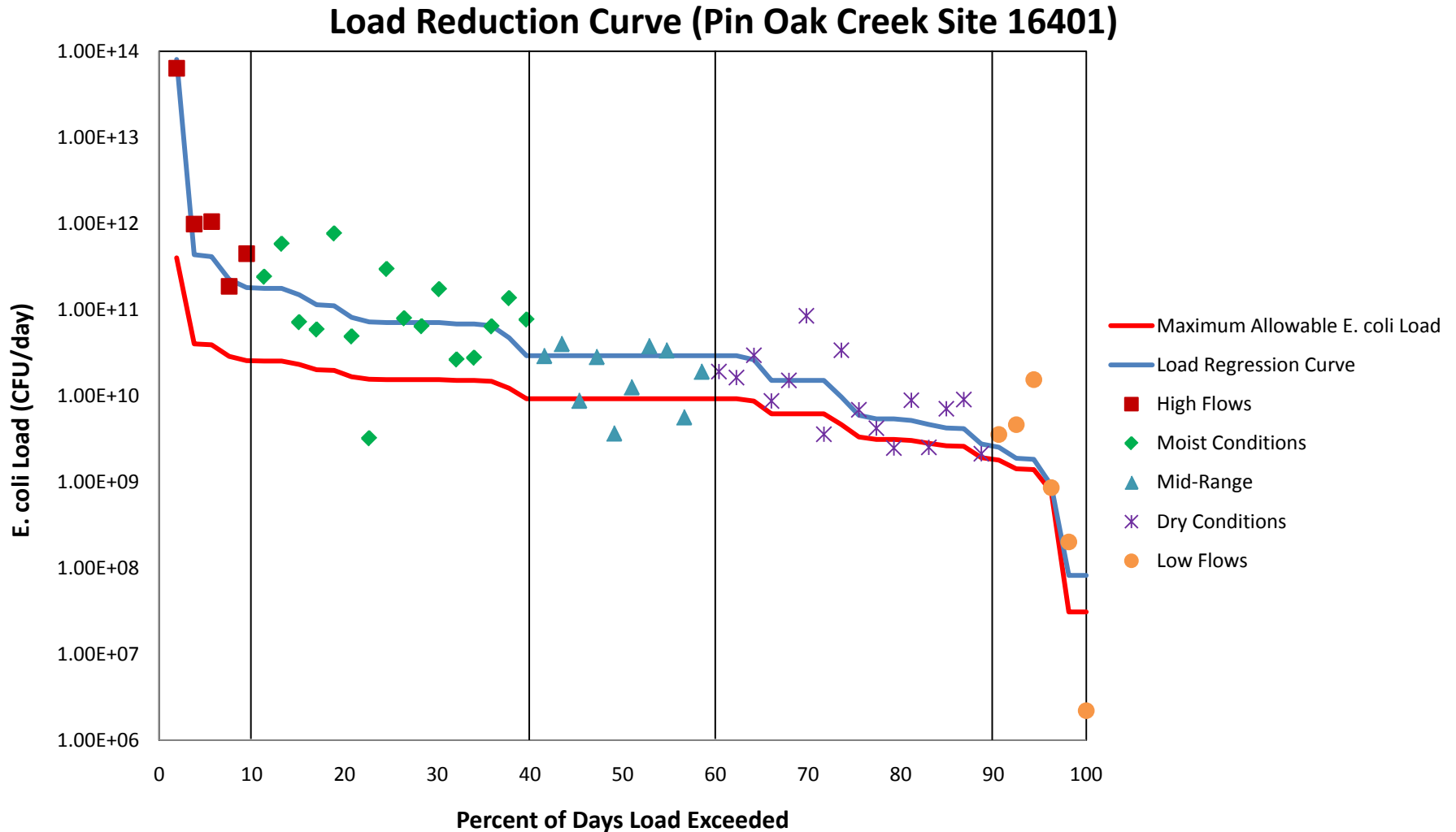
Load Reduction Curve (Pin Oak Creek)



Pin Oak Creek (*Site 16401; 2002-2007*)

Flow Condition	Percent Reduction	Flow (cfs)
High Flows	72.0	12.8 - 5
Moist Conditions	63.1	3
Mid-Range	57.2	2.8
Dry Conditions	34.6	0.3
Low Flows	N/A	0

Pin Oak Creek (Historic plus Current Data: 2002-2010)

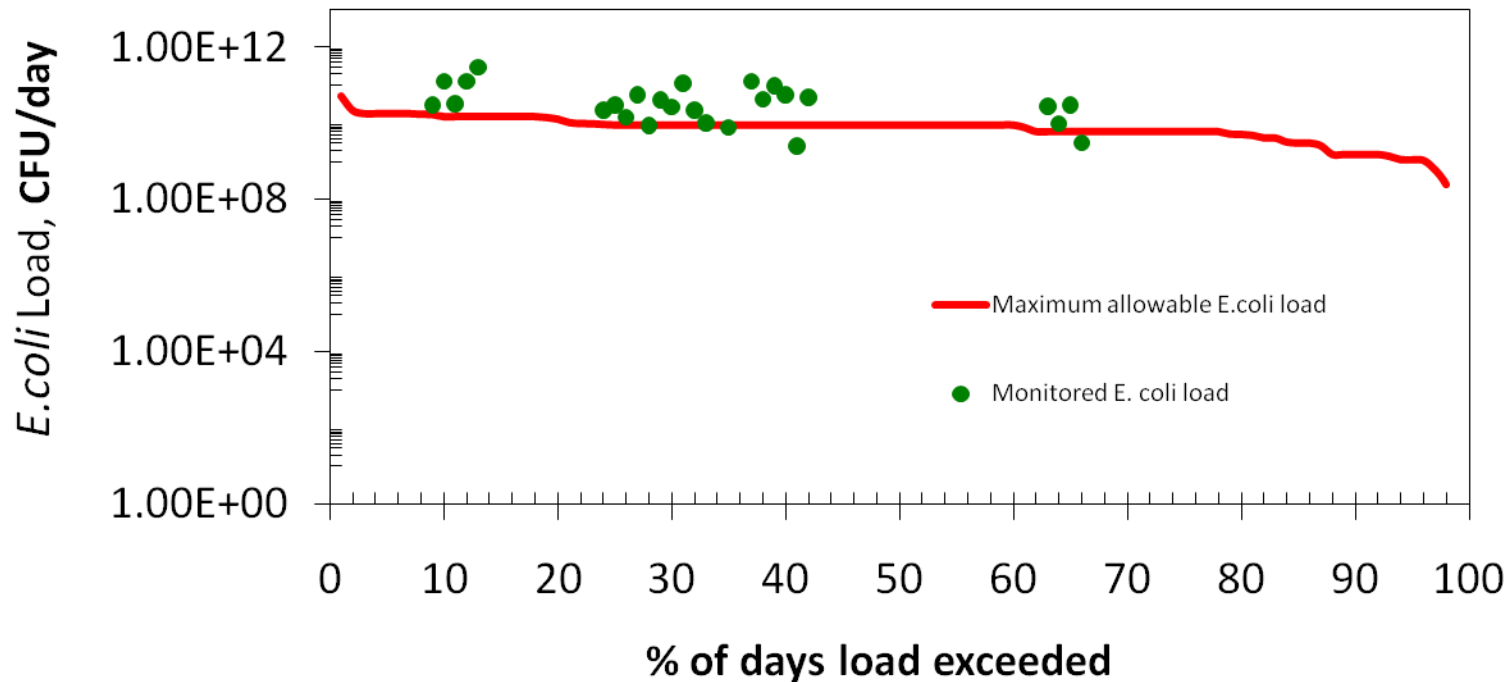


Pin Oak Creek (*Site 16401; 2002-2010*)

Flow Condition	Percent Reduction	Flow (cfs)
High Flows	91	130 - 8.3
Moist Conditions	79	3
Mid-Range	68	2.9
Dry Conditions	50	0.6
Low Flows	36	0

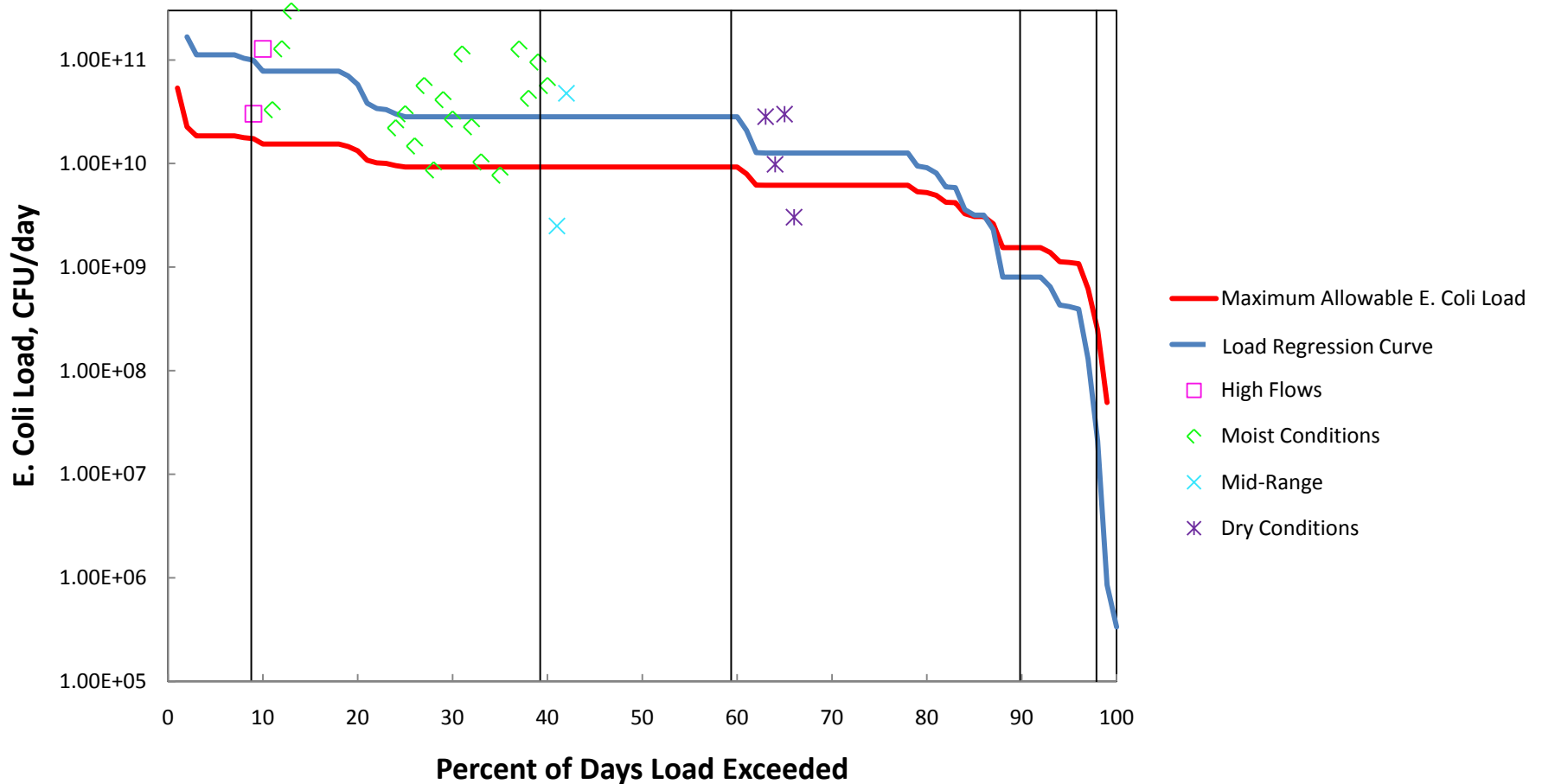
Spring Creek (Historic Data: 2002-2007)

Load Duration Curve (Spring Creek Site 16394)



Spring Creek (Historic Data: 2002 - 2007)

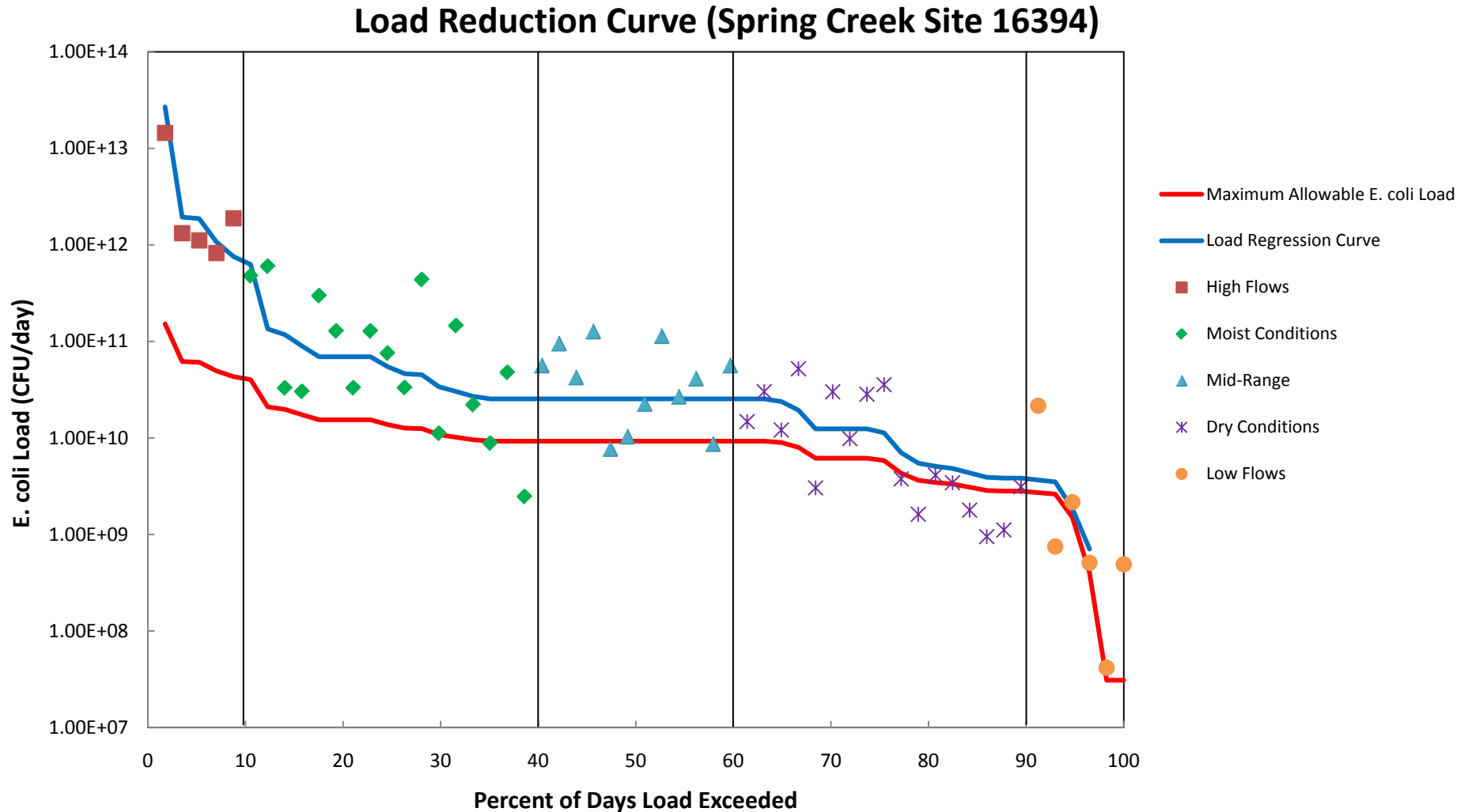
Load Reduction Curve (Spring Creek Site 16394)



Spring Creek (*Site 16394; 2002-2007*)

Flow Condition	Percent Reduction	Flow (cfs)
High Flows	83.3	17.4 - 5
Moist Conditions	71.8	3
Mid-Range	67.3	2.9
Dry Conditions	44.3	0.5
Low Flows	N/A	0

Spring Creek (Historic plus Current Data: 2002 - 2010)

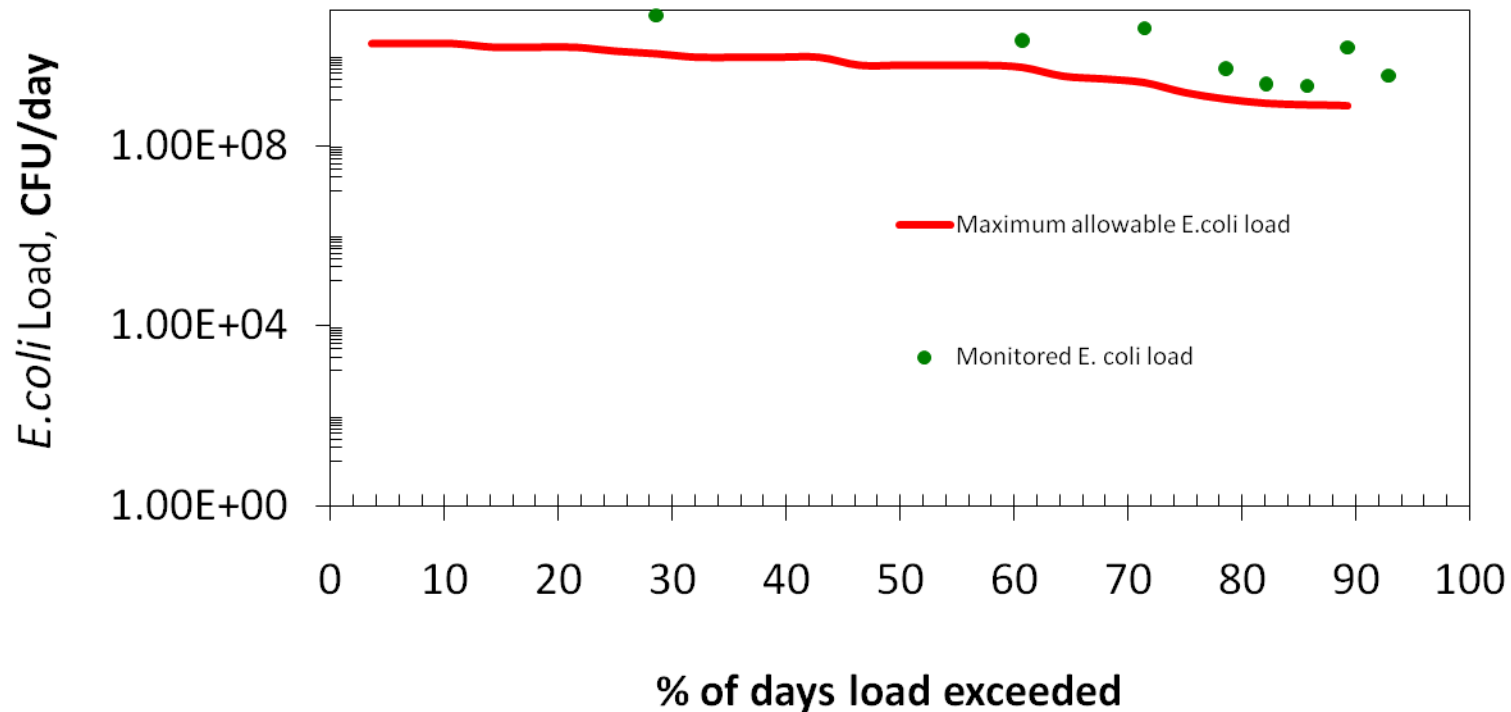


Spring Creek (Site 16394; 2002-2010)

Flow Condition	Percent Reduction	Flow (cfs)
High Flows	96	49 - 14
Moist Conditions	74	3
Mid-Range	63	2.9
Dry Conditions	44	0.9
Low Flows	51	0.01

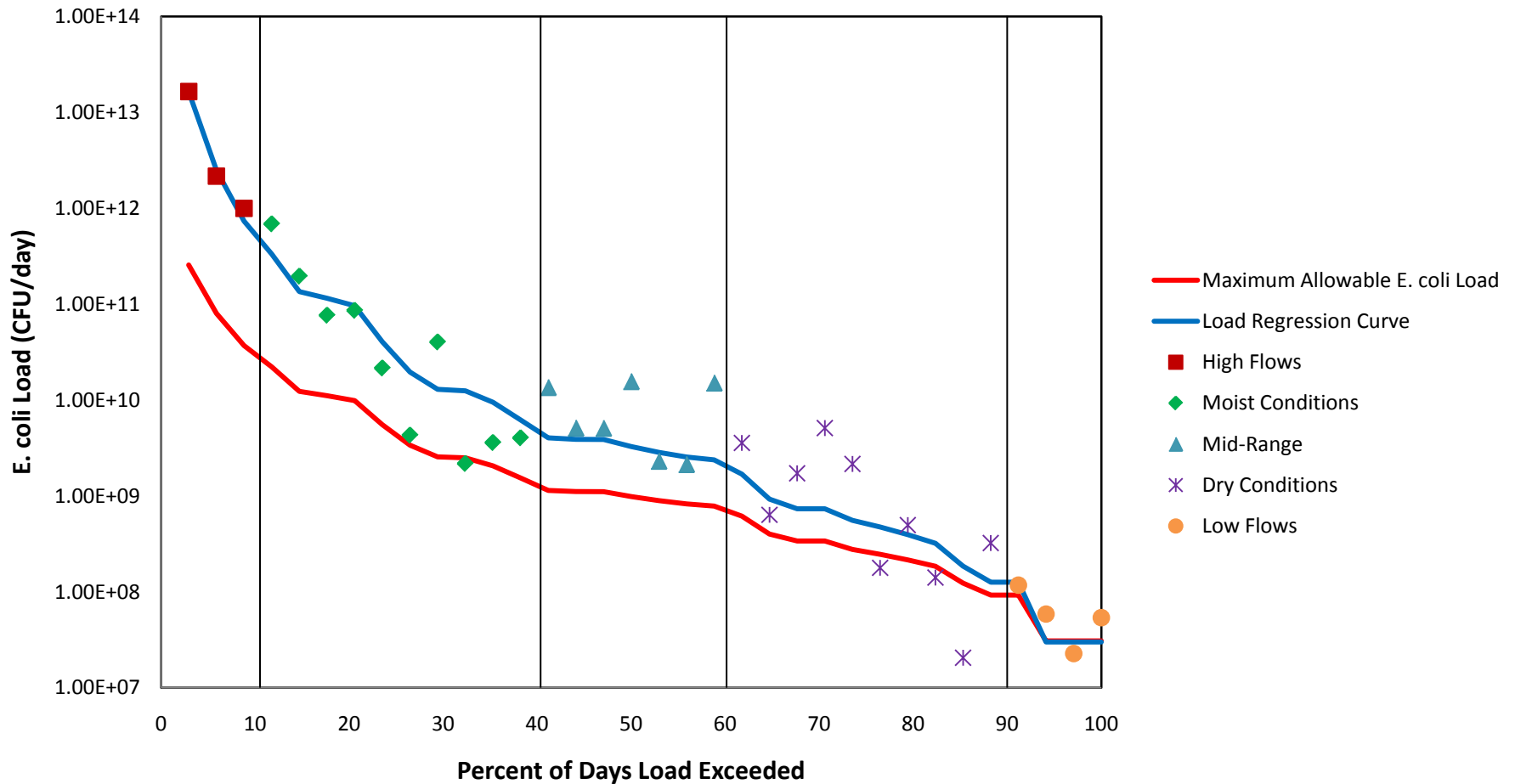
Campbell's Creek (Historic Data: 2005-2008)

Load Duration Curve (Campbell's Creek Site 16395)



Campbell's Creek (Historic plus Current Data: 2005-2010)

Load Reduction Curve (Campbell's Creek Site 16395)



Campbell's Creek (*Site 16395; 2005-2010*)

Flow Condition	Percent Reduction	Flow (cfs)
High Flows	97	83 - 12
Moist Conditions	85	0.5
Mid-Range	70	0.3
Dry Conditions	47	0.03
Low Flows	5	0

Summary

- ❑ *E. coli* loads exceeding maximum allowable loads
- ❑ Load reductions were calculated using historic data and updated with currently collected data

Proposed standards

- Proposed *E. coli* standards
 - Primary contact: 206 CFU/100 mL
 - Secondary contact: 630 CFU/100 mL

Walnut Creek (Historic plus Current Data: 2001–2010)

Load Reduction Curve (Walnut Creek 16403)

