



Responses to FERC Additional Information Request OP-1 (Operational Scenarios)

(c) Navigation

Final Report

**Jon Bowling
Engineering Leader**

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SCHEDULE A: ADDITIONAL INFORMATION REQUEST OP-1 NAVIGATION OPERATIONAL SCENARIO

Time Required: 9 months

(c) Navigation

Since reduced flow fluctuations or higher flows may affect navigation conditions, please use your operational models to simulate river flows and stage changes for each of the 5 representative years (1992, 1994, 1995, 1999, and 1997). For each year and for each scenario, provide the following data plots:

- (i) River flows as predicted for the Hells Canyon Dam gage (no. 13290450) (1-hour intervals, year-round);
- (ii) River flows as predicted for the China Gardens Rapids gage (no. 13317660) (1-hour intervals, year-round); and
- (iii) Hourly change in river stage (feet per hour) as predicted for the Johnson Bar gage (no. 13290460) (year-round).

Each of the foregoing graphs should be provided in a full-page, black-and-white format to ensure that all data series are visible in both hard copy and electronic formats. To facilitate side-by-side comparison, please provide the same information for your current and proposed operations in the same scale and format as for the other scenarios.

1. INTRODUCTION

Agency review of the Idaho Power Company (IPC) license application for the three-dam Hells Canyon Complex (HCC, which includes the Brownlee, Oxbow, and Hells Canyon projects) resulted in requests to the Federal Energy Regulatory Commission (FERC) for additional studies. FERC evaluated these study requests and formulated a list of additional information requests (AIRs) to help in determining potential project-related impacts resulting from these IPC hydroelectric projects. This document addresses AIR OP-1(c), quoted above.

2. RESPONSES

2.1. Response to OP-1(c)—Navigation Operational Scenario

- (a) (i) *River flows as predicted for the Hells Canyon Dam gage (no. 13290450) (1-hour intervals, year-round);*

Graphs of the river flows for years 1992, 1994, 1995, 1999, and 1997, as predicted for the Hells Canyon Dam gage, are attached to this document.

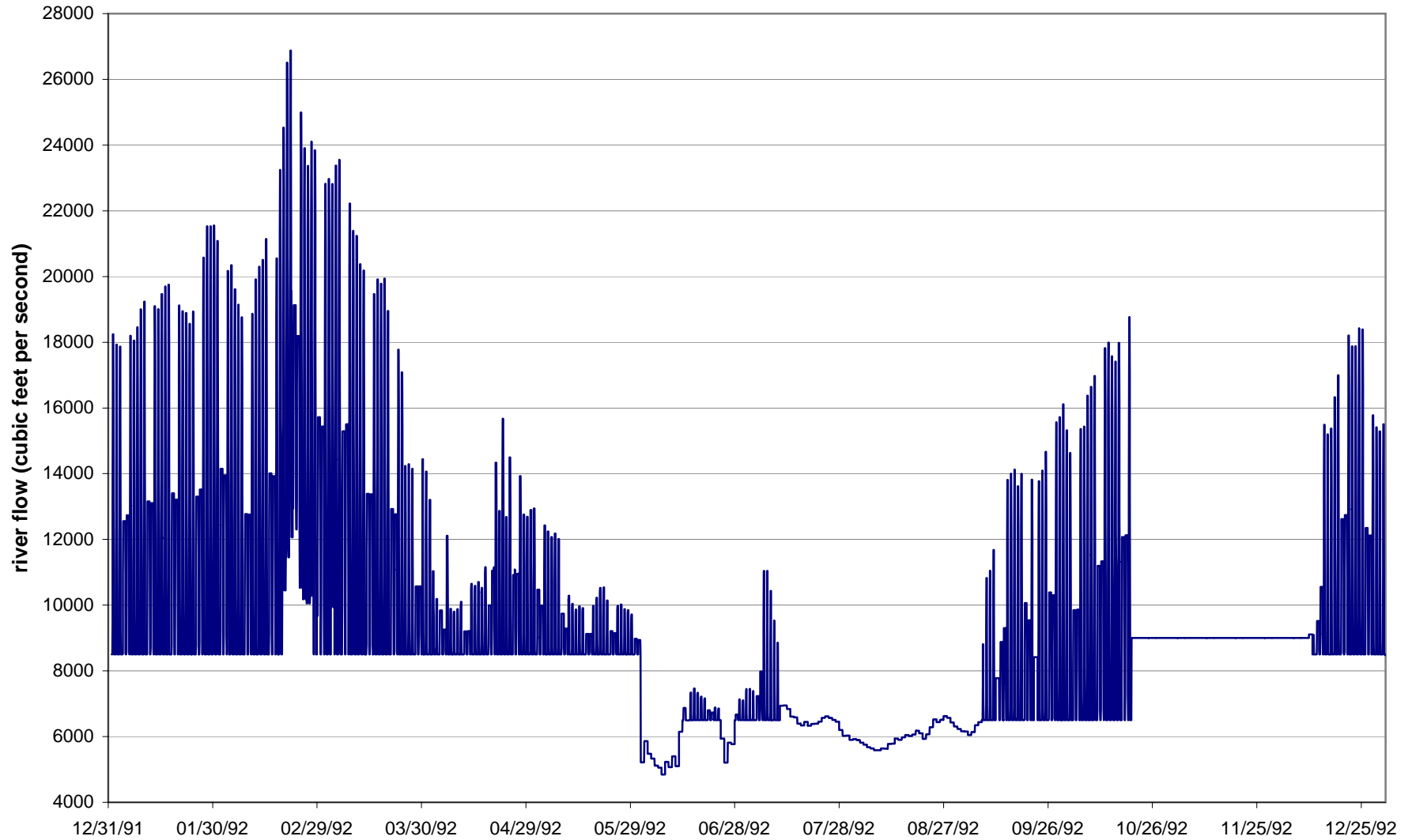
(ii) River flows as predicted for the China Gardens Rapids gage (no. 13317660) (1-hour intervals, year-round);

Graphs of the river flows for years 1992, 1994, 1995, 1999, and 1997, as predicted for the China Garden Rapids gage, are attached to this document.

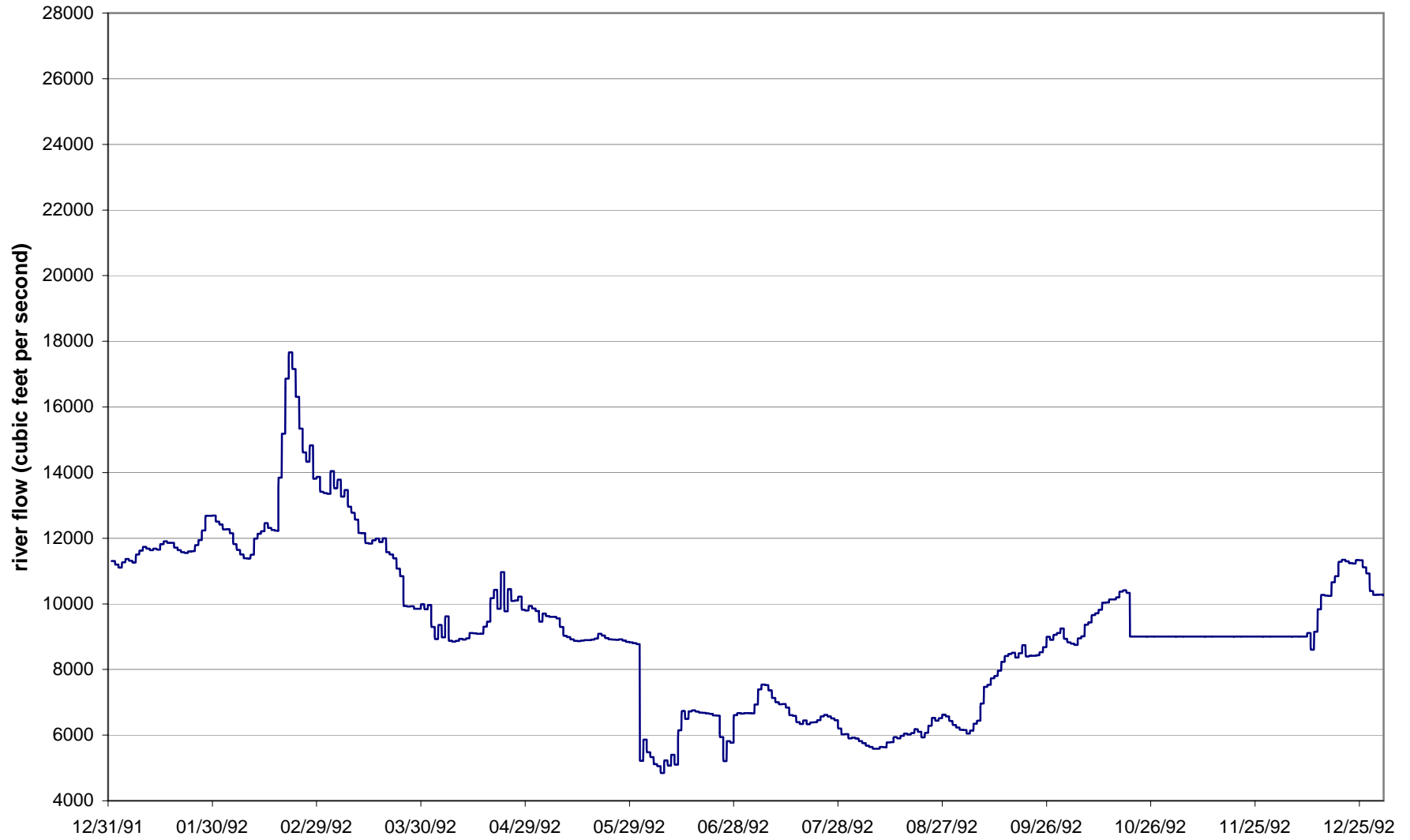
(iii) Hourly change in river stage (feet per hour) as predicted for the Johnson Bar gage (no. 13290460) (year-round).

Graphs of the hourly change in river stage for years 1992, 1994, 1995, 1999, and 1997, as predicted for the Johnson Bar gage, are attached to this document.

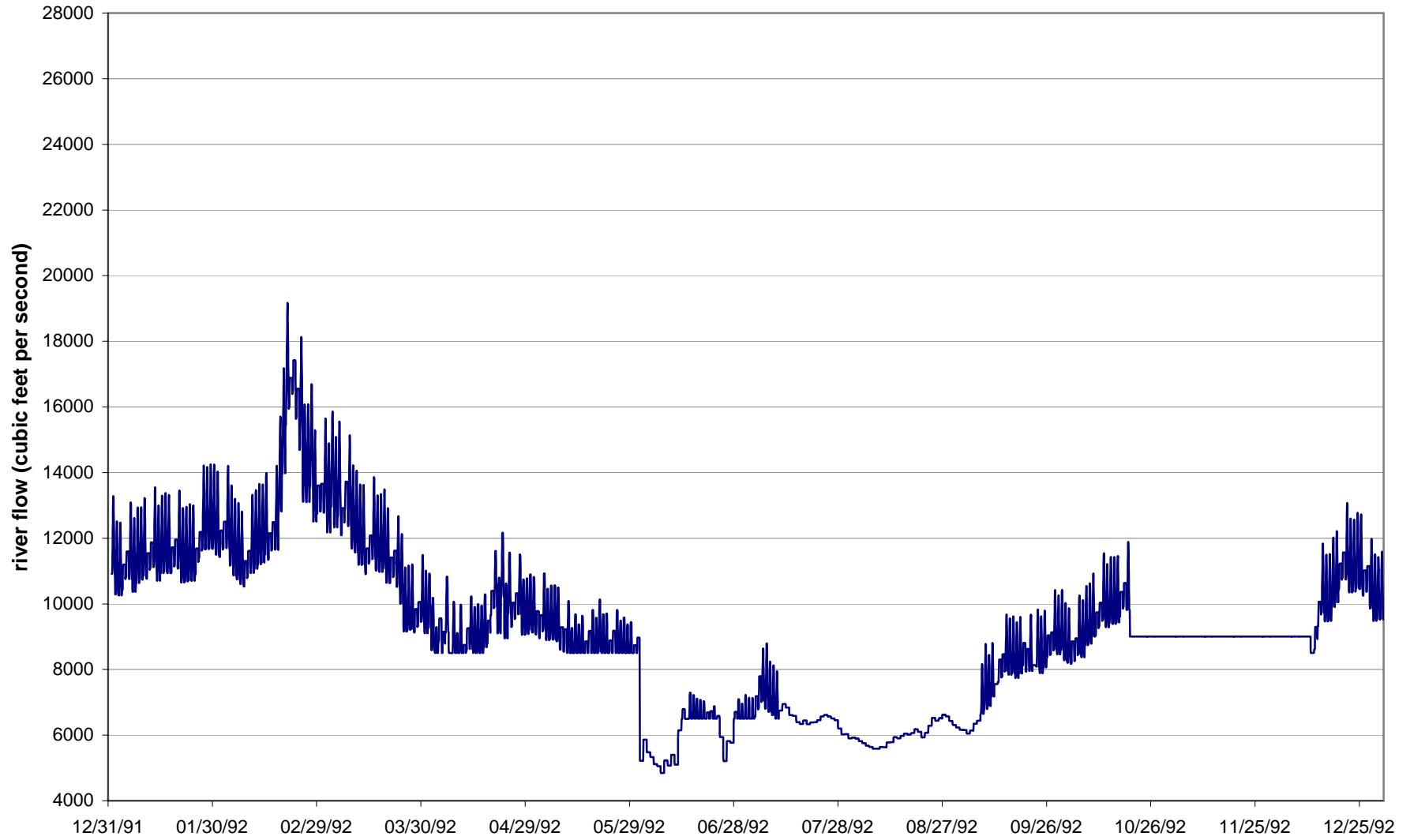
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Proposed operations



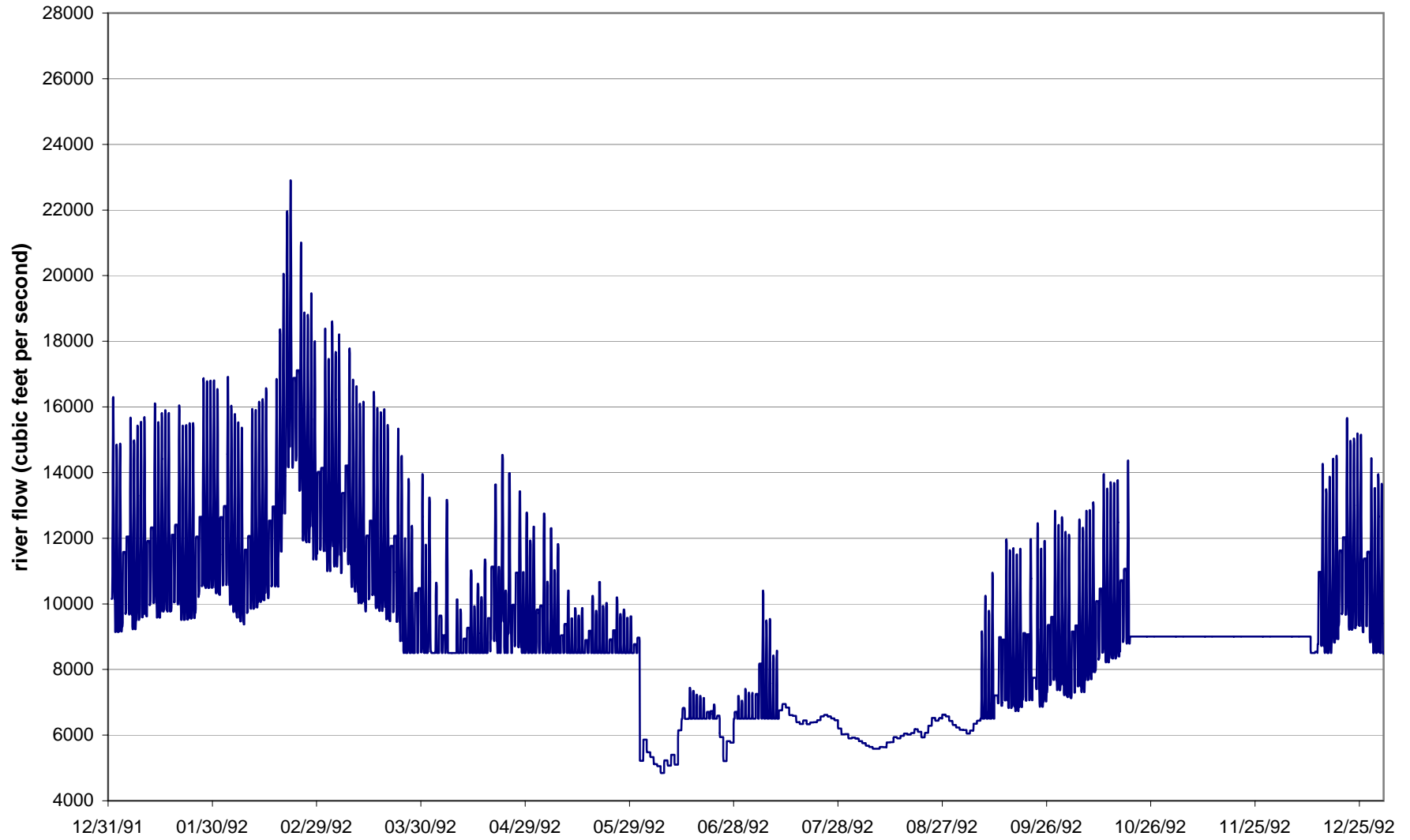
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 1(a)



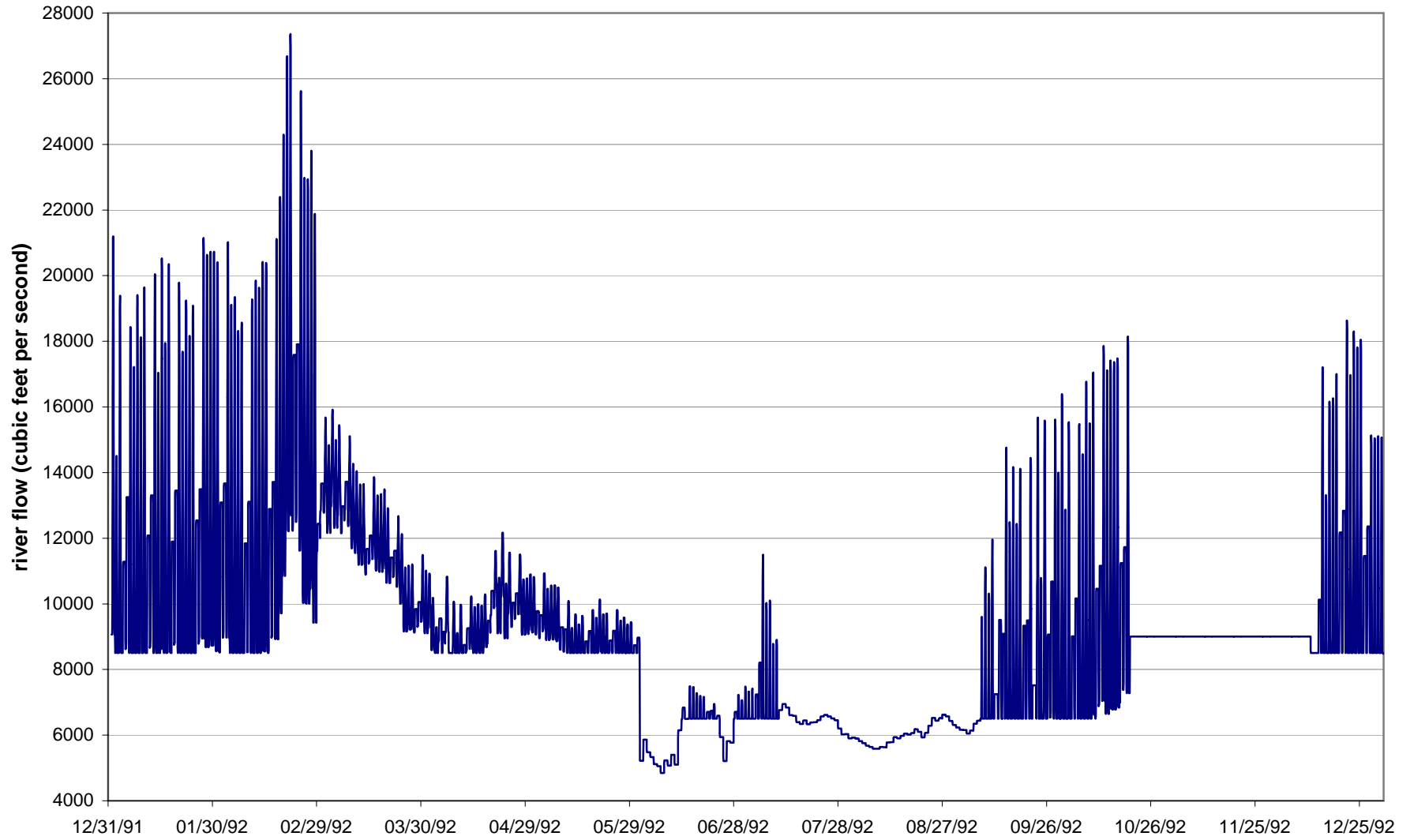
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 1(b)



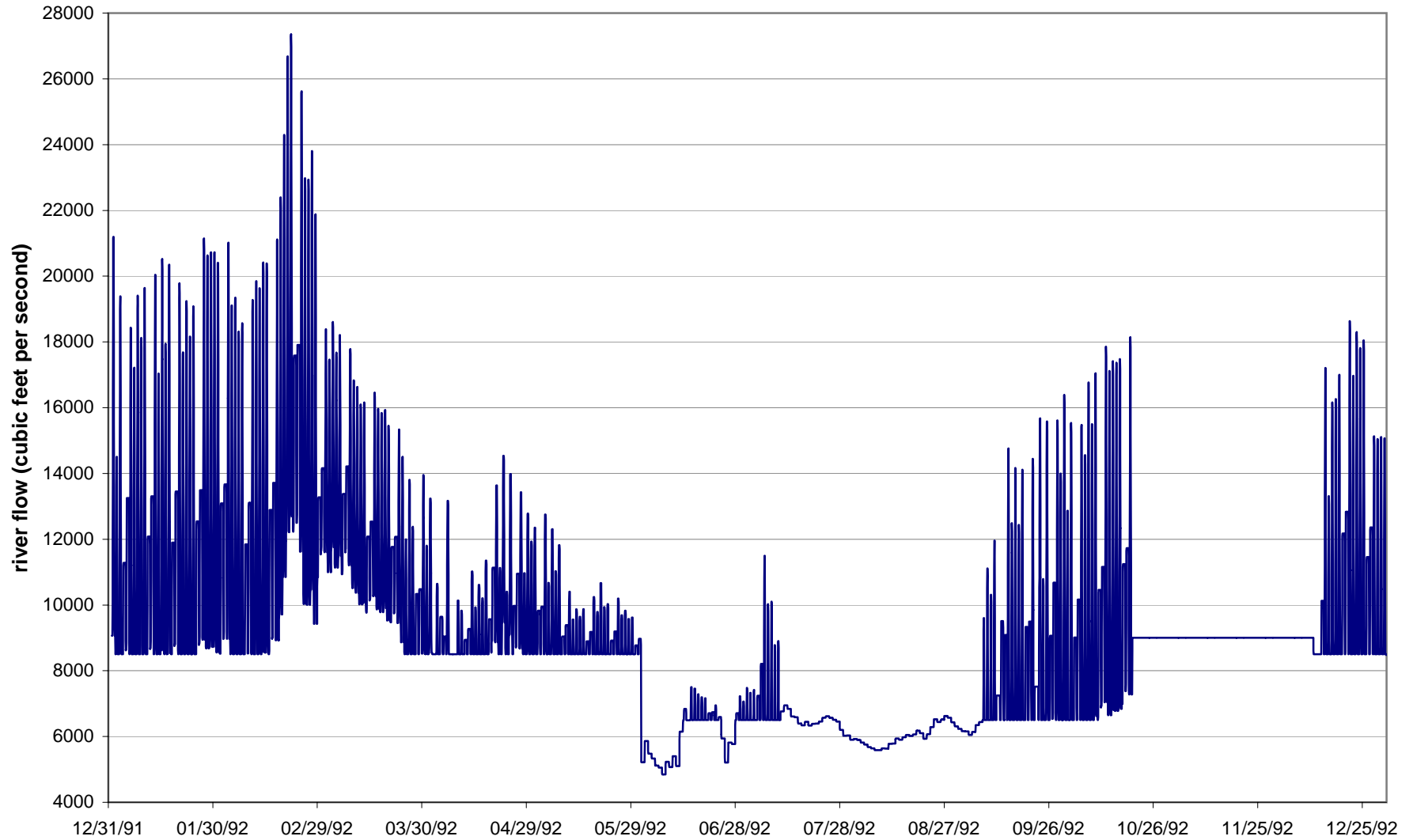
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 1(c)



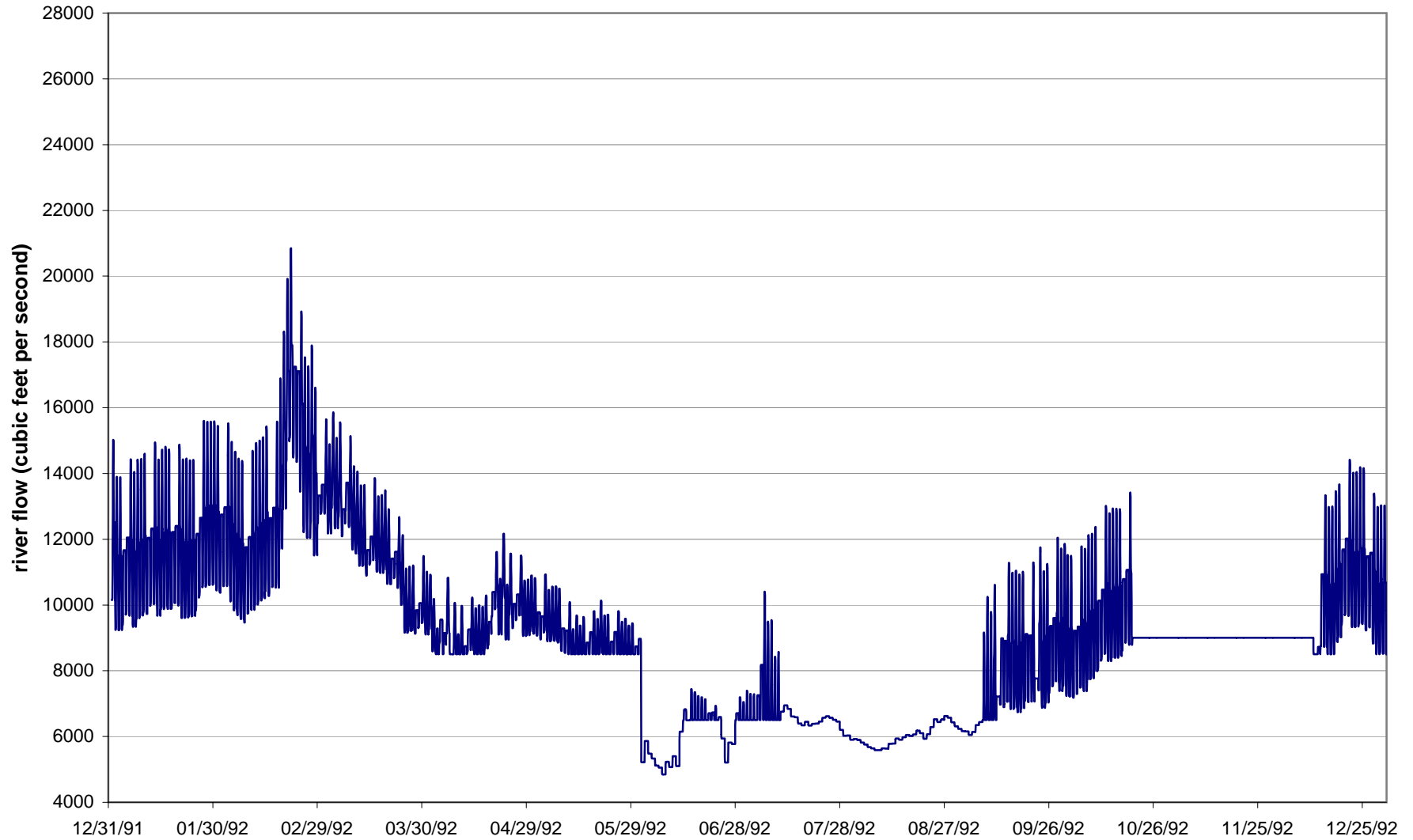
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 1(d)



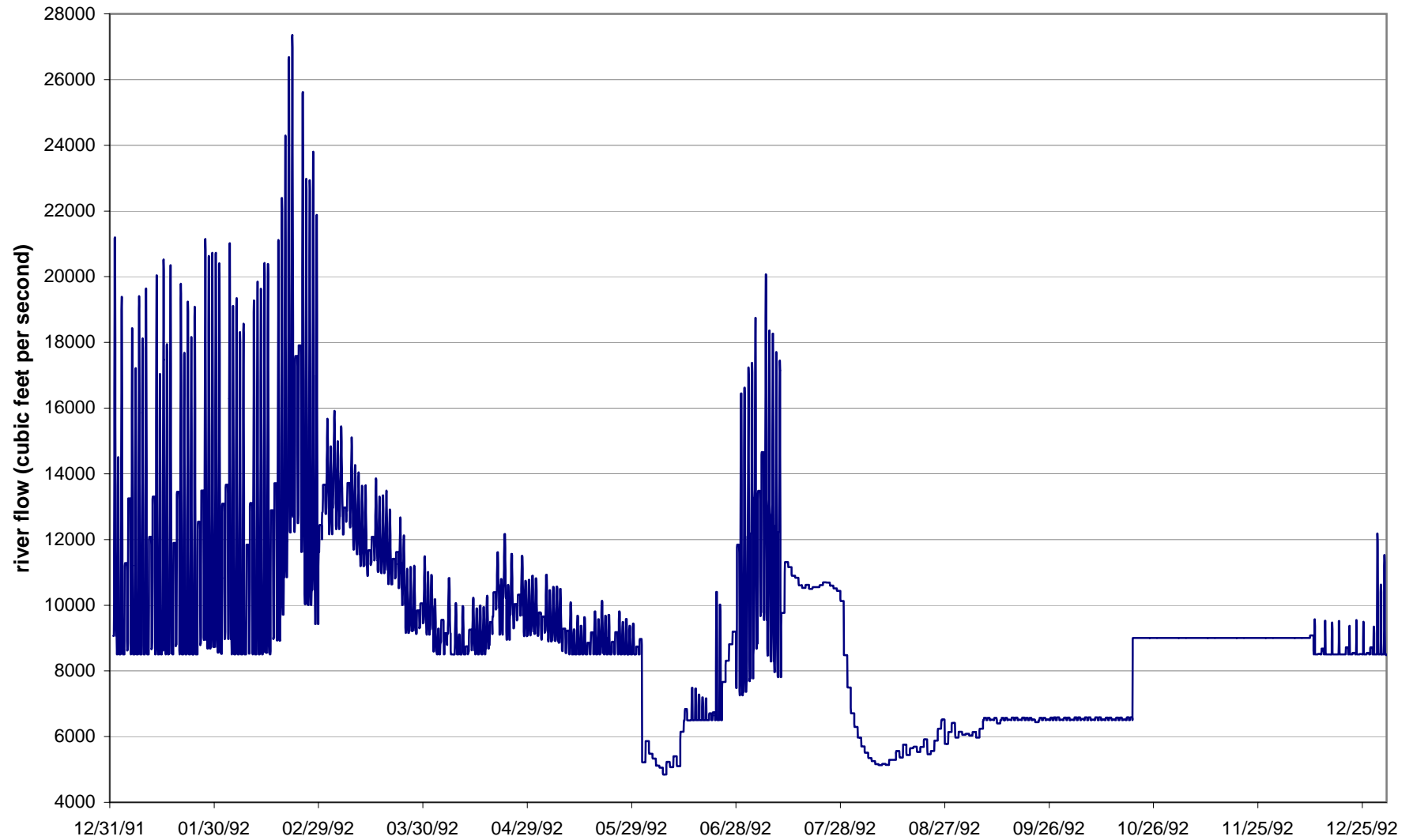
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 1(e)



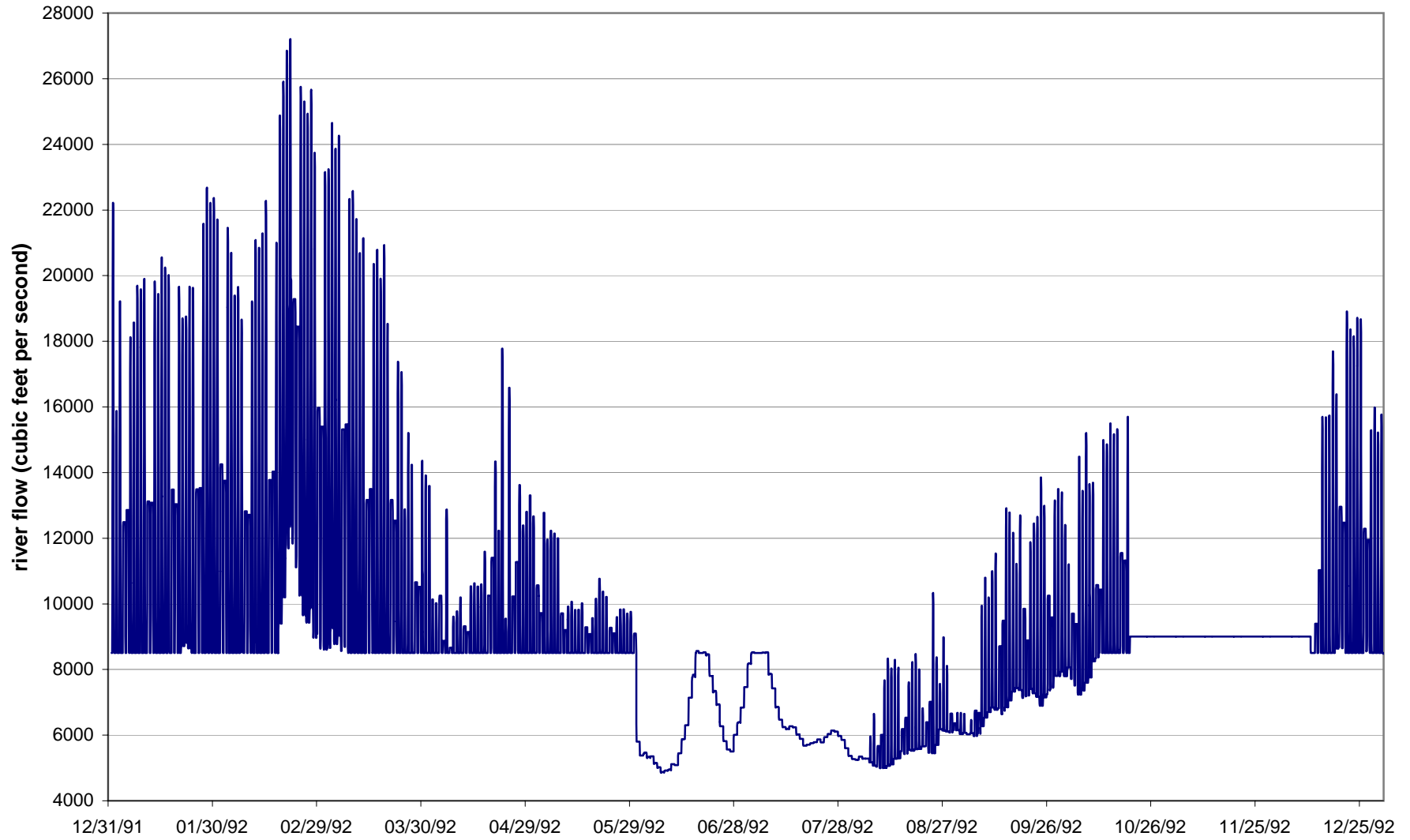
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 1(f)



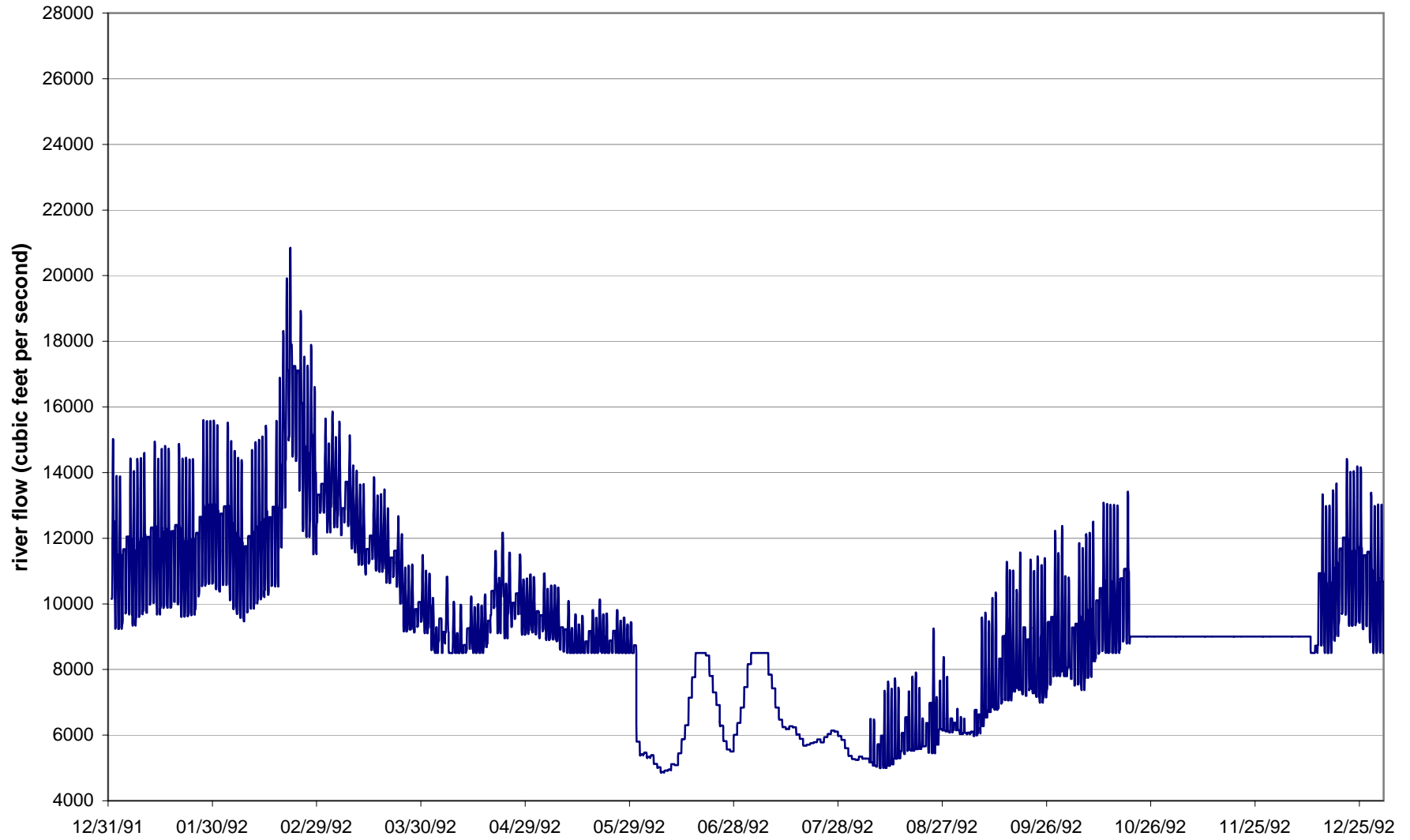
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 2



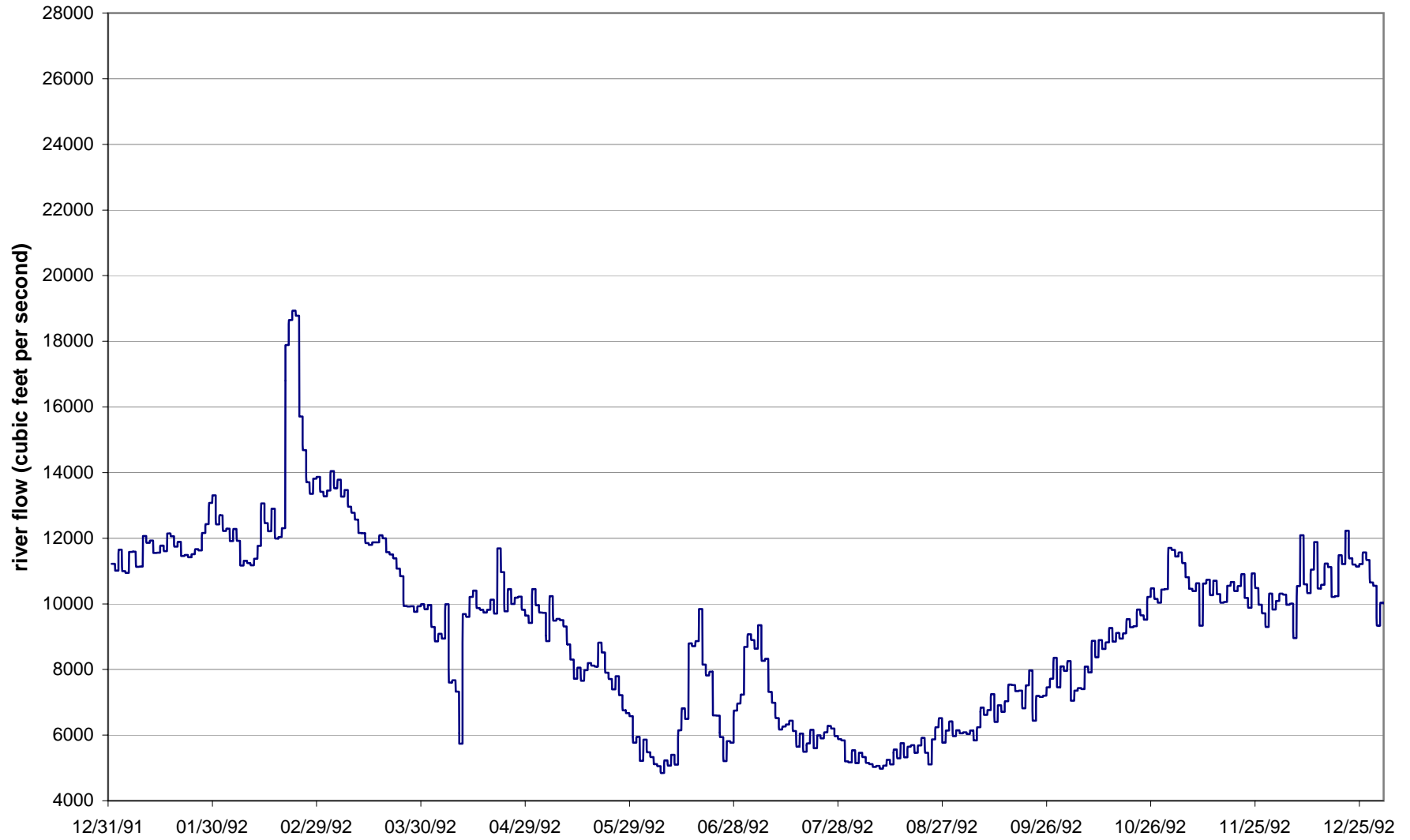
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 3



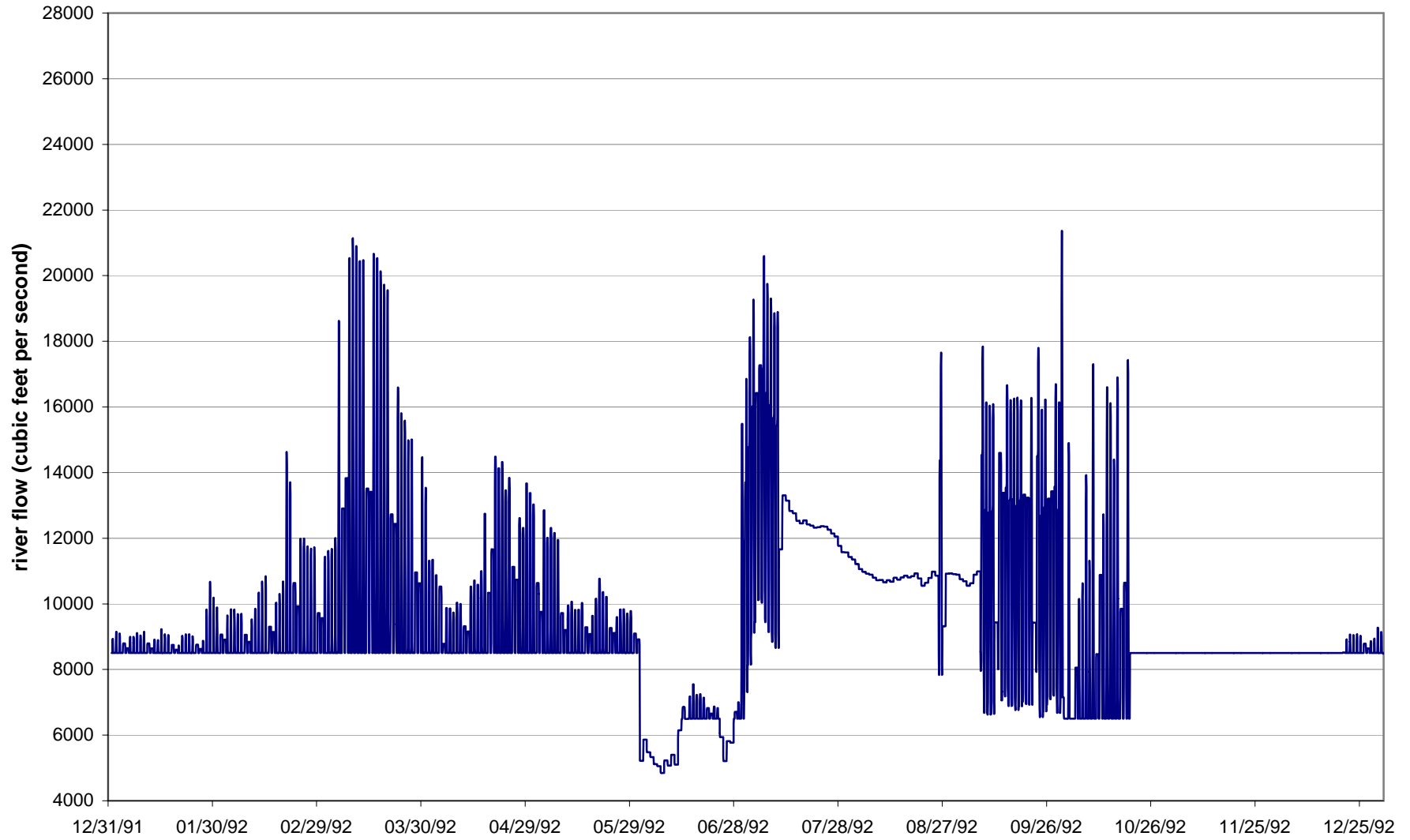
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 4



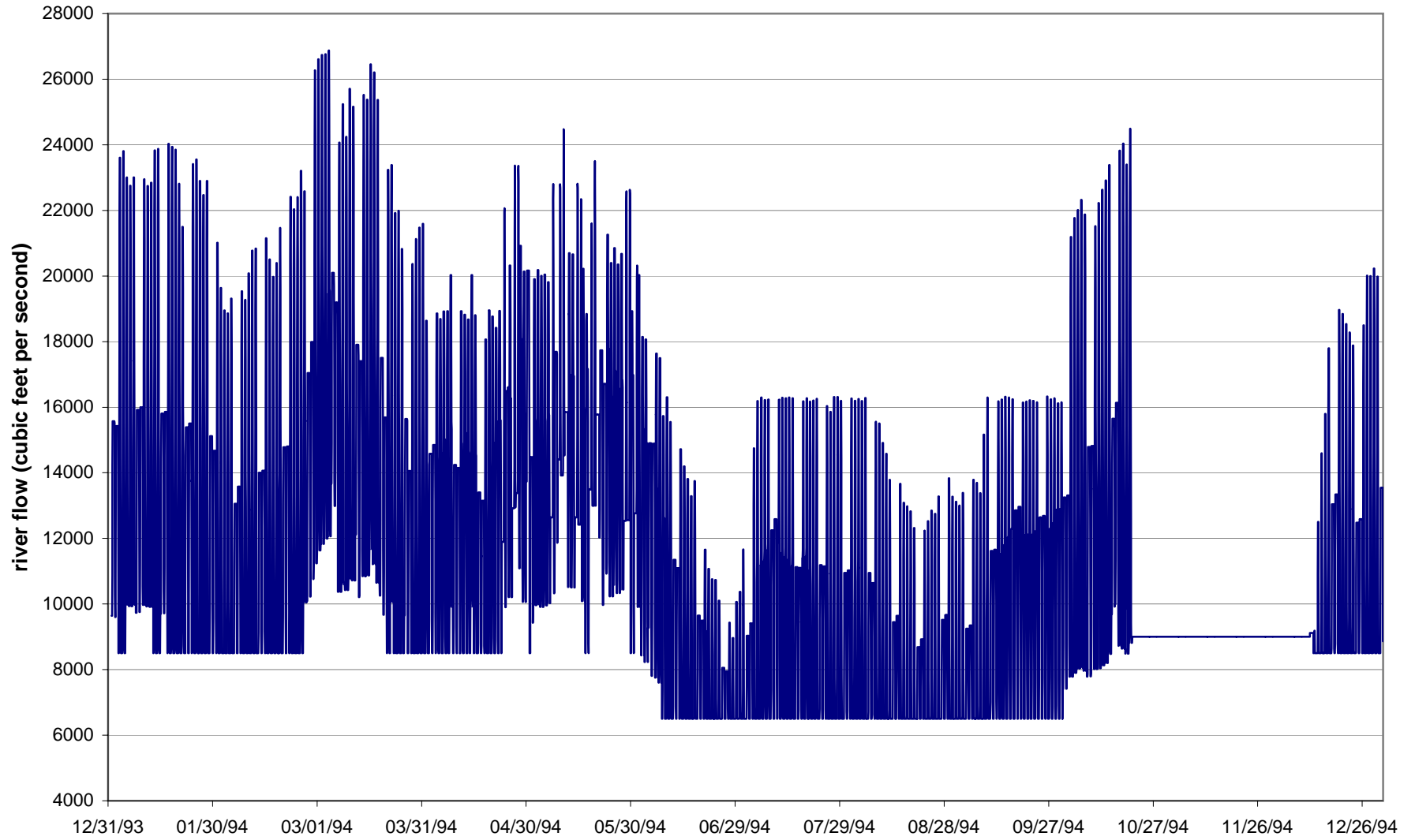
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 5



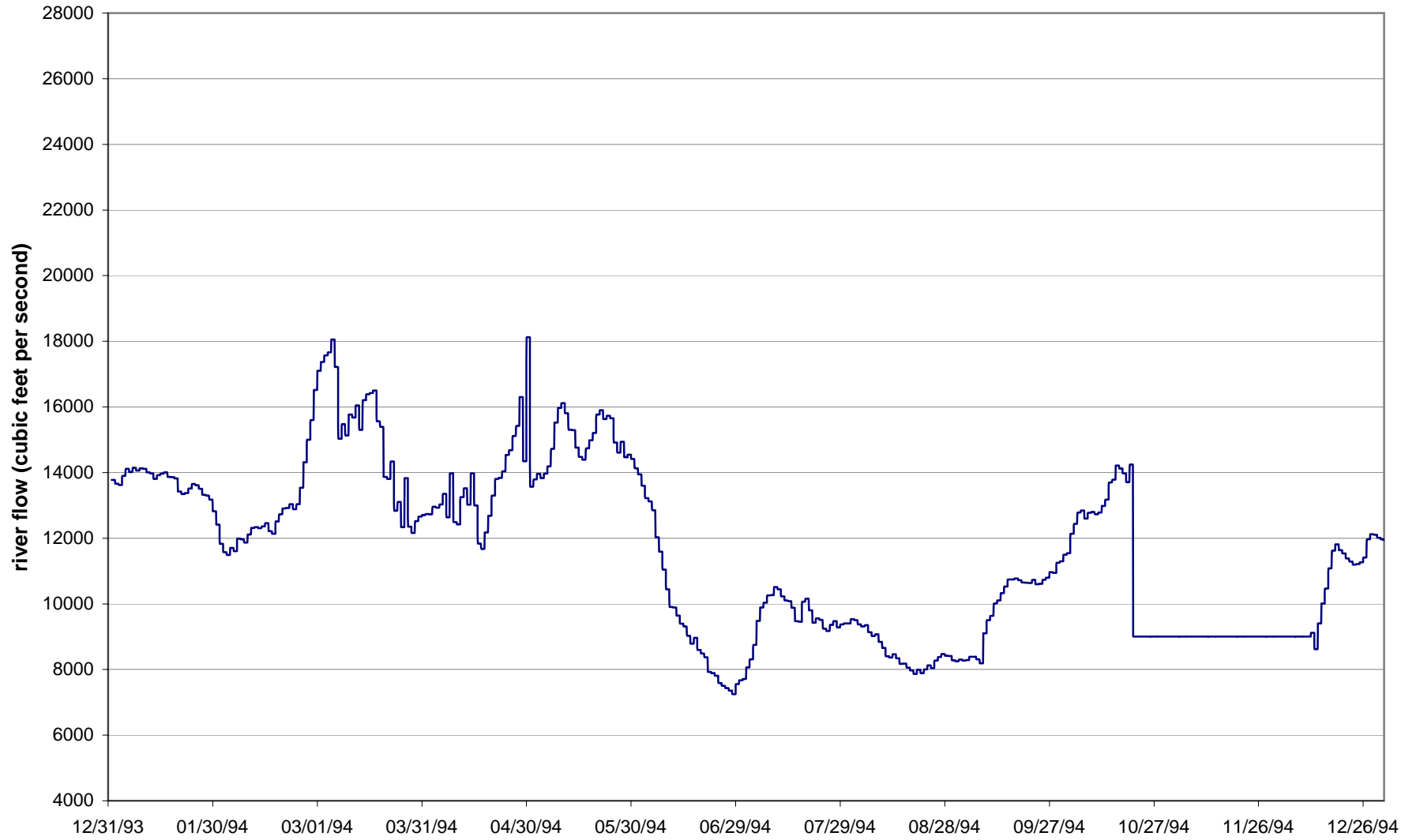
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1992
Scenario 6



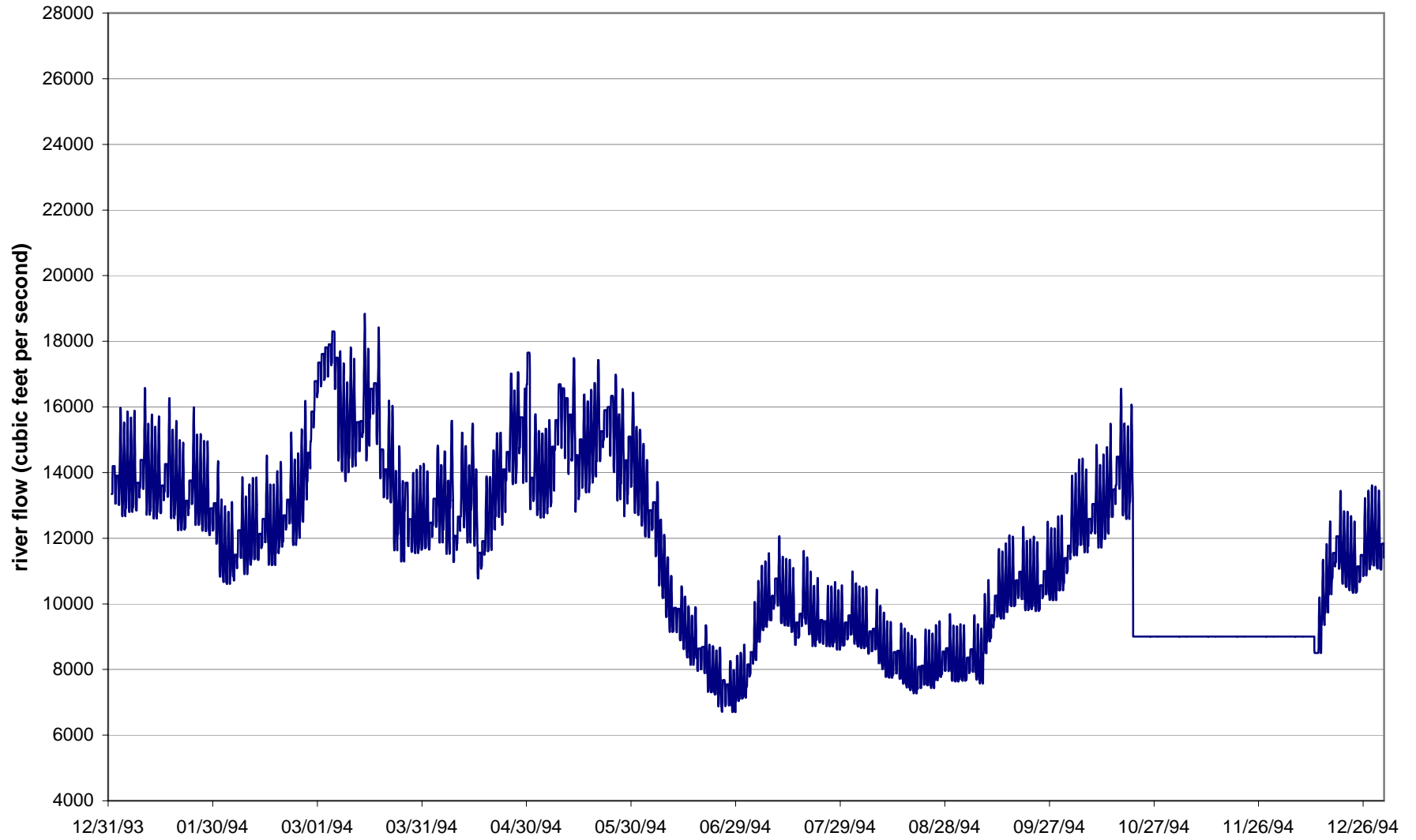
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Proposed operations



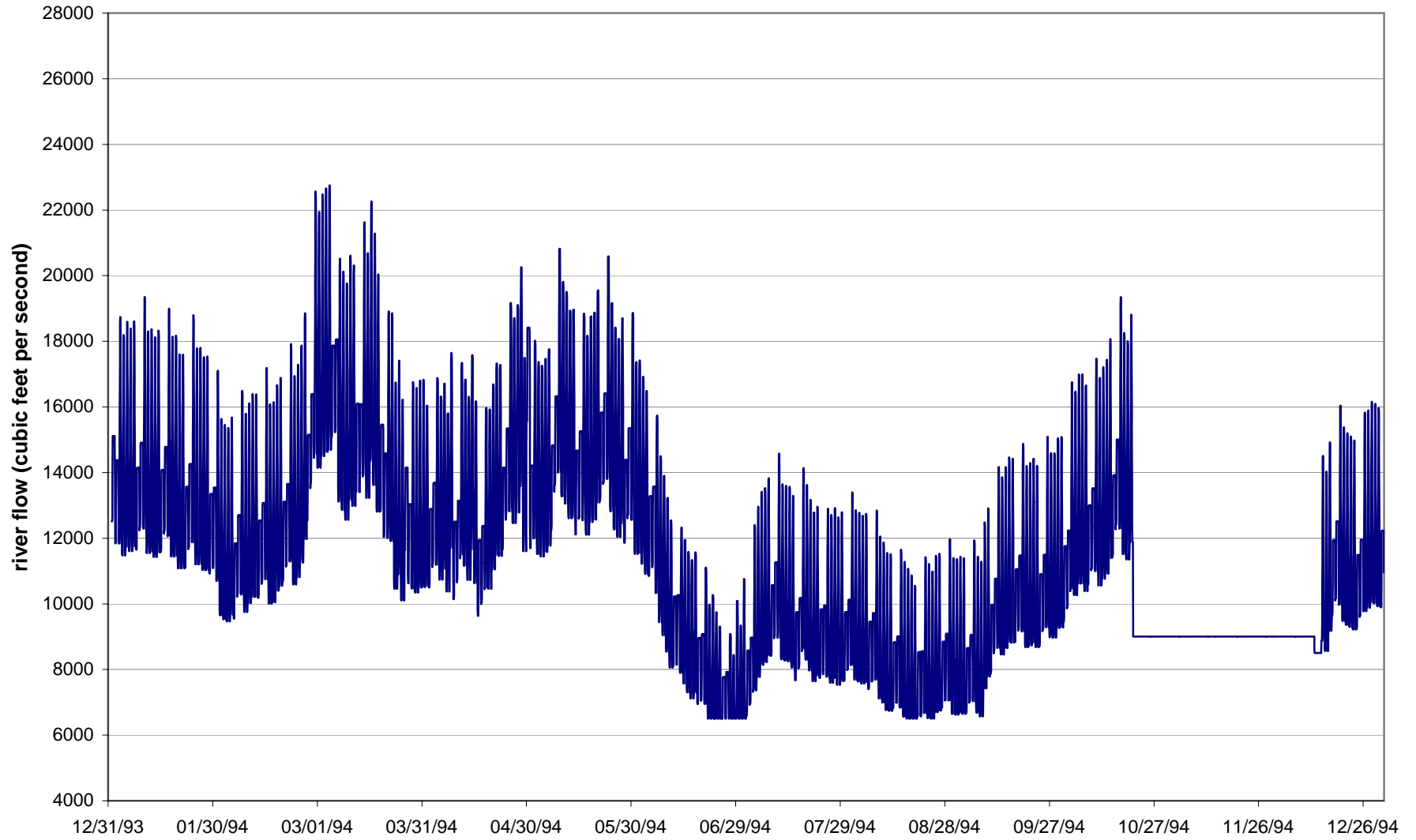
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 1(a)



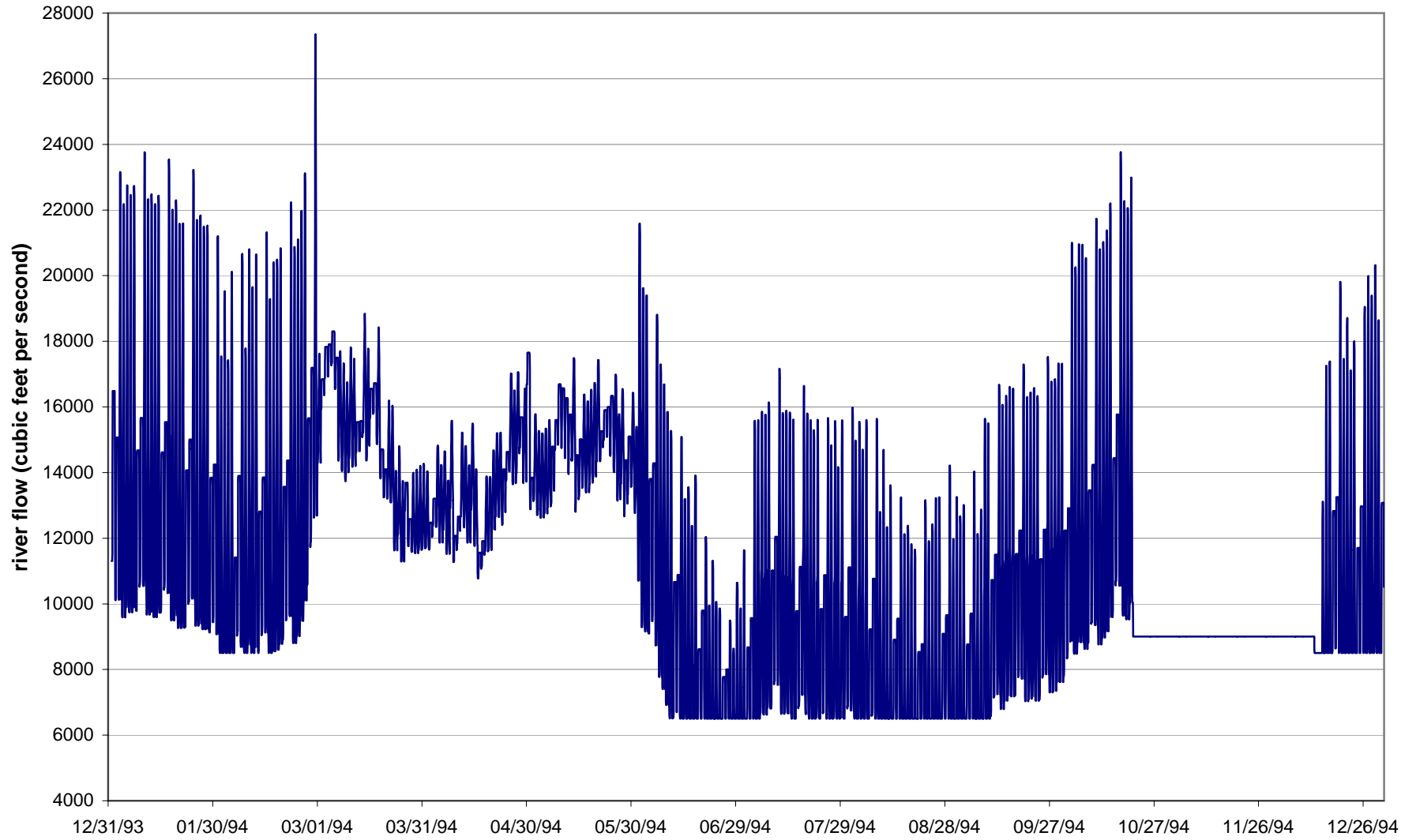
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 1(b)



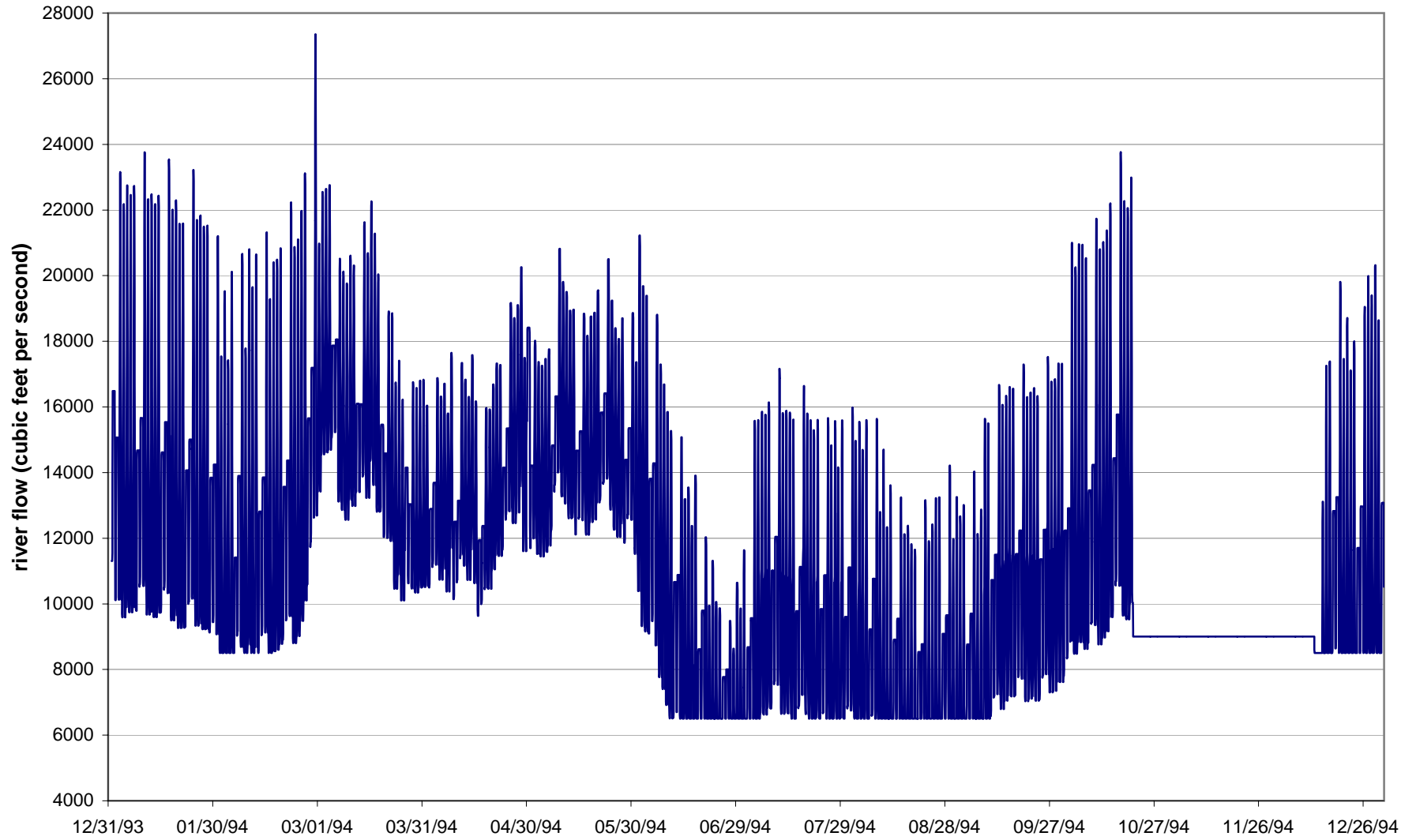
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 1(c)



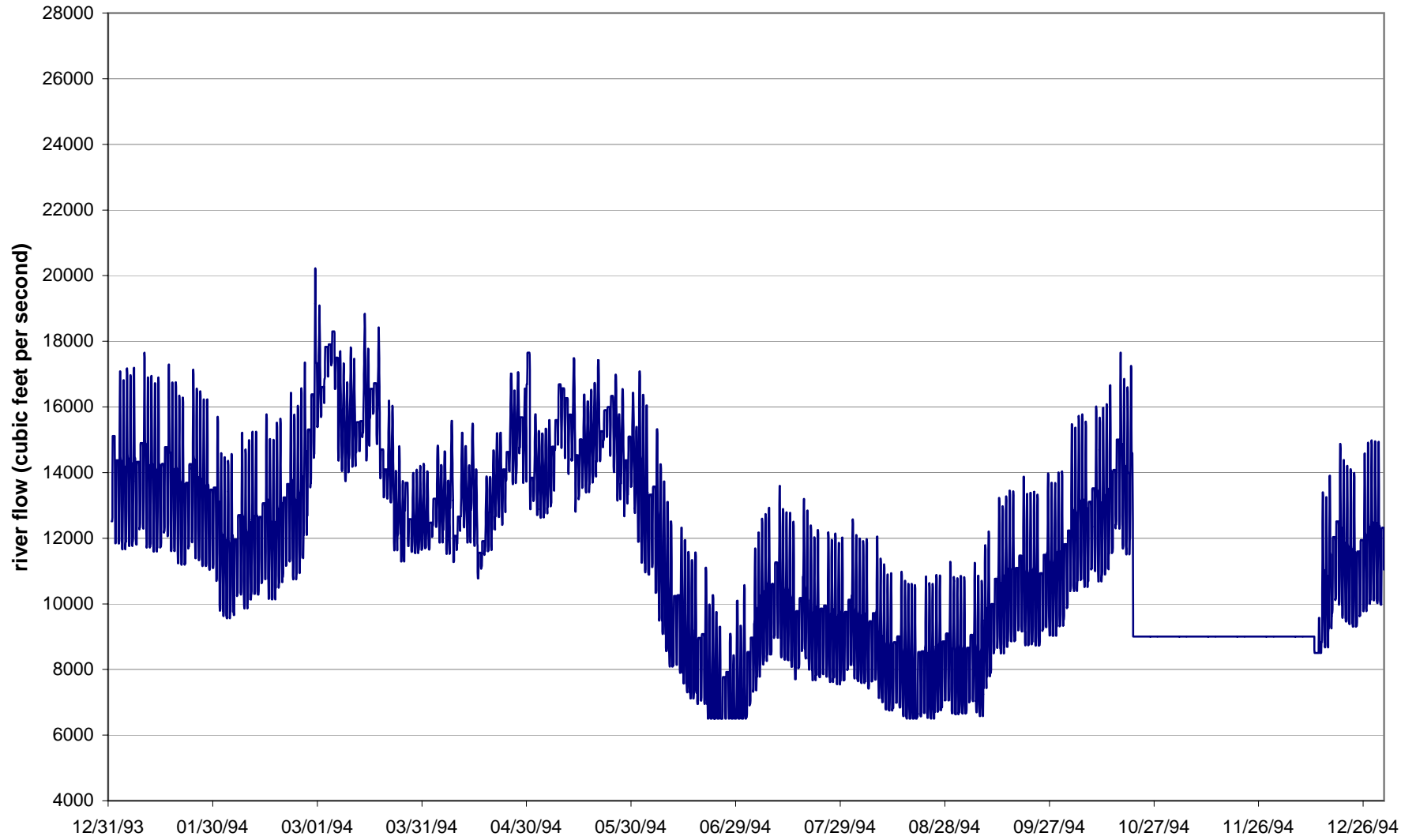
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 1(d)



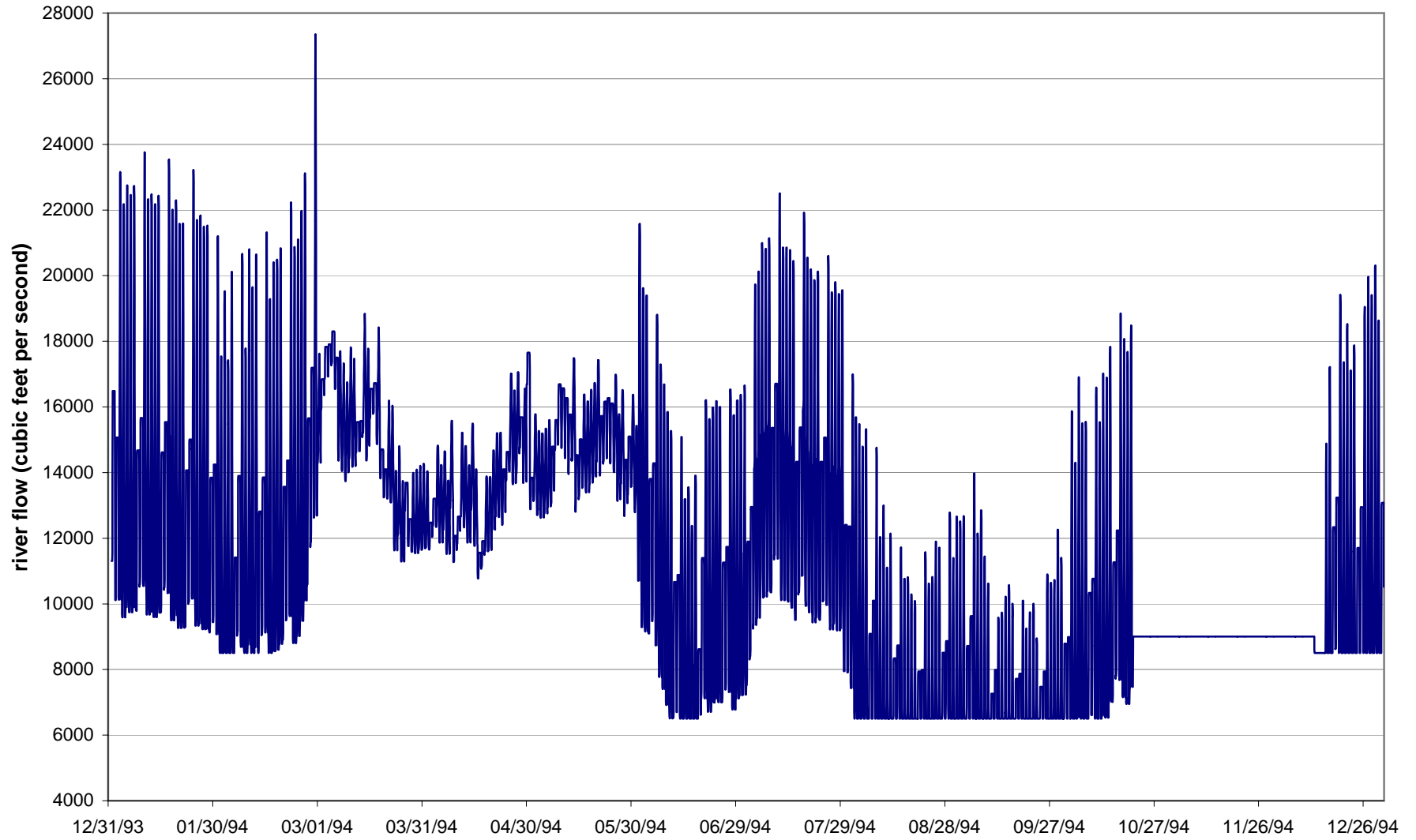
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 1(e)



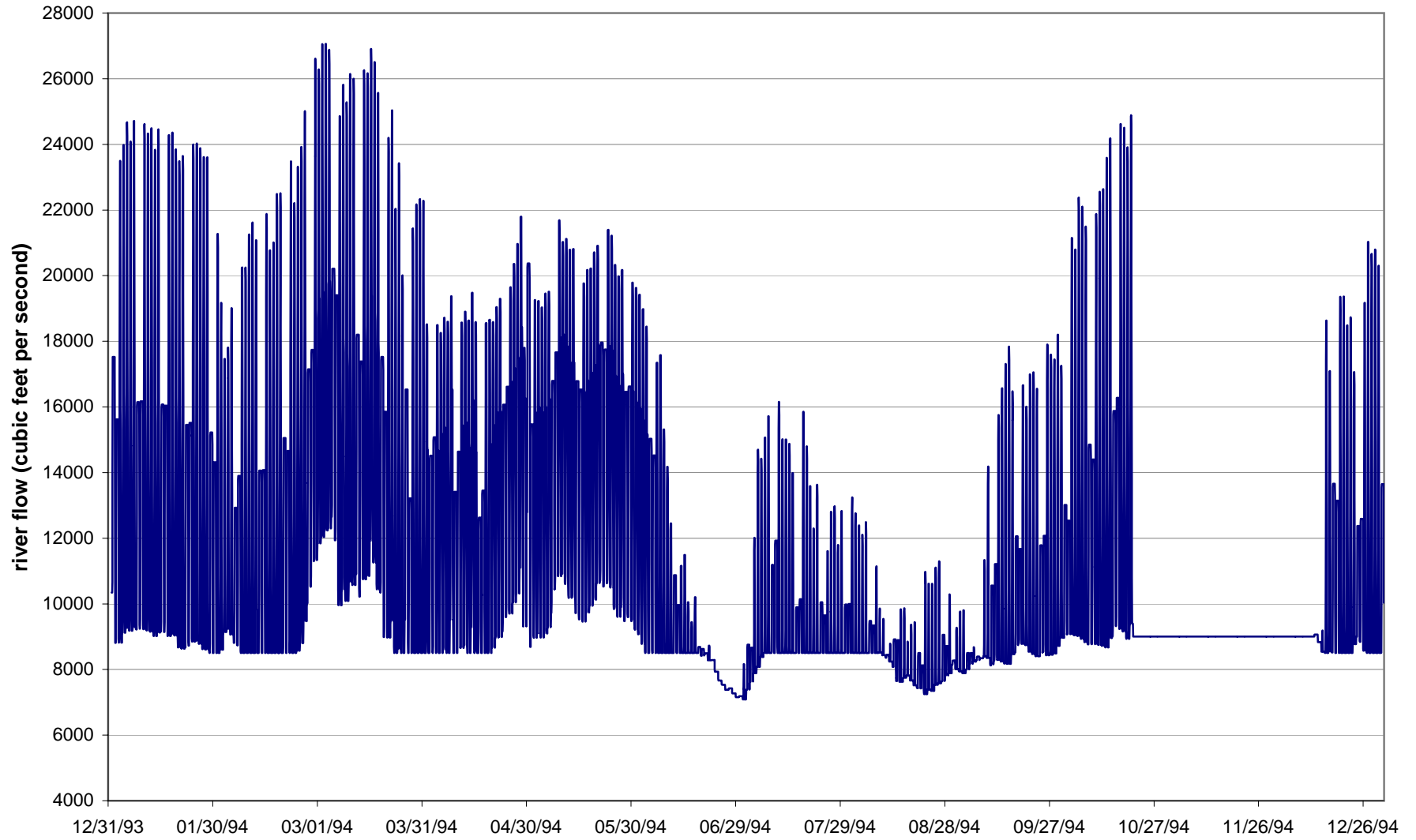
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 1(f)



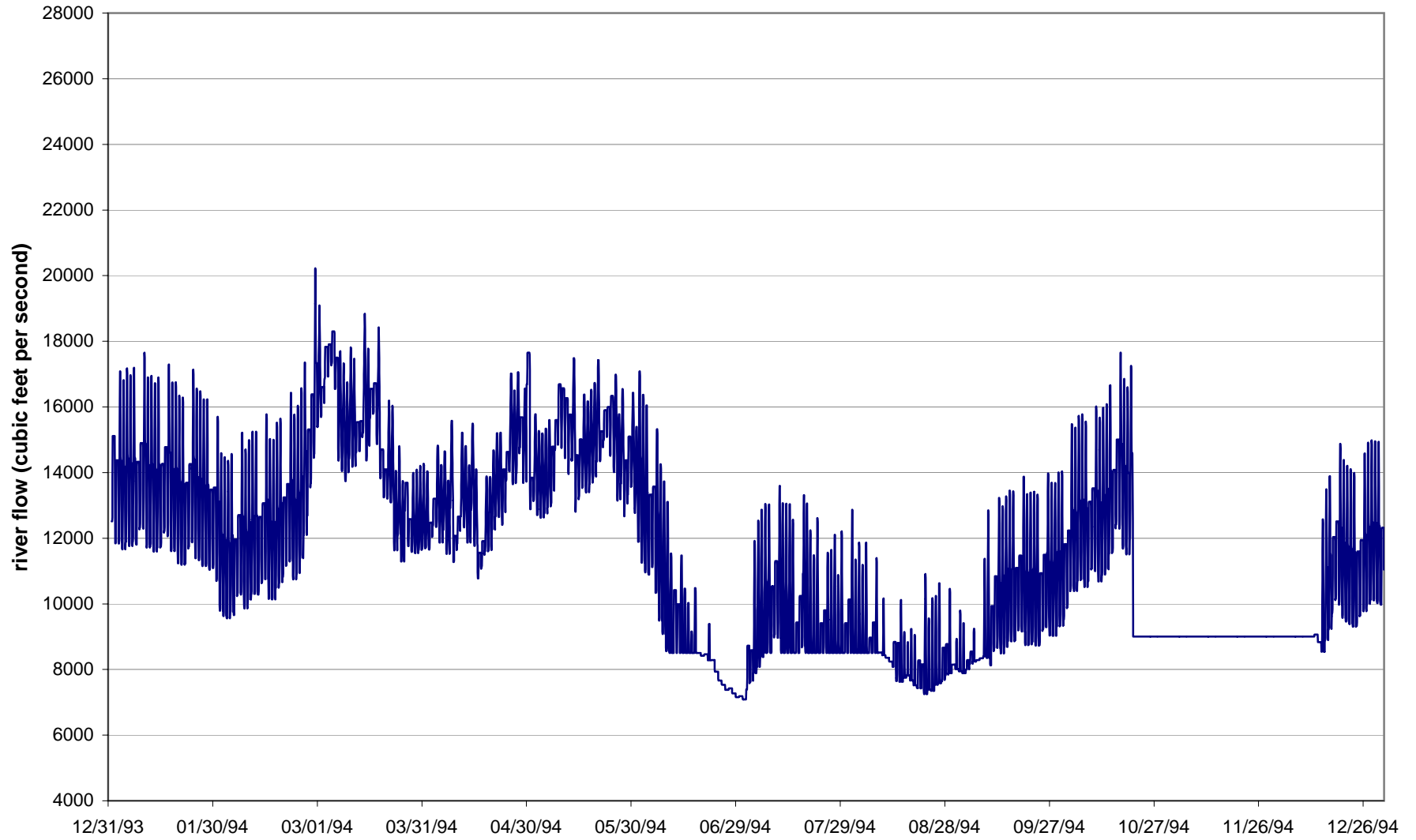
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 2



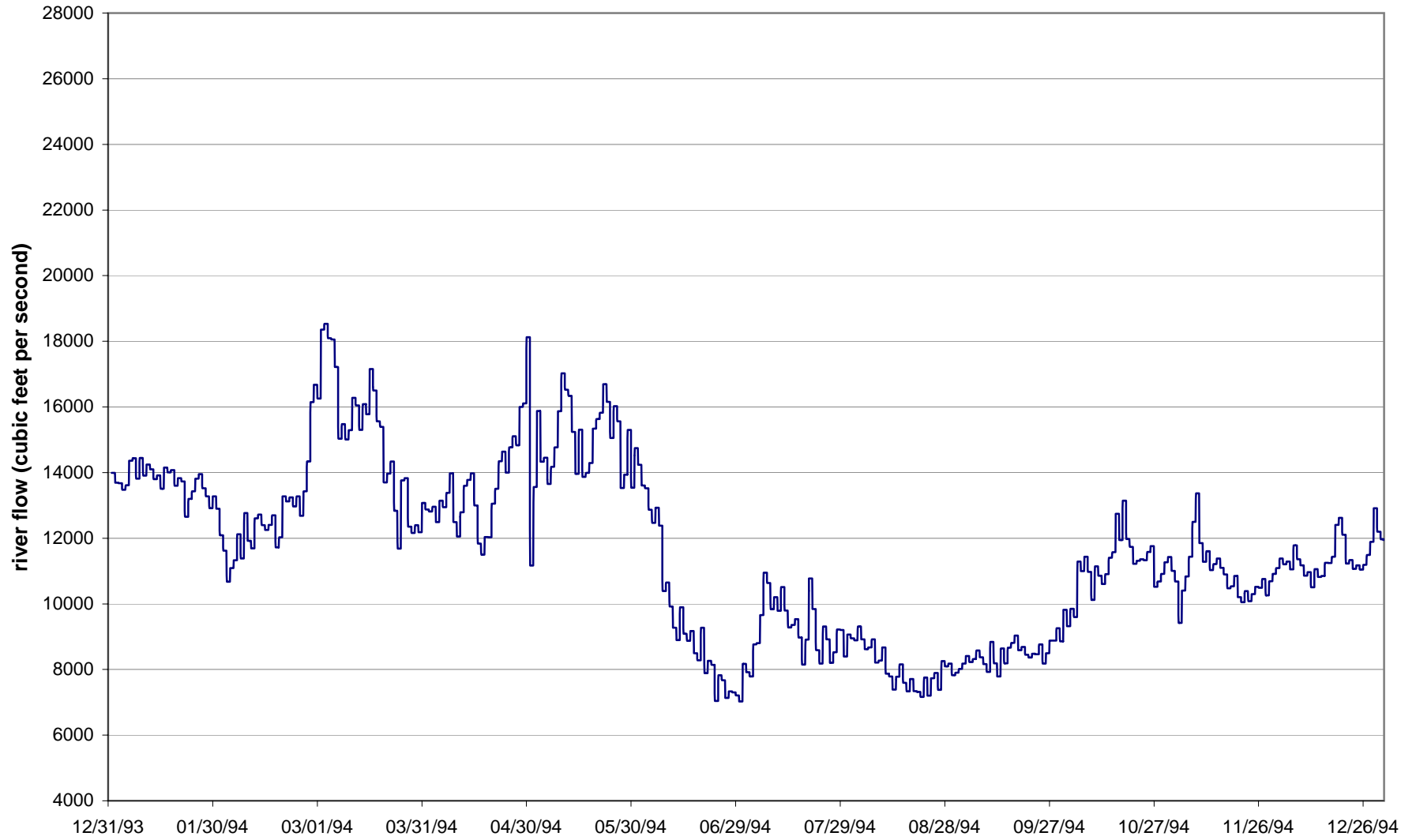
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 3



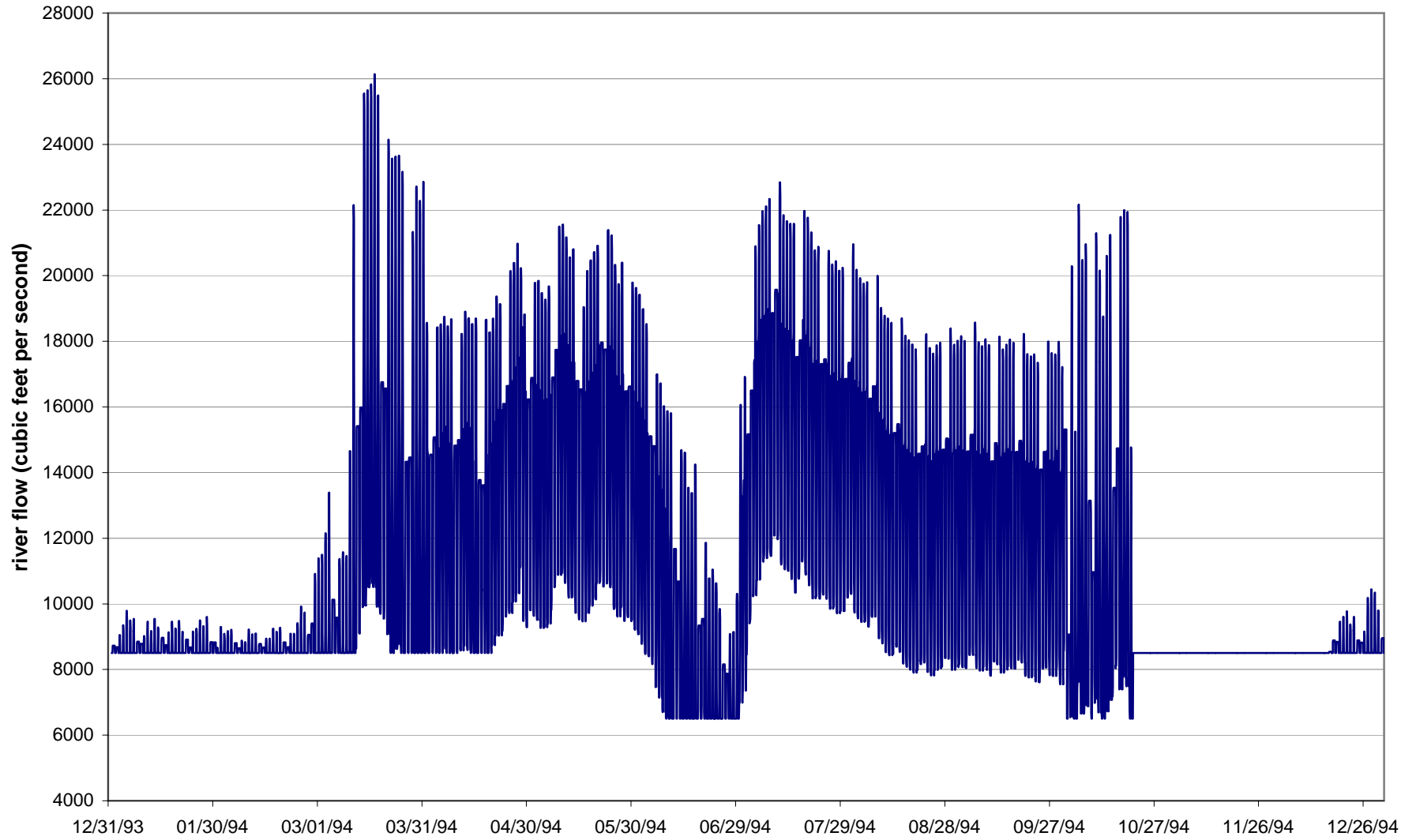
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 4



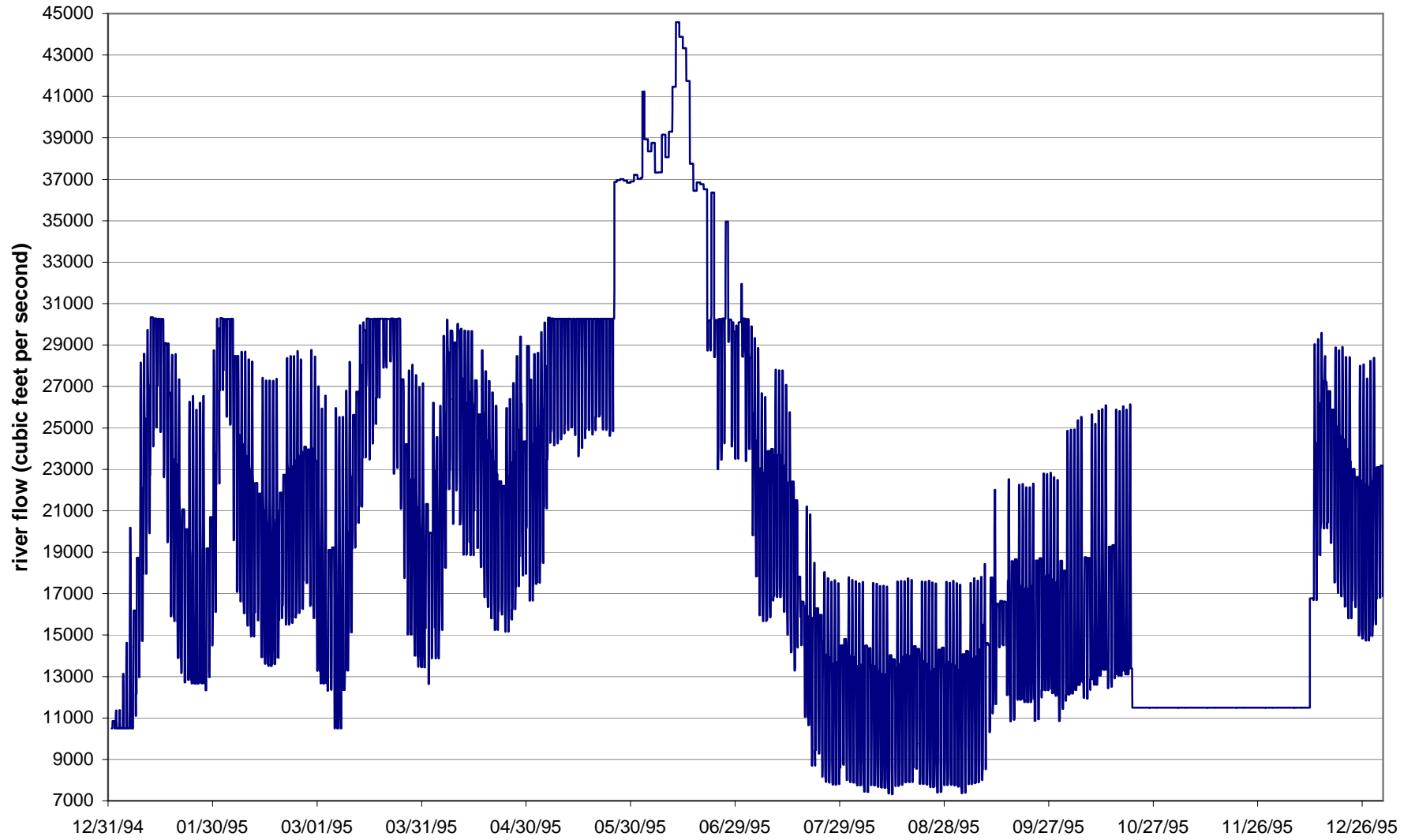
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 5



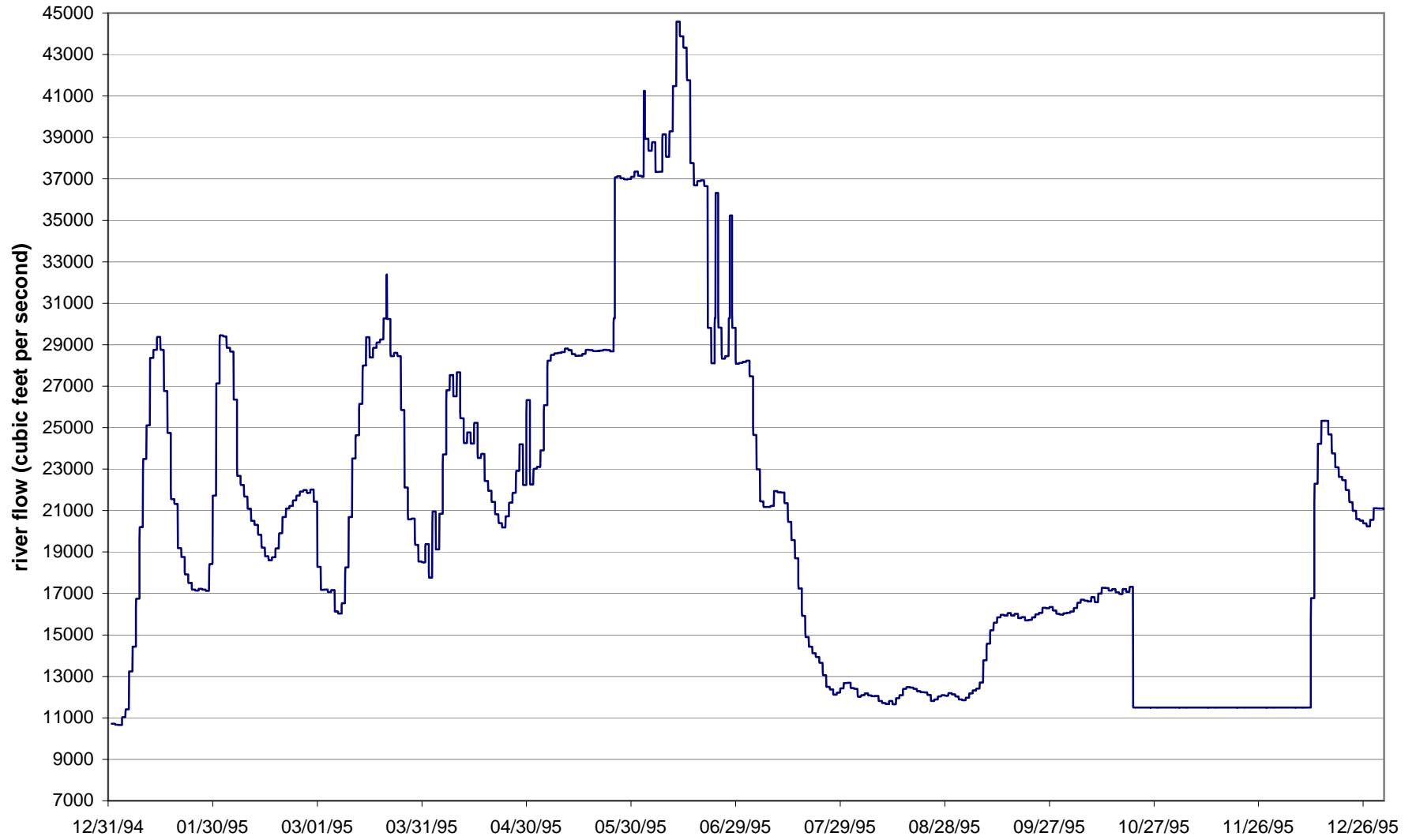
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1994
Scenario 6



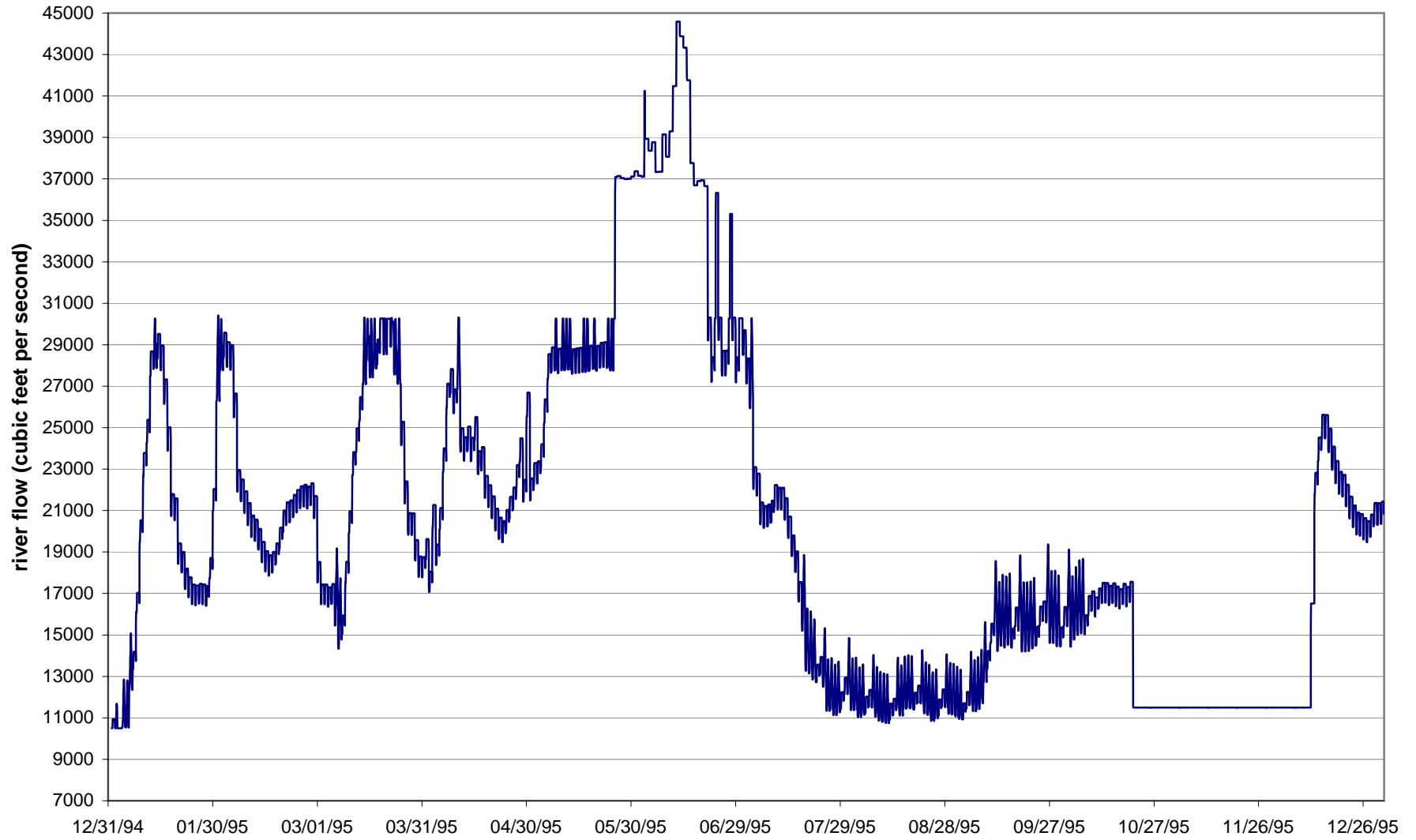
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Proposed operations



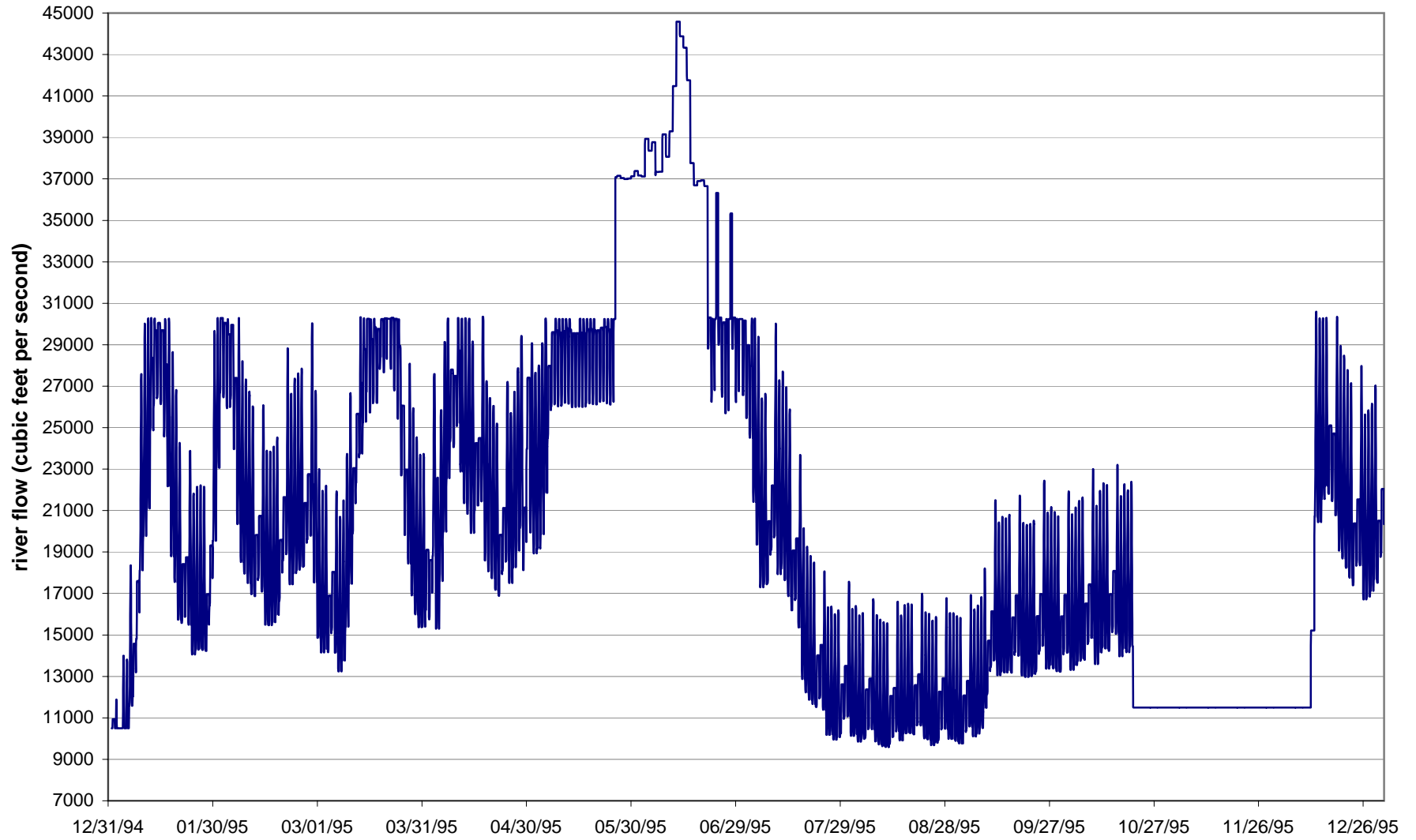
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 1(a)



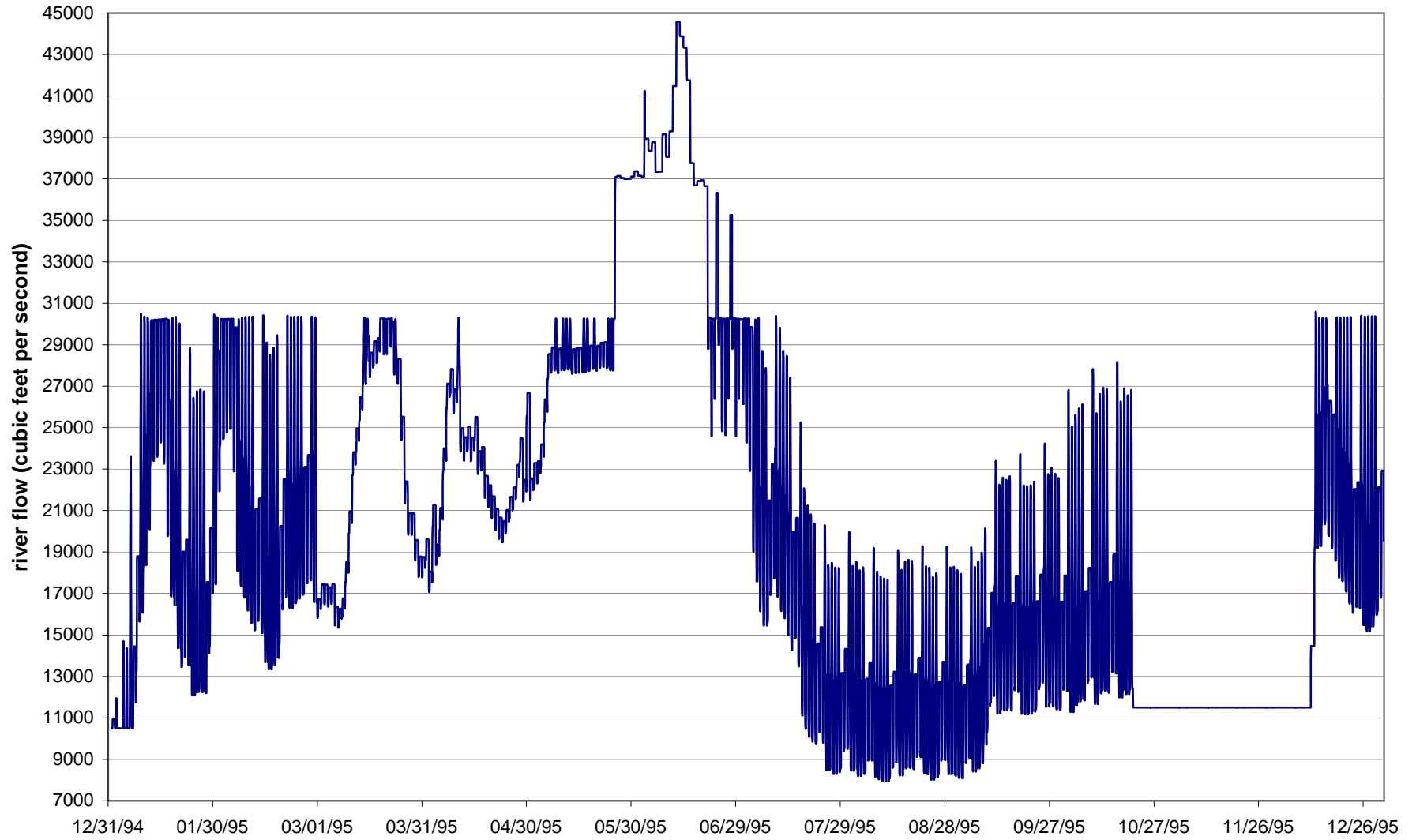
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 1(b)



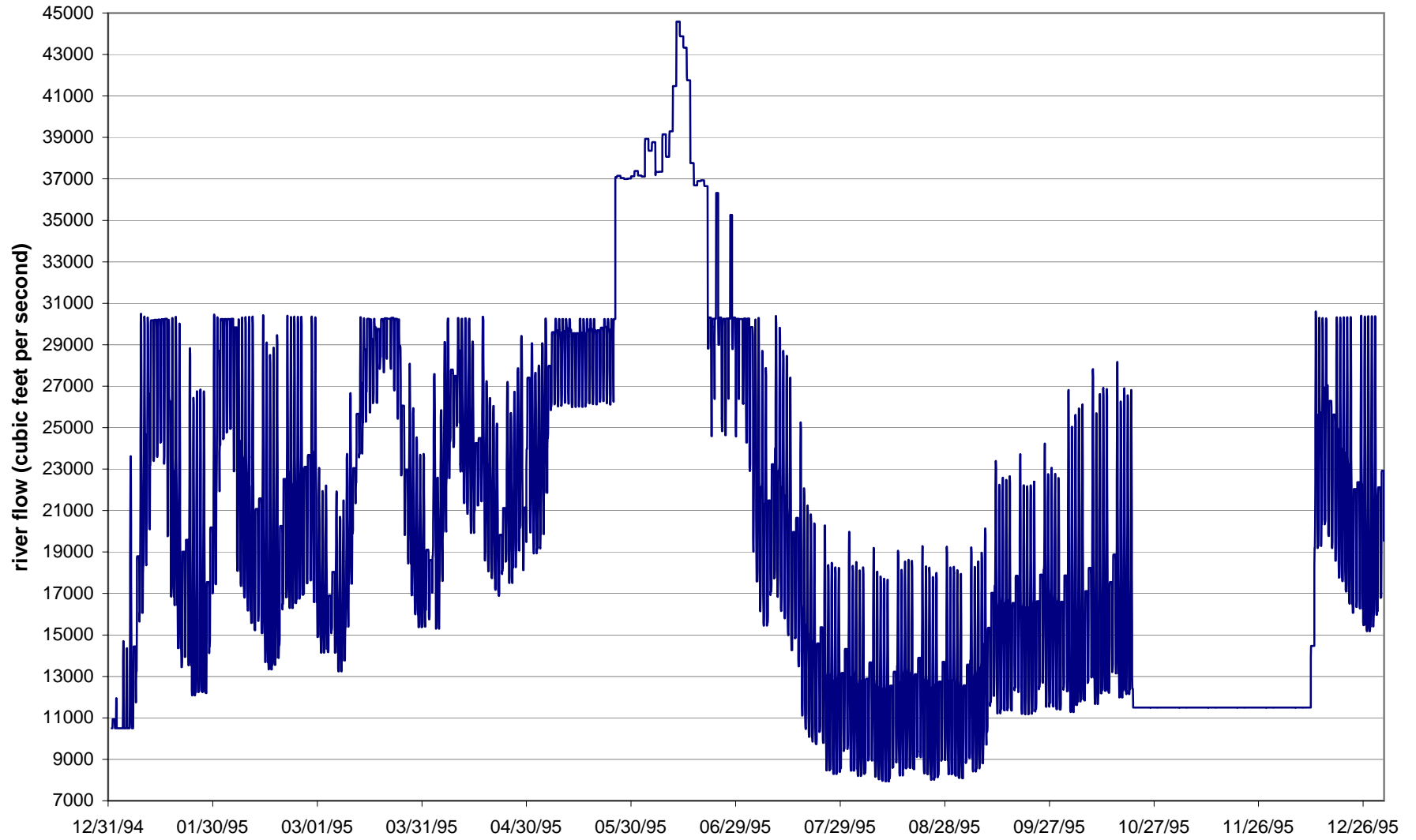
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 1(c)



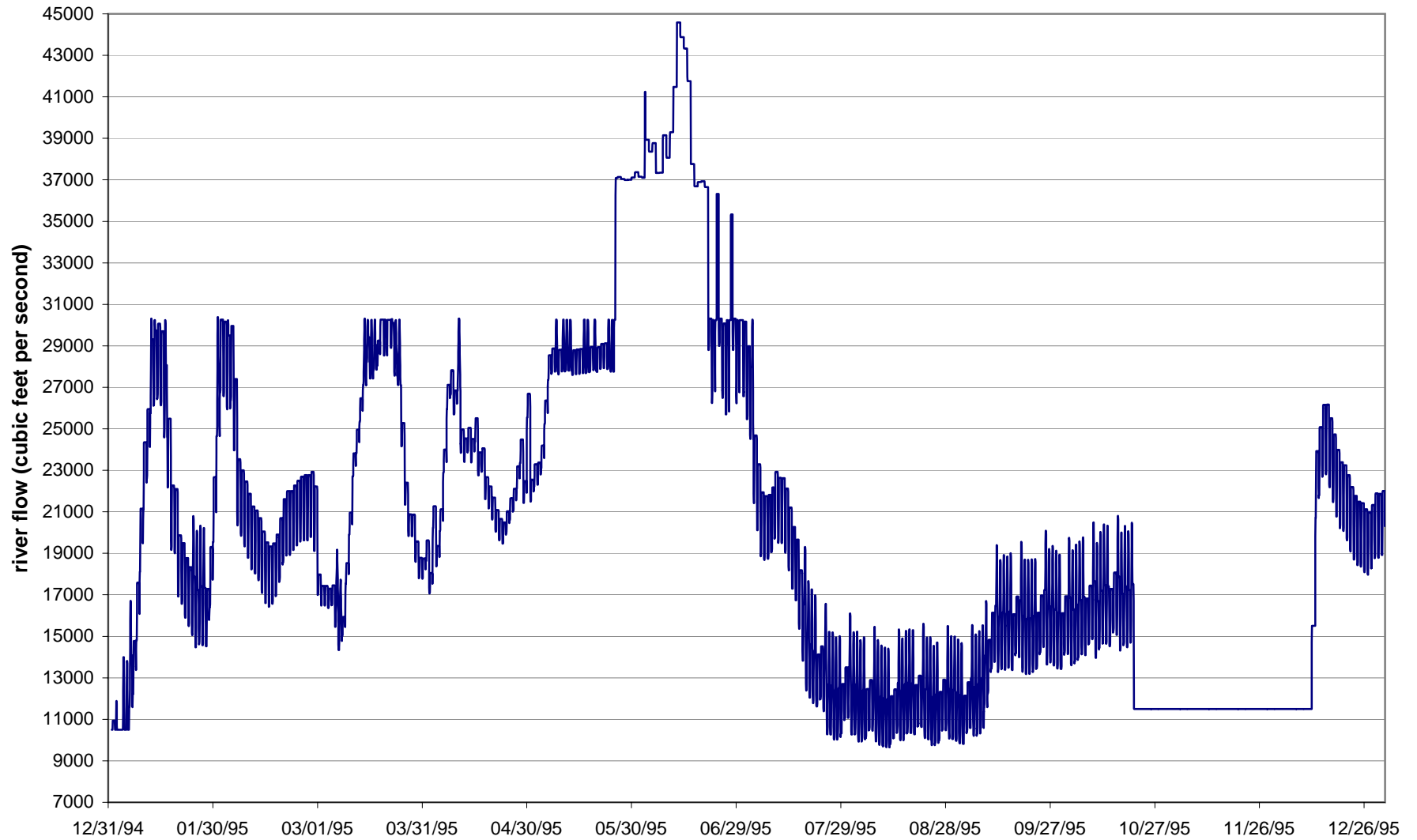
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 1(d)



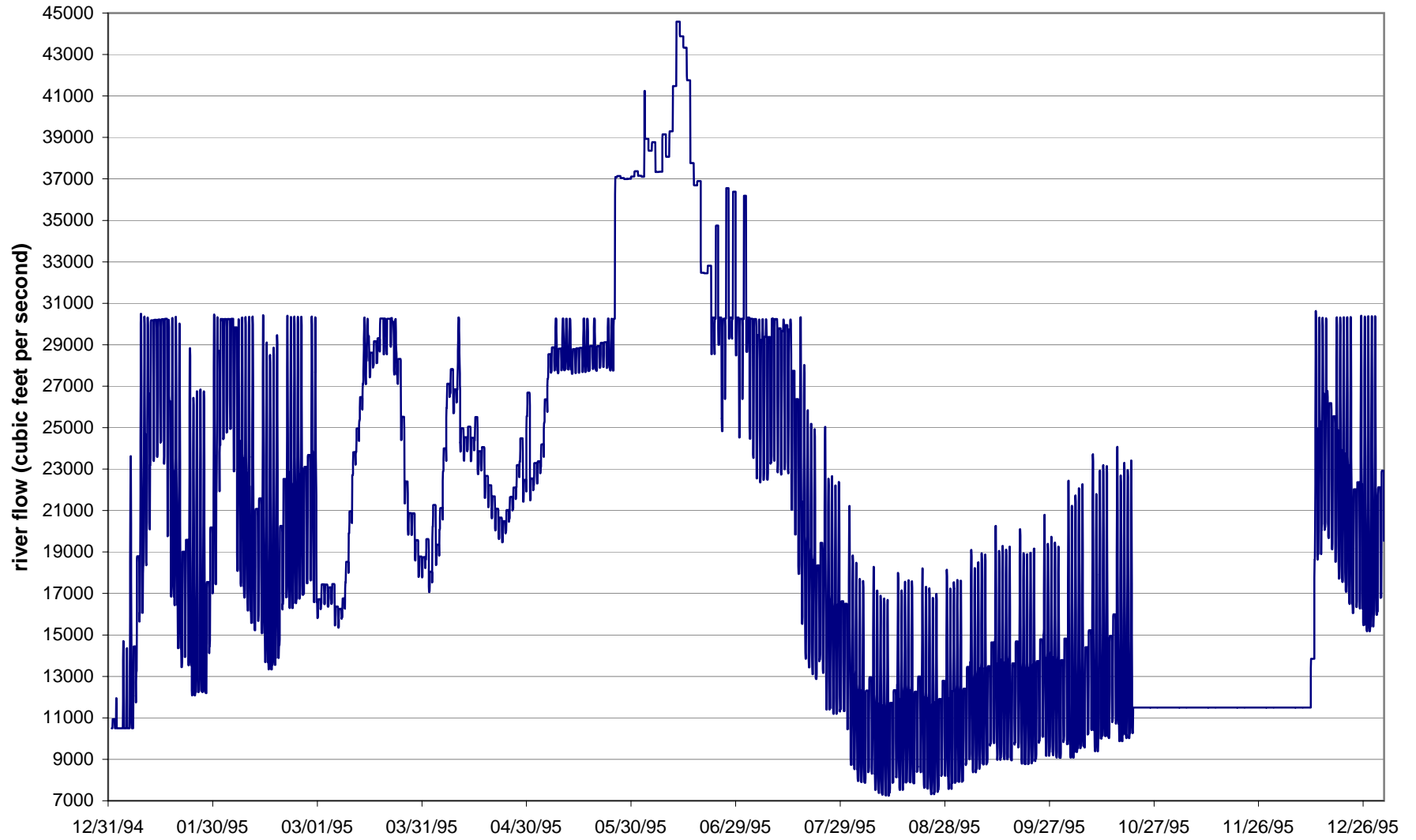
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 1(e)



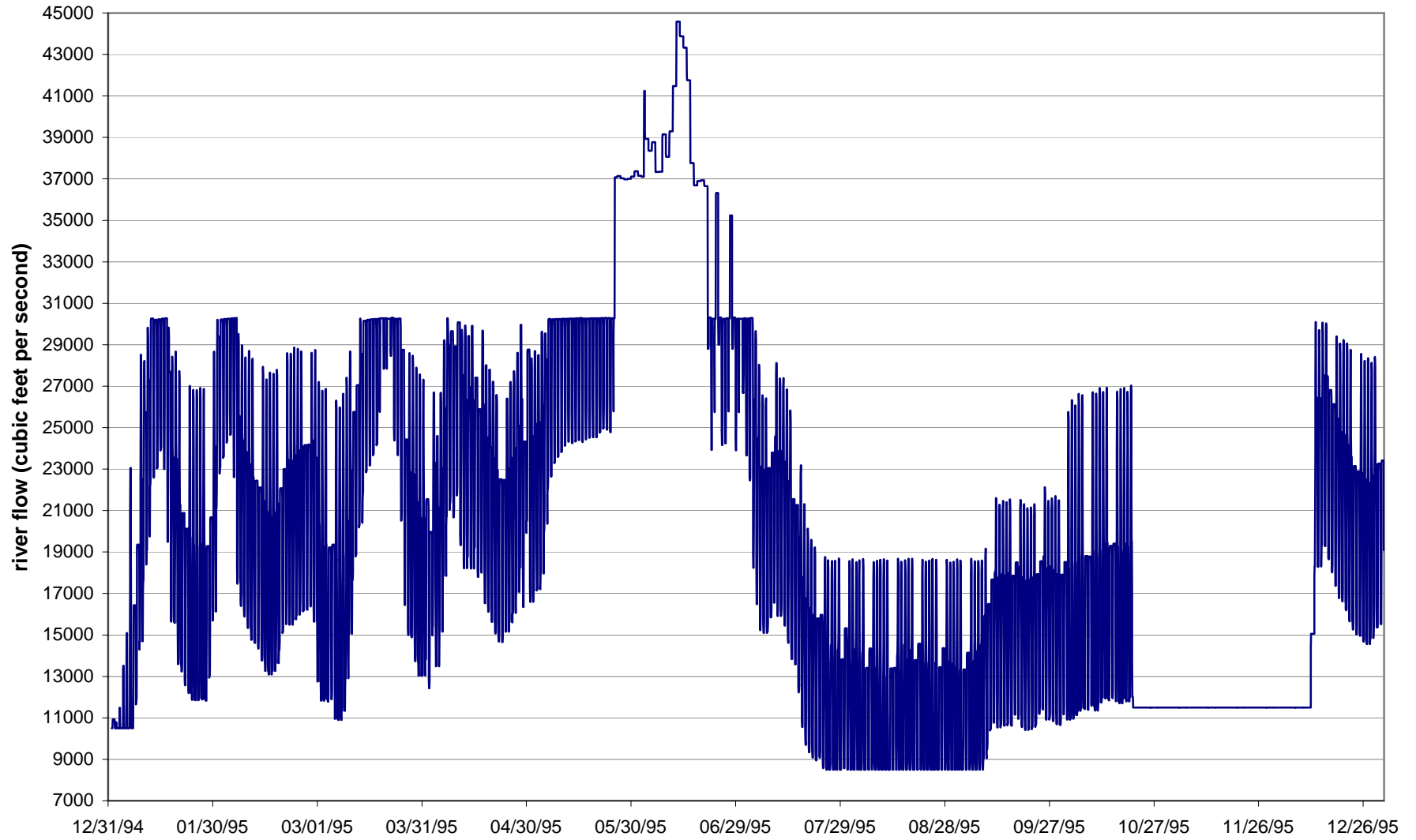
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 1(f)



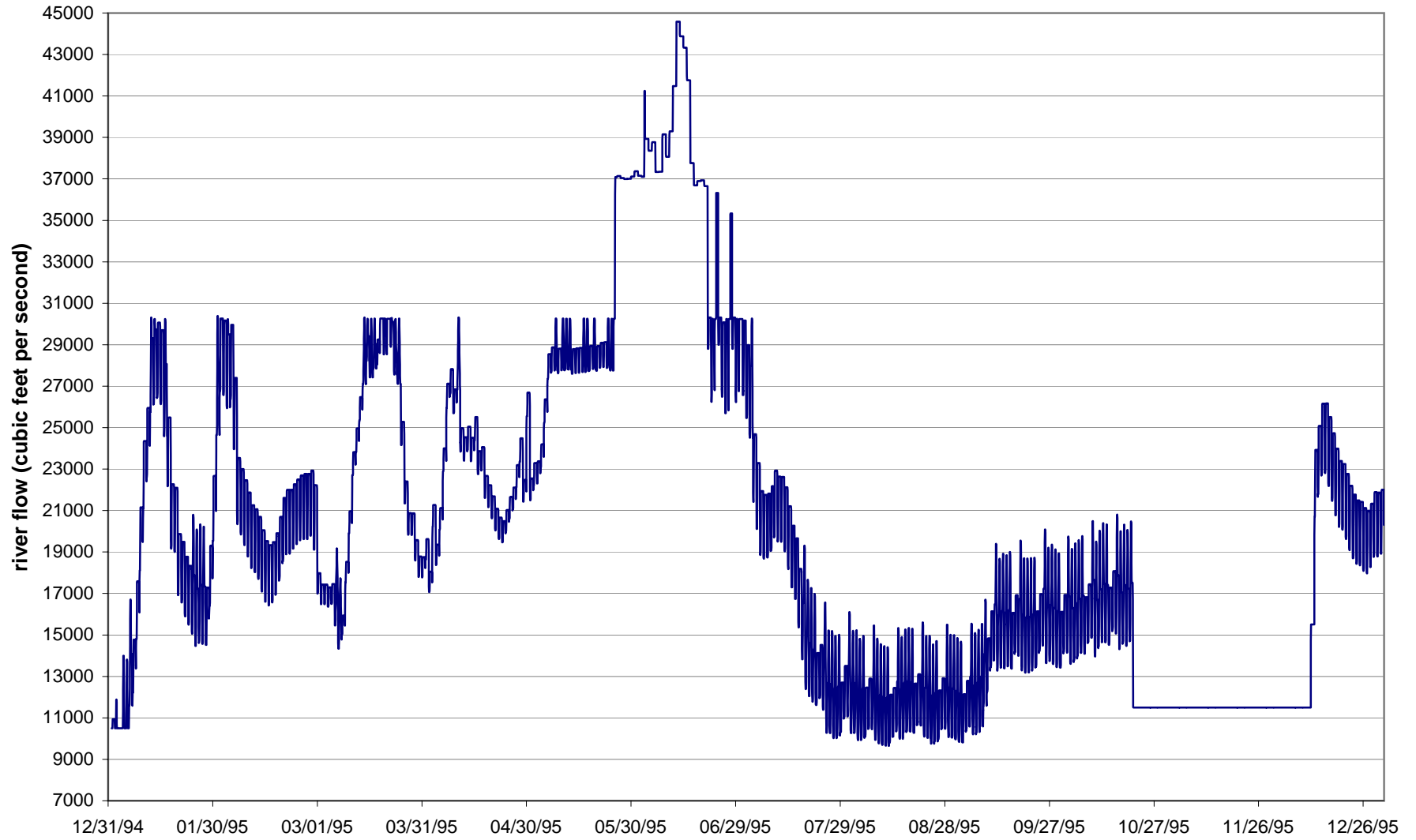
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 2



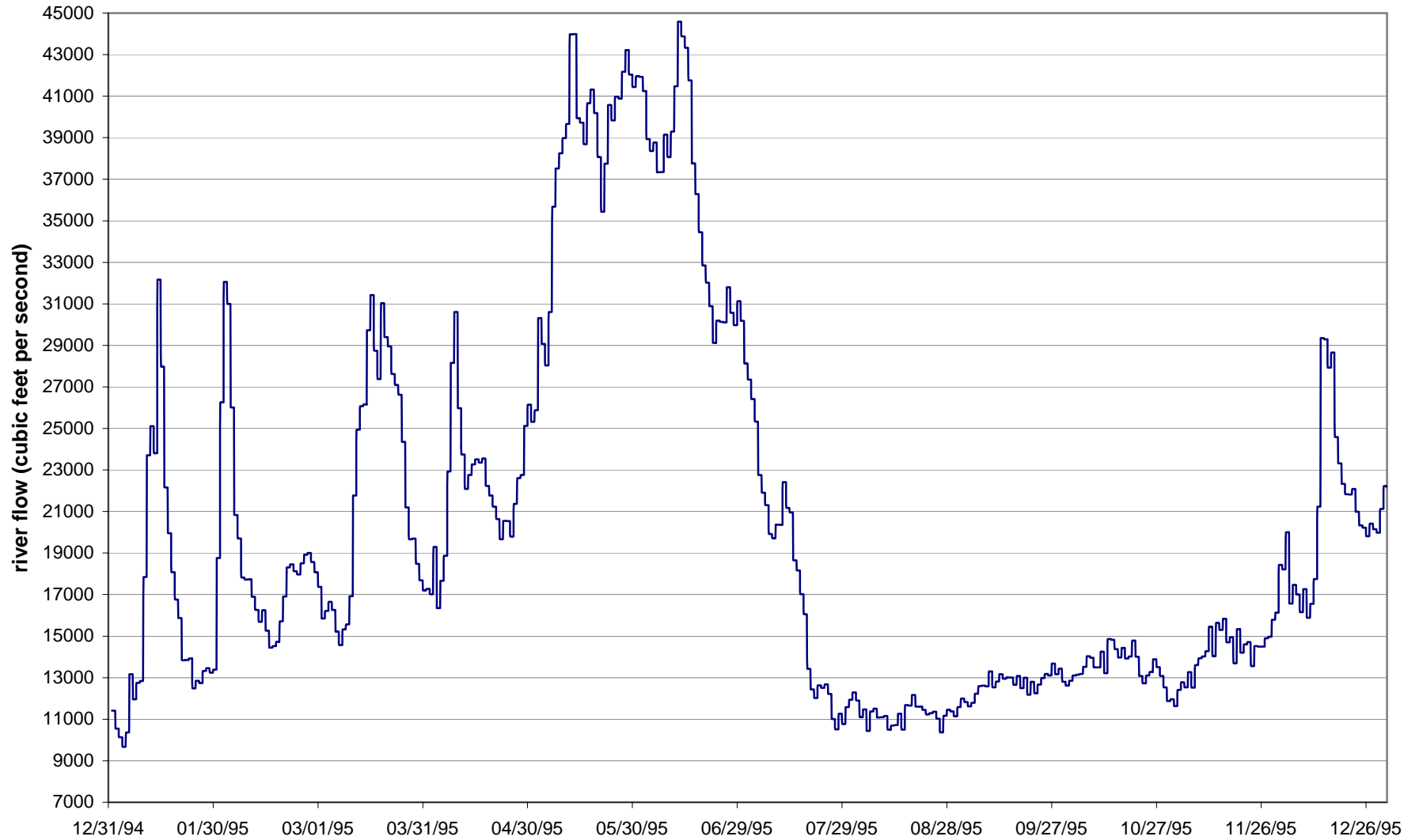
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 3



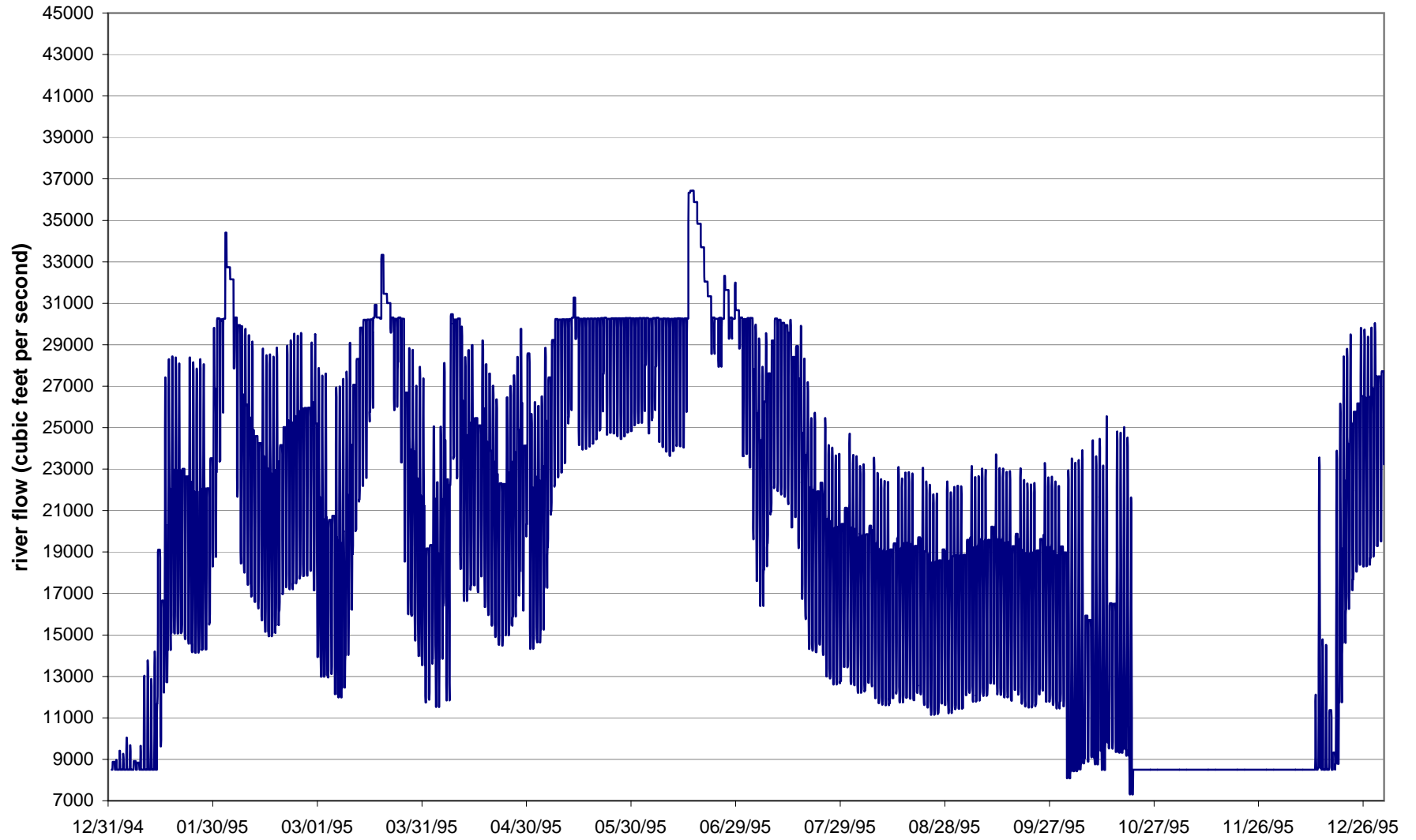
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 4



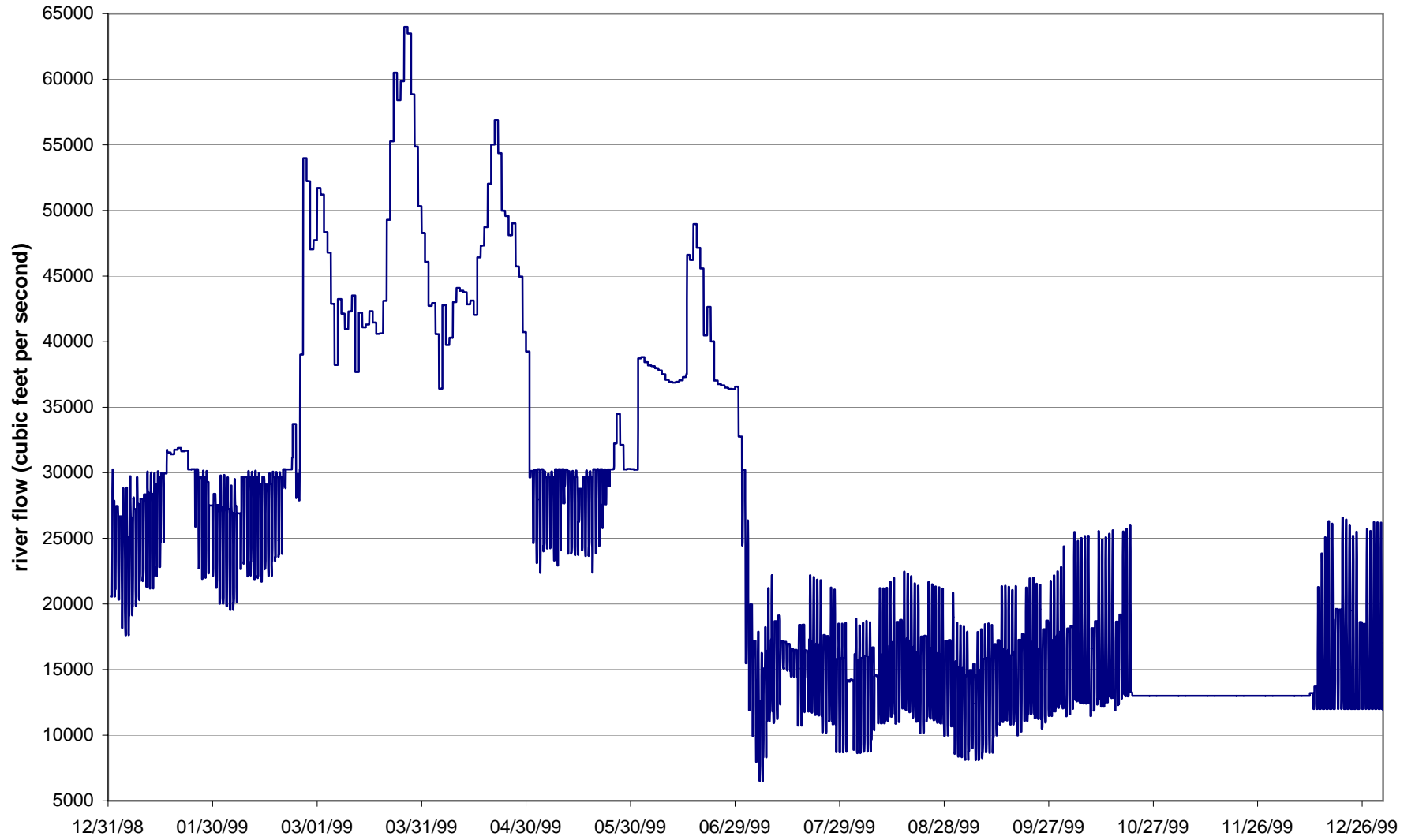
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 5



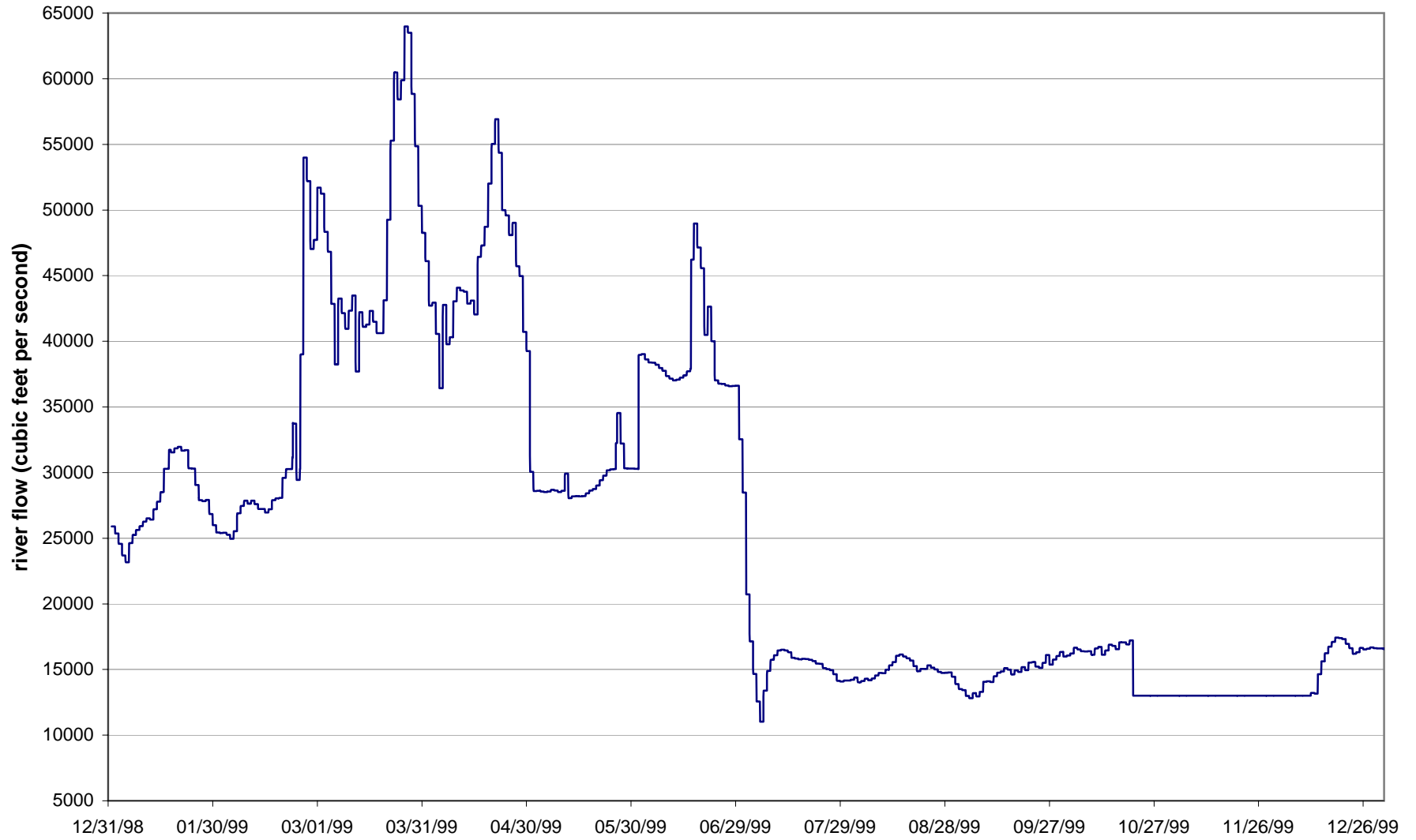
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1995
Scenario 6



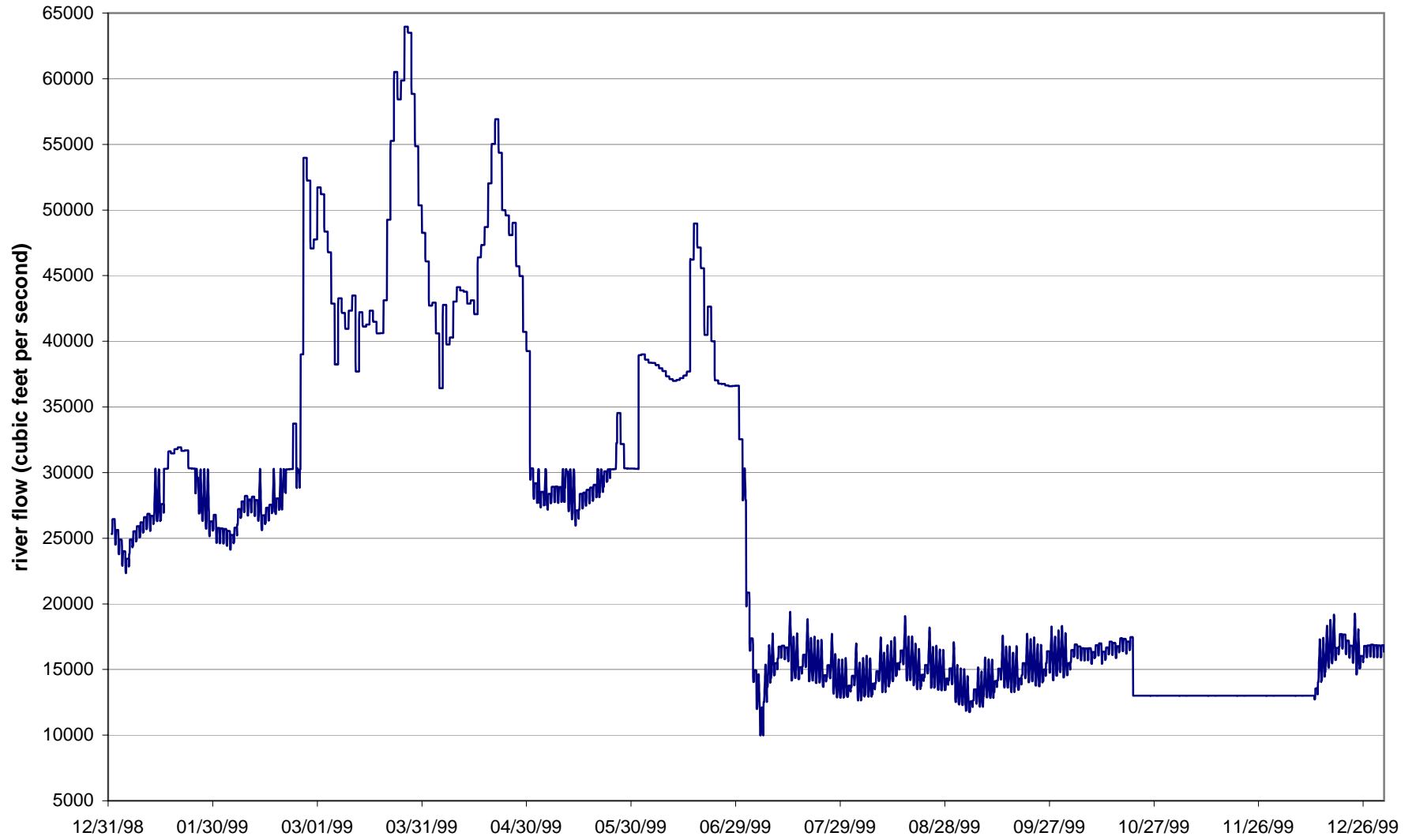
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Proposed operations



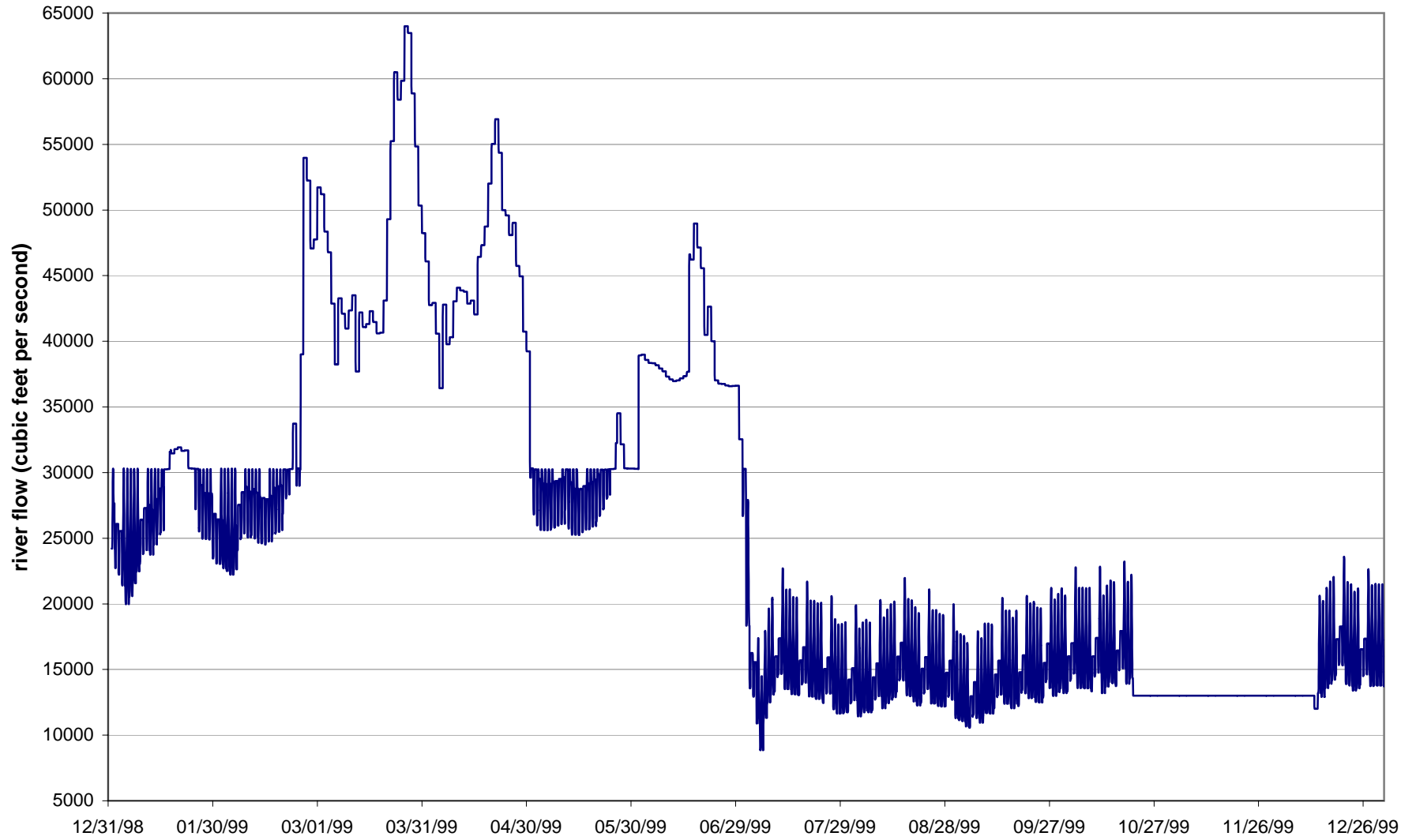
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 1(a)



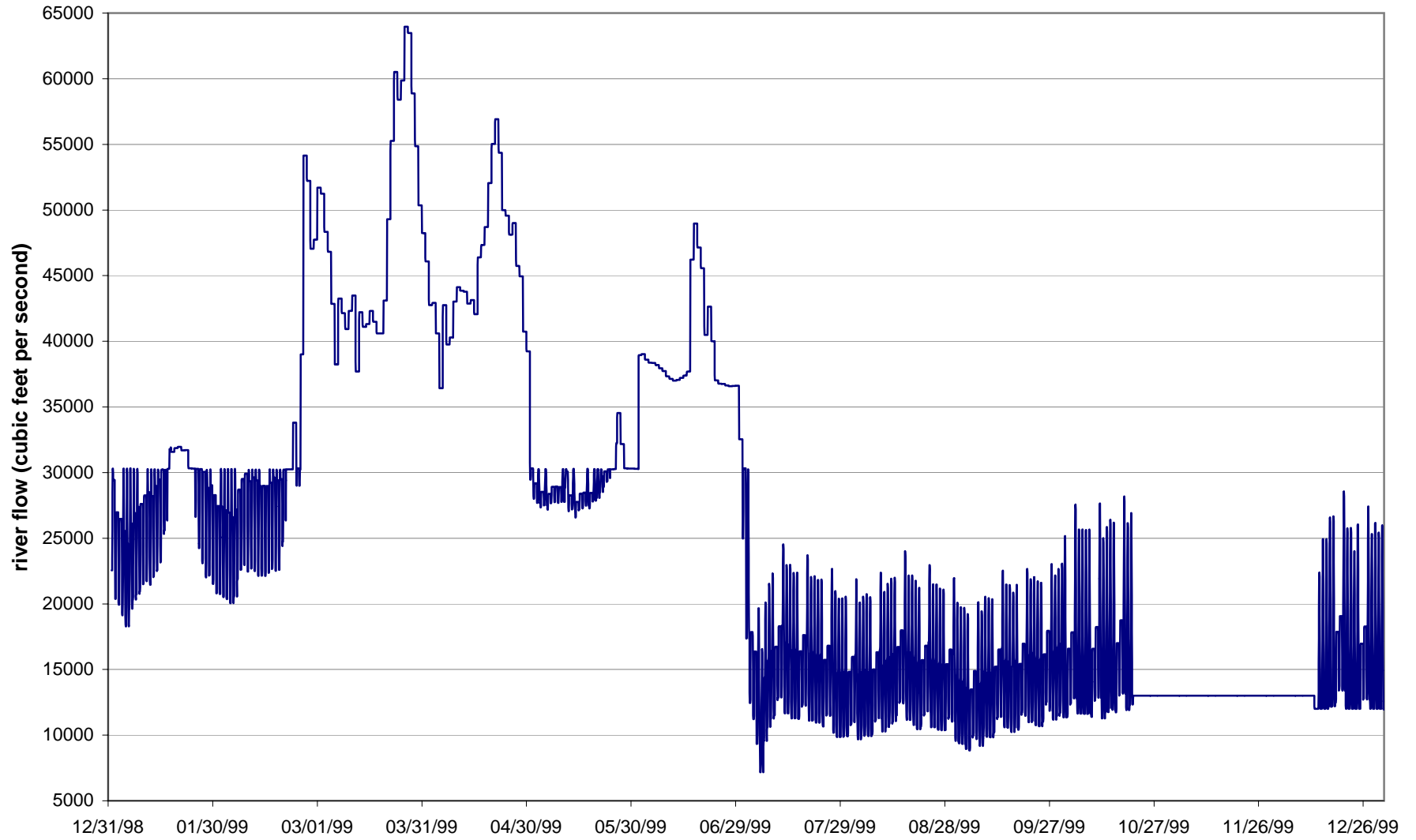
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 1(b)



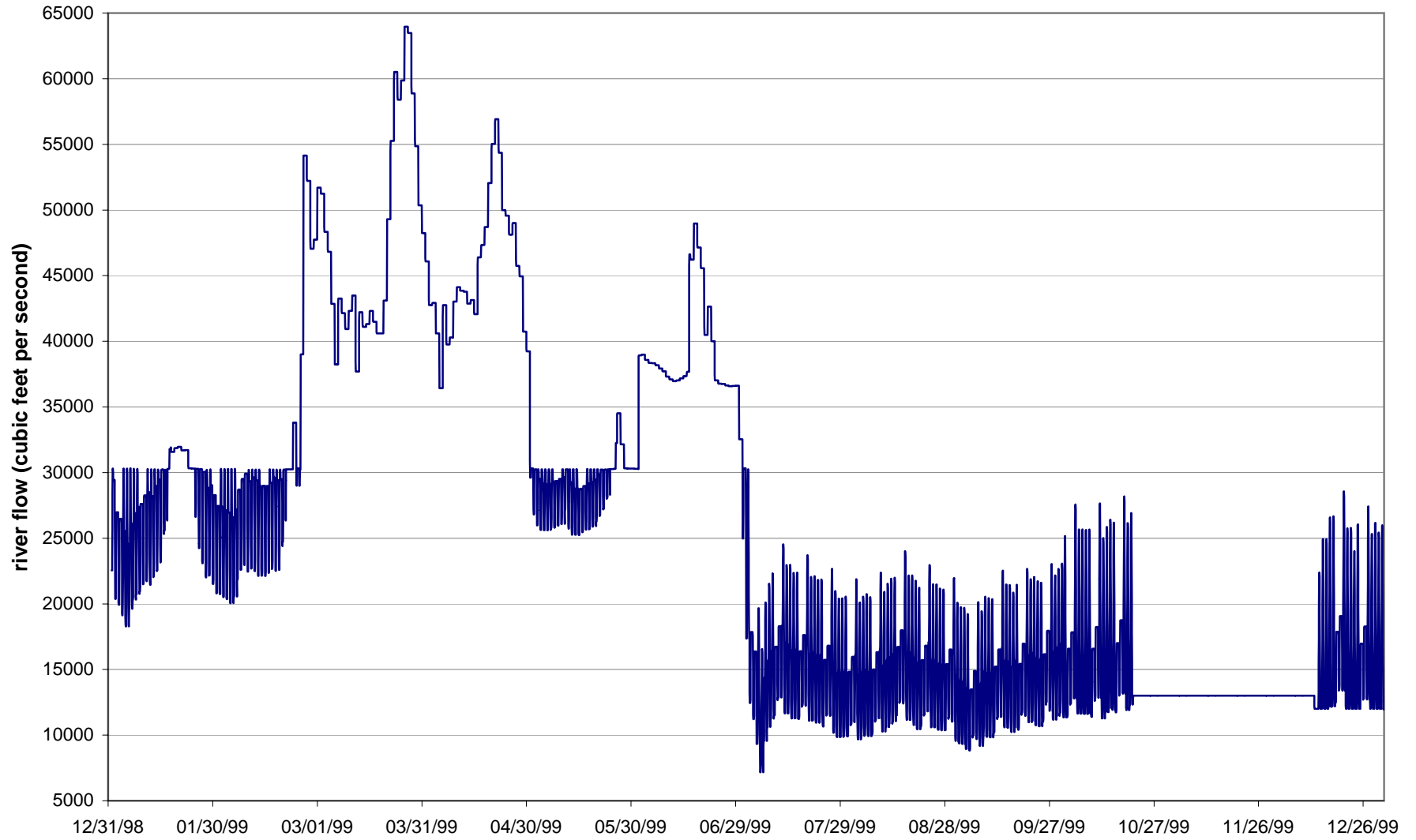
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 1(c)



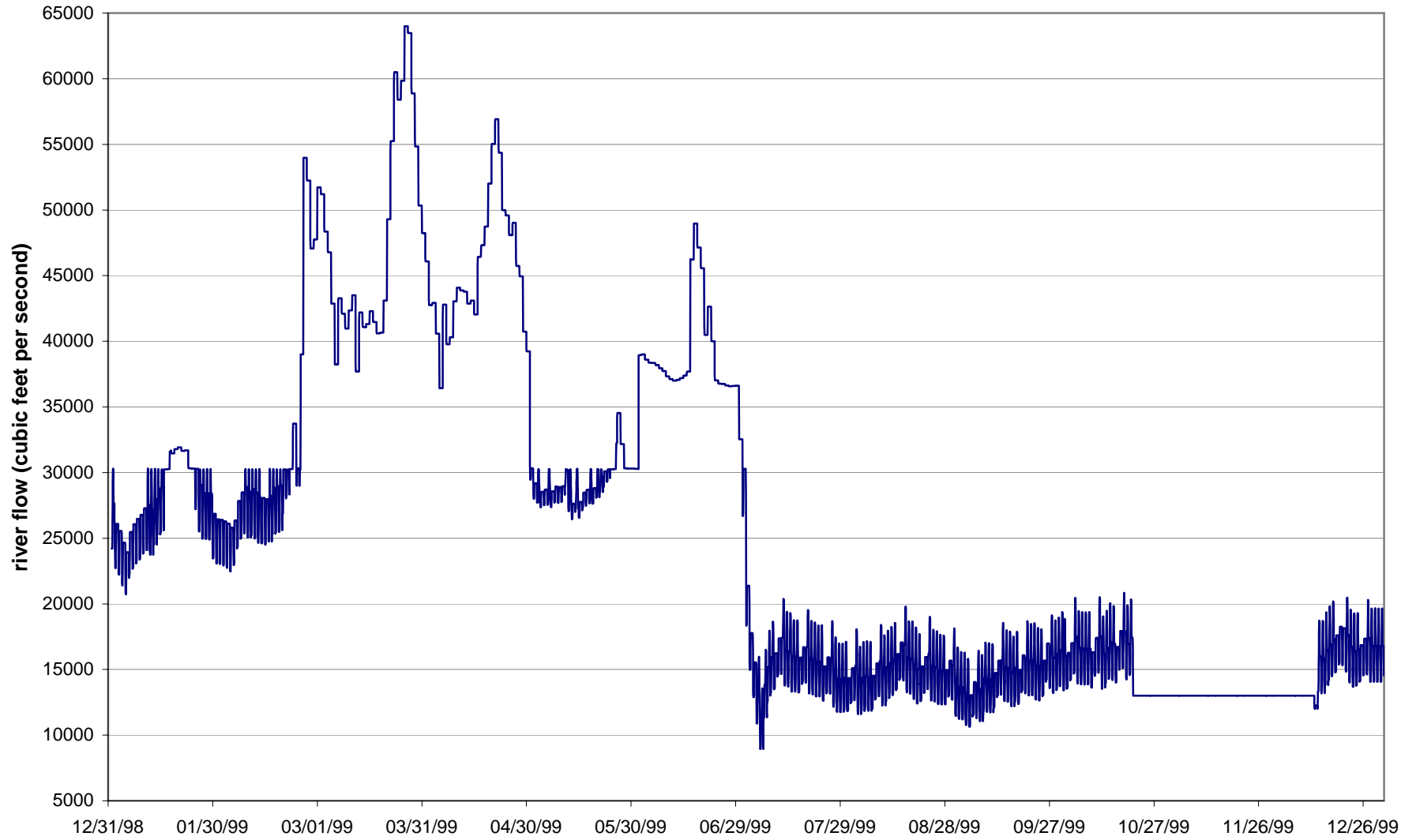
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 1(d)



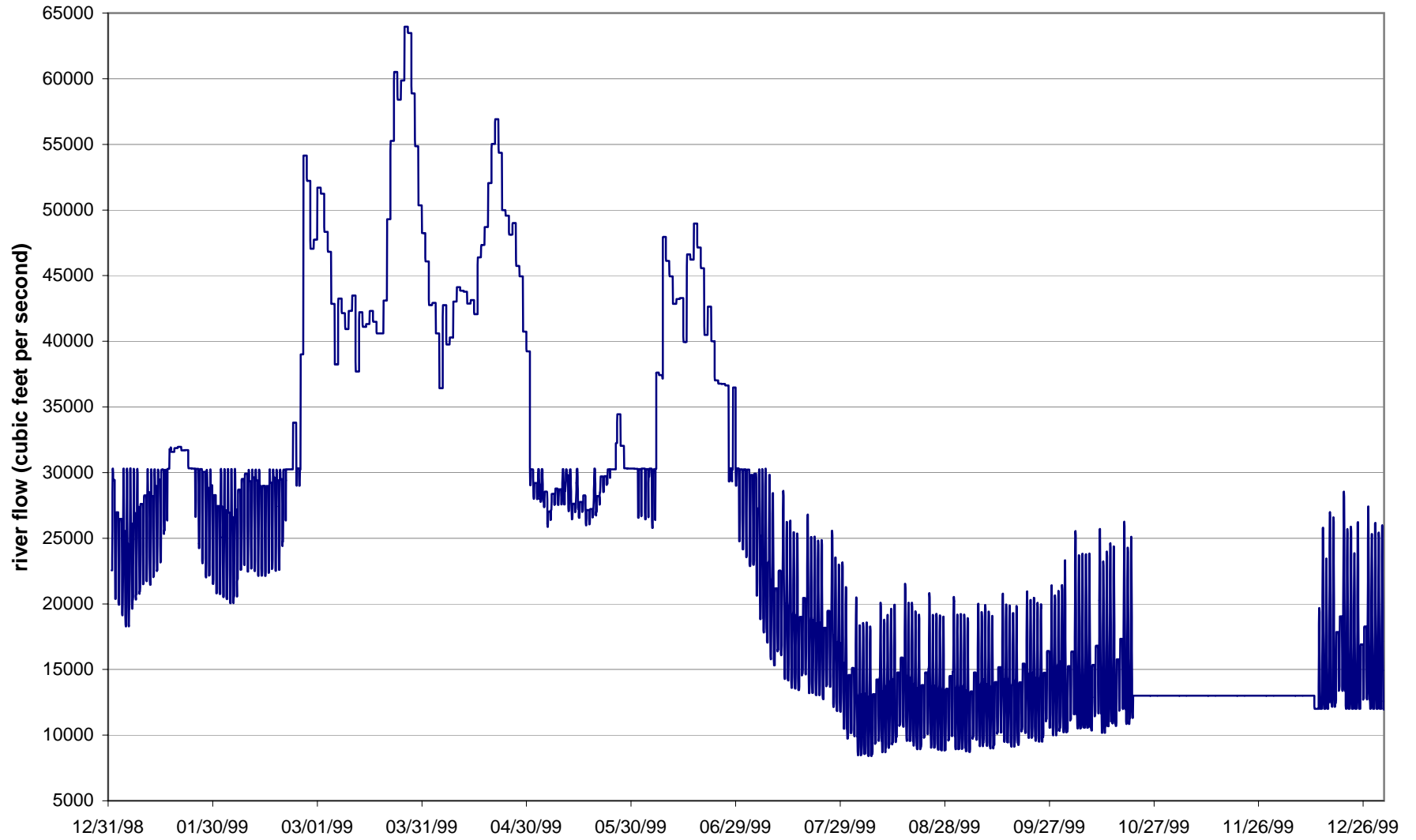
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 1(e)



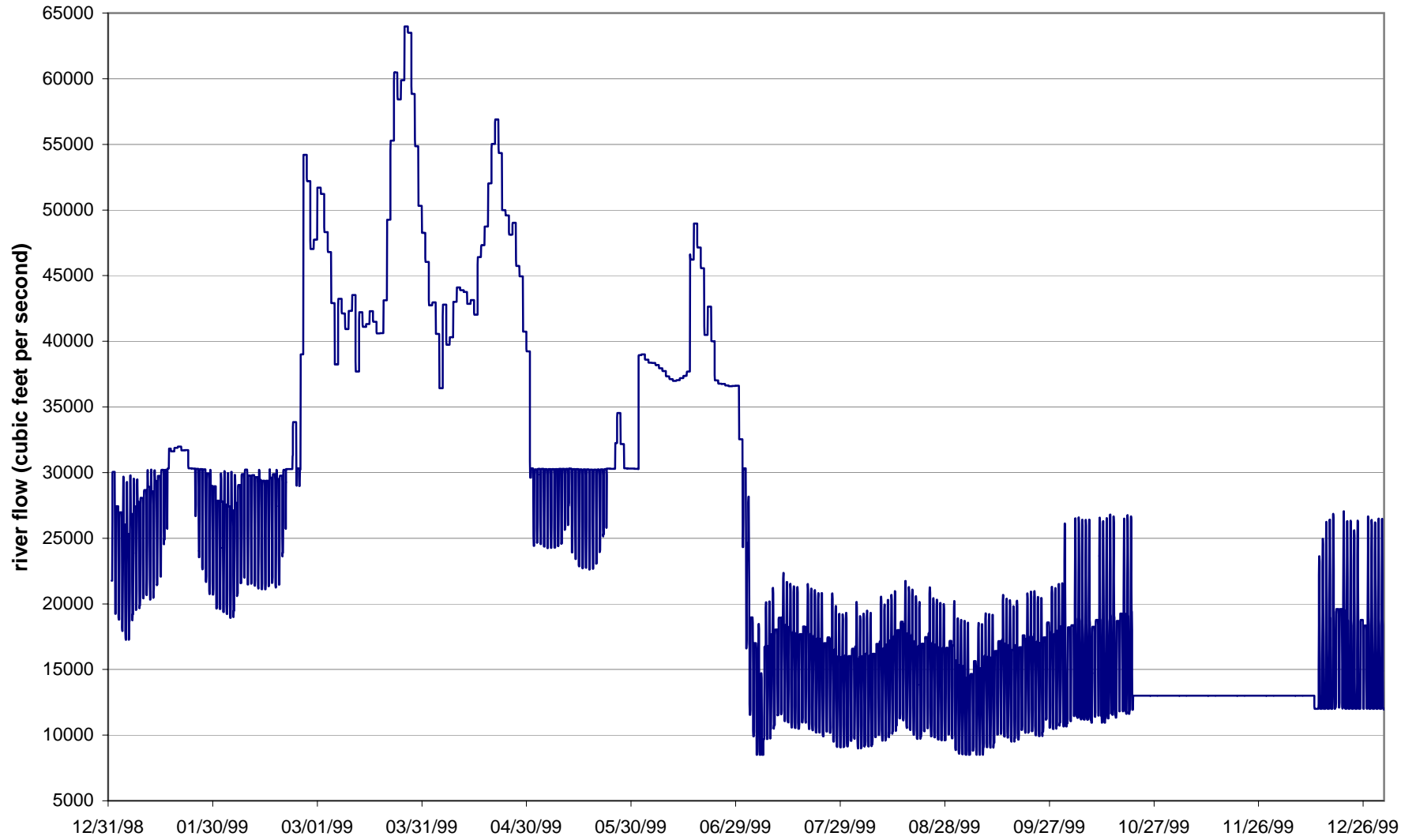
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 1(f)



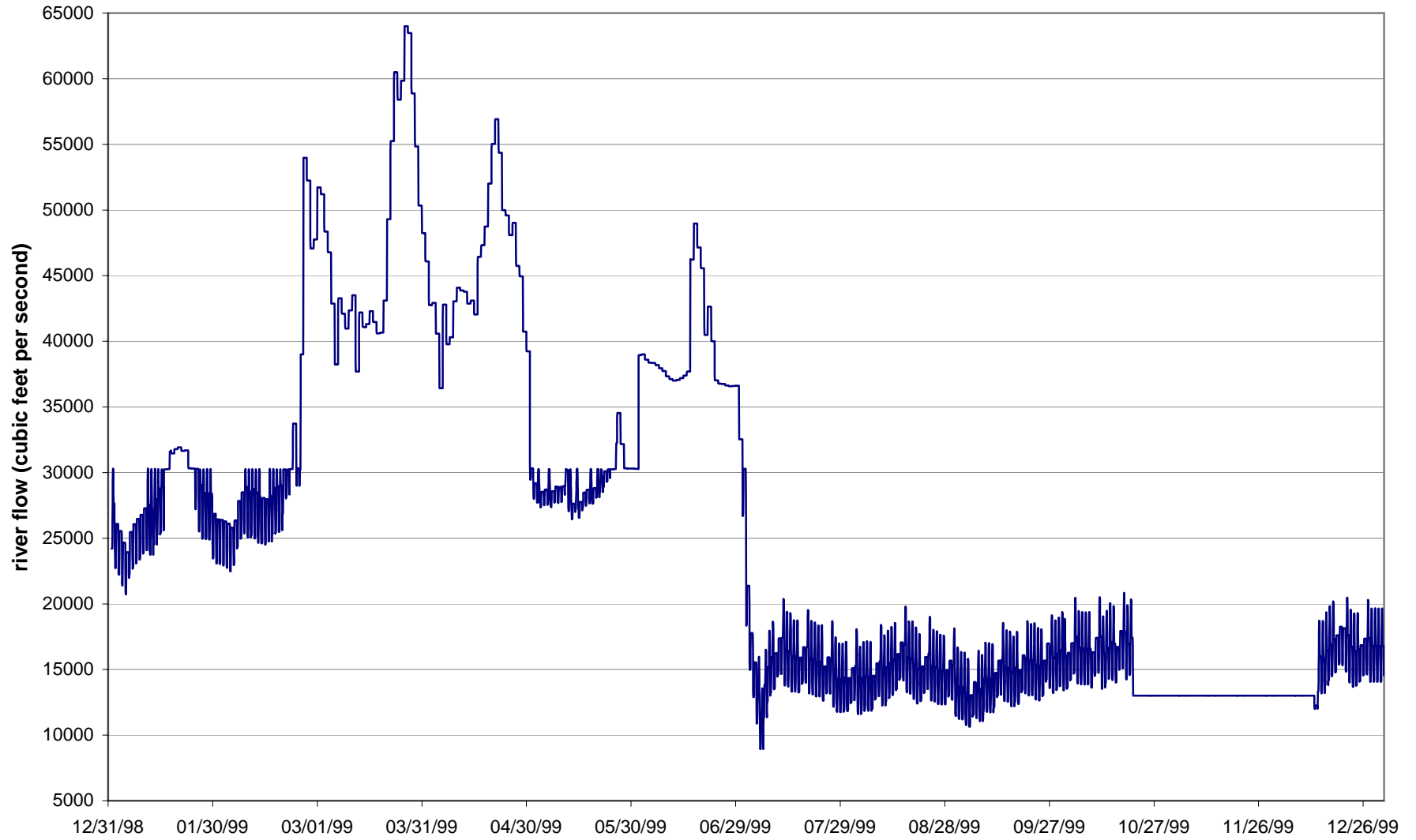
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 2



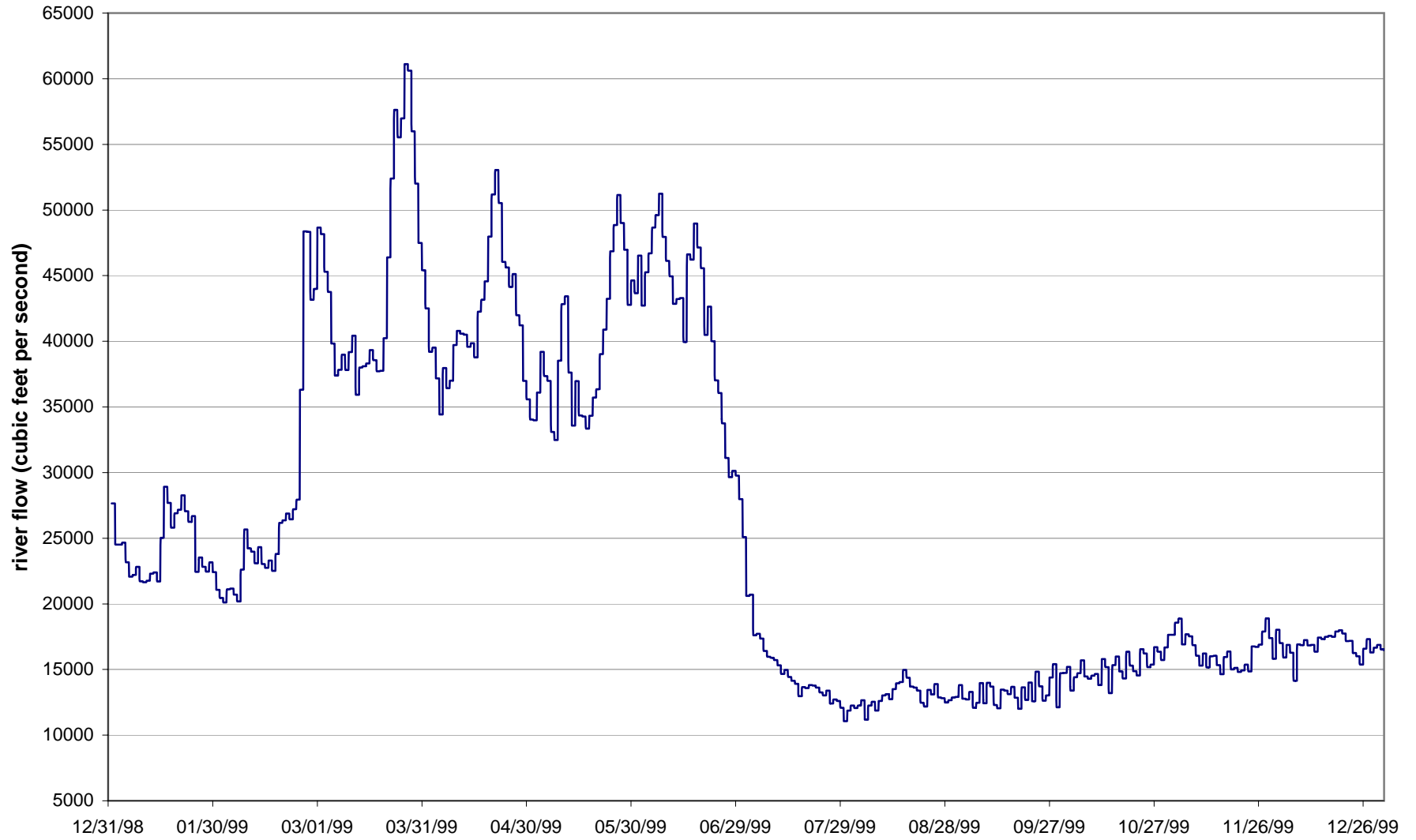
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 3



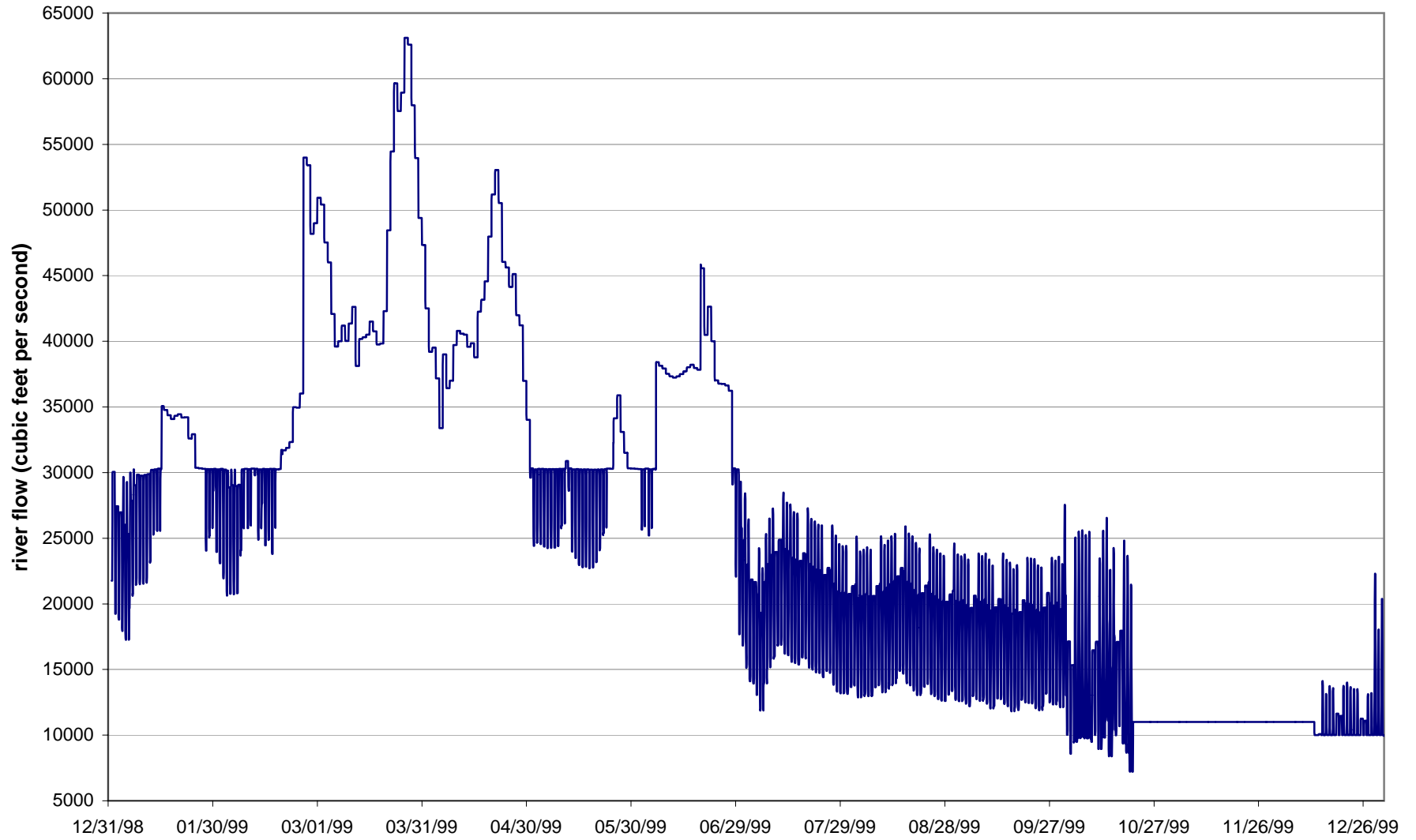
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 4



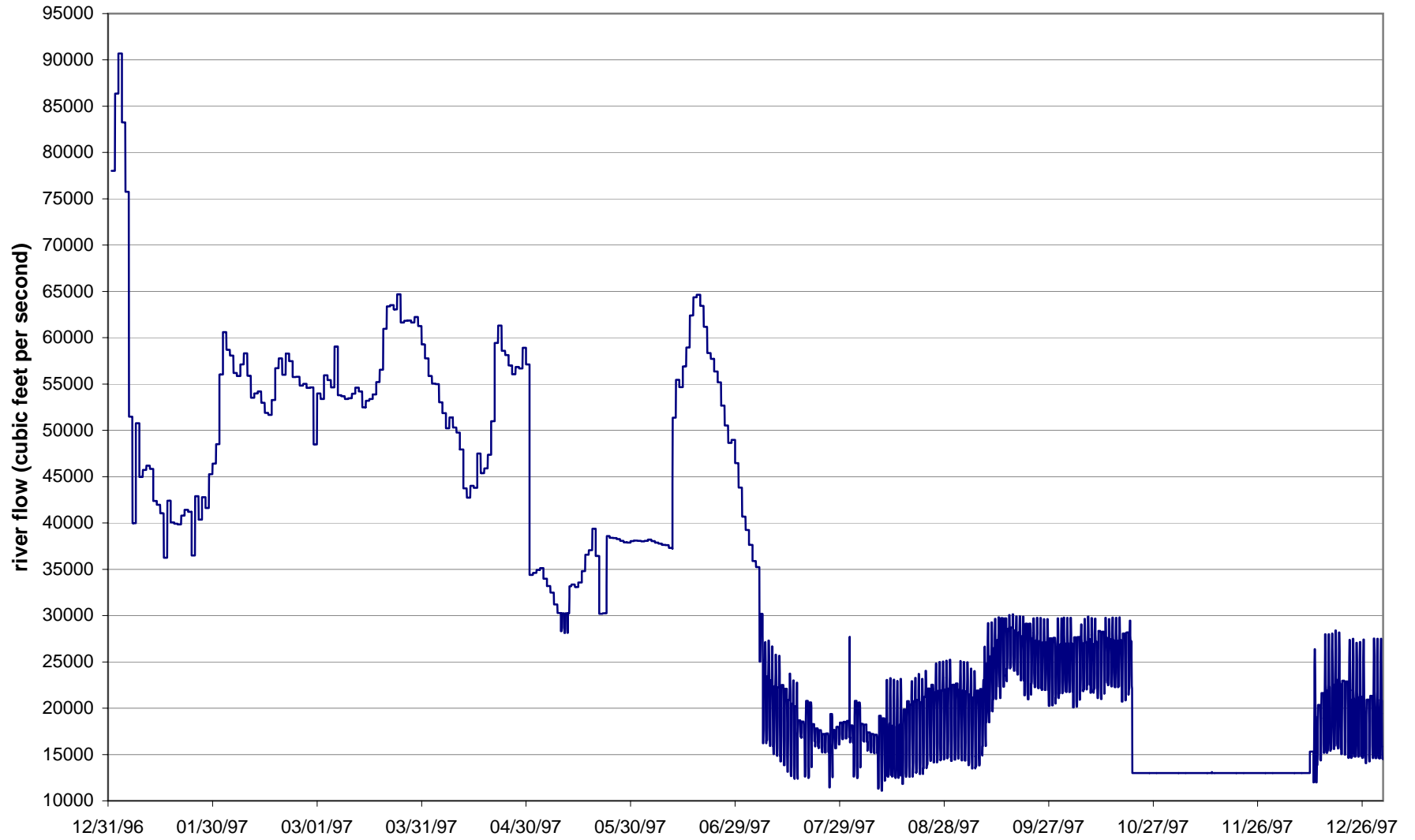
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 5



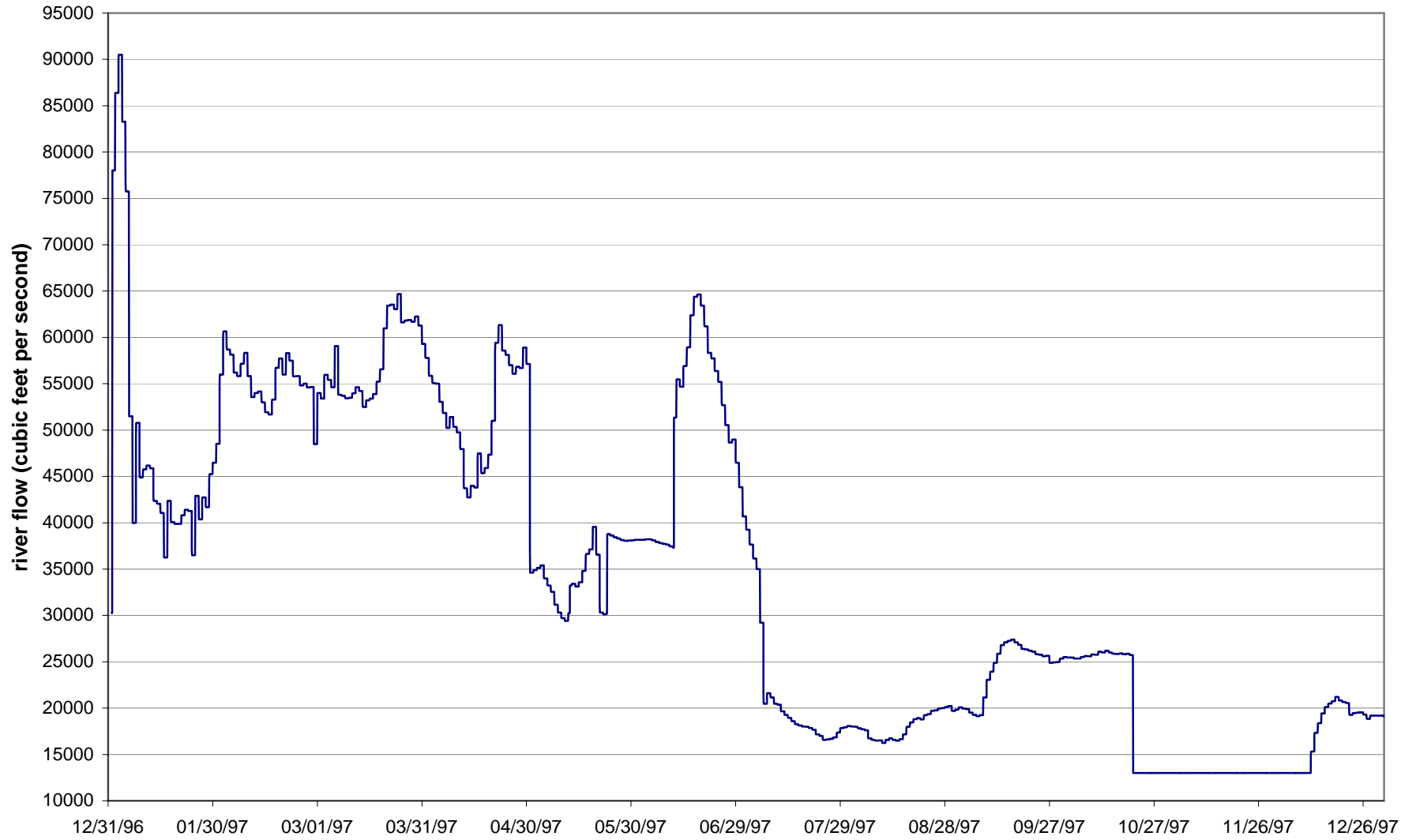
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1999
Scenario 6



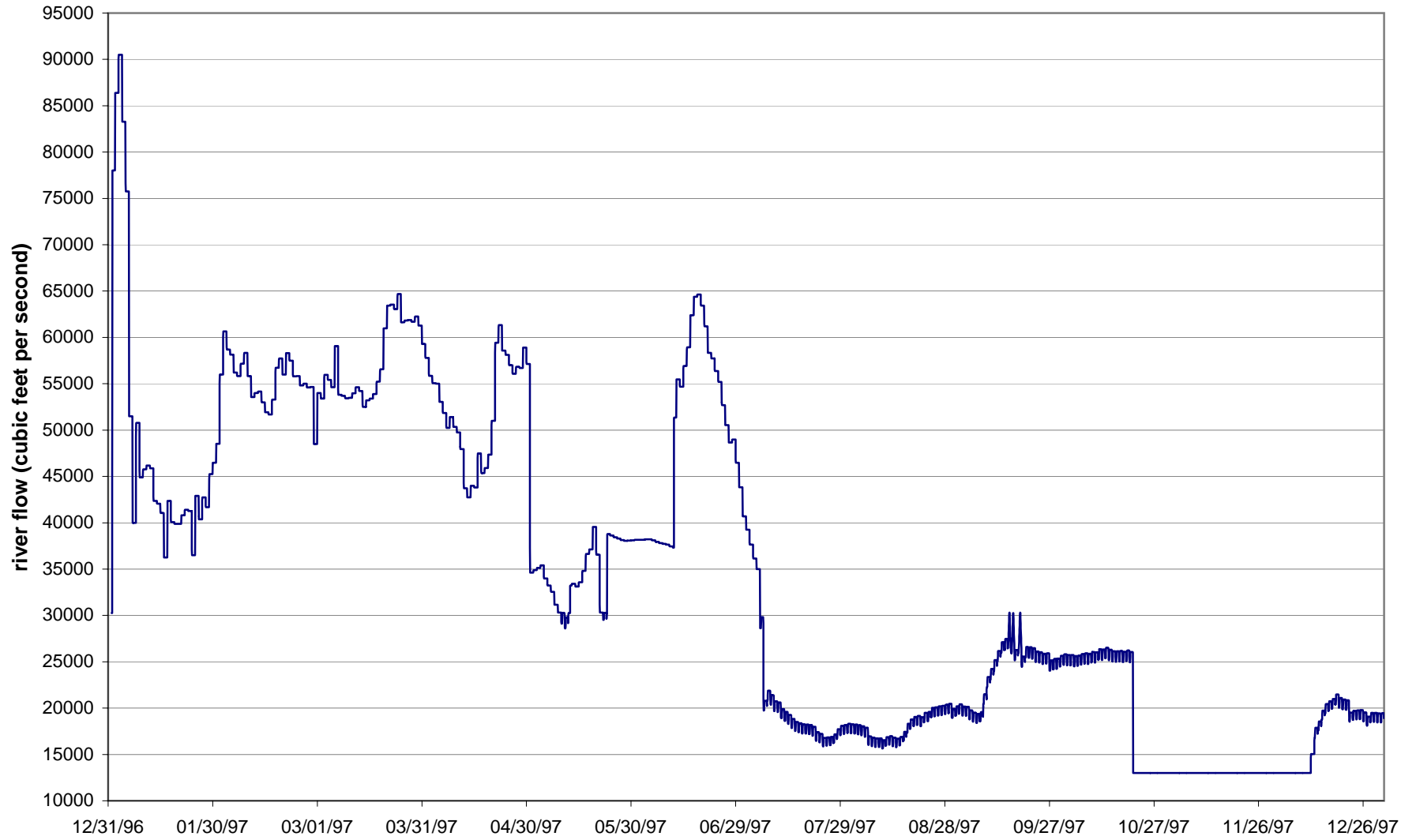
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Proposed operations



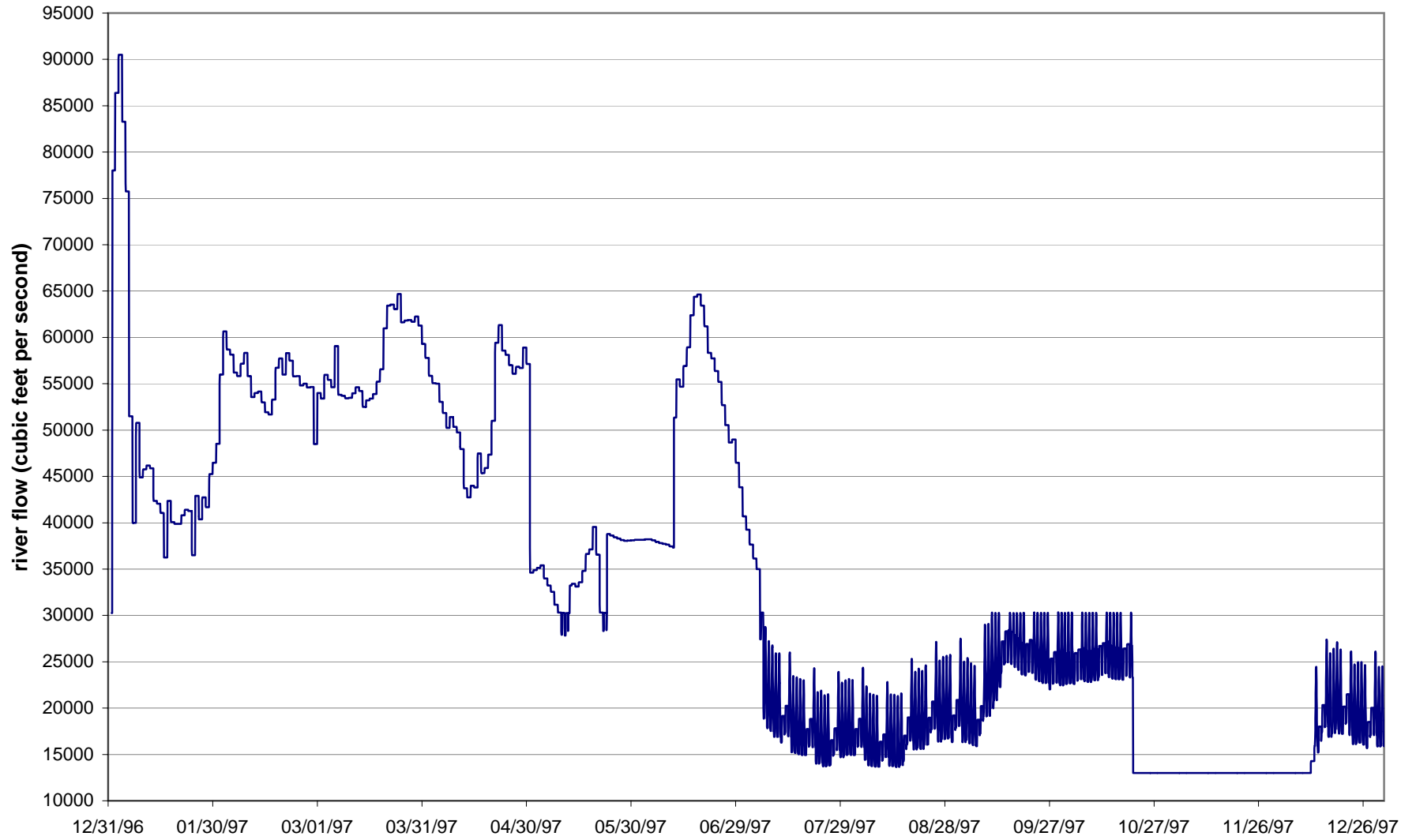
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 1(a)



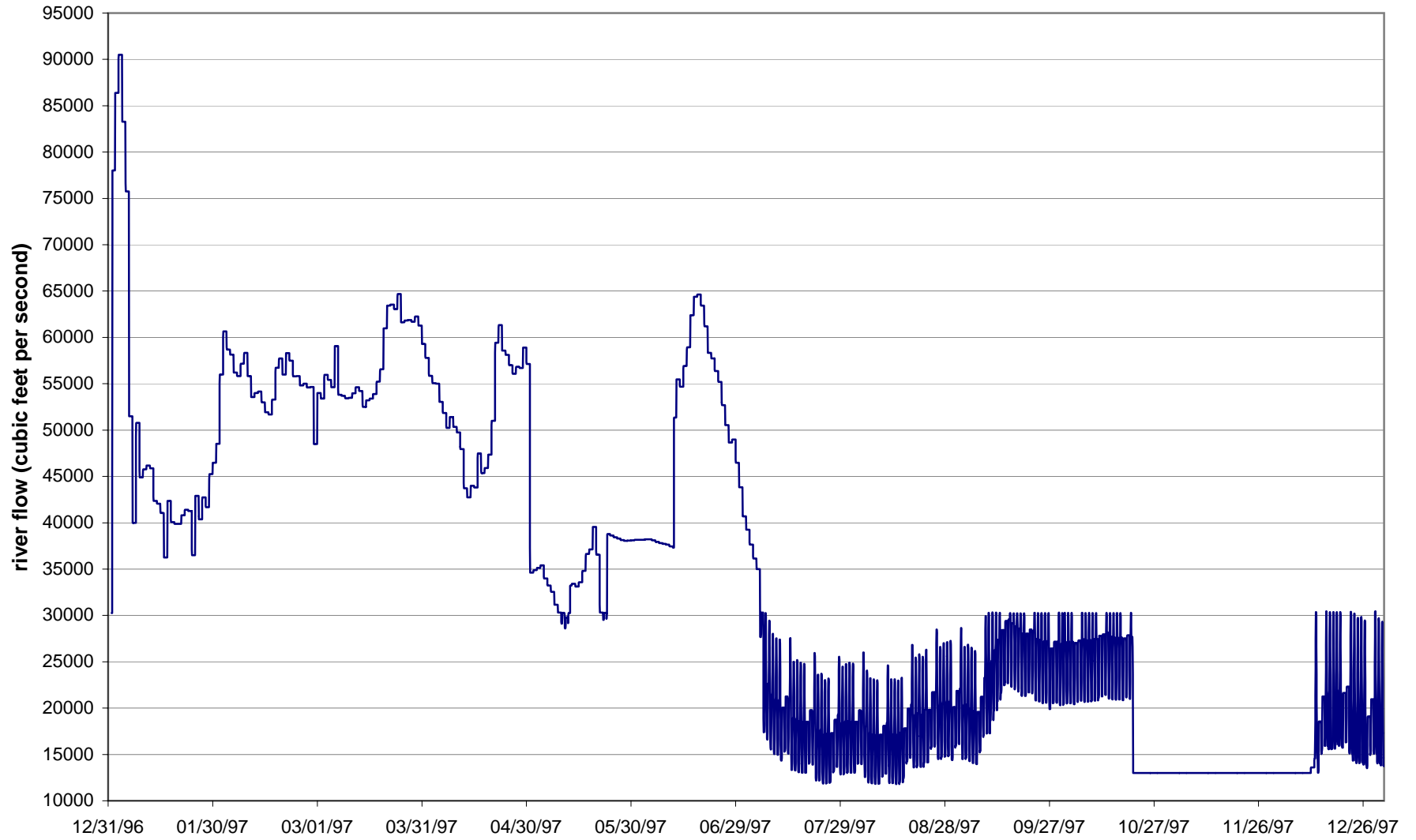
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 1(b)



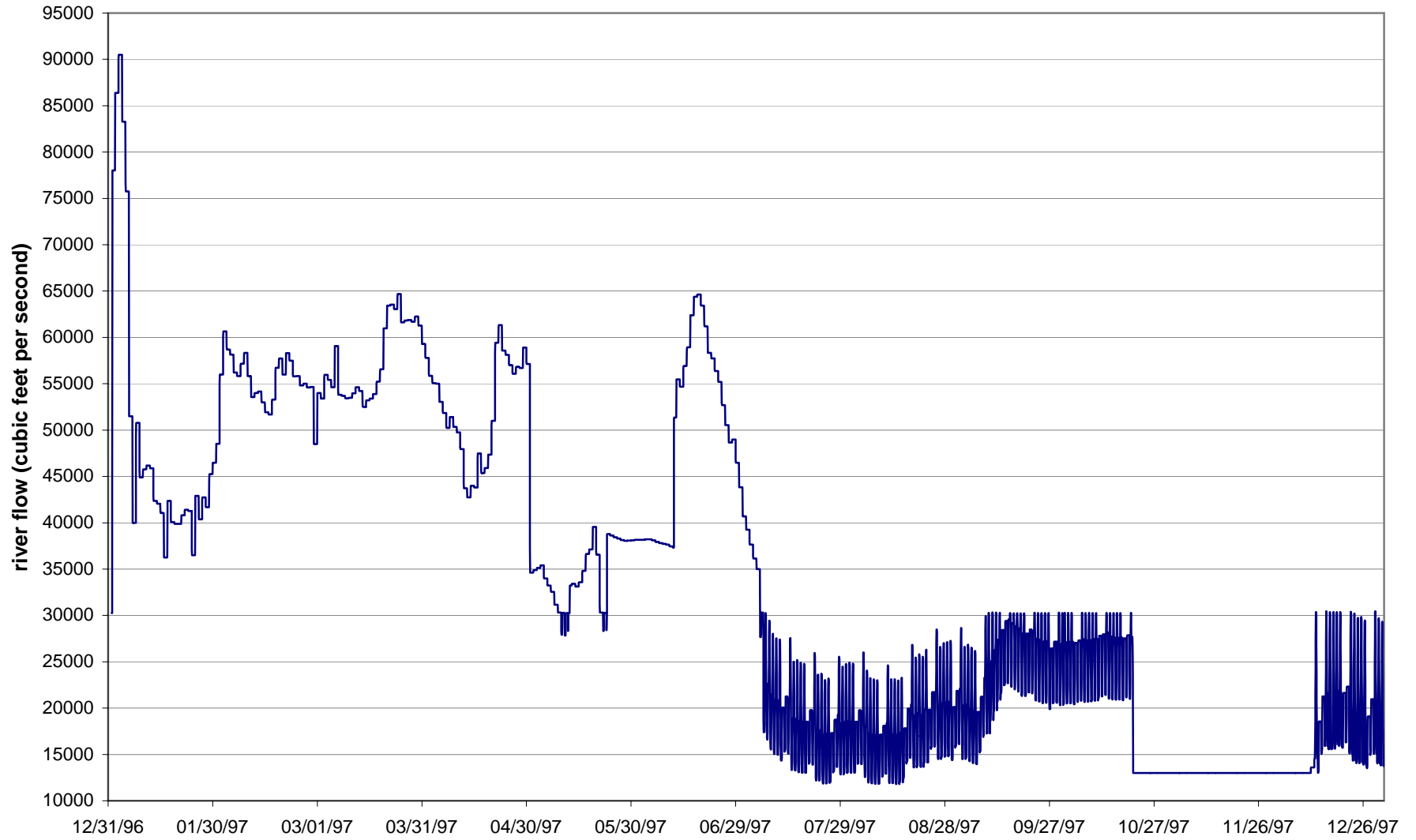
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 1(c)



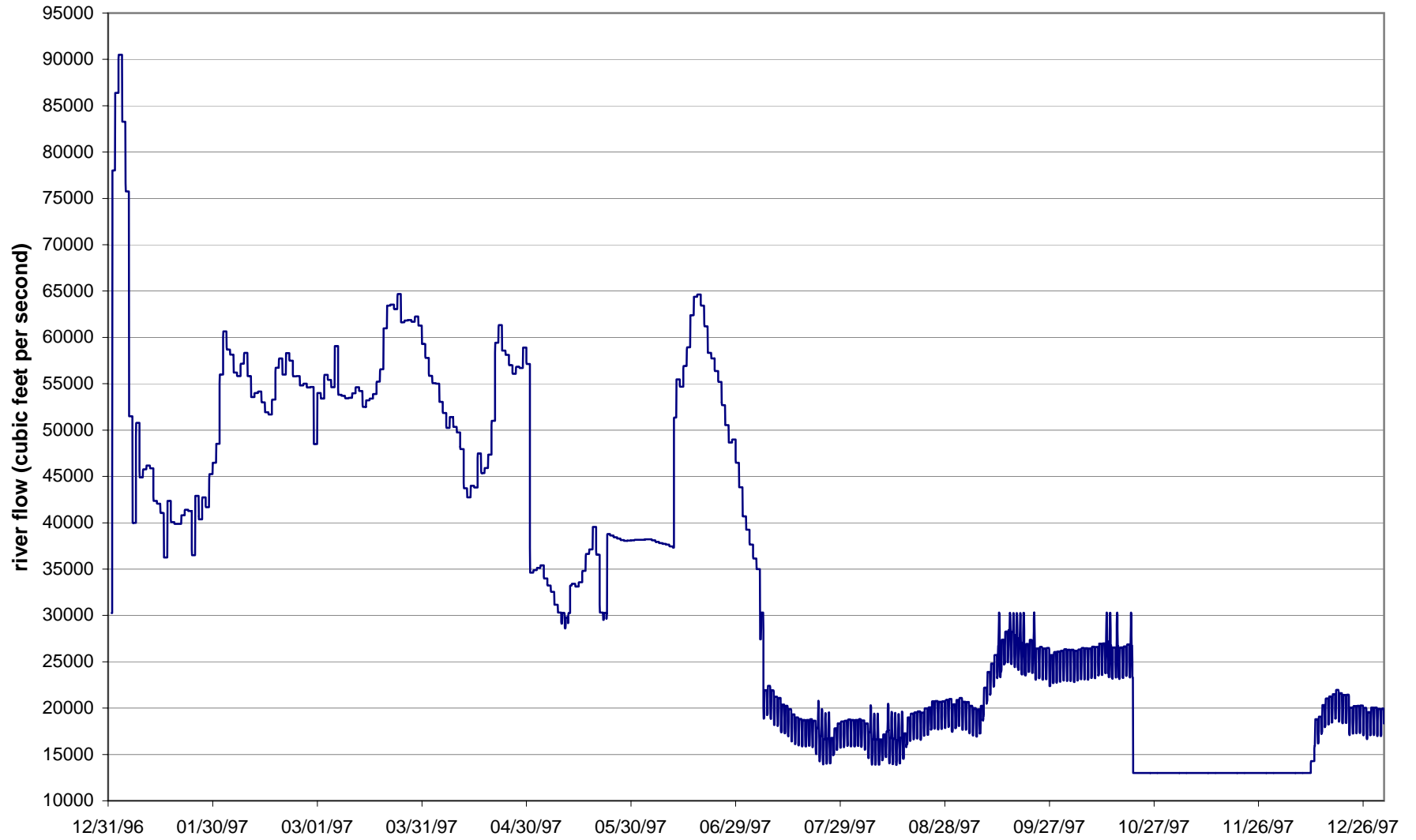
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 1(d)



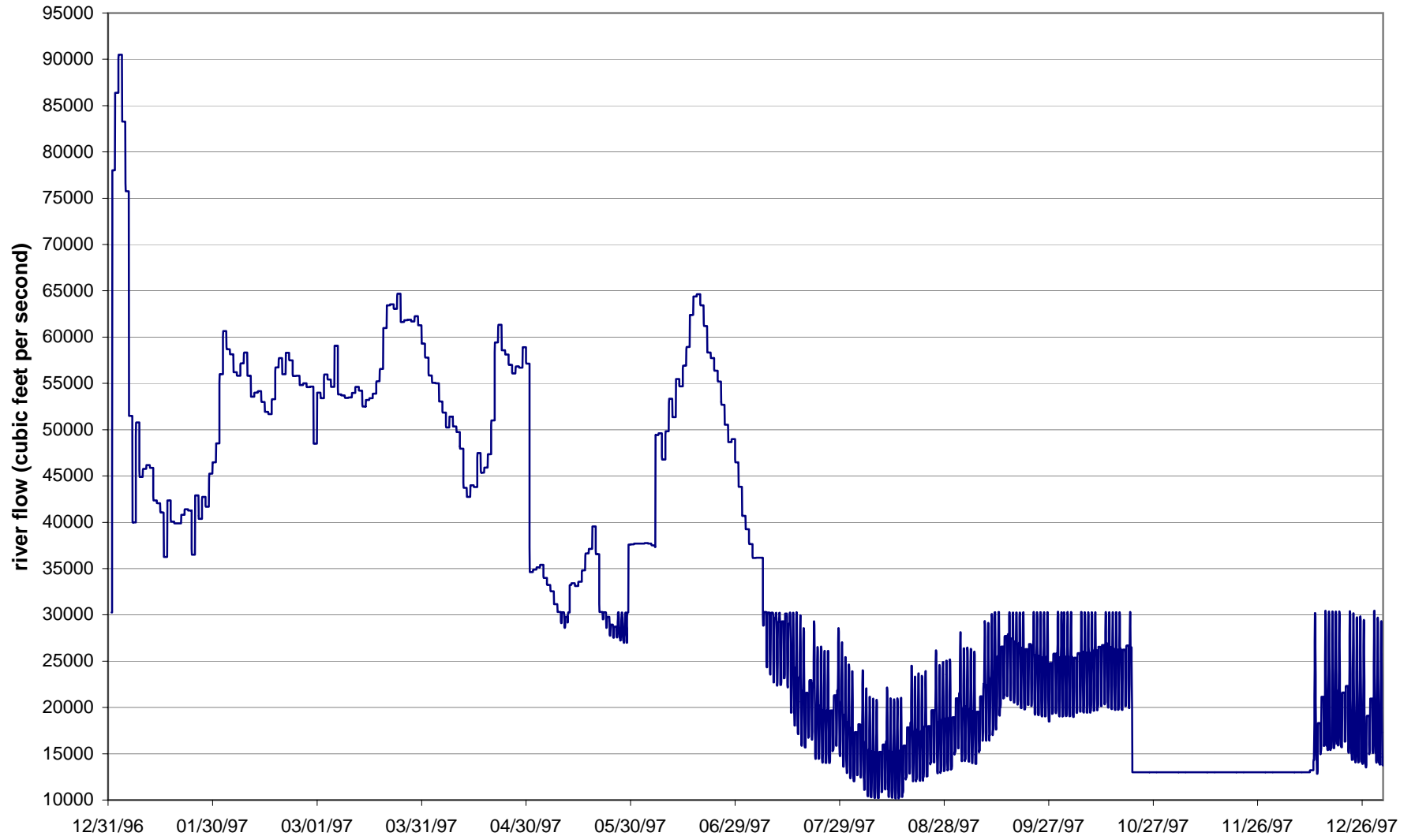
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 1(e)



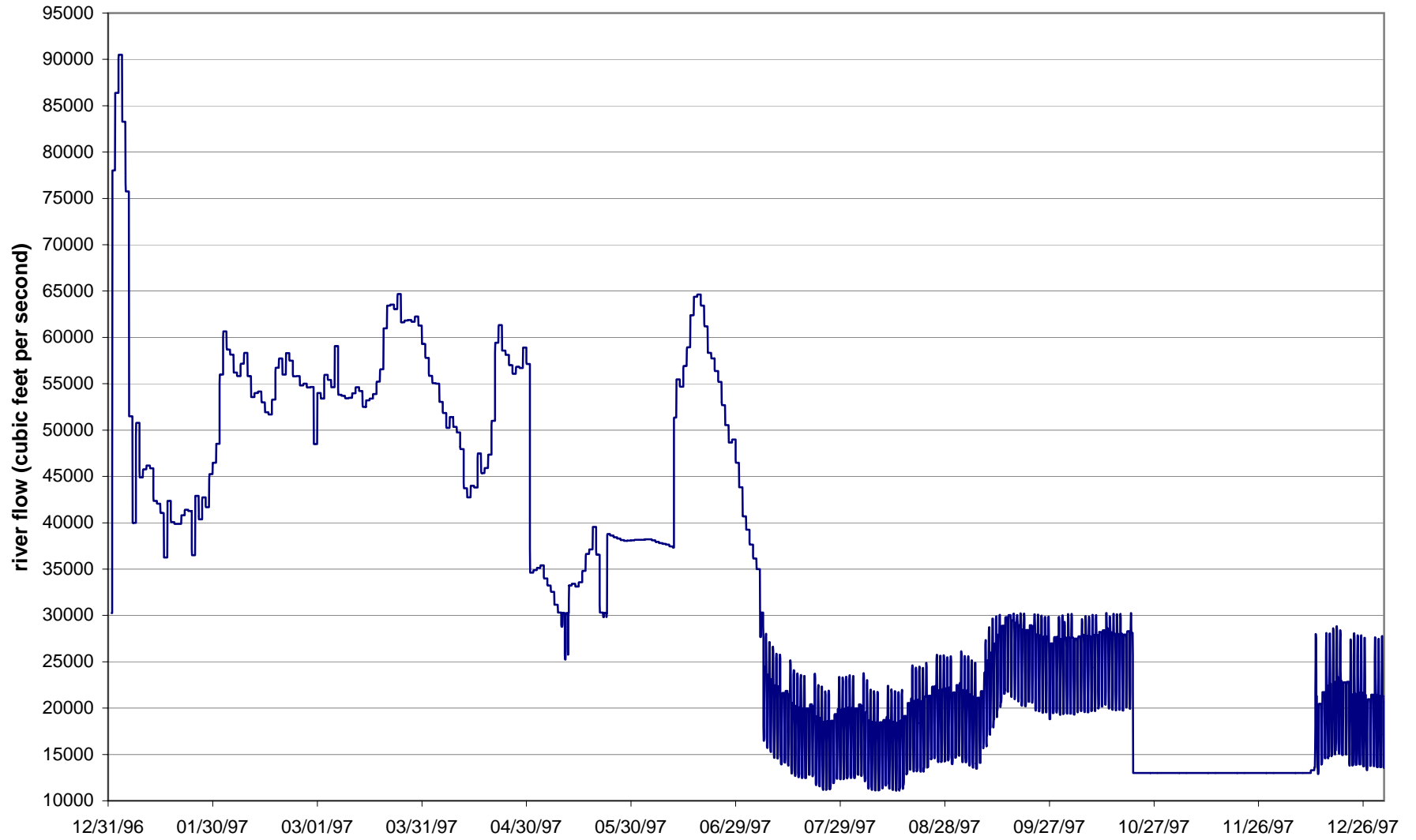
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 1(f)



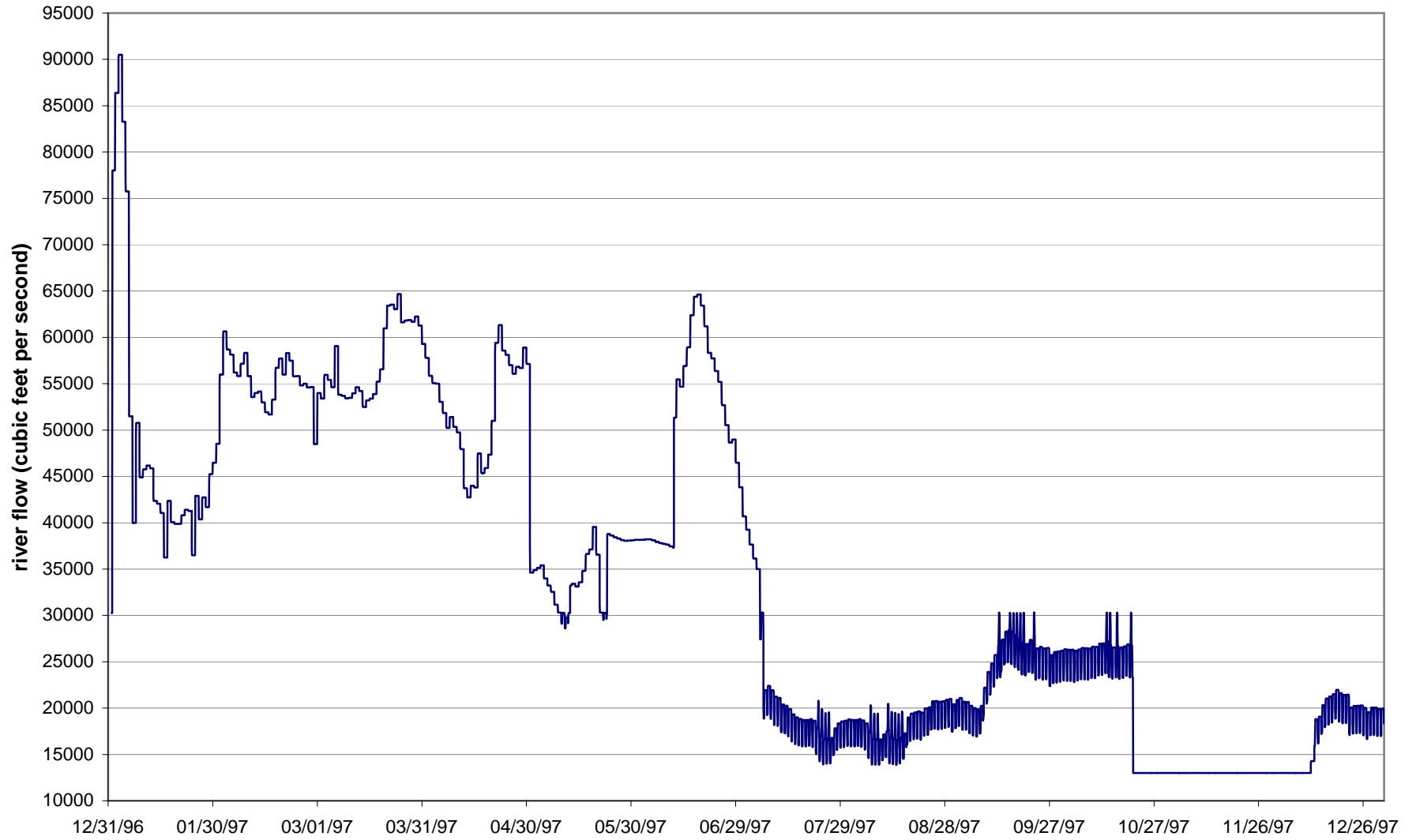
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 2



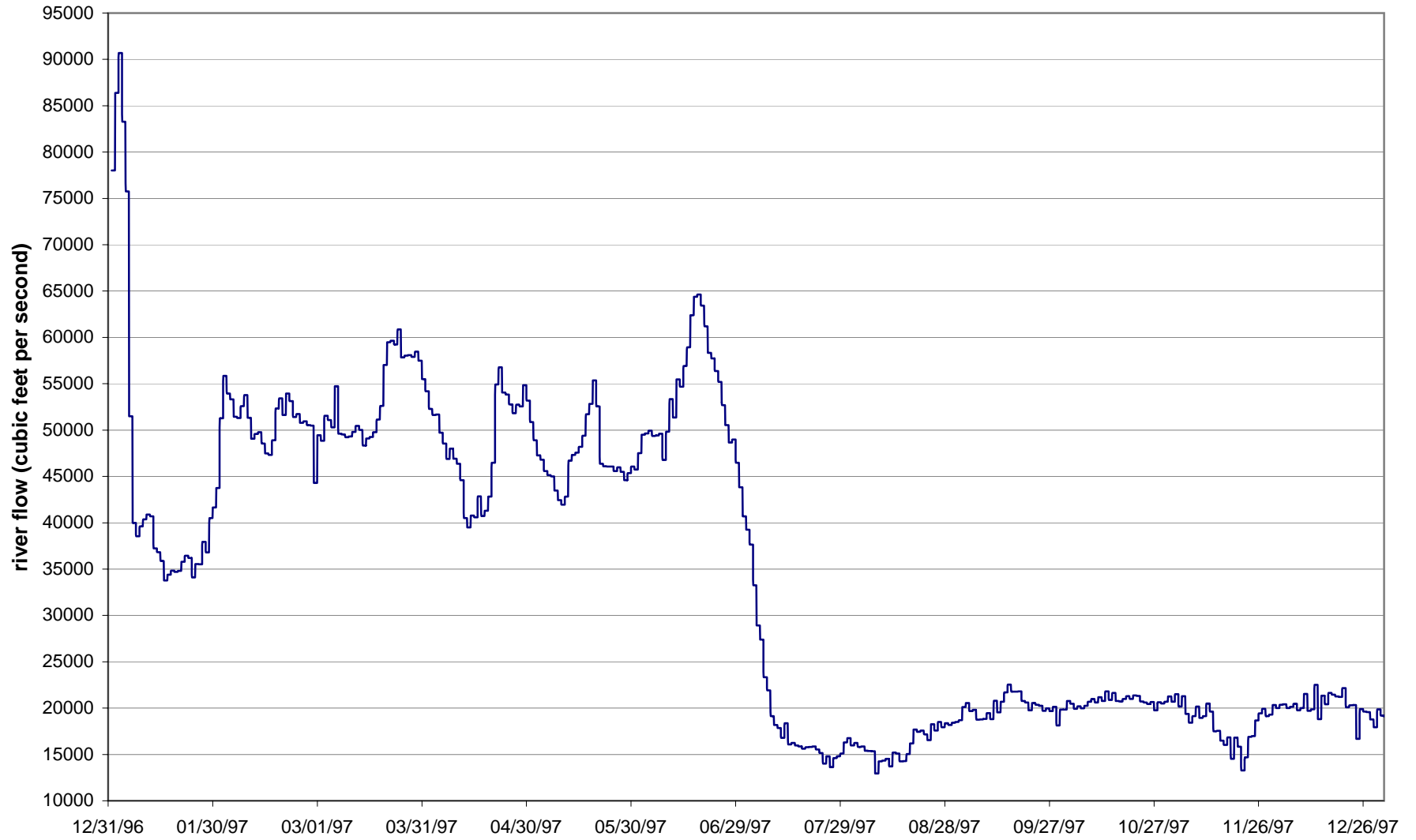
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 3



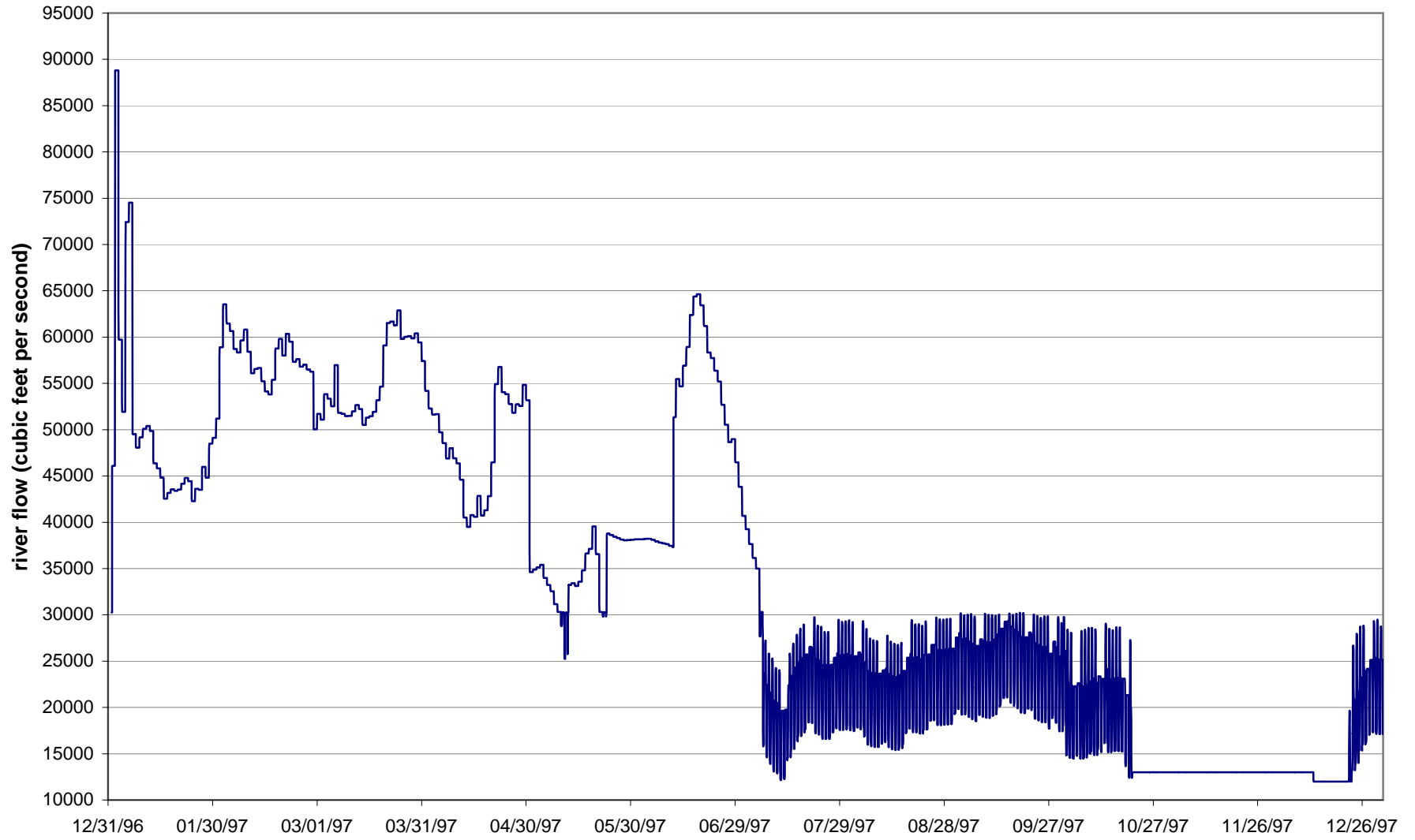
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 4



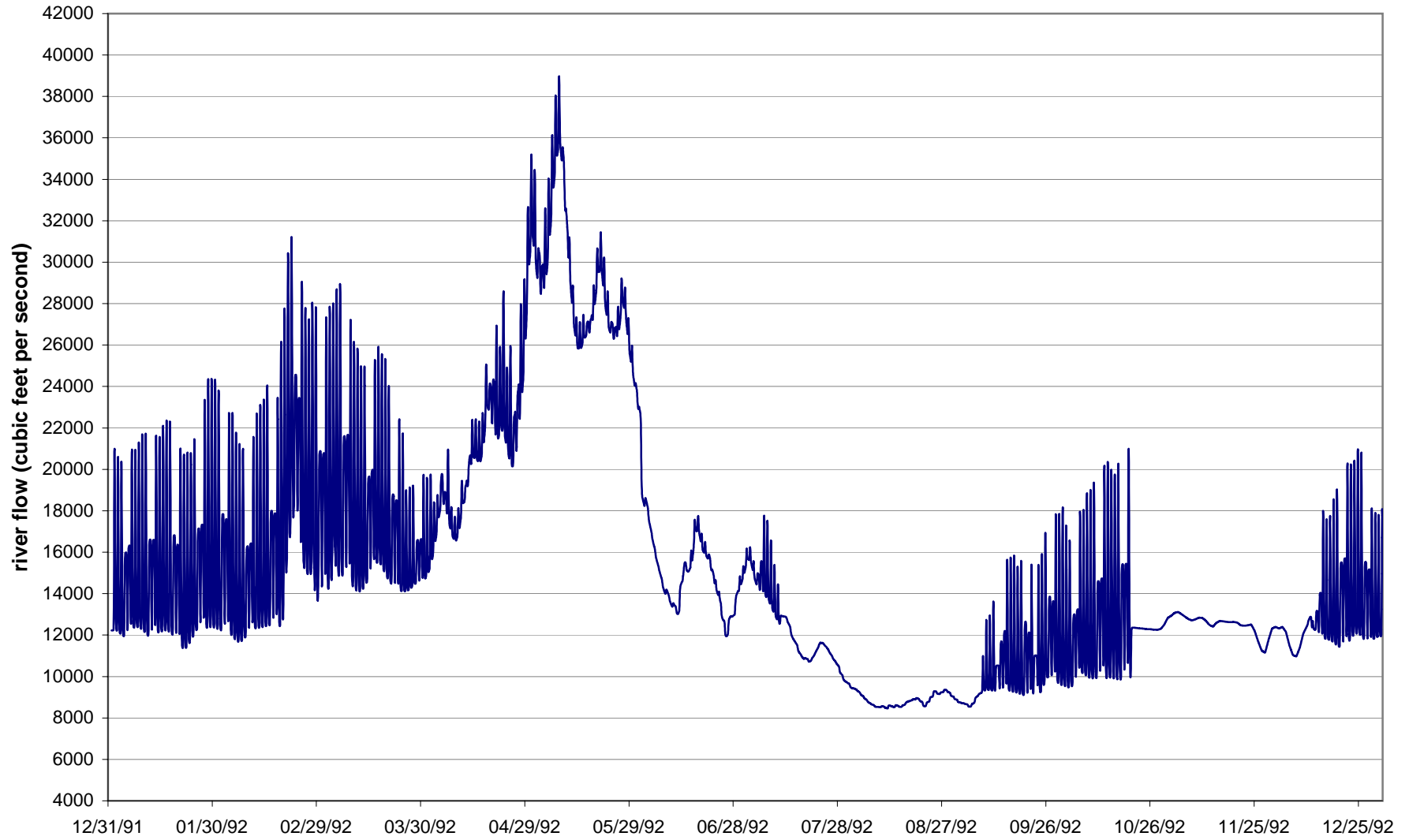
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 5



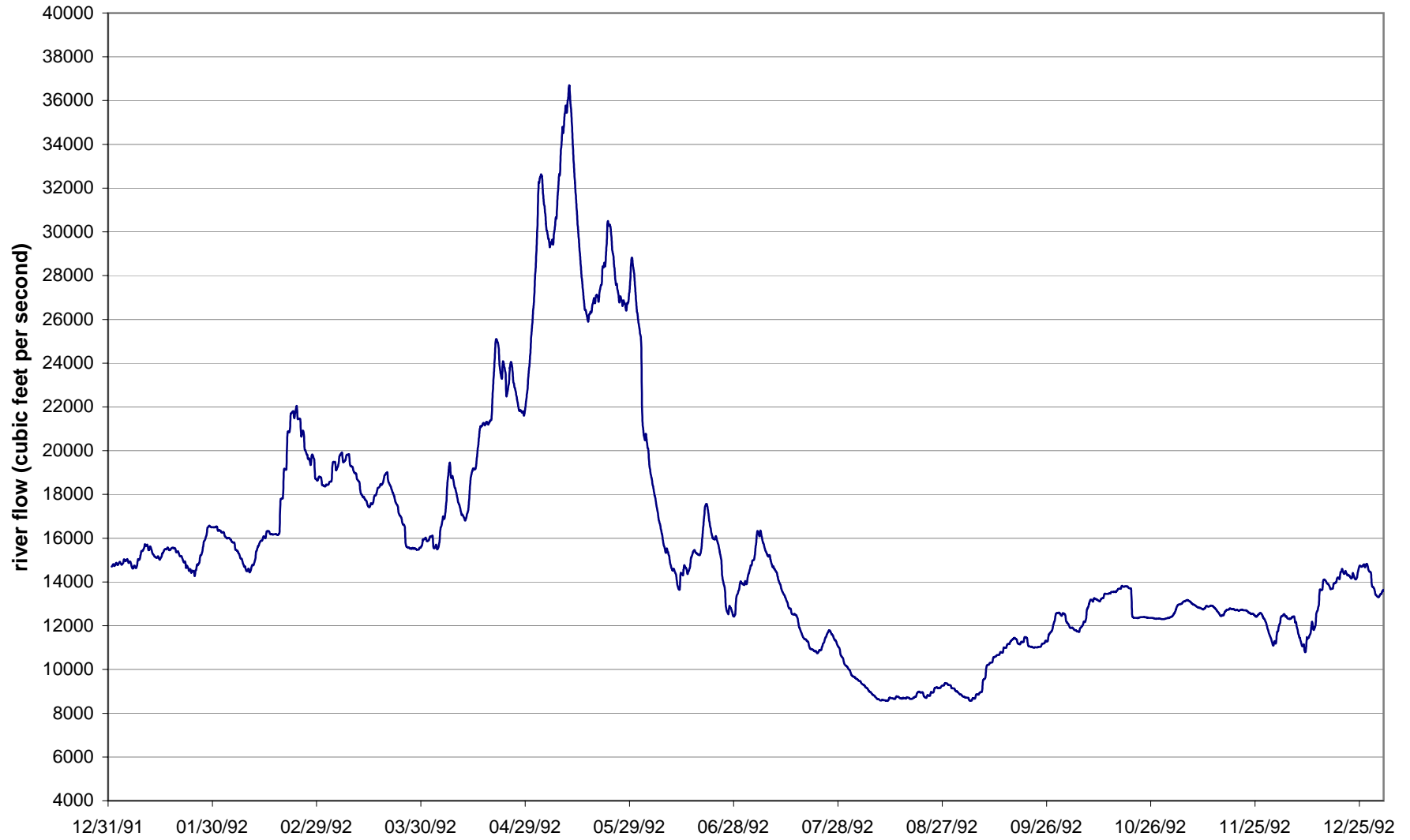
River flows as predicted for Hells Canyon Dam gage (no. 13290450)
Representative year - 1997
Scenario 6



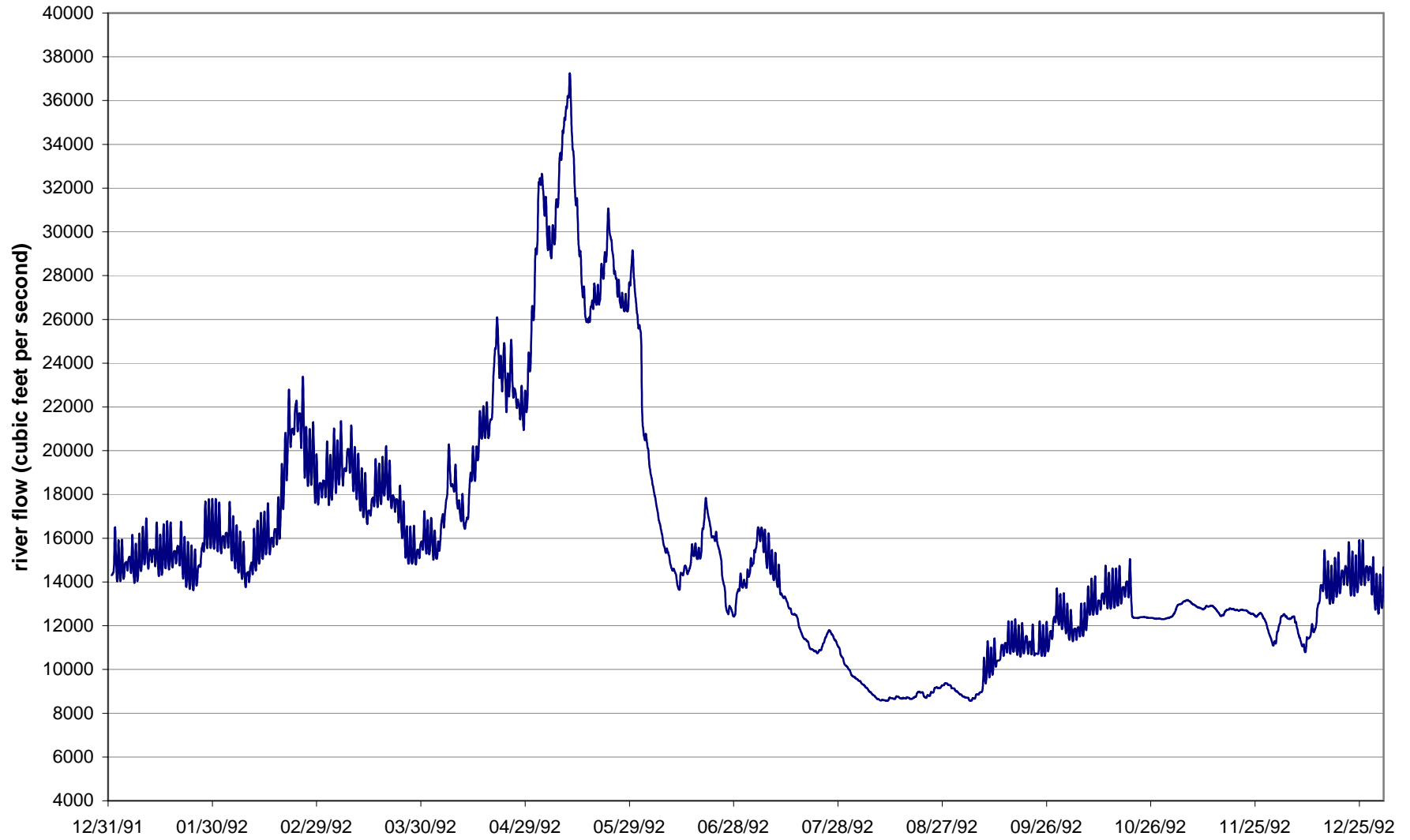
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Proposed Operations



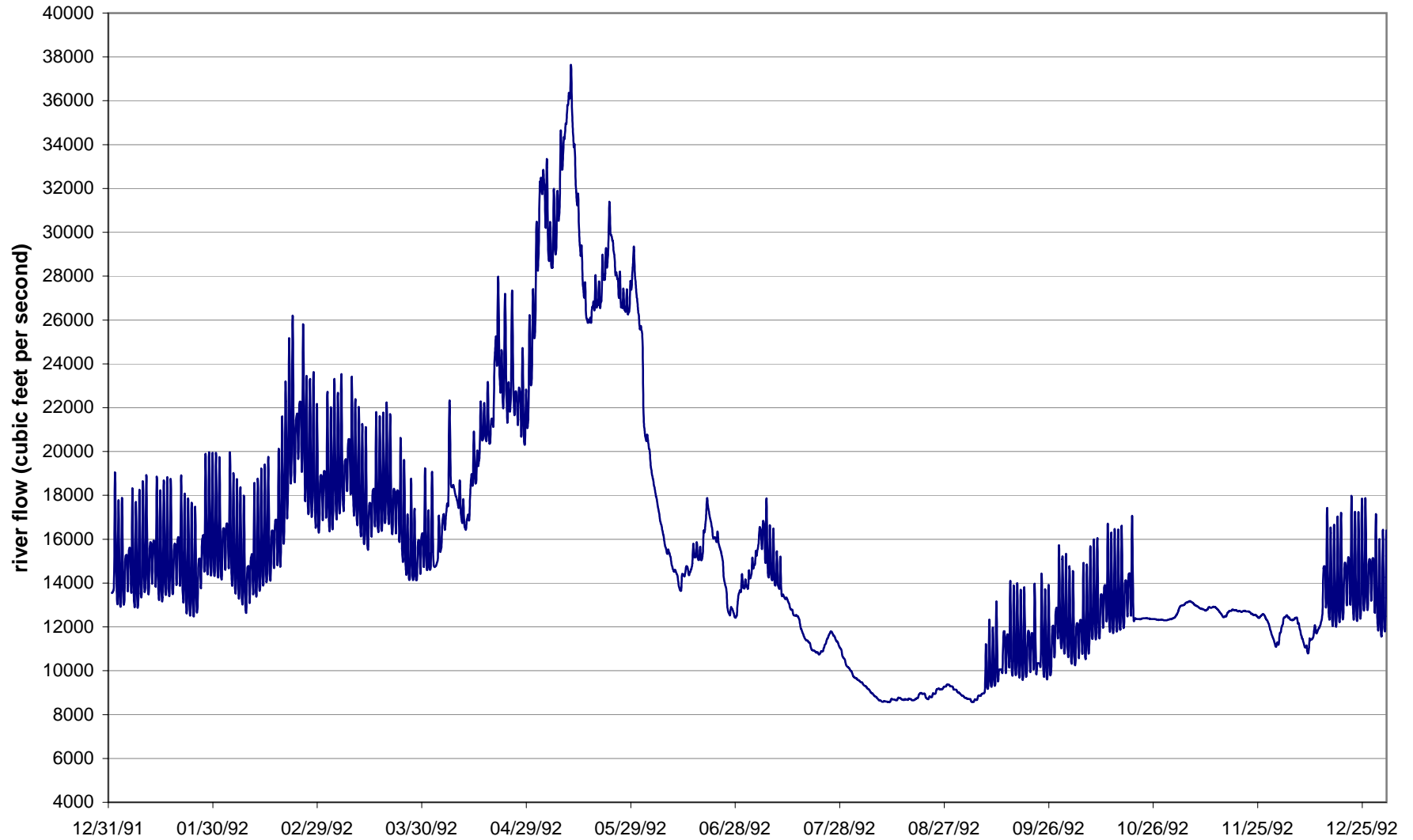
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 1(a)



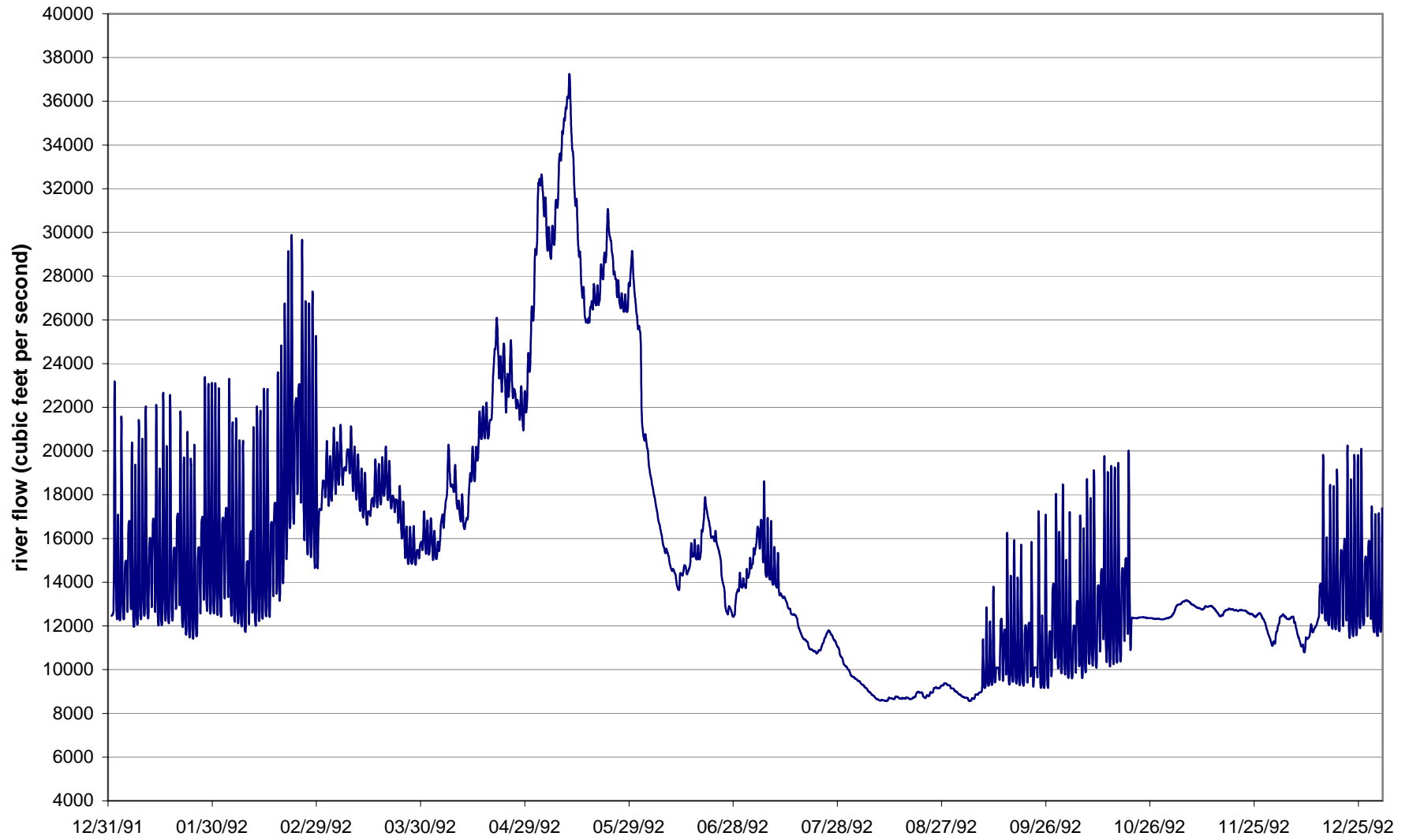
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 1(b)



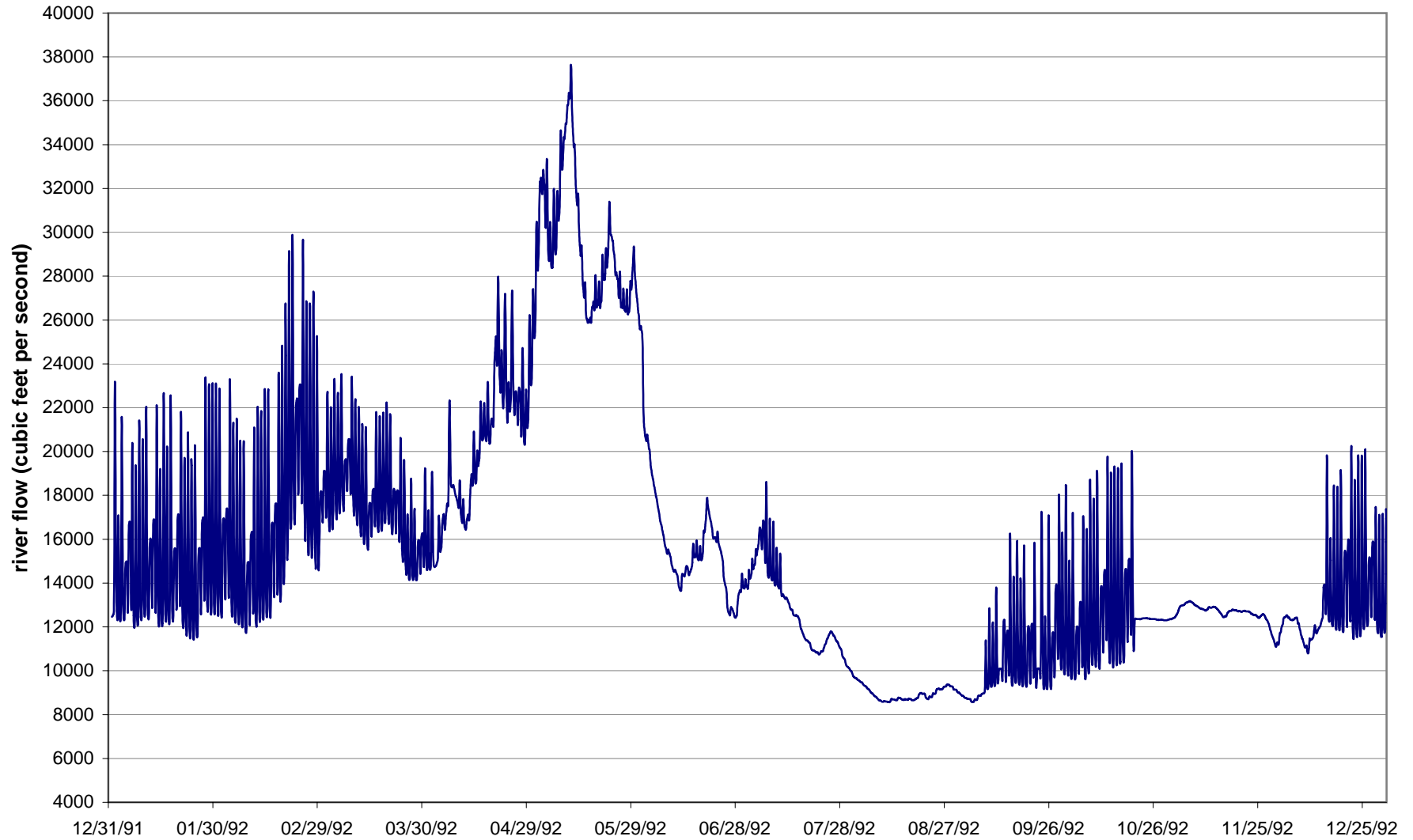
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 1(c)



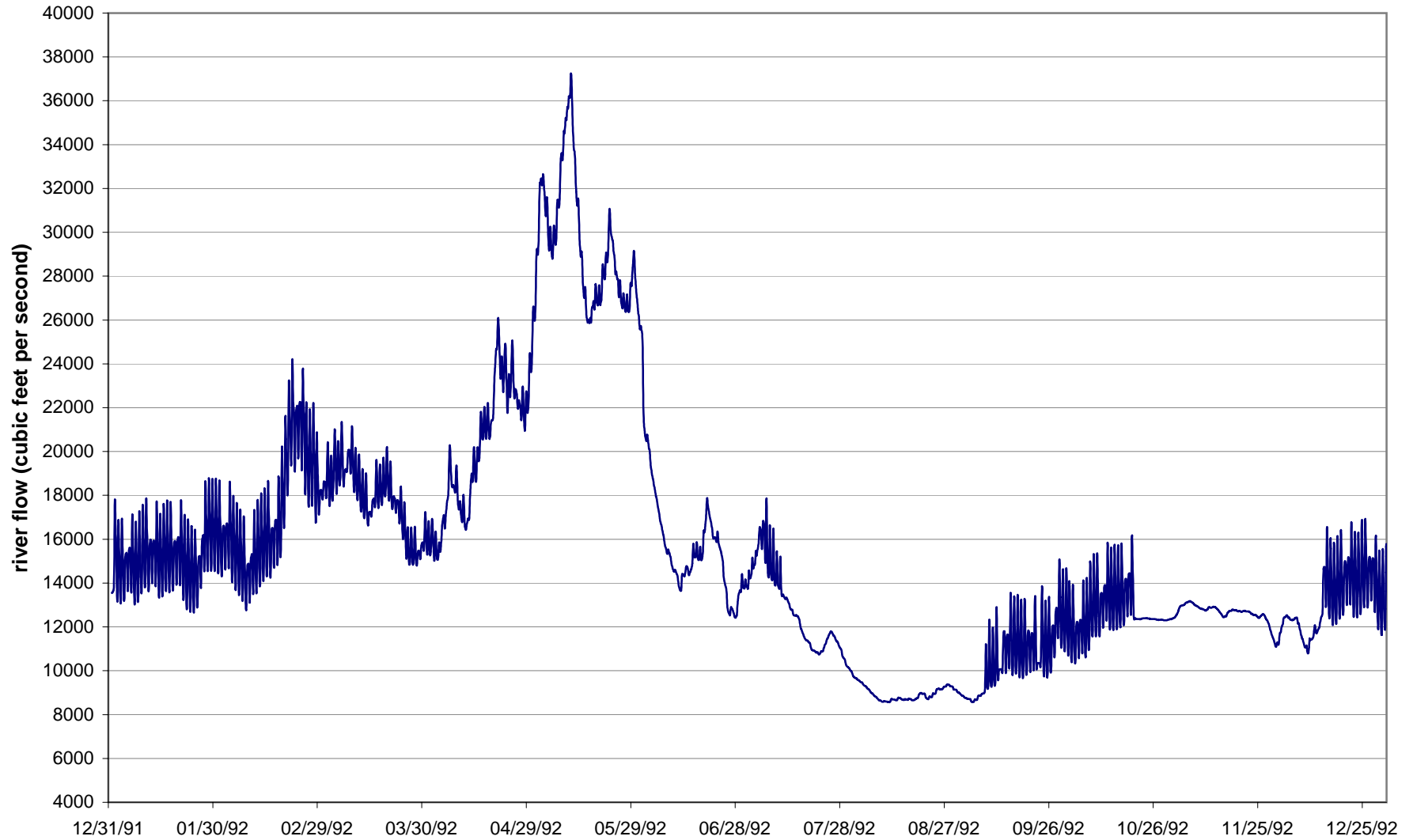
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 1(d)



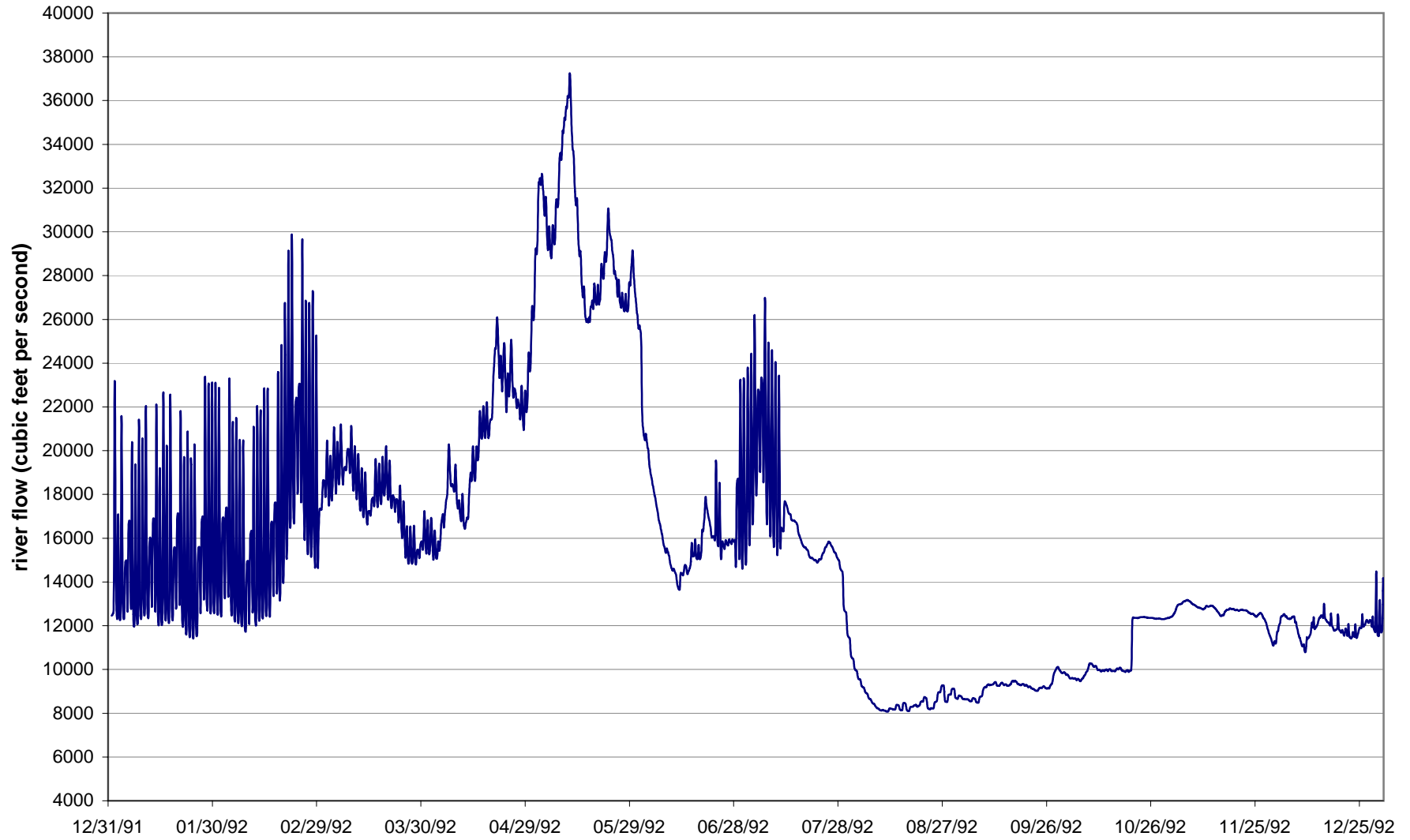
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 1(e)



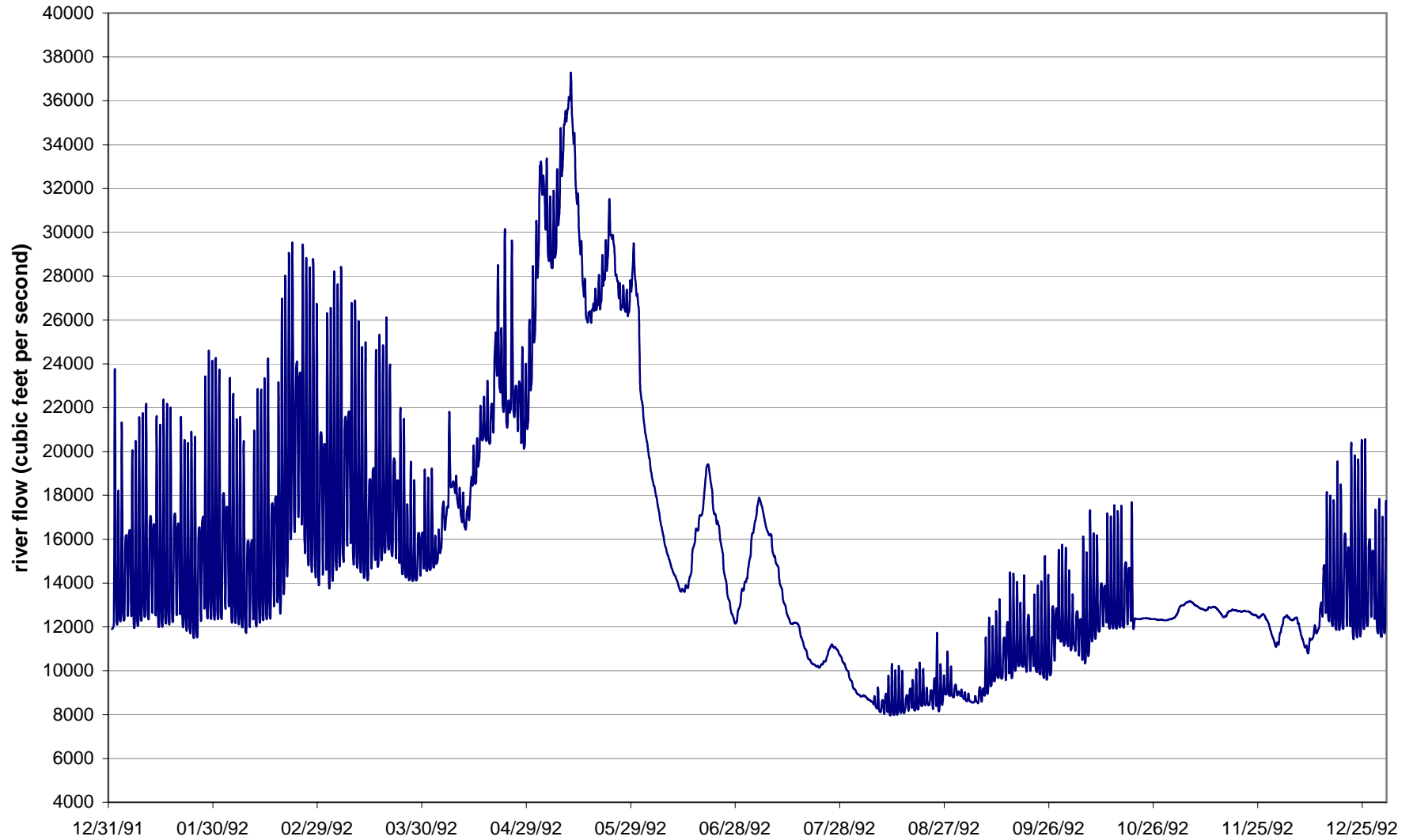
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 1(f)



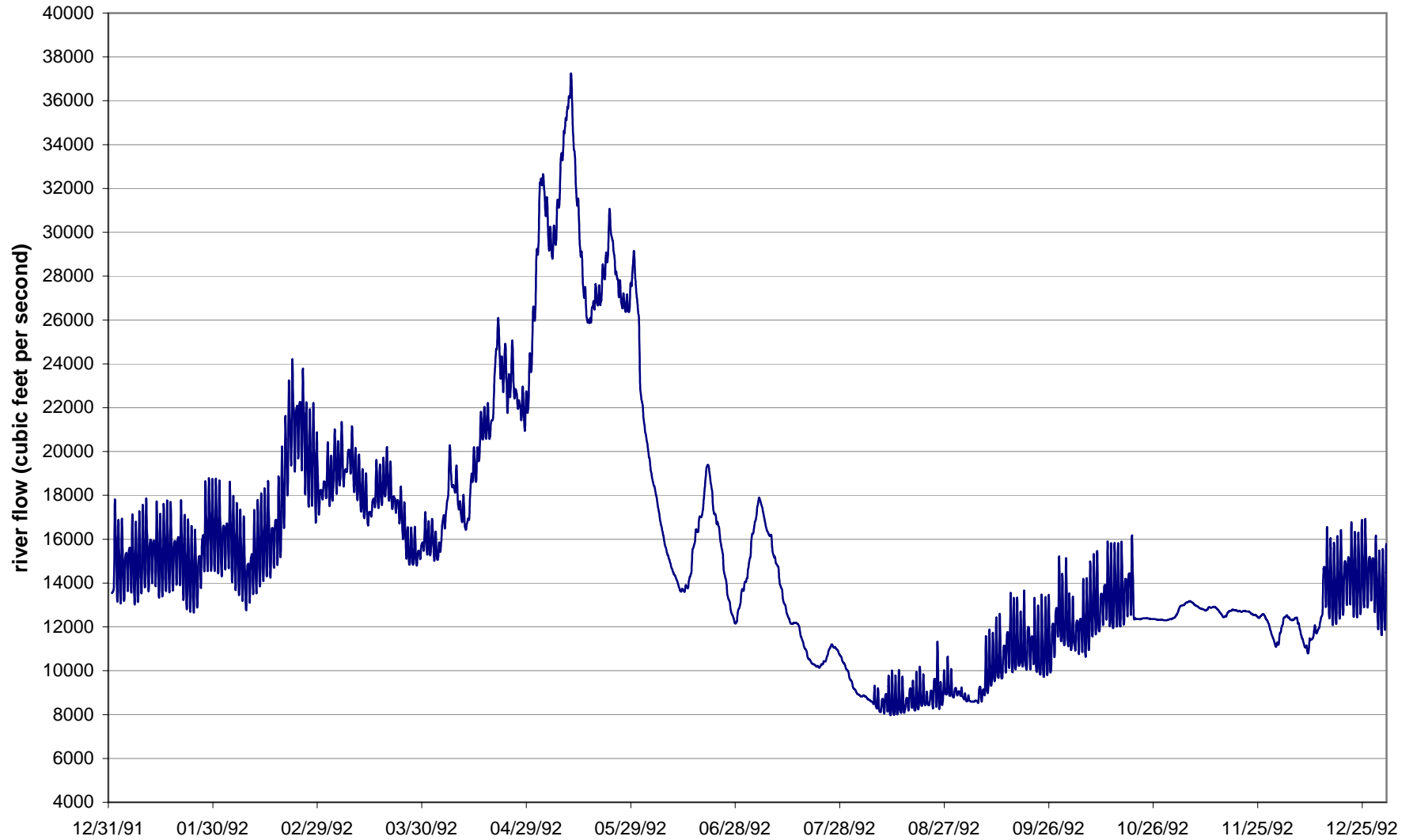
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 2



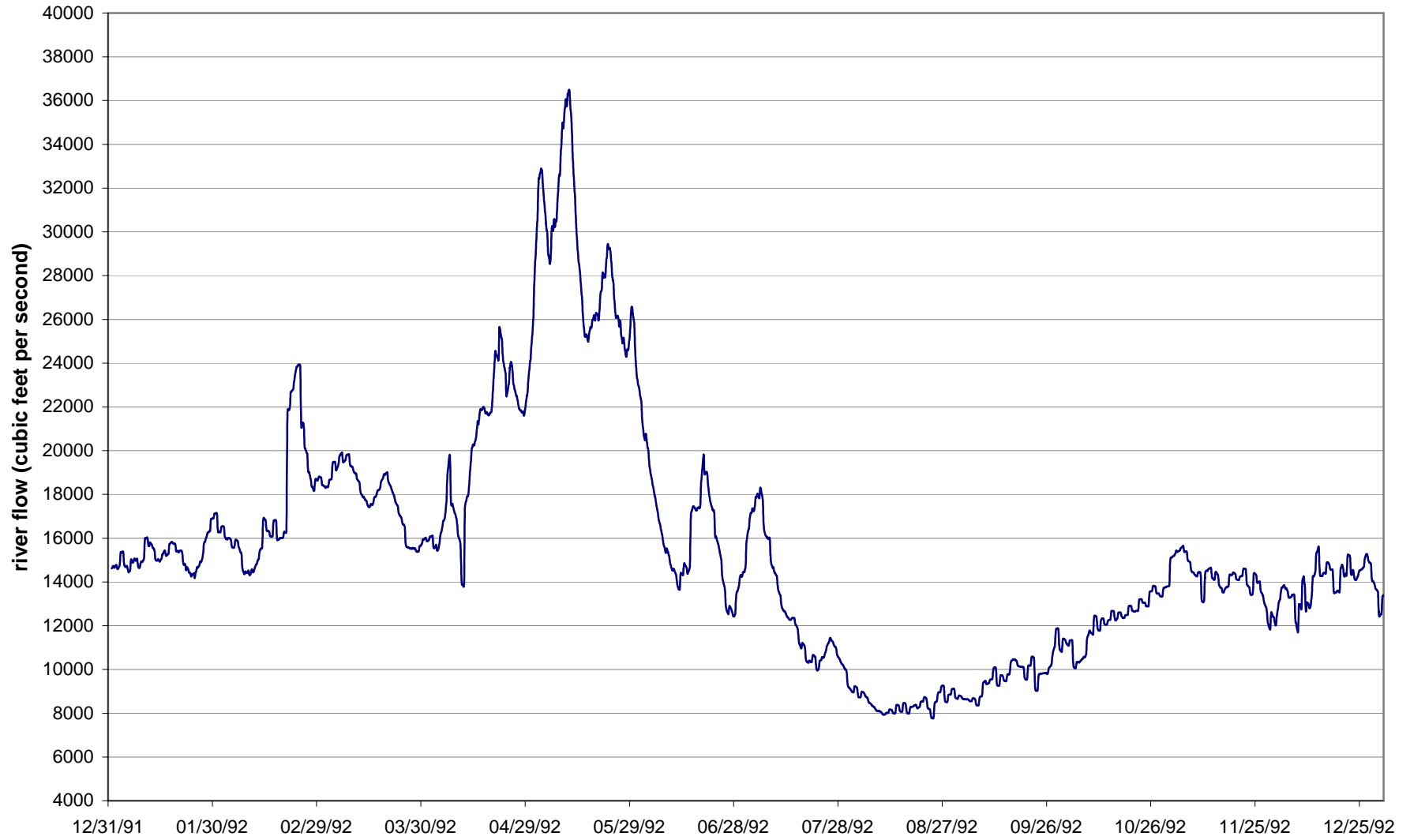
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 3



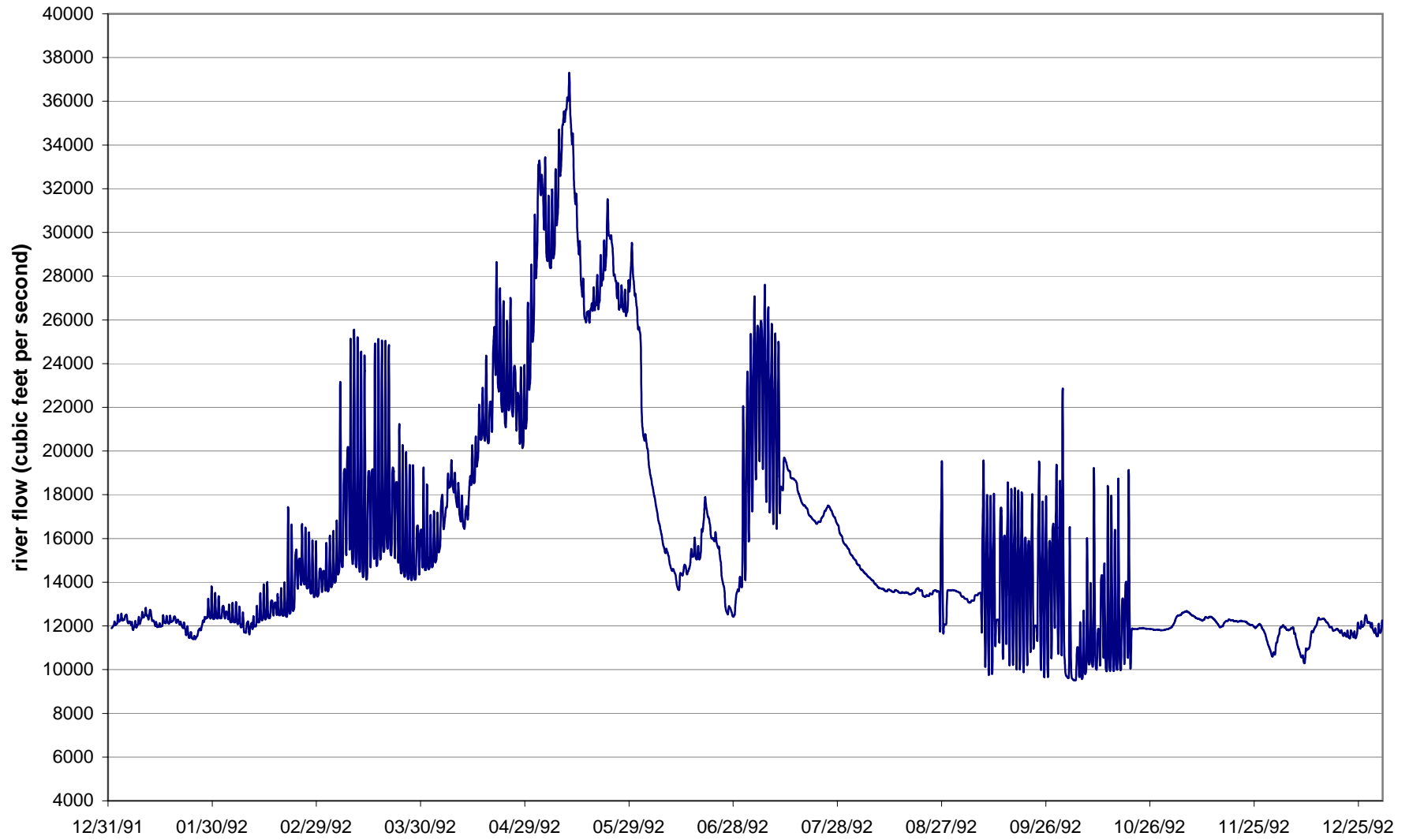
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 4



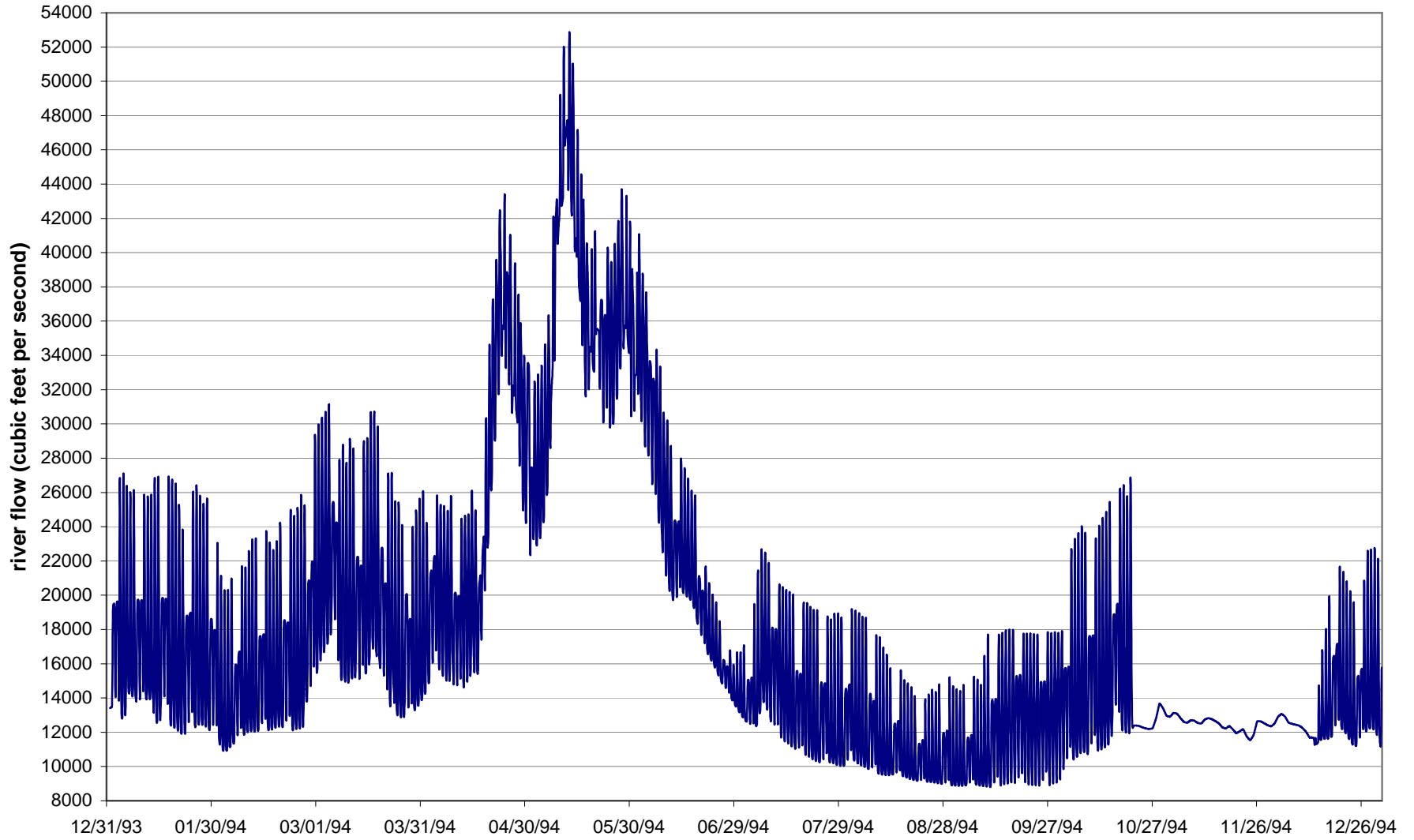
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 5



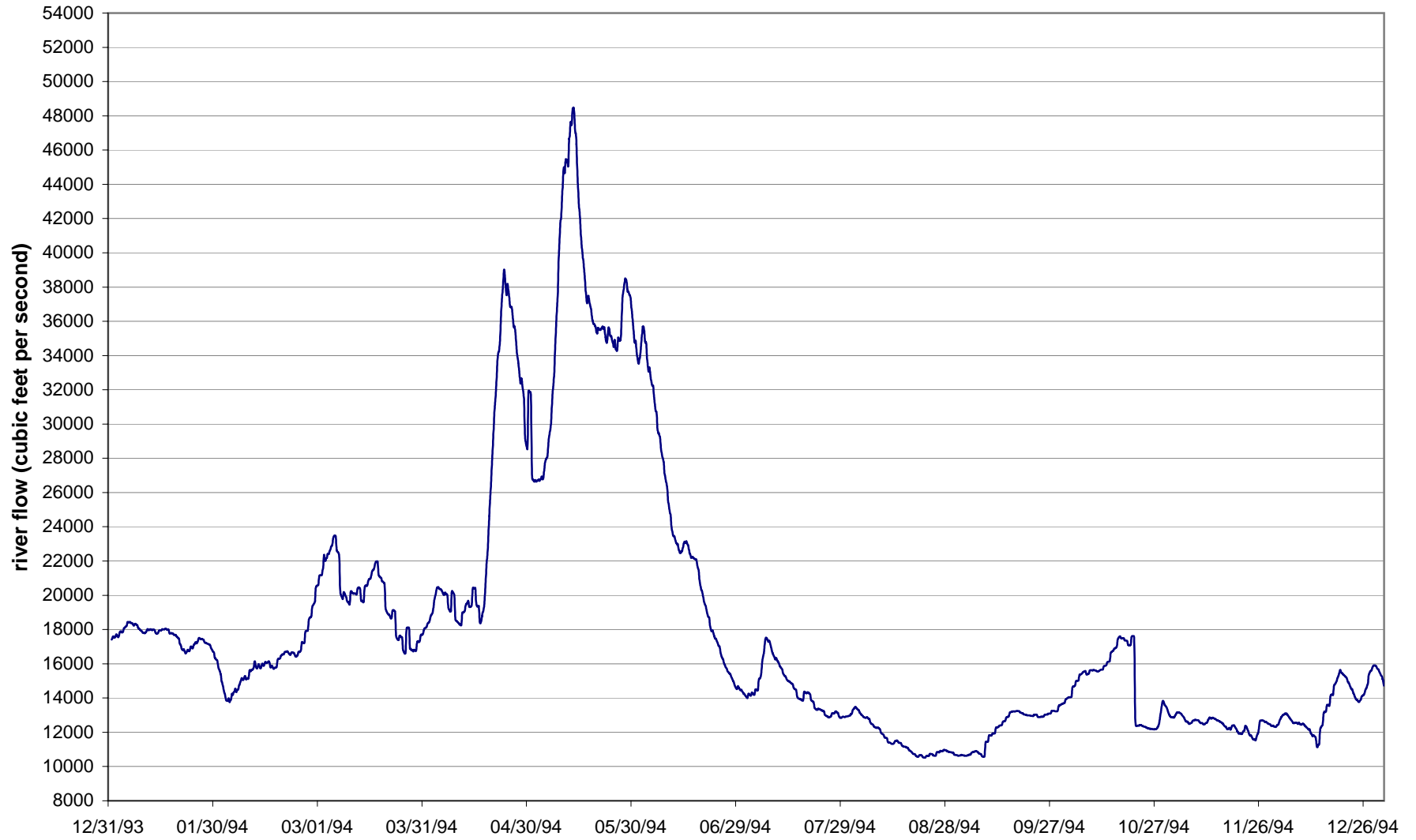
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1992
Scenario 6



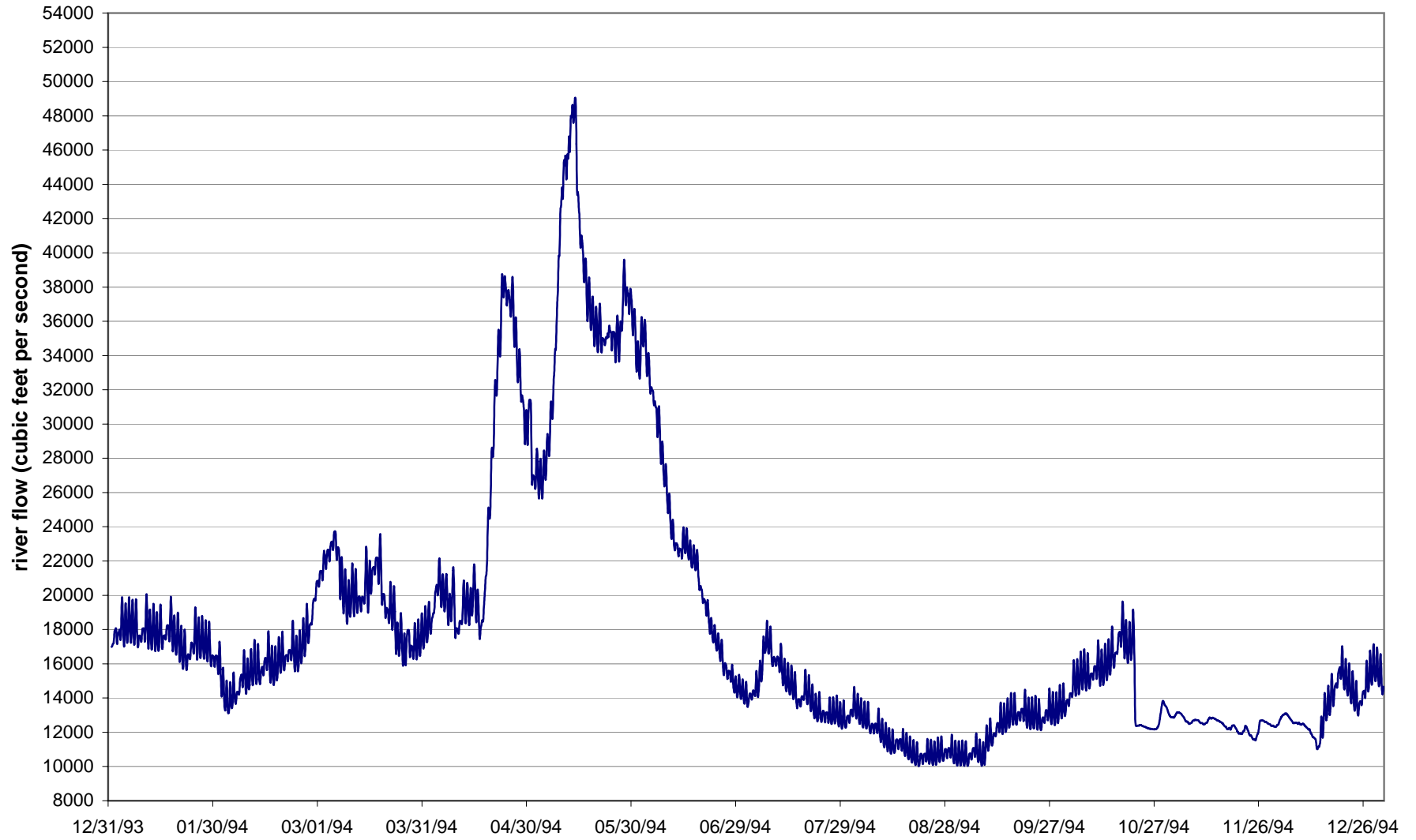
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Proposed Operations



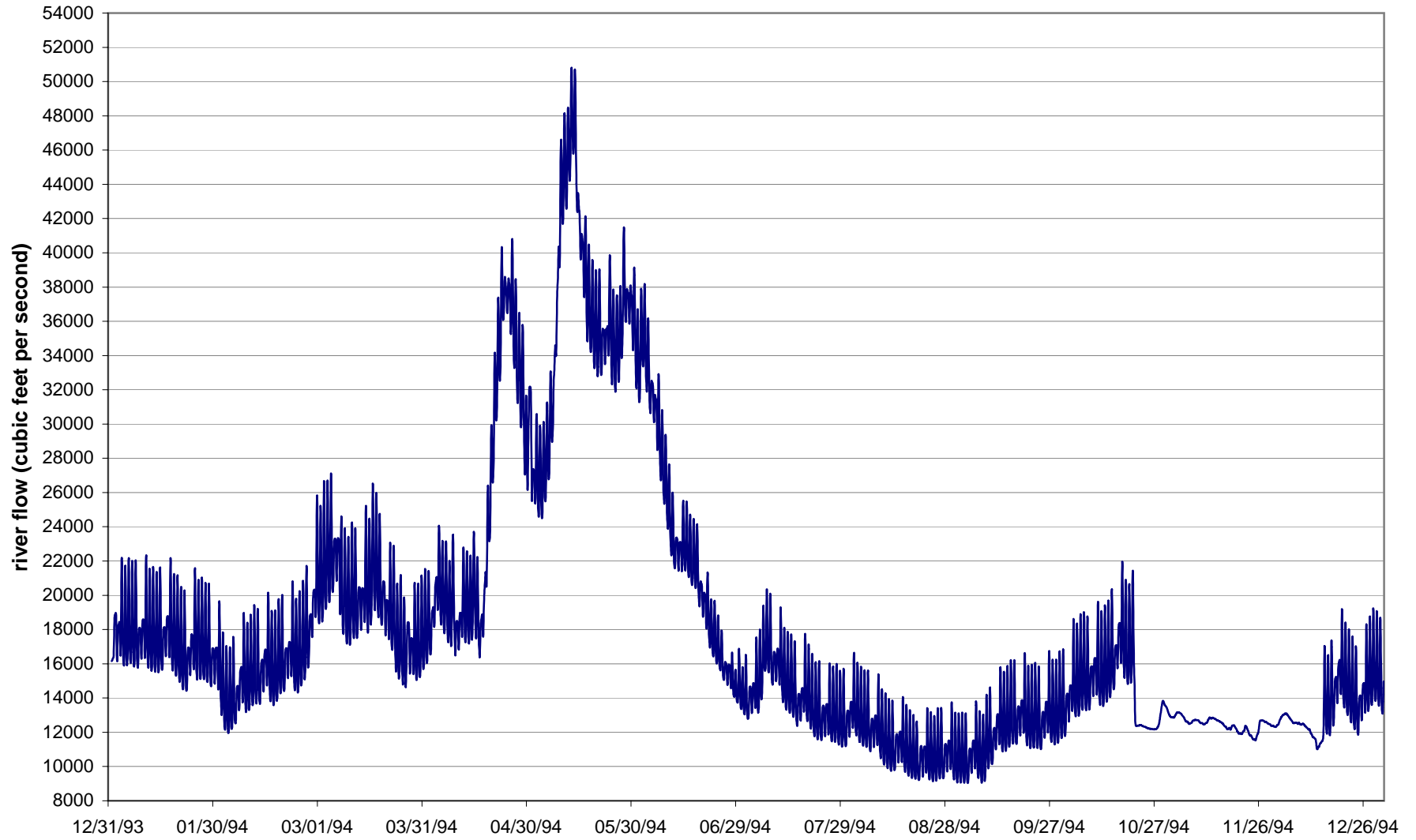
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 1(a)



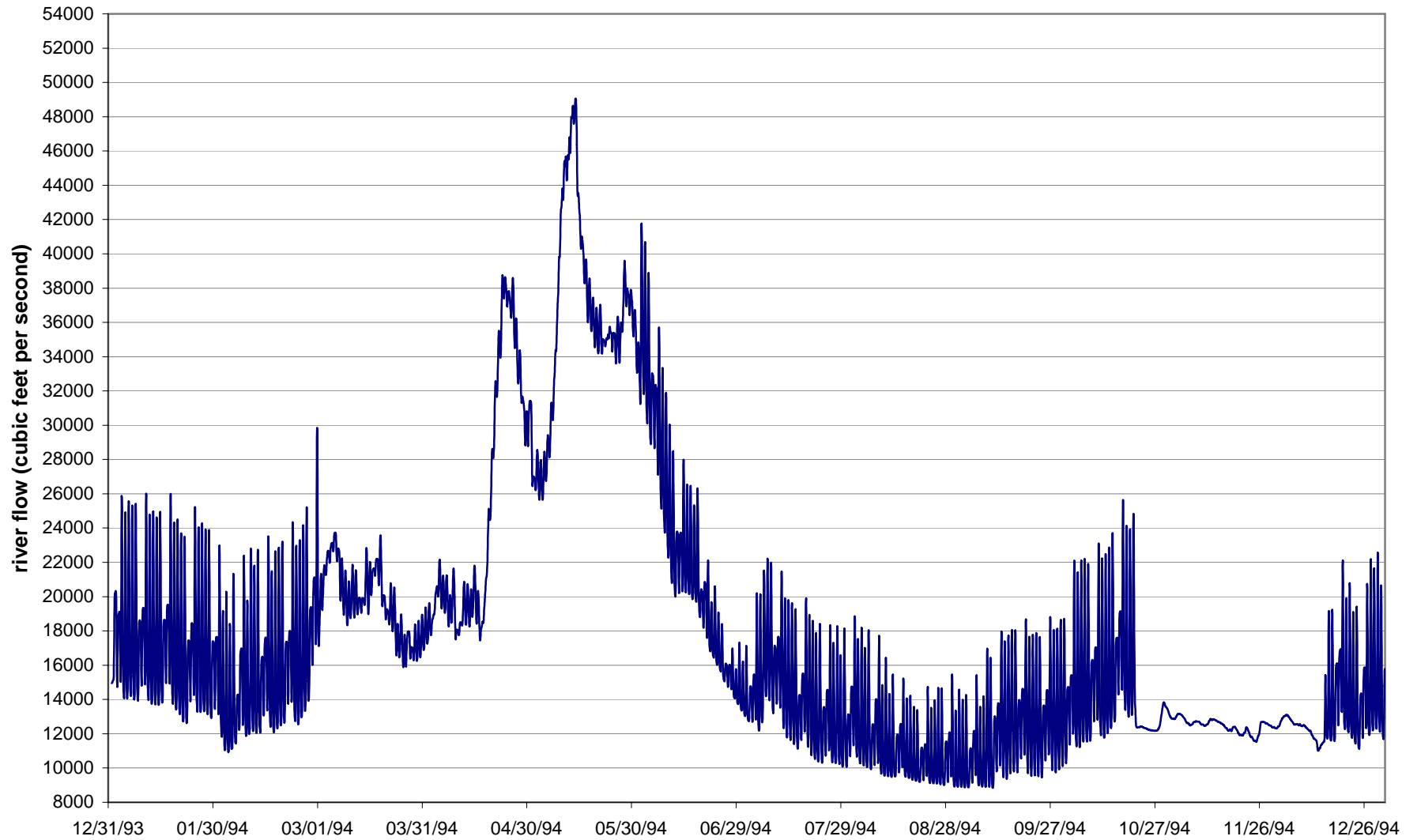
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 1(b)



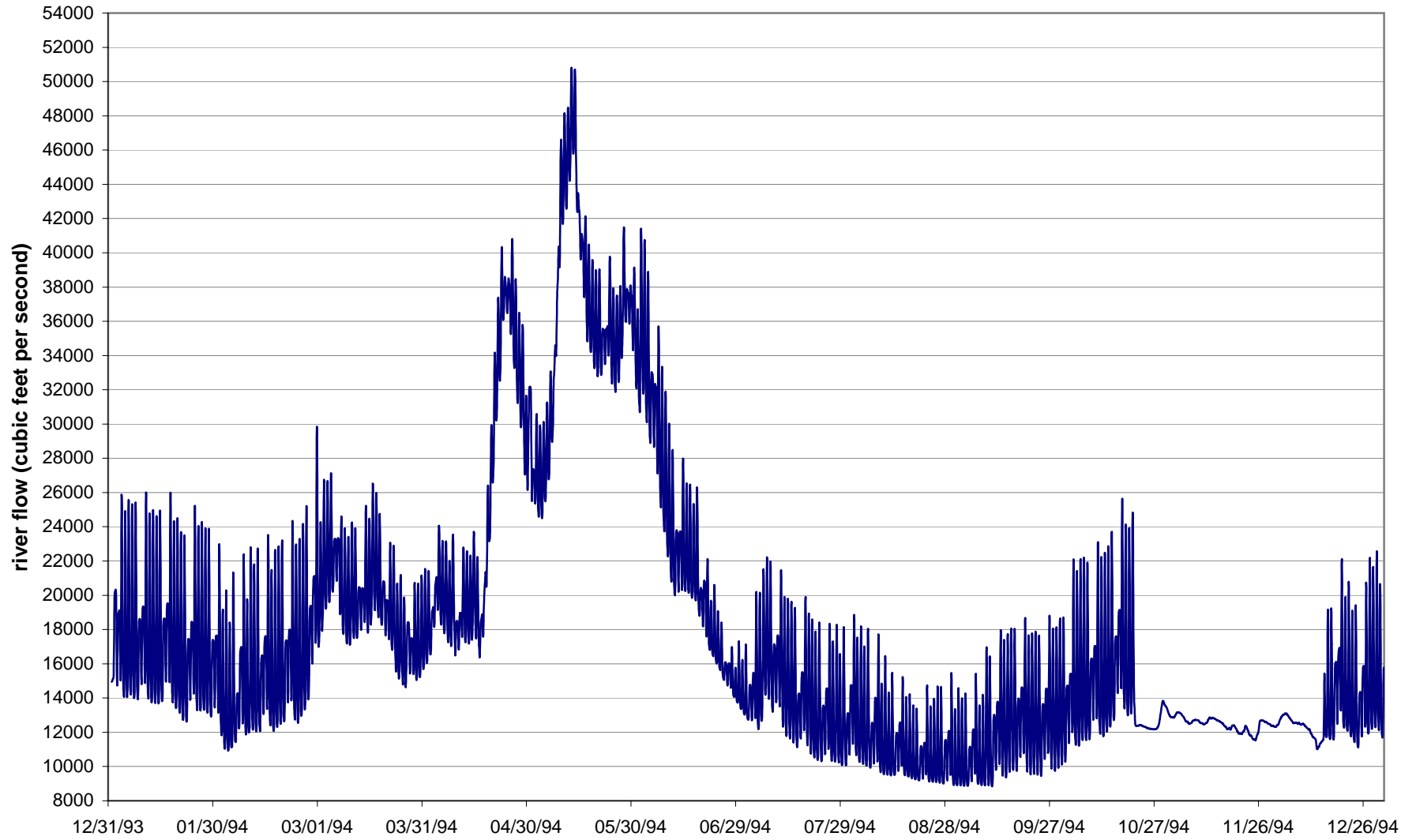
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 1(c)



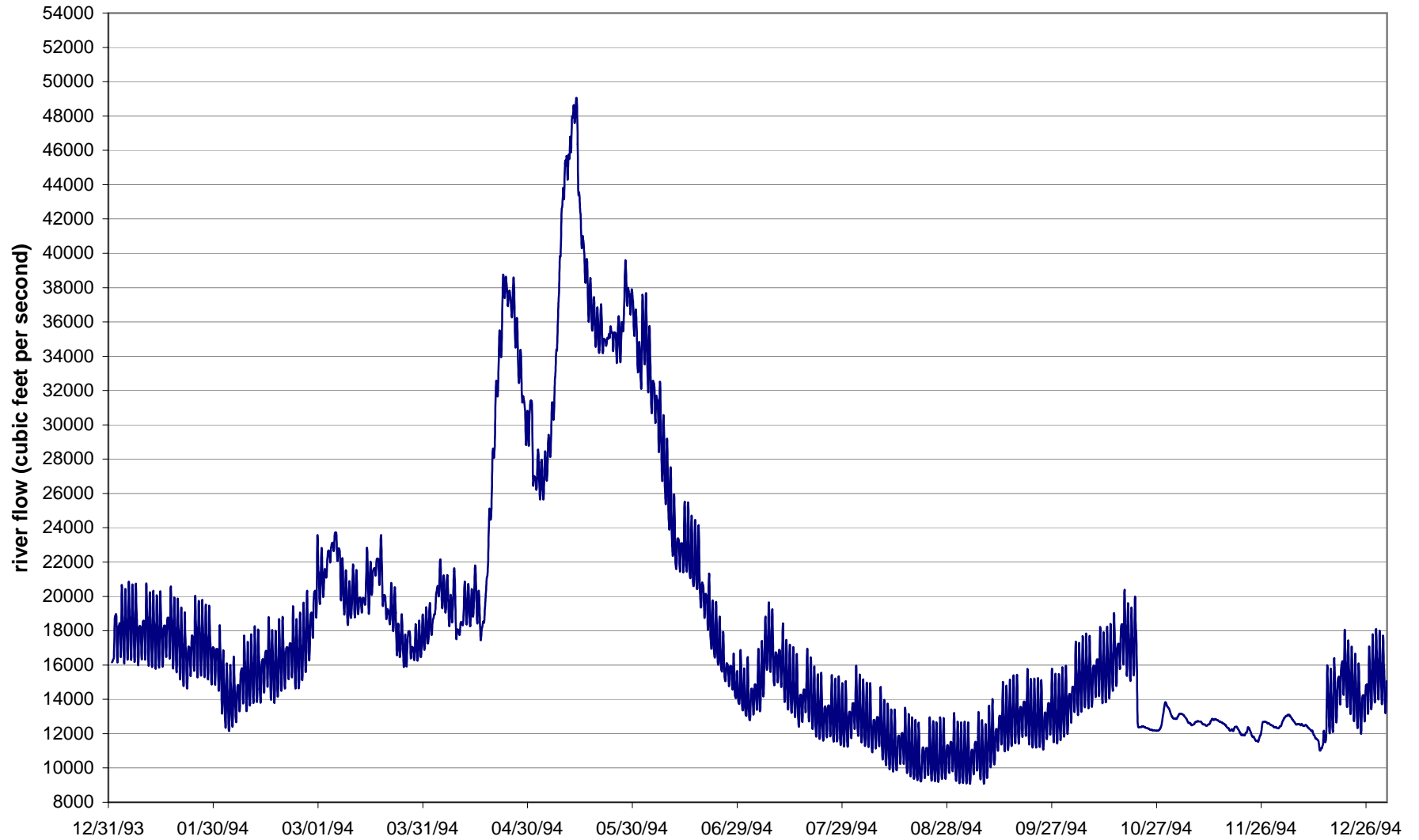
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 1(d)



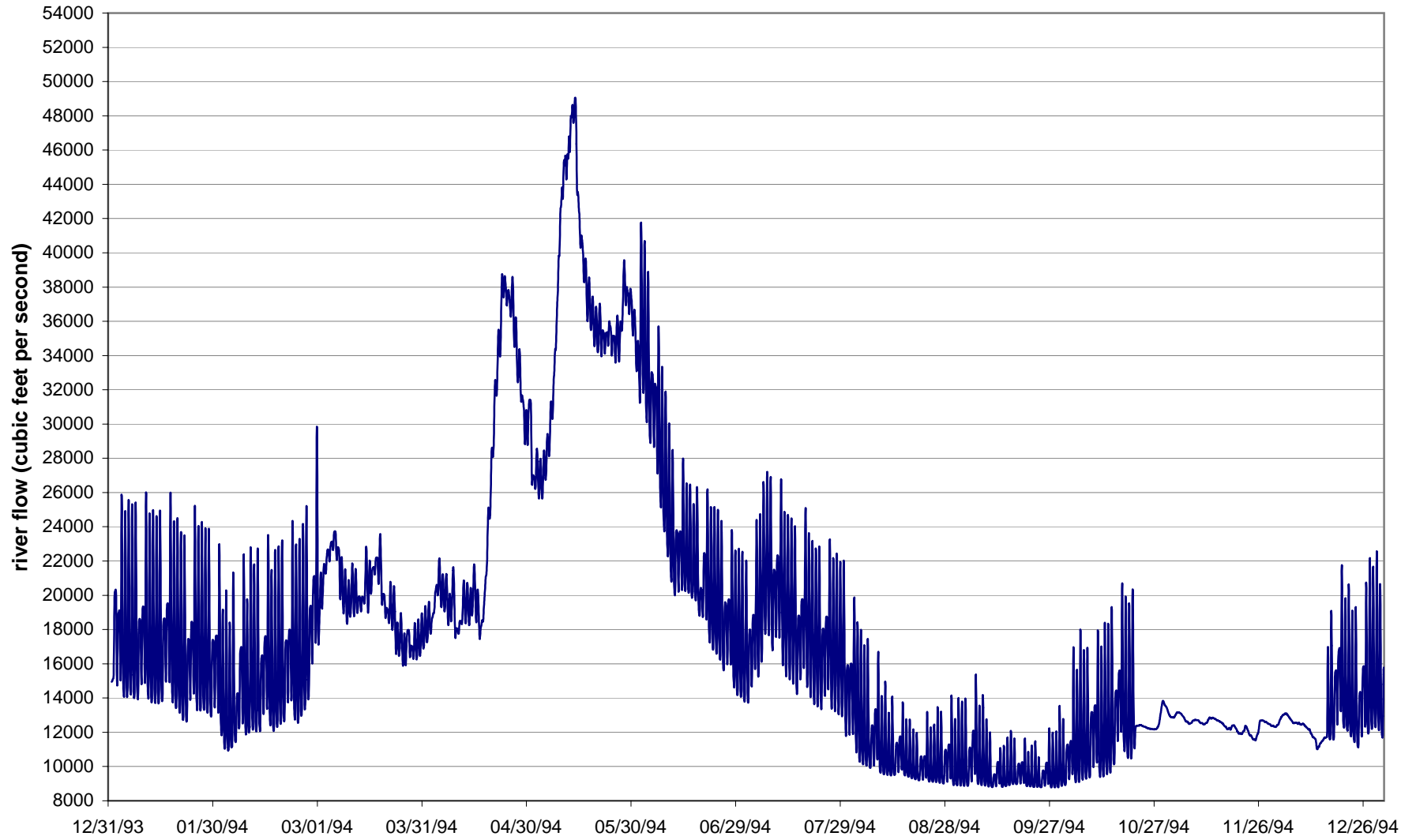
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 1(e)



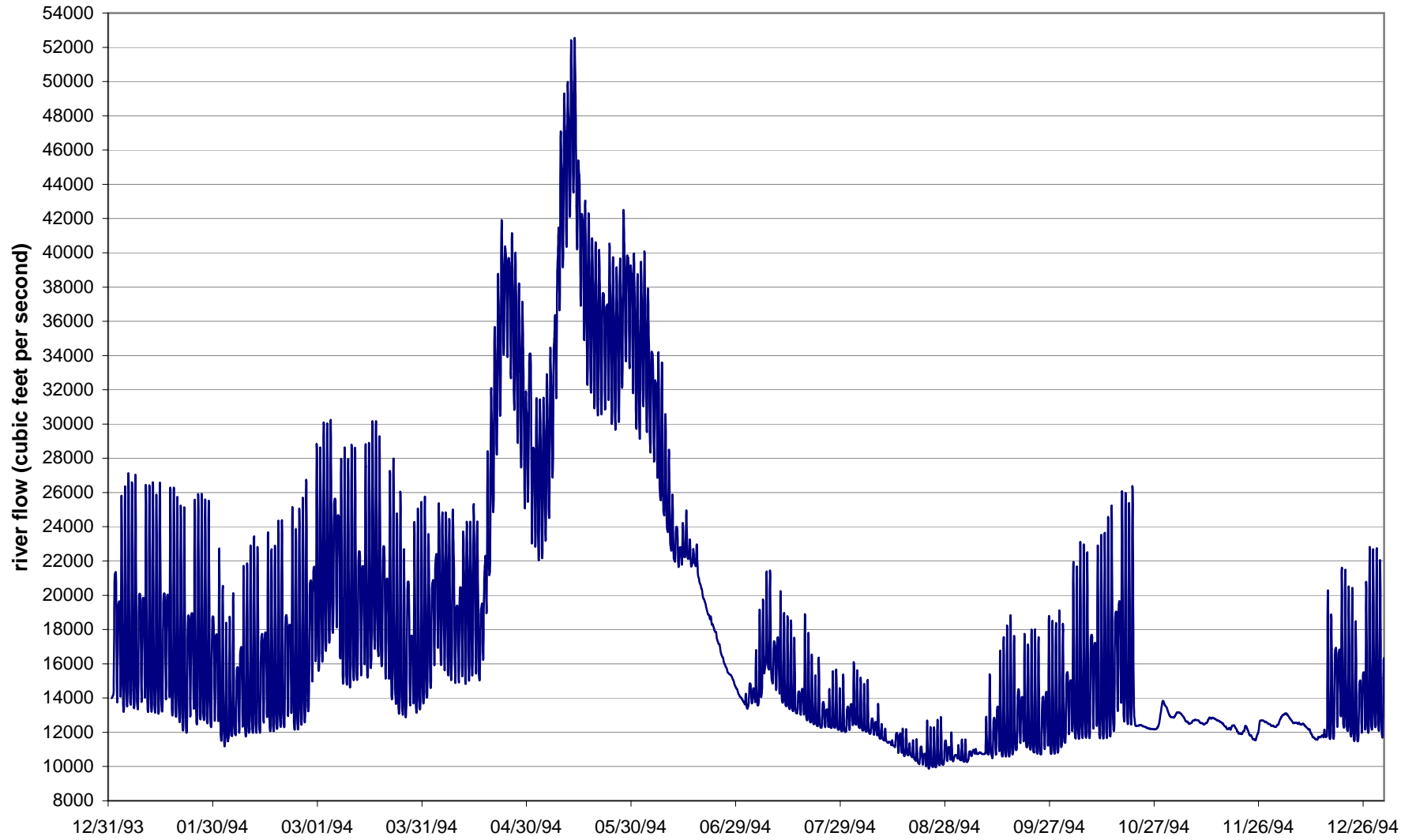
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 1(f)



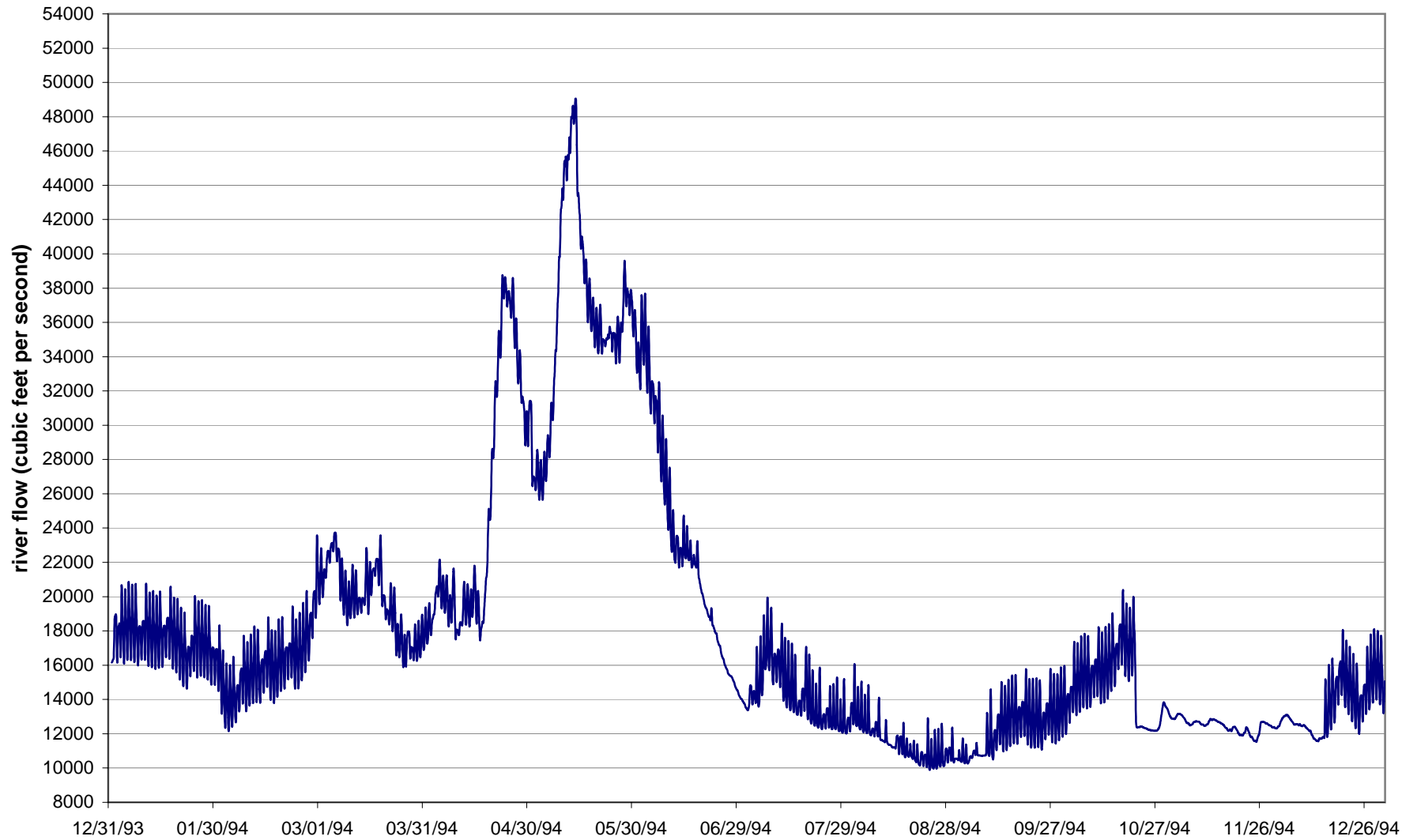
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 2



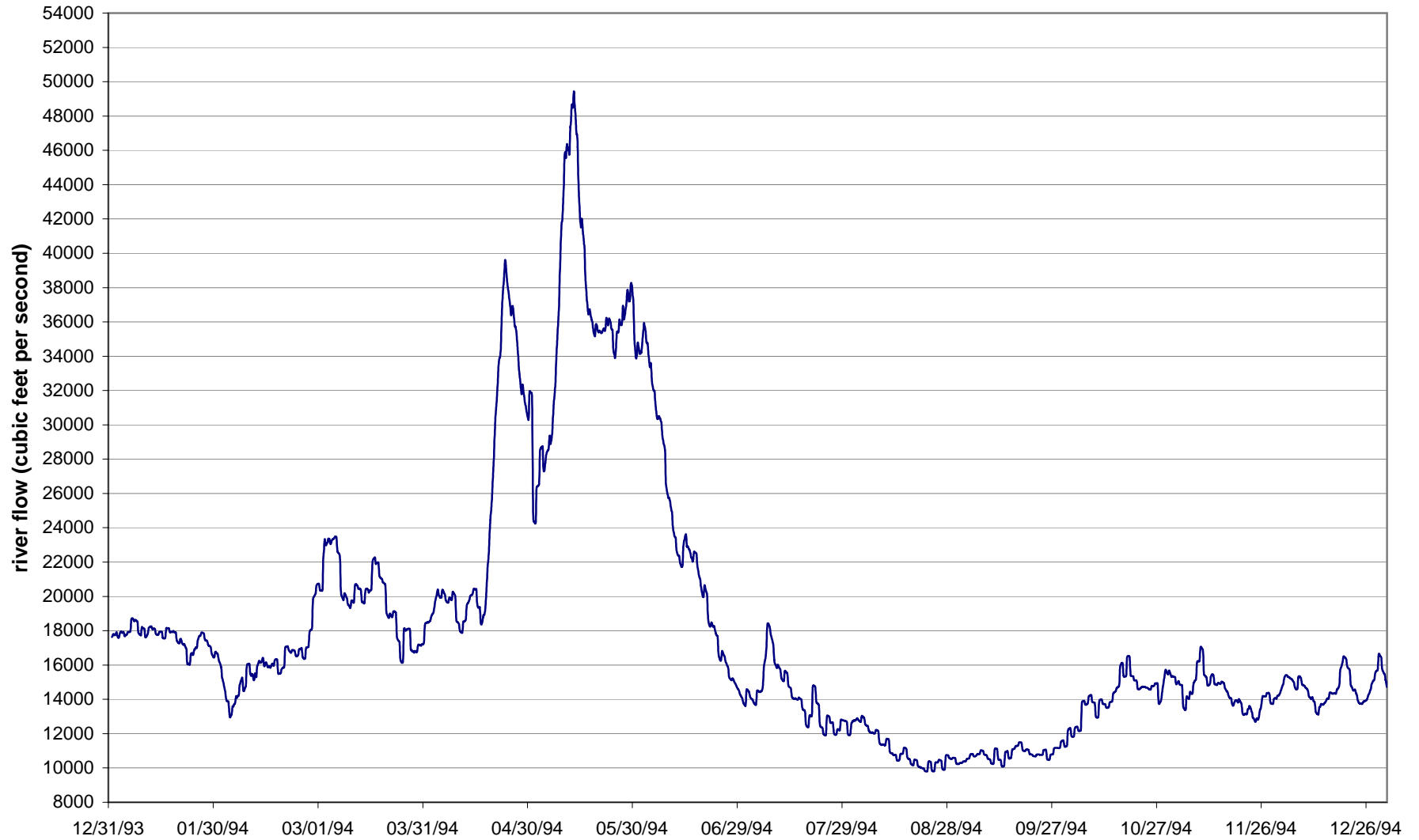
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 3



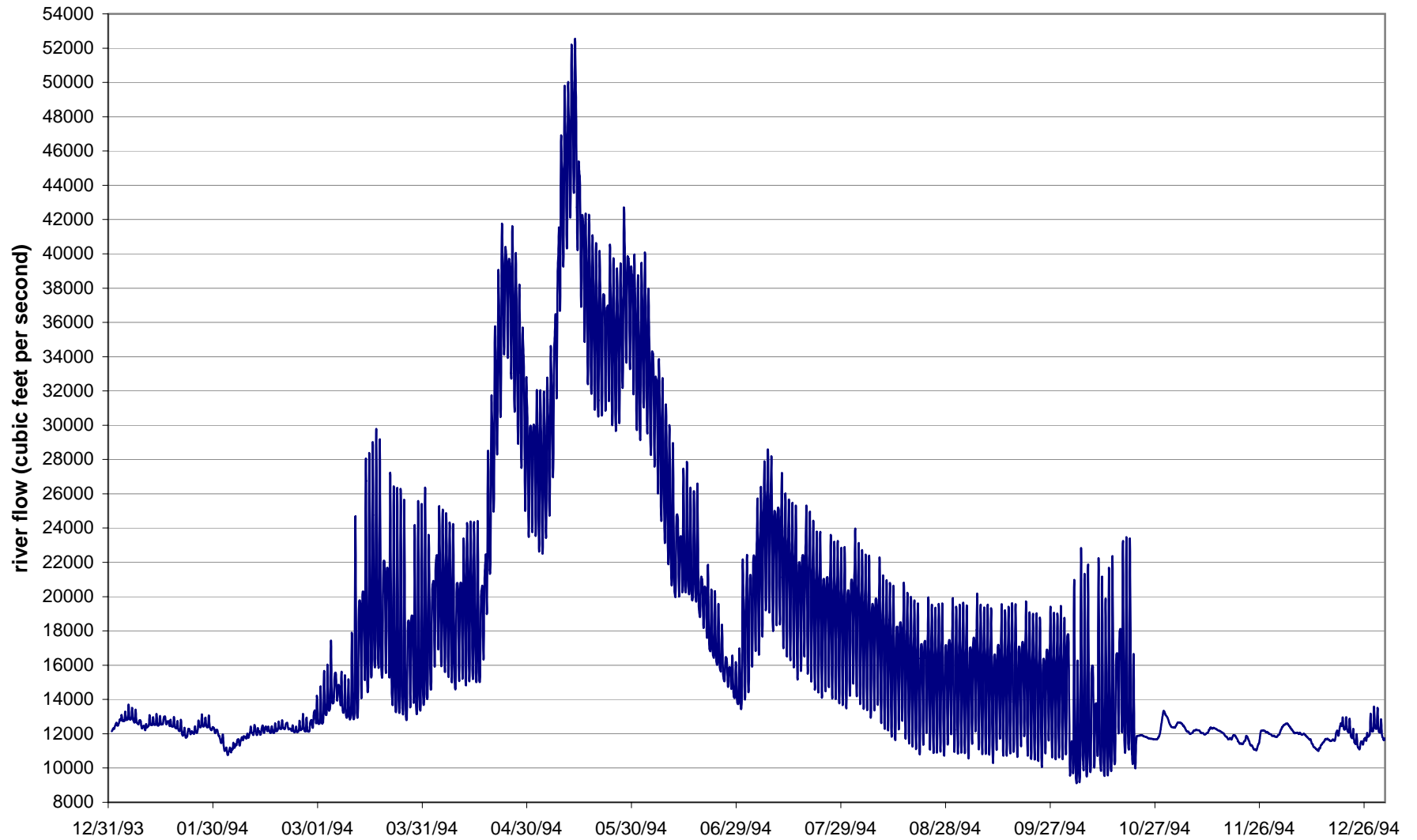
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 4



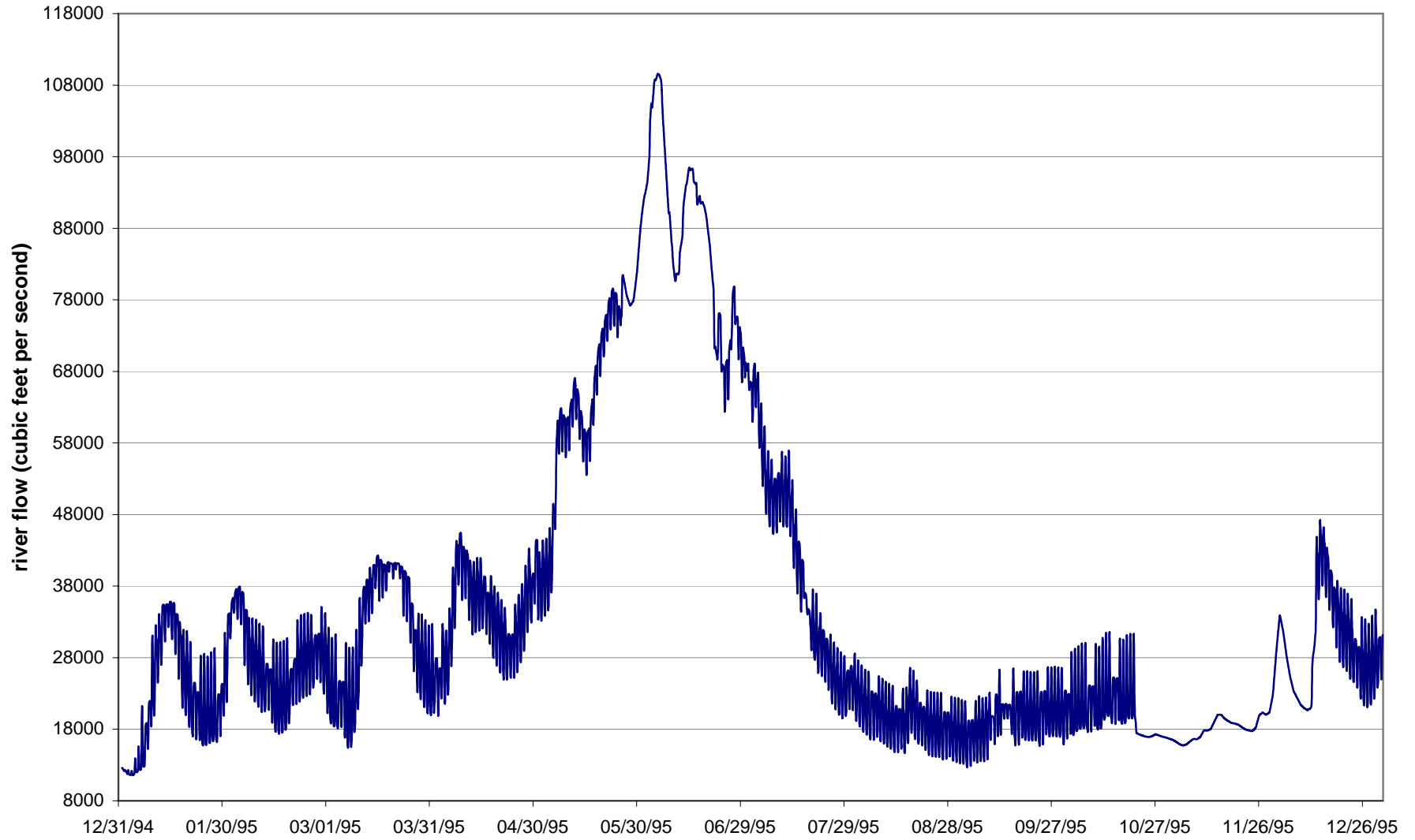
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 5



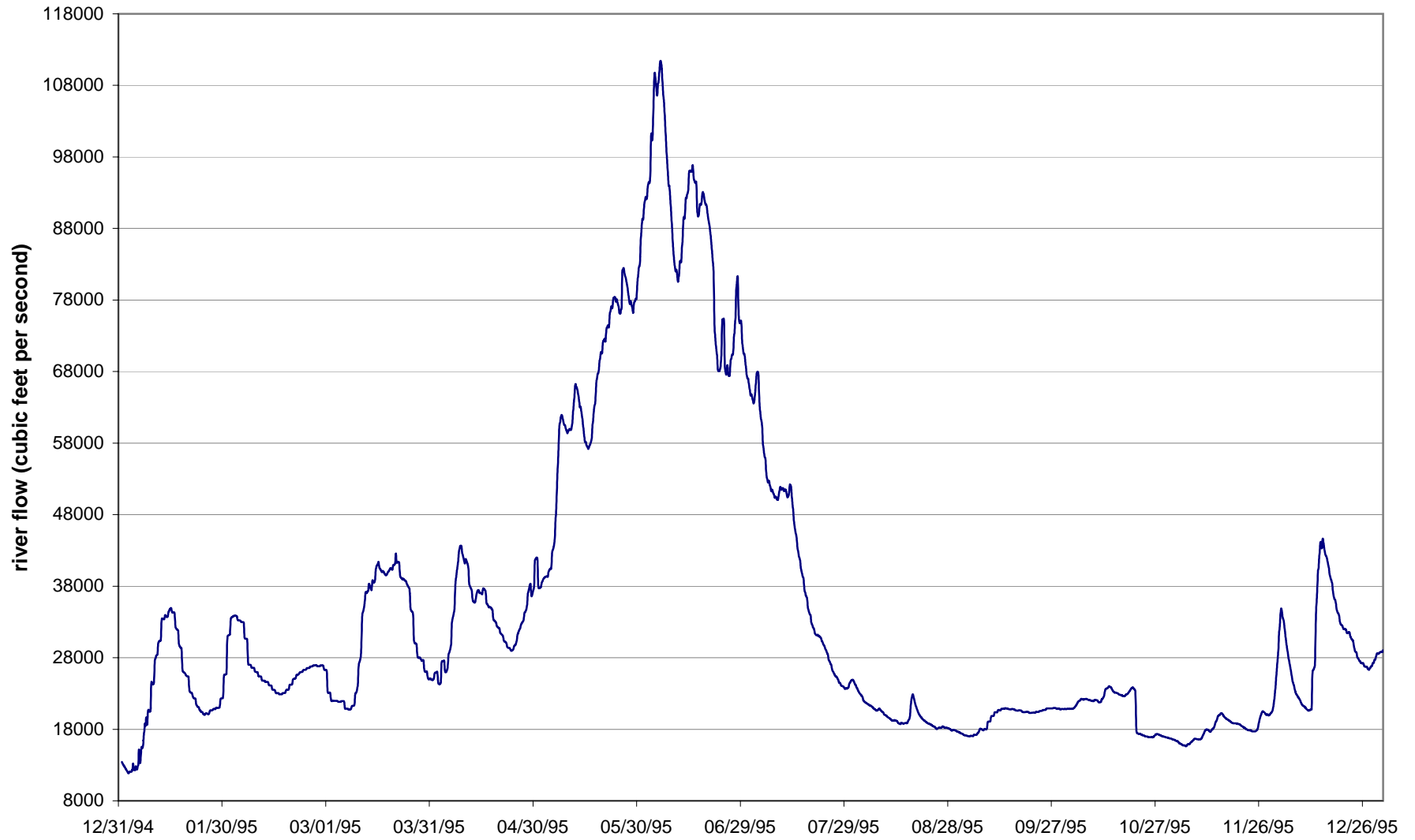
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1994
Scenario 6



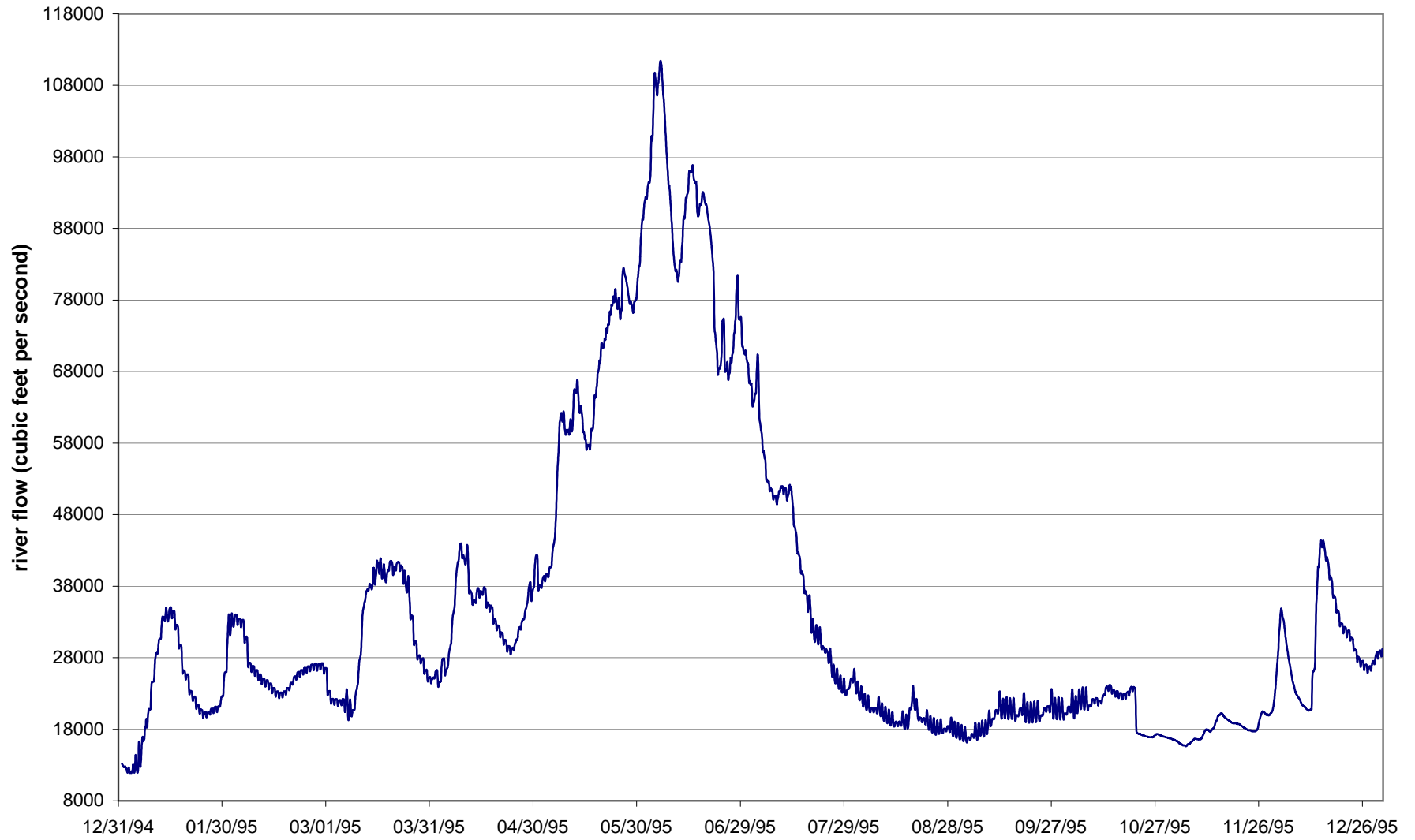
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Proposed Operations



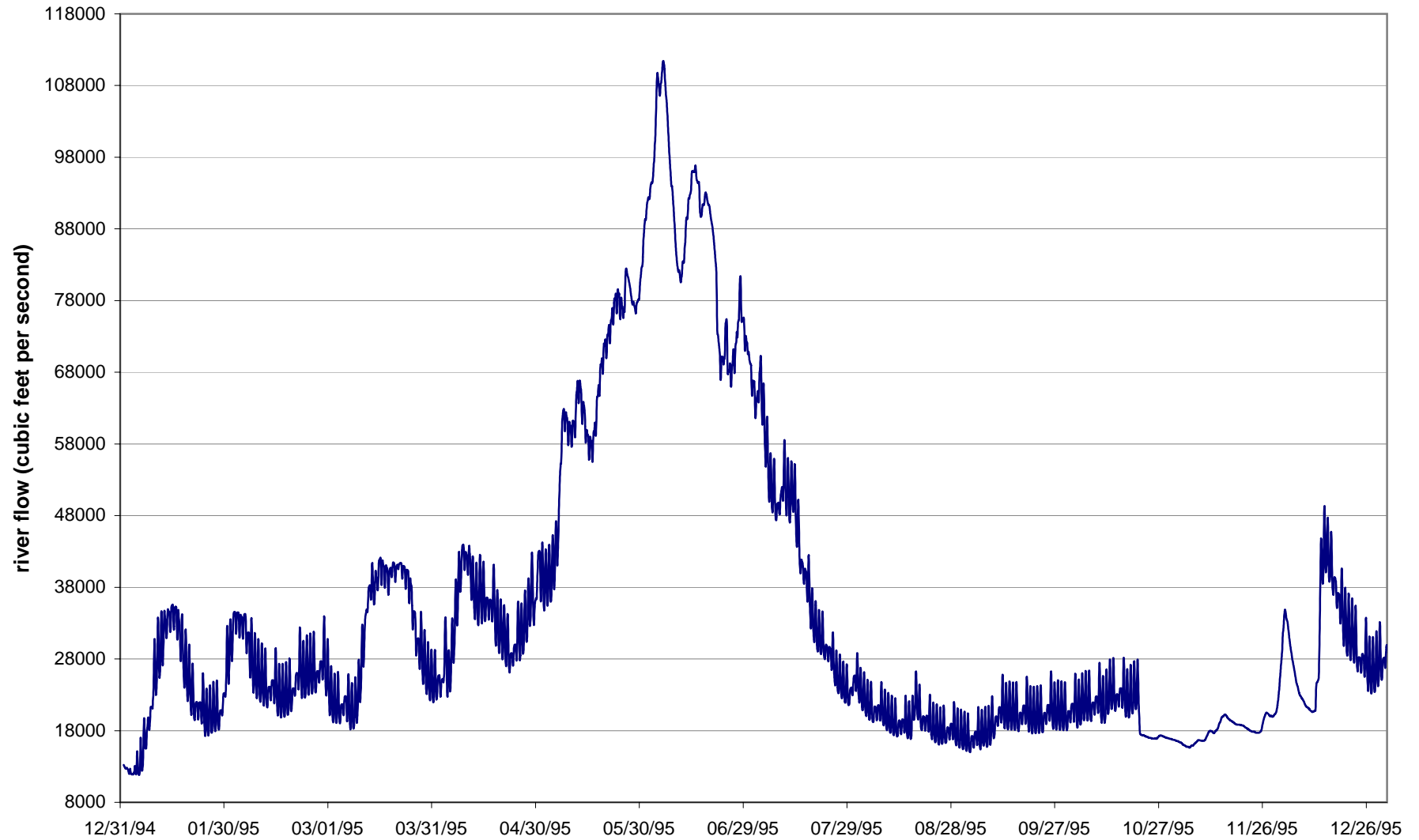
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 1(a)



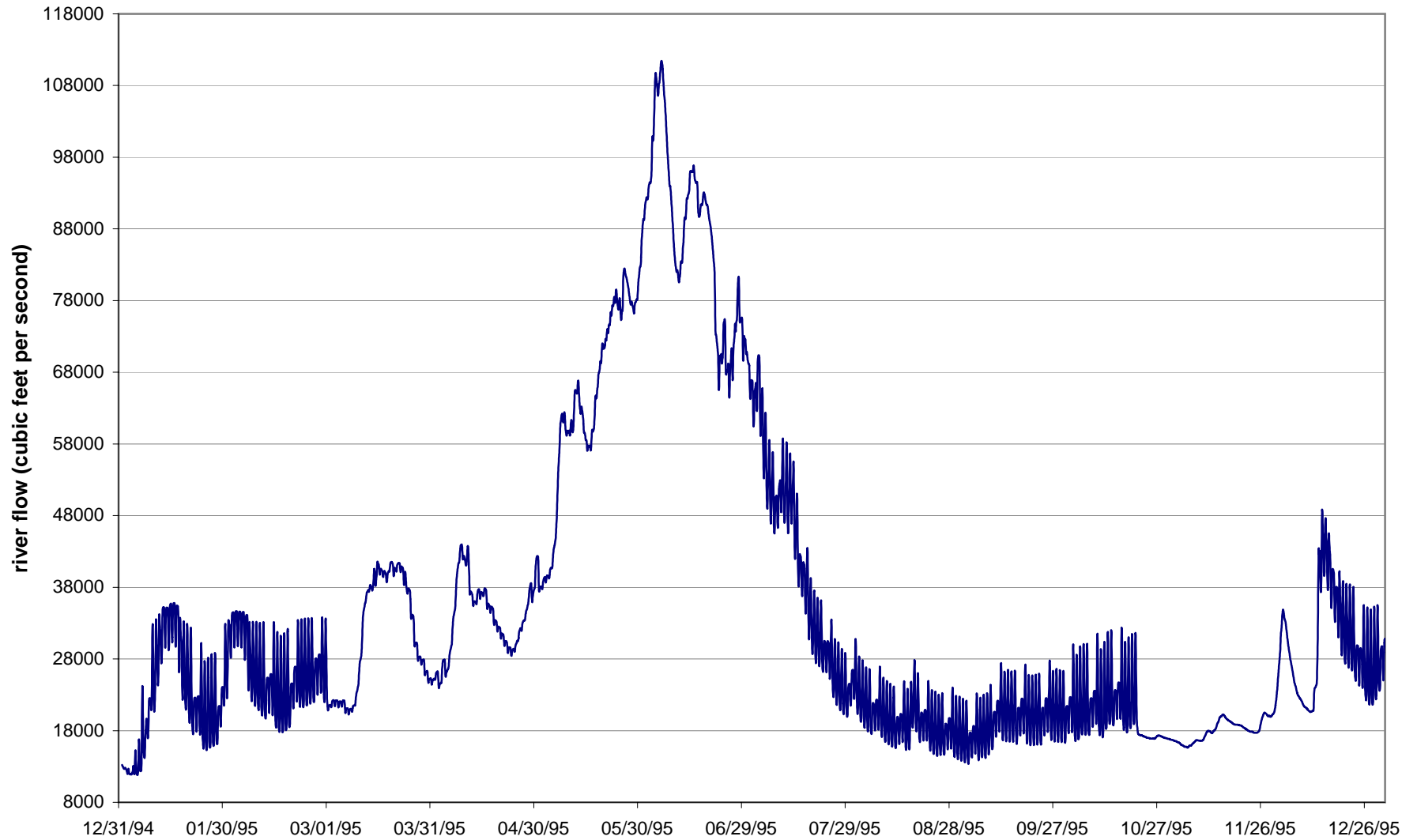
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 1(b)



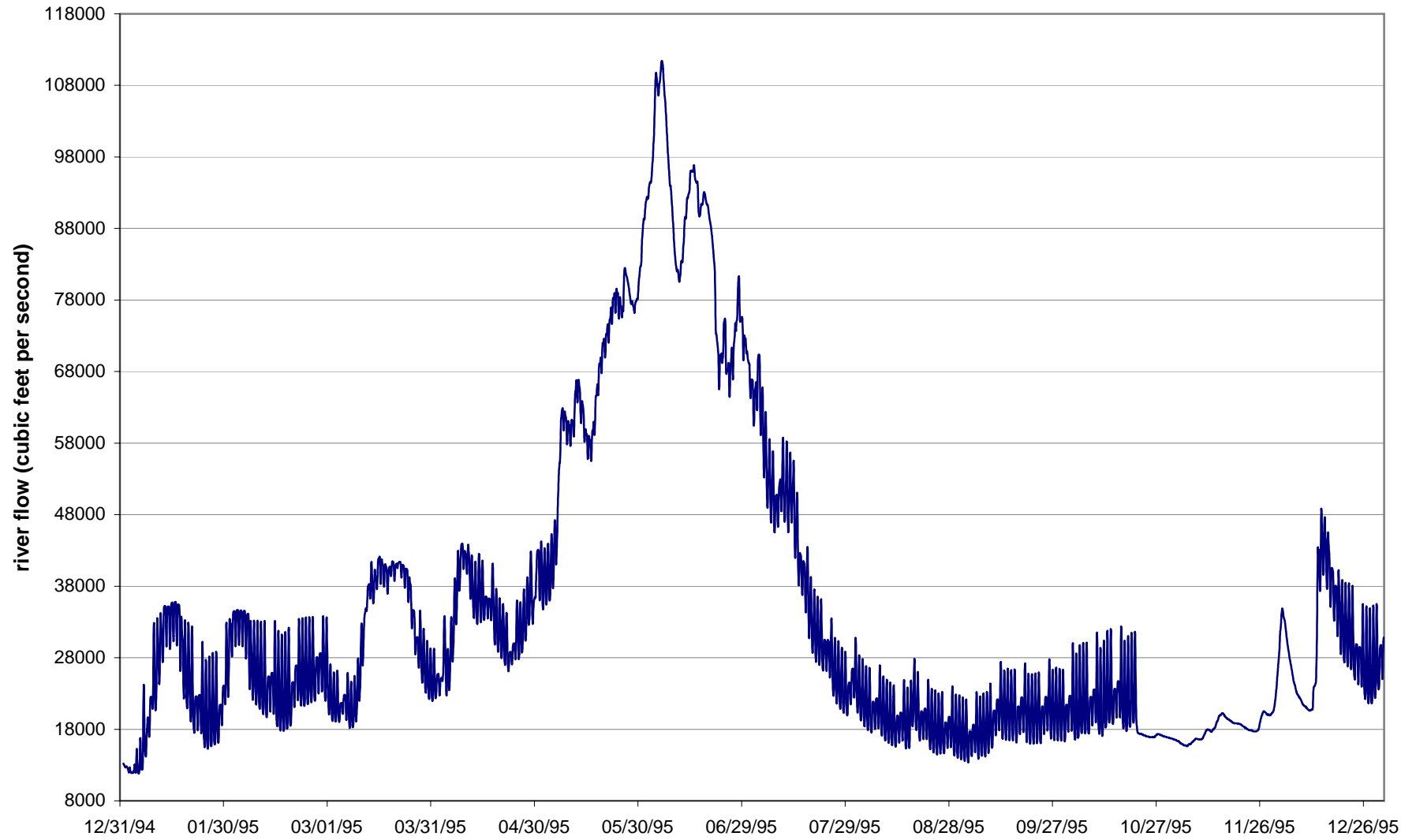
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 1(c)



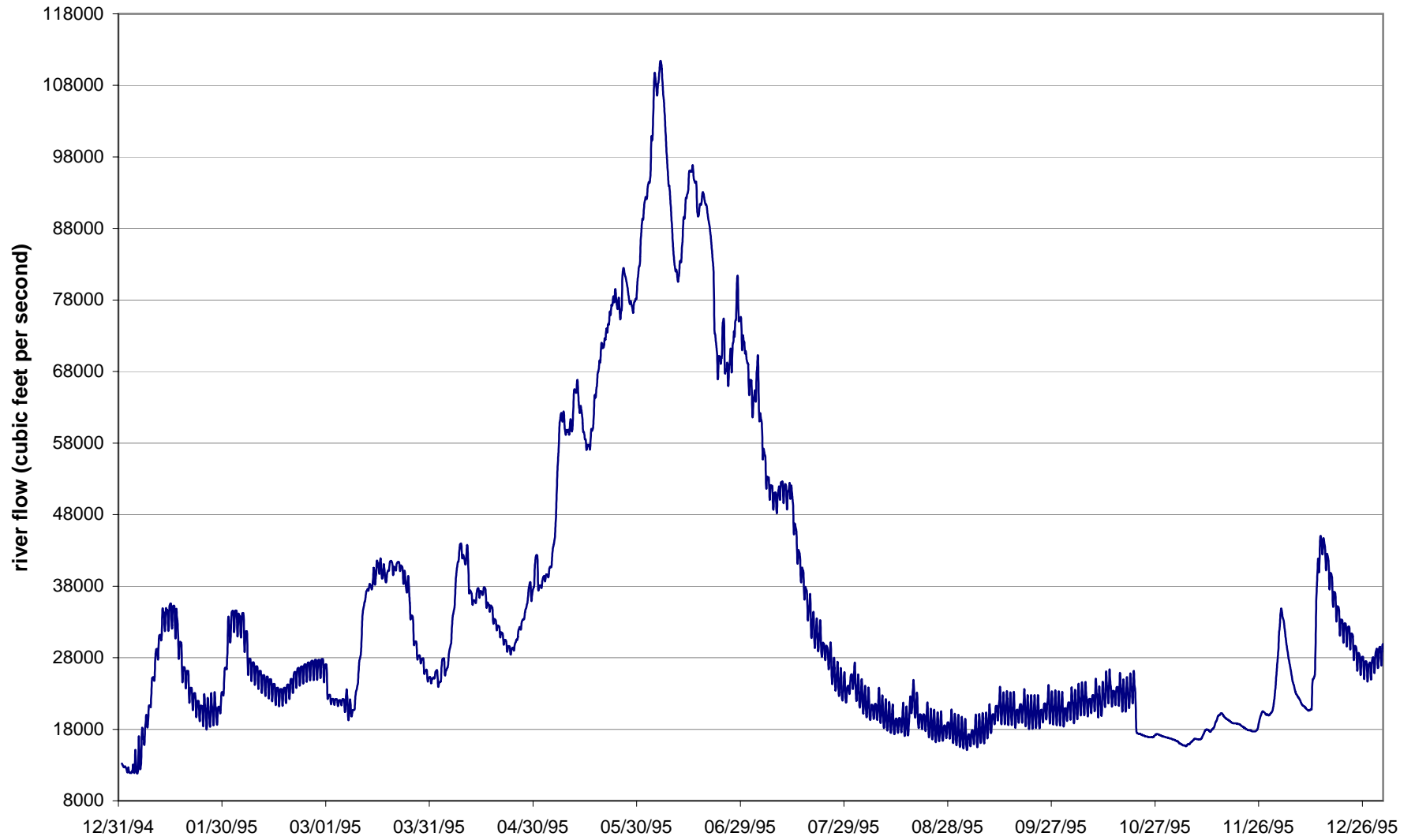
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 1(d)



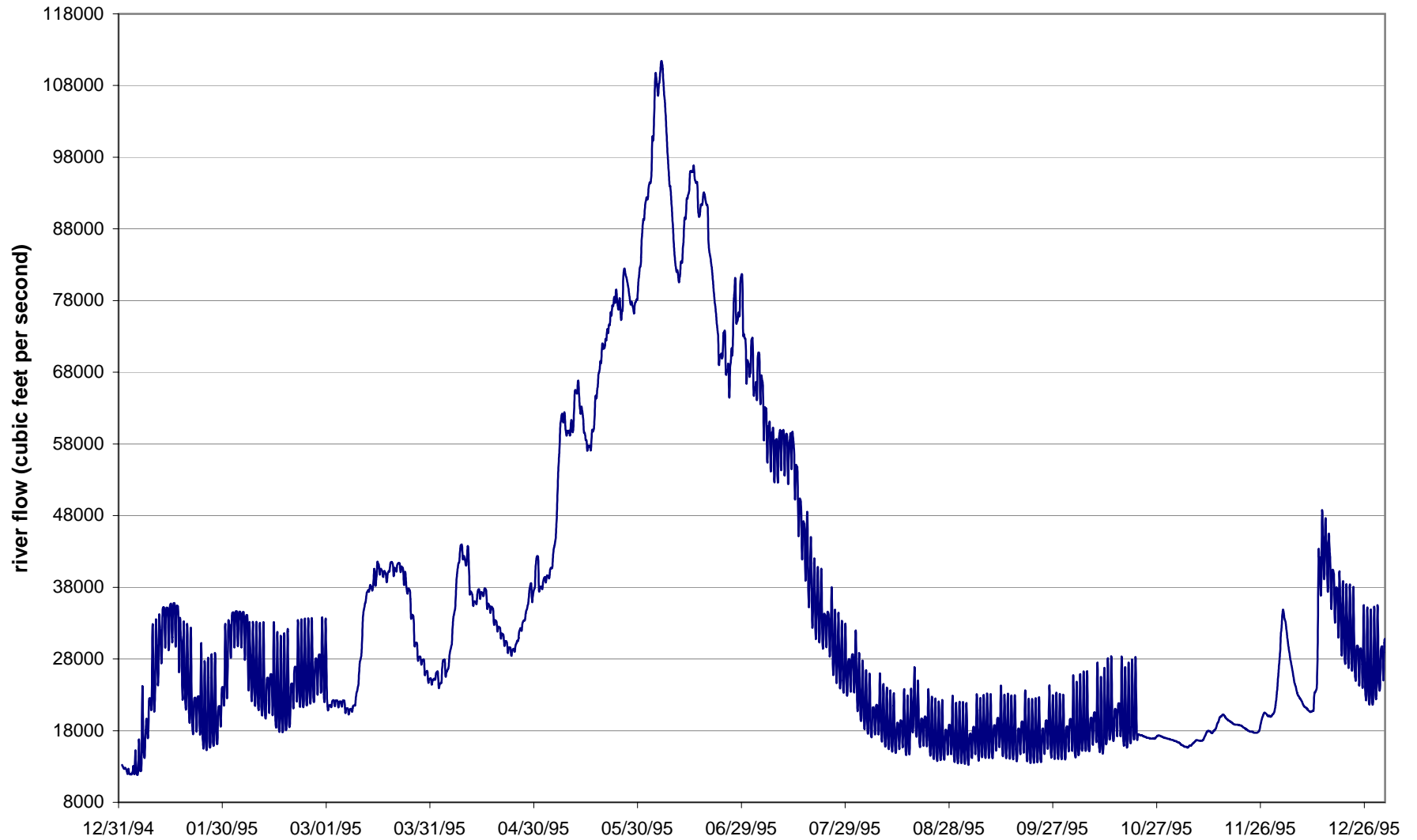
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 1(e)



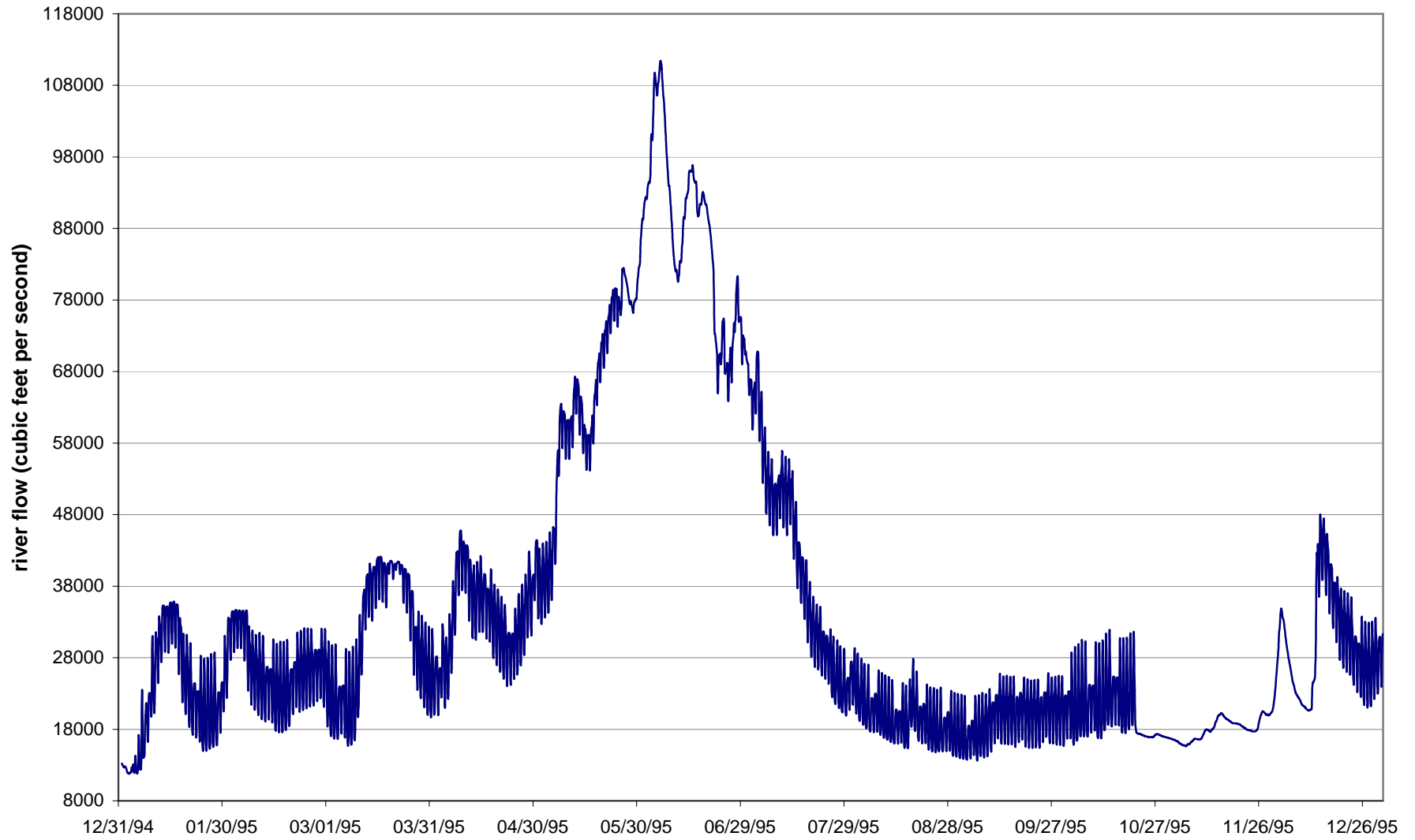
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 1(f)



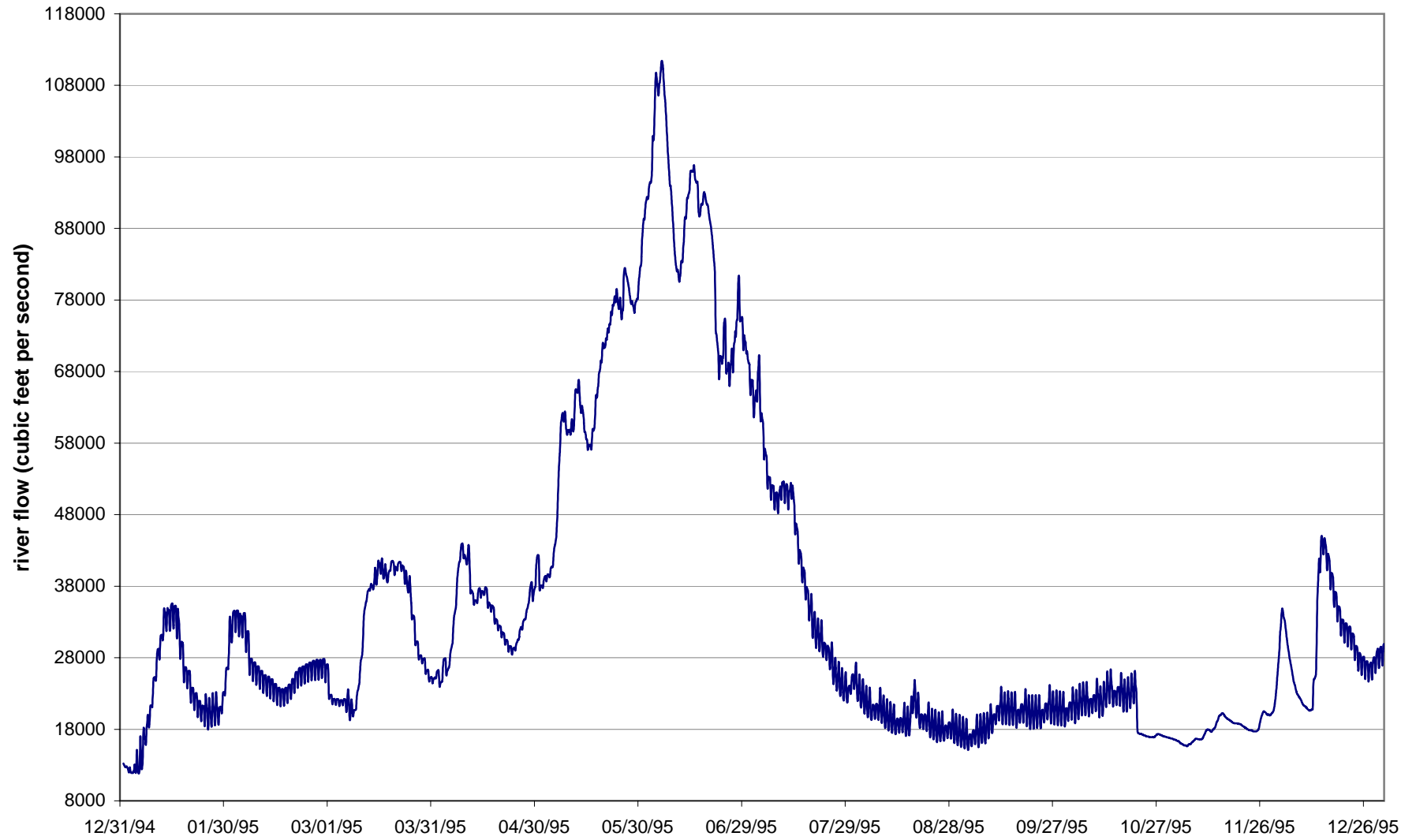
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 2



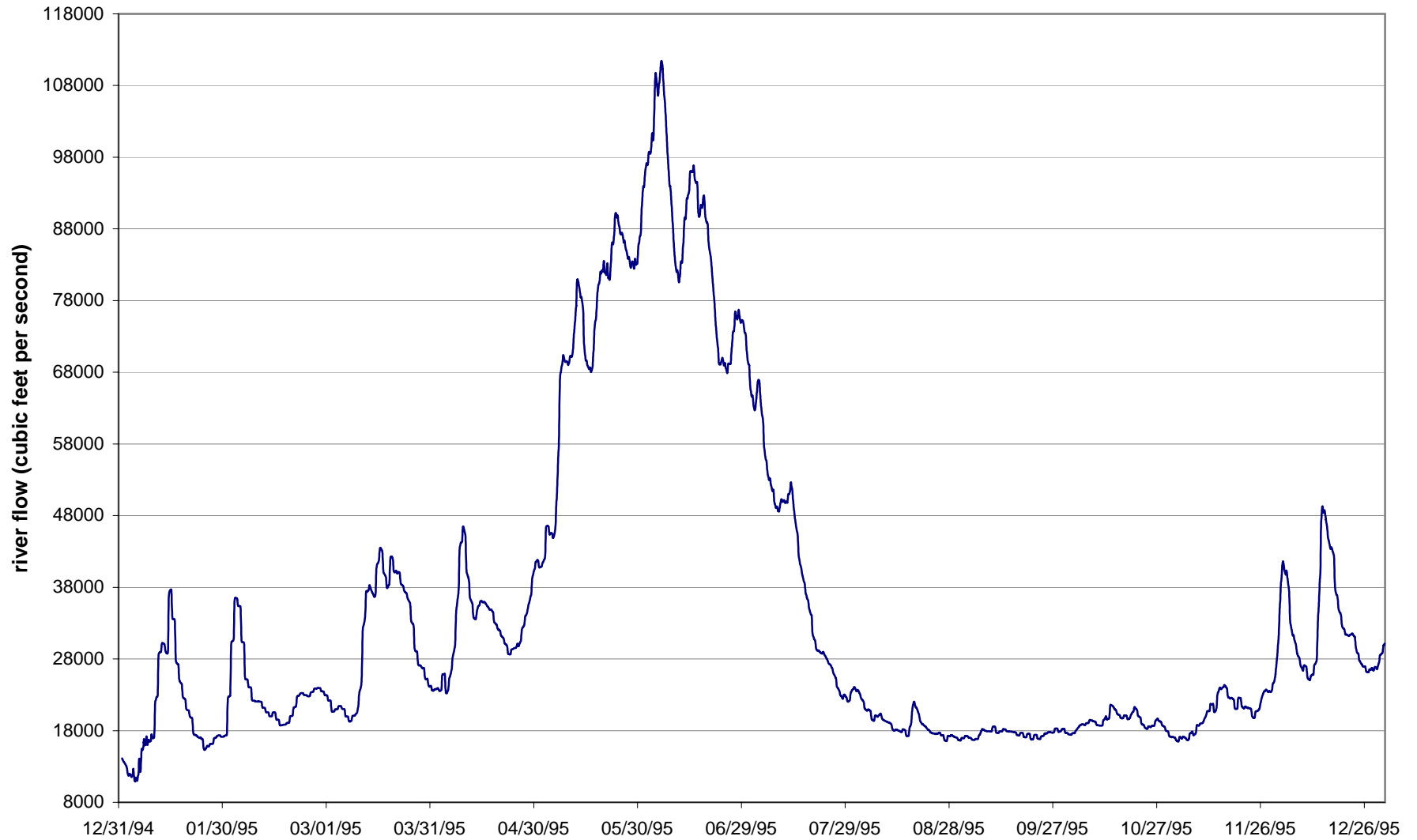
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 3



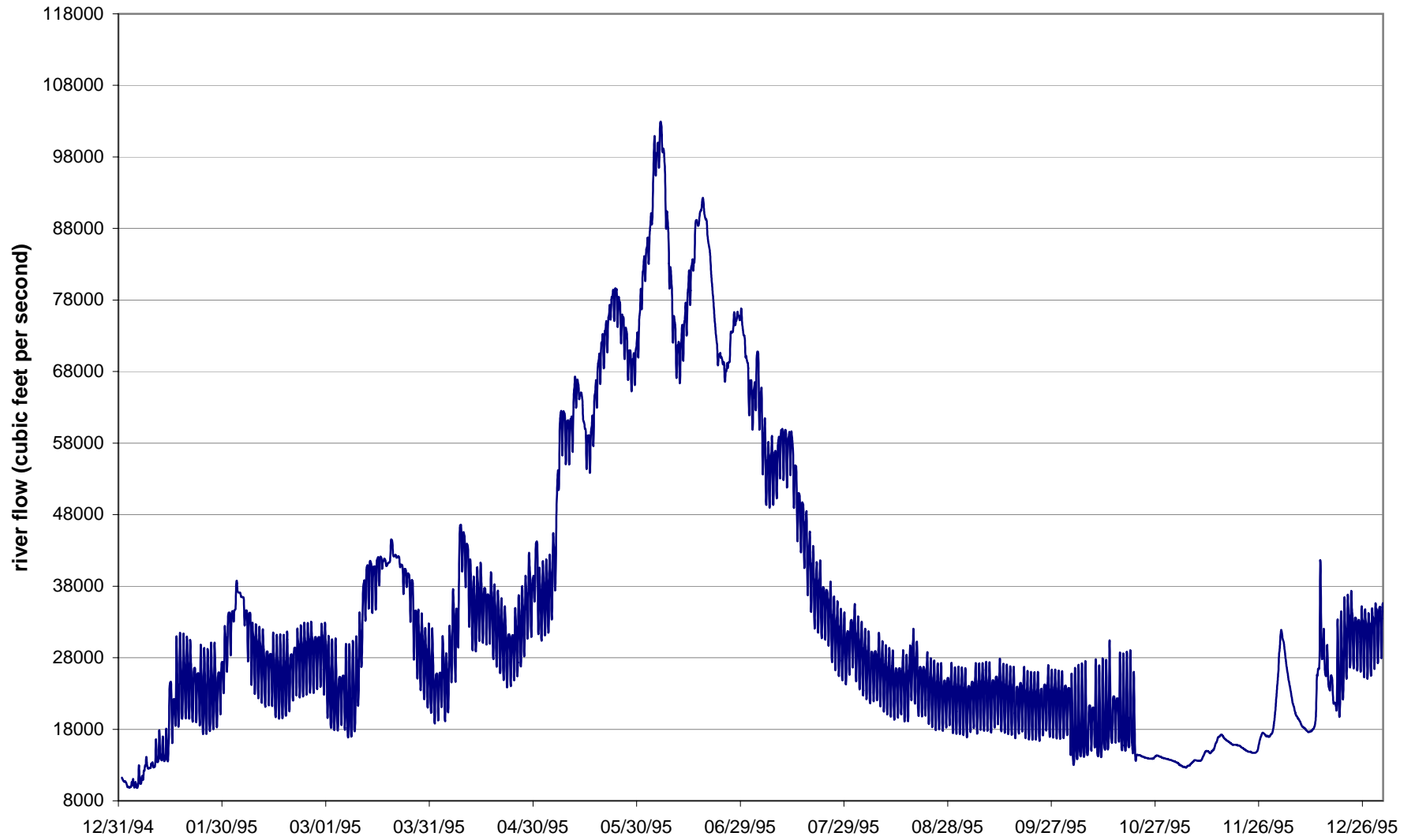
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 4



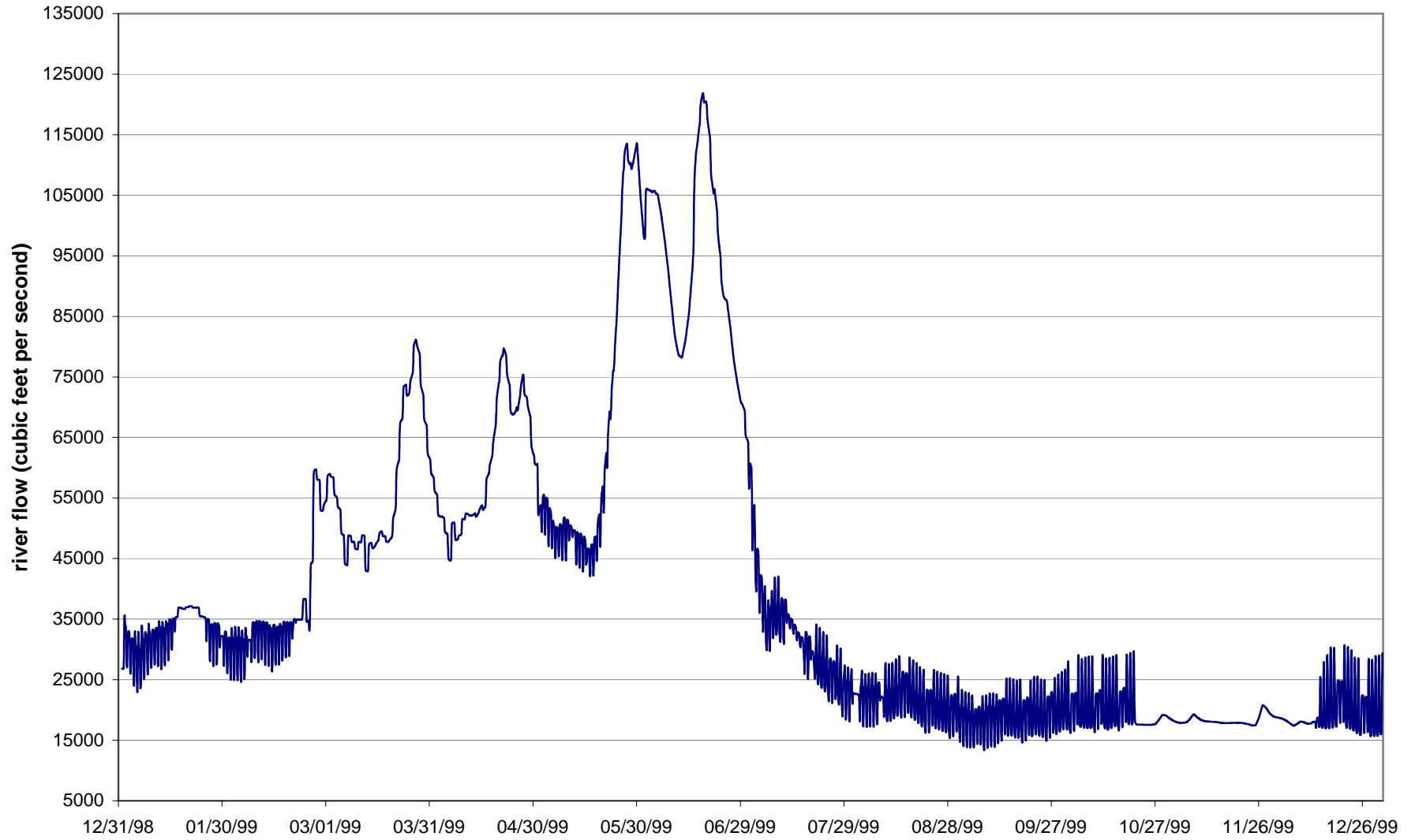
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 5



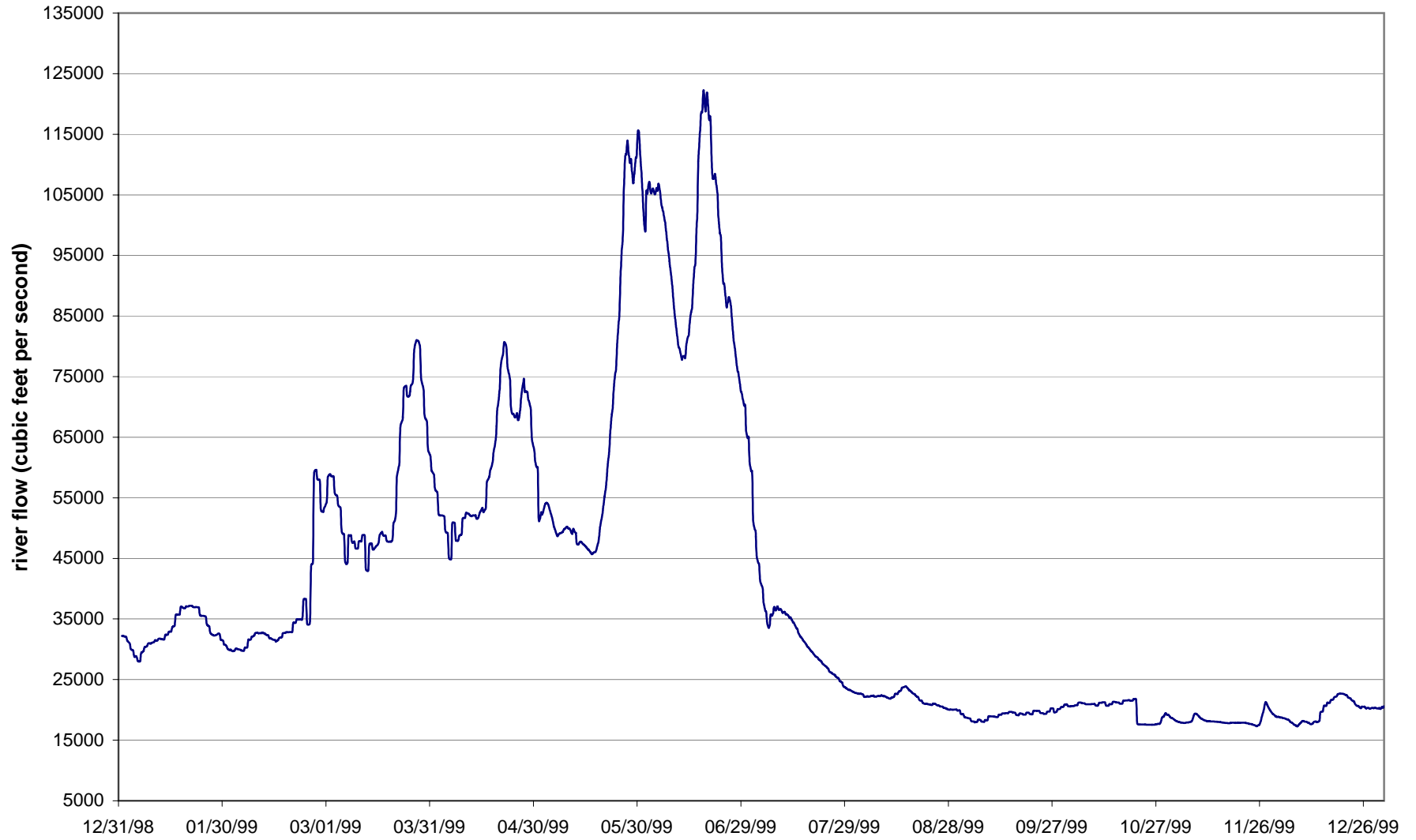
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1995
Scenario 6



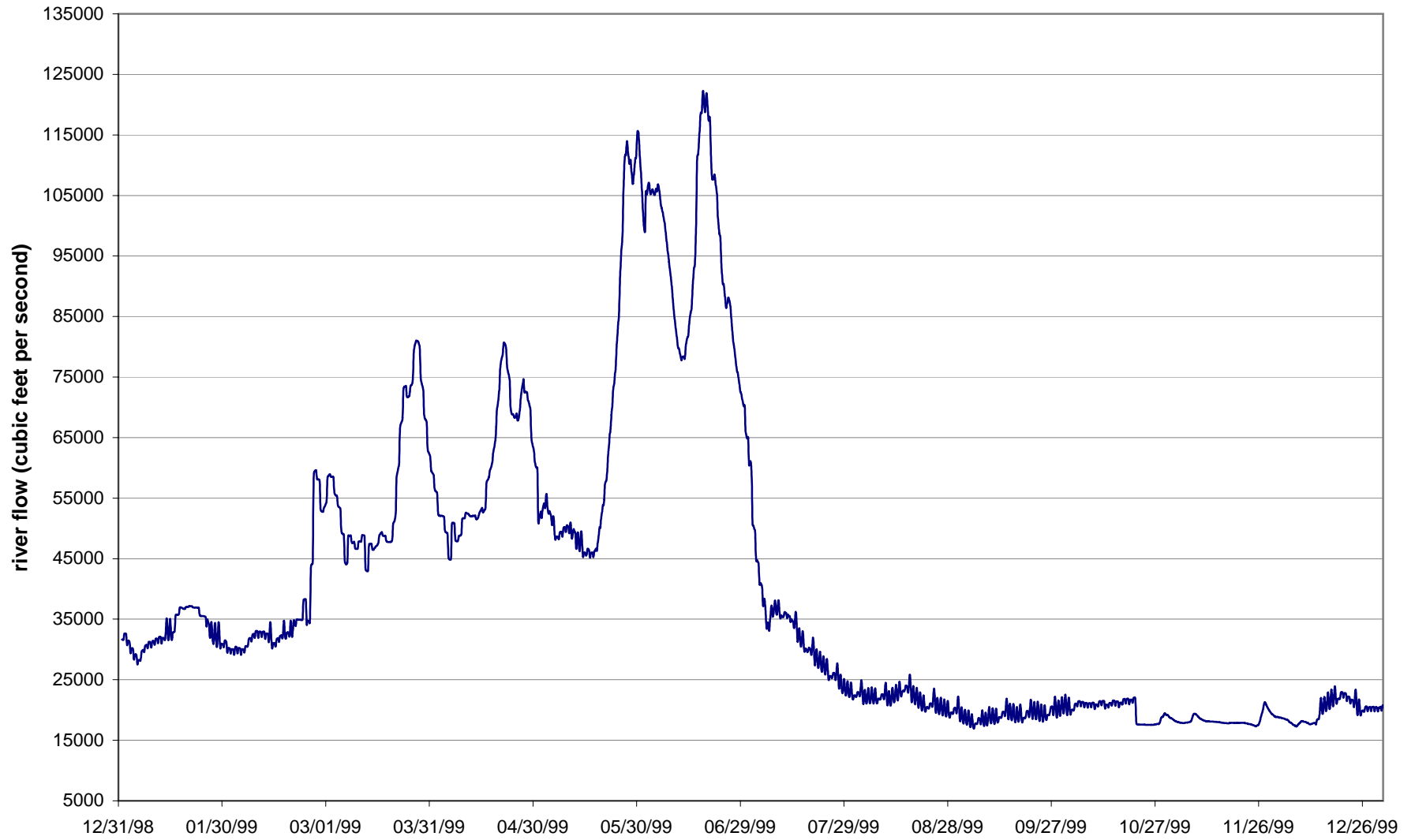
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Proposed Operations



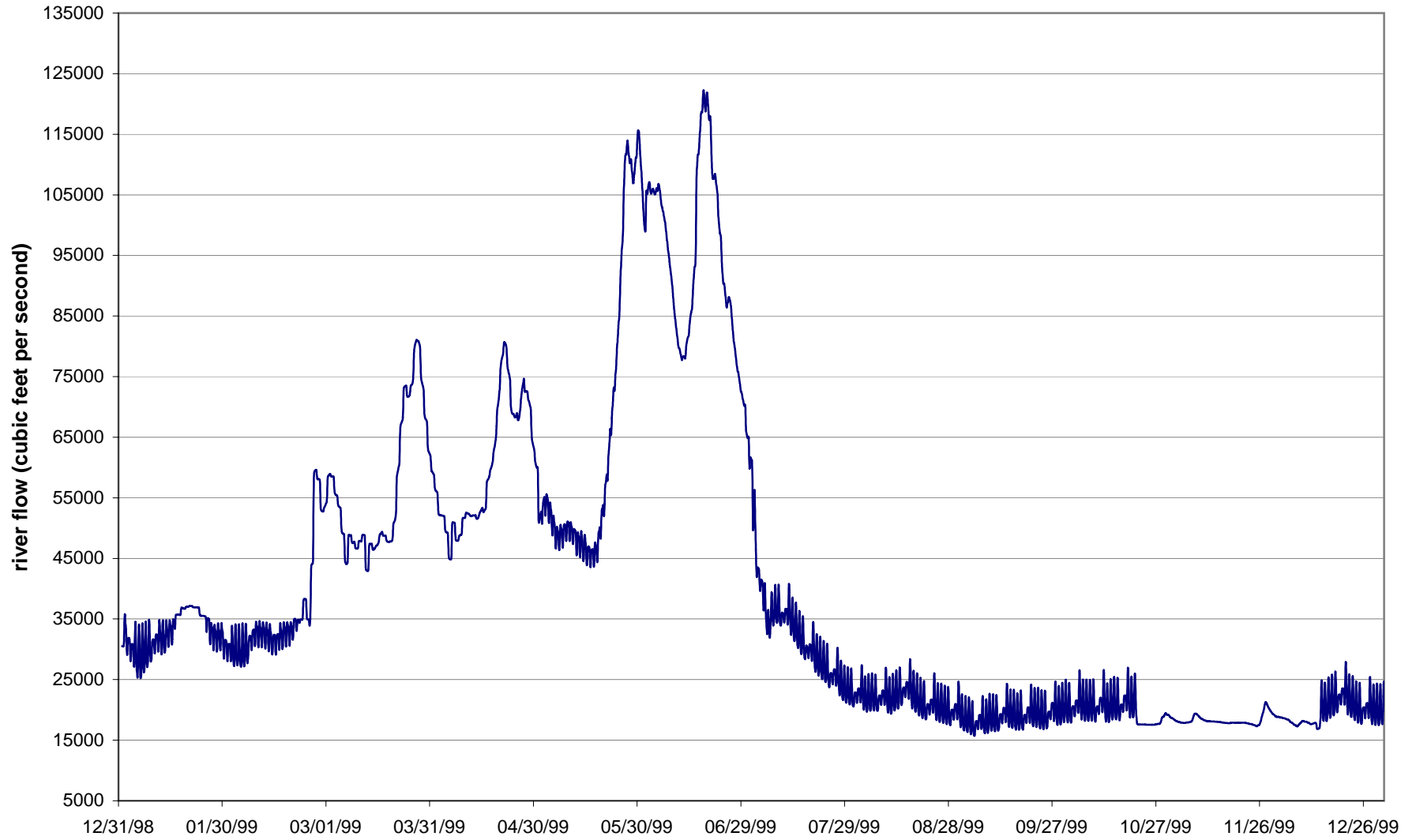
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 1(a)



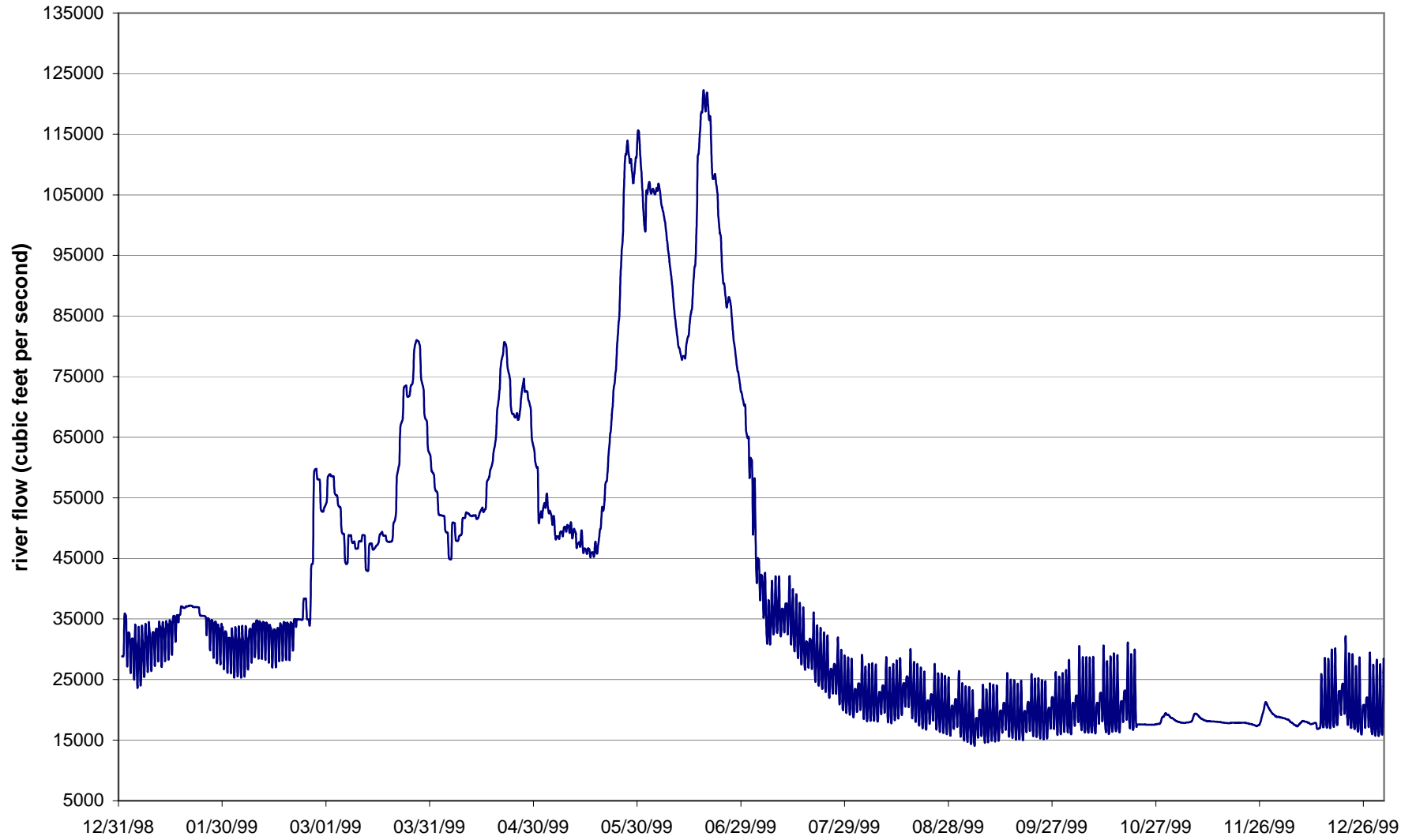
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 1(b)



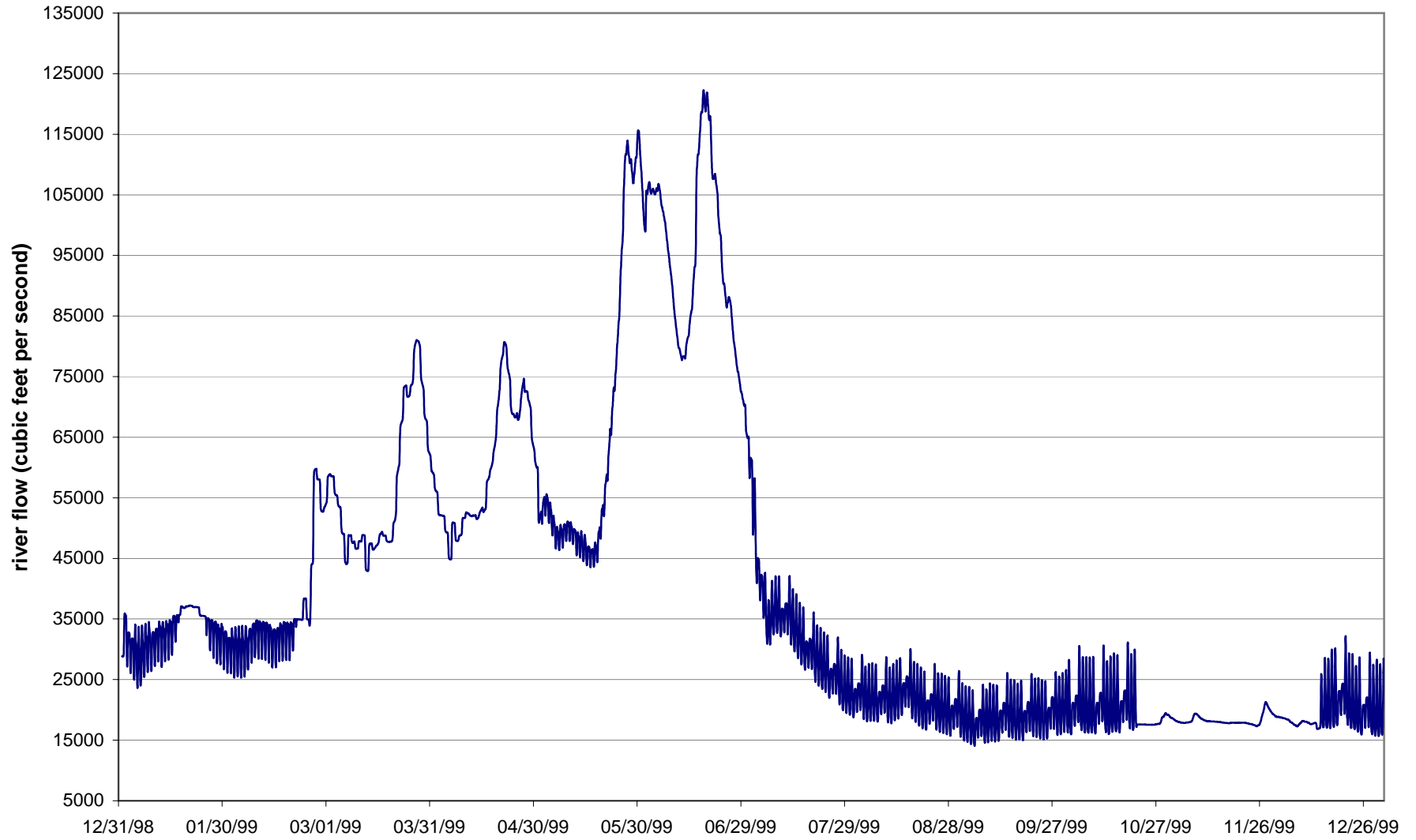
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 1(c)



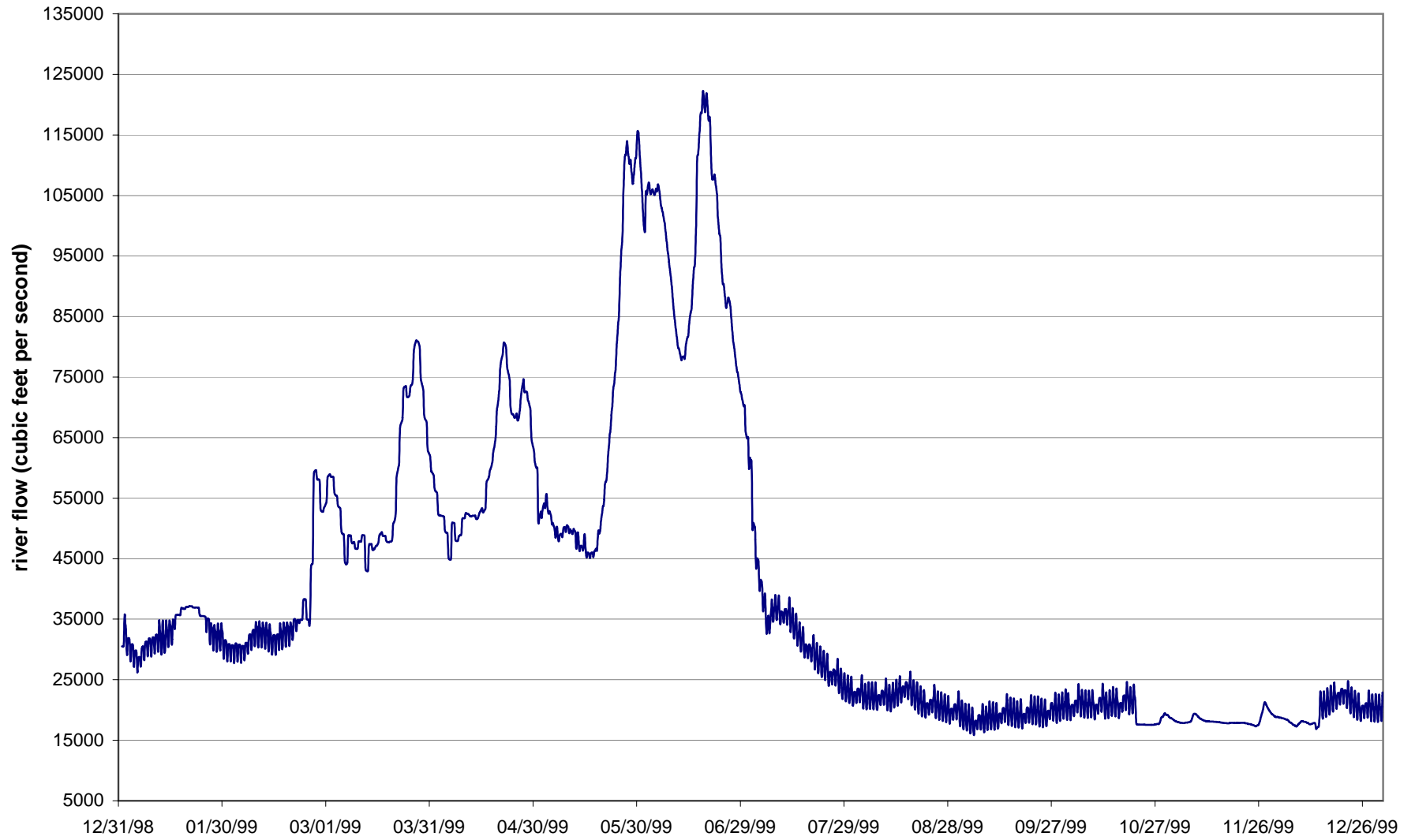
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 1(d)



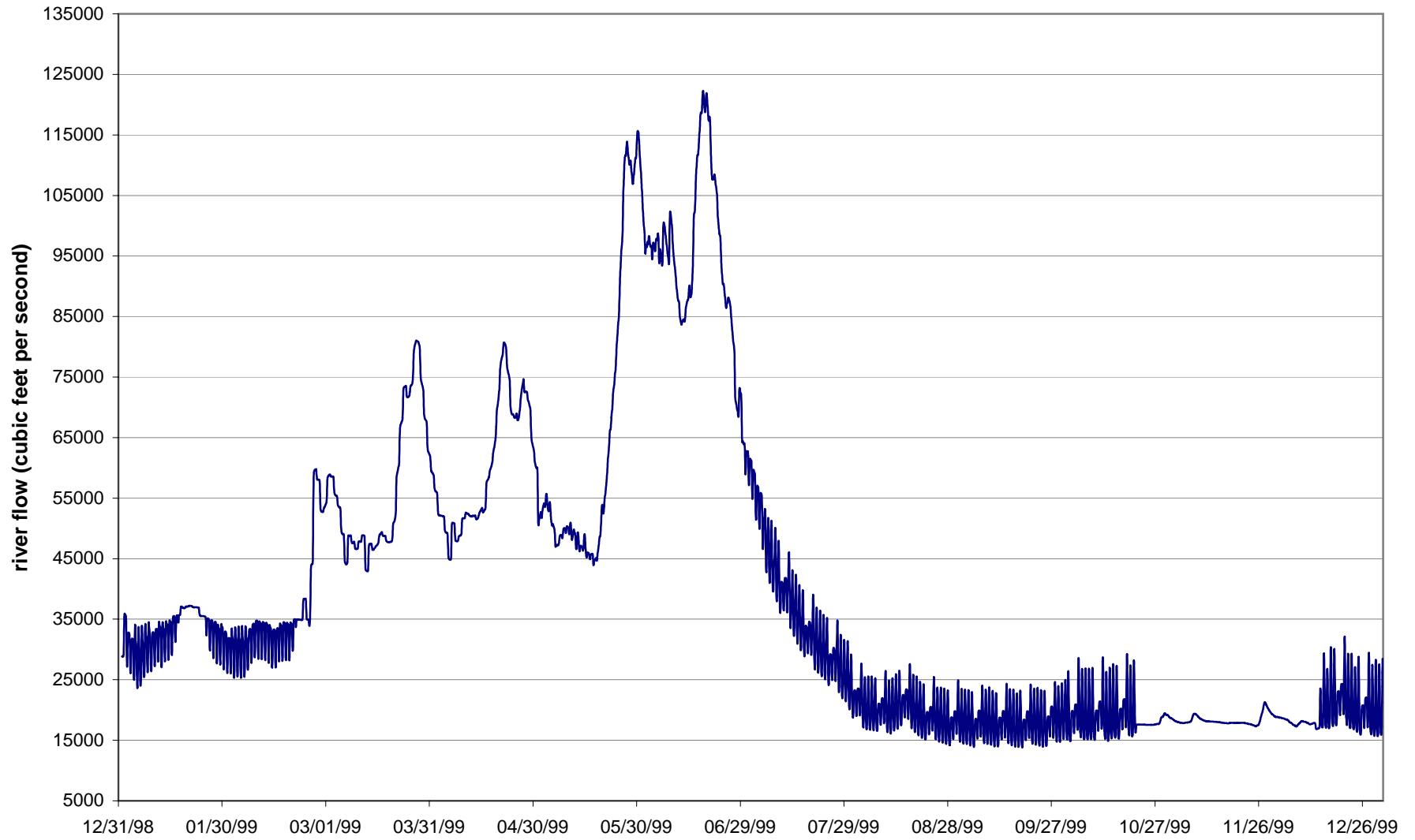
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 1(e)



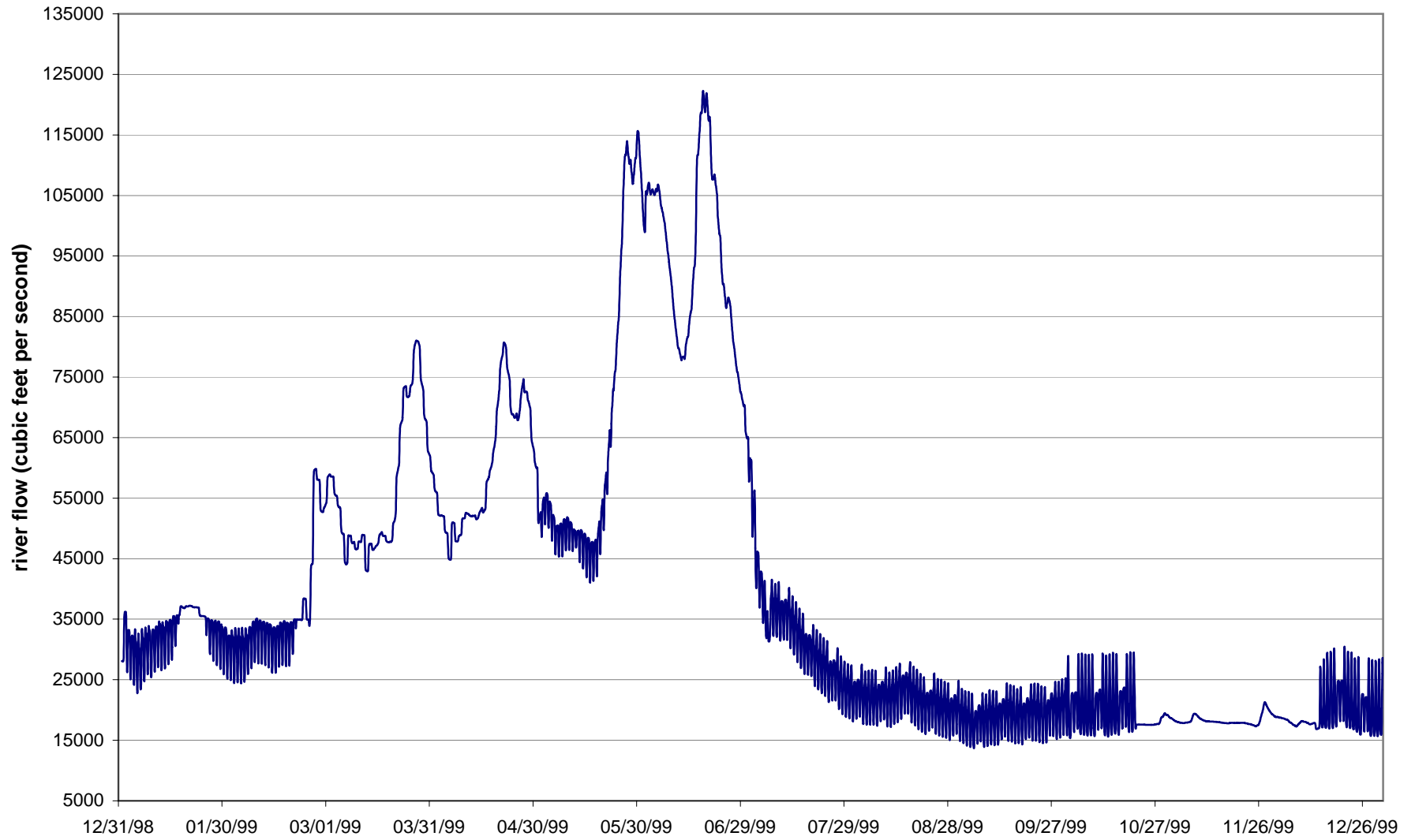
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 1(f)



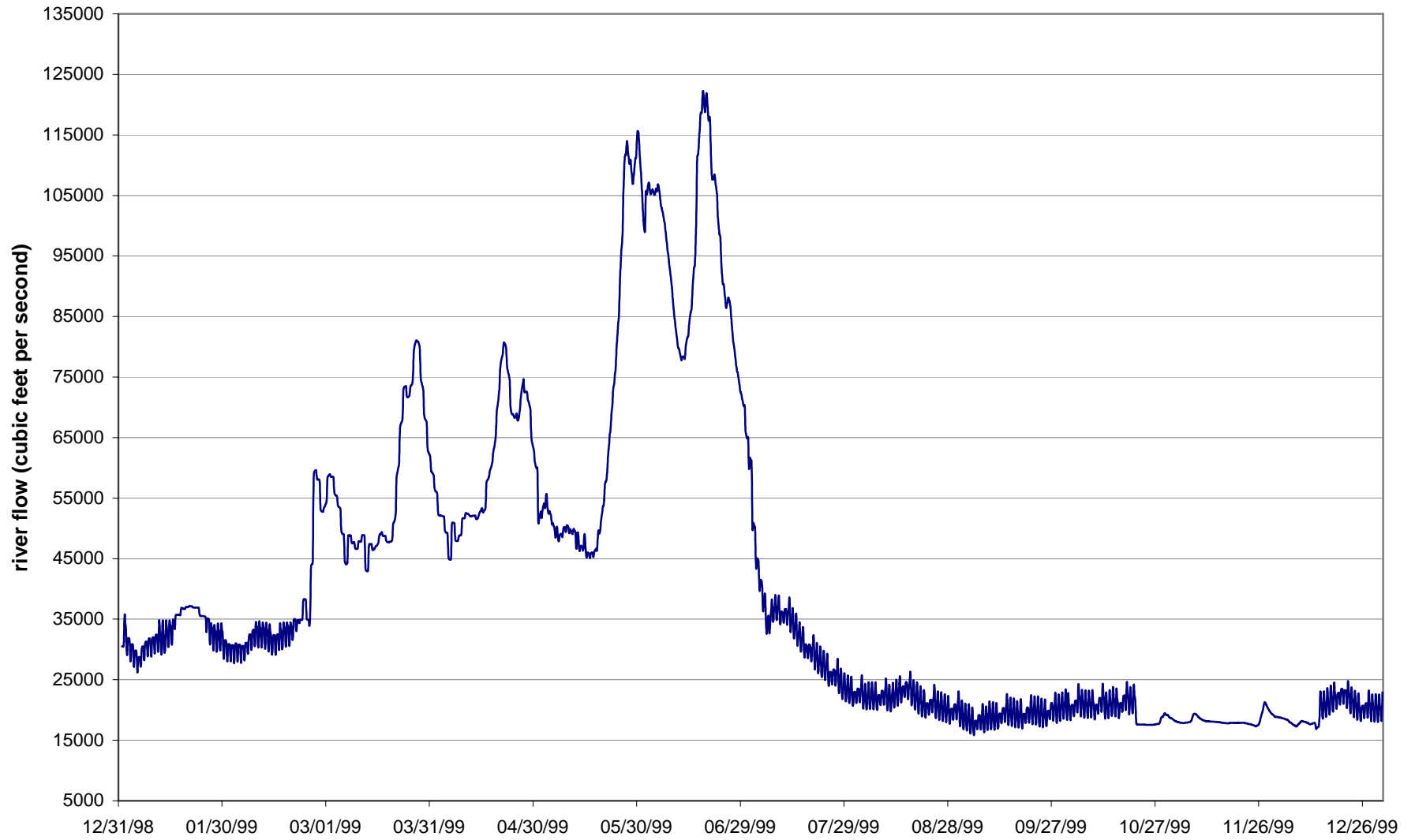
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 2



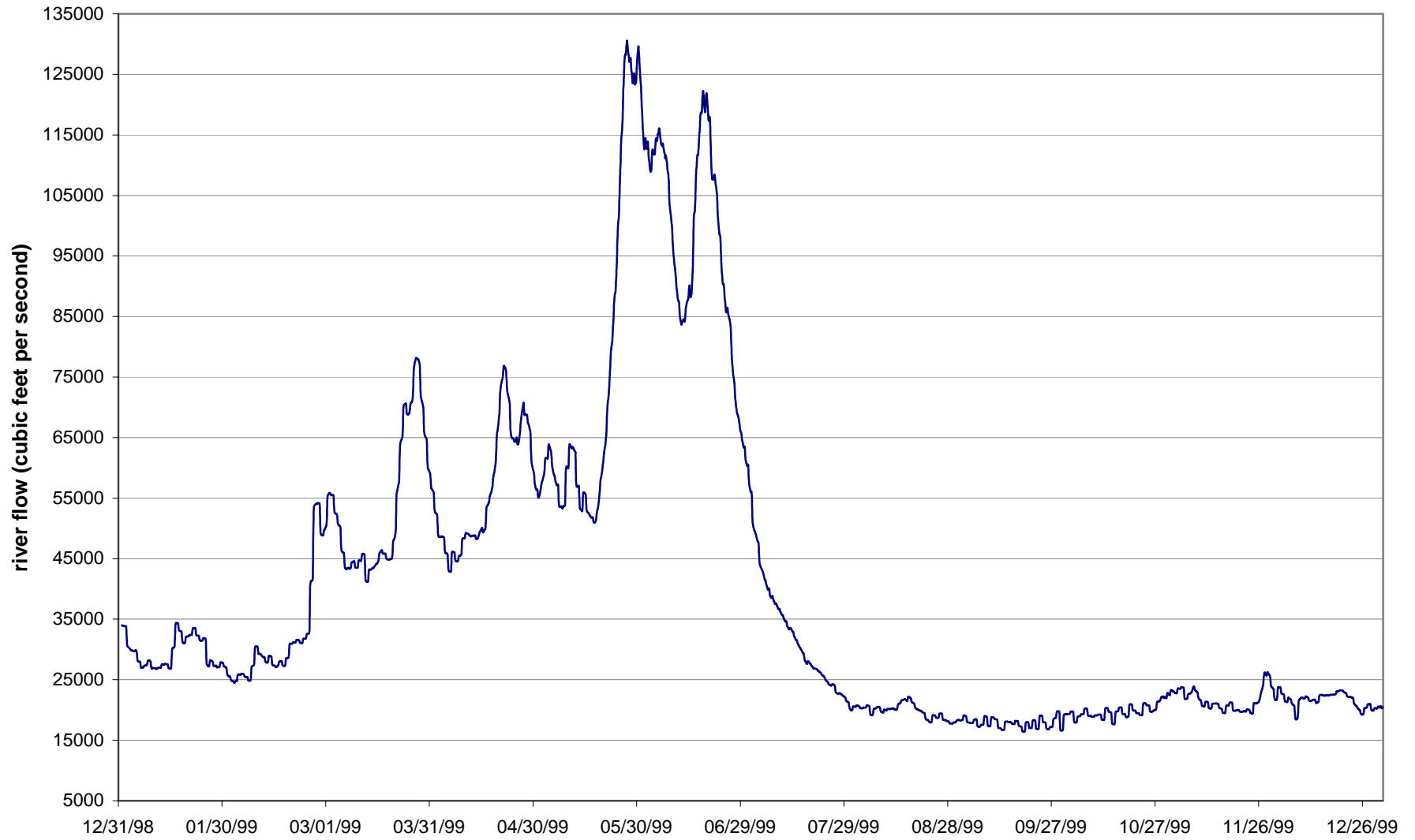
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 3



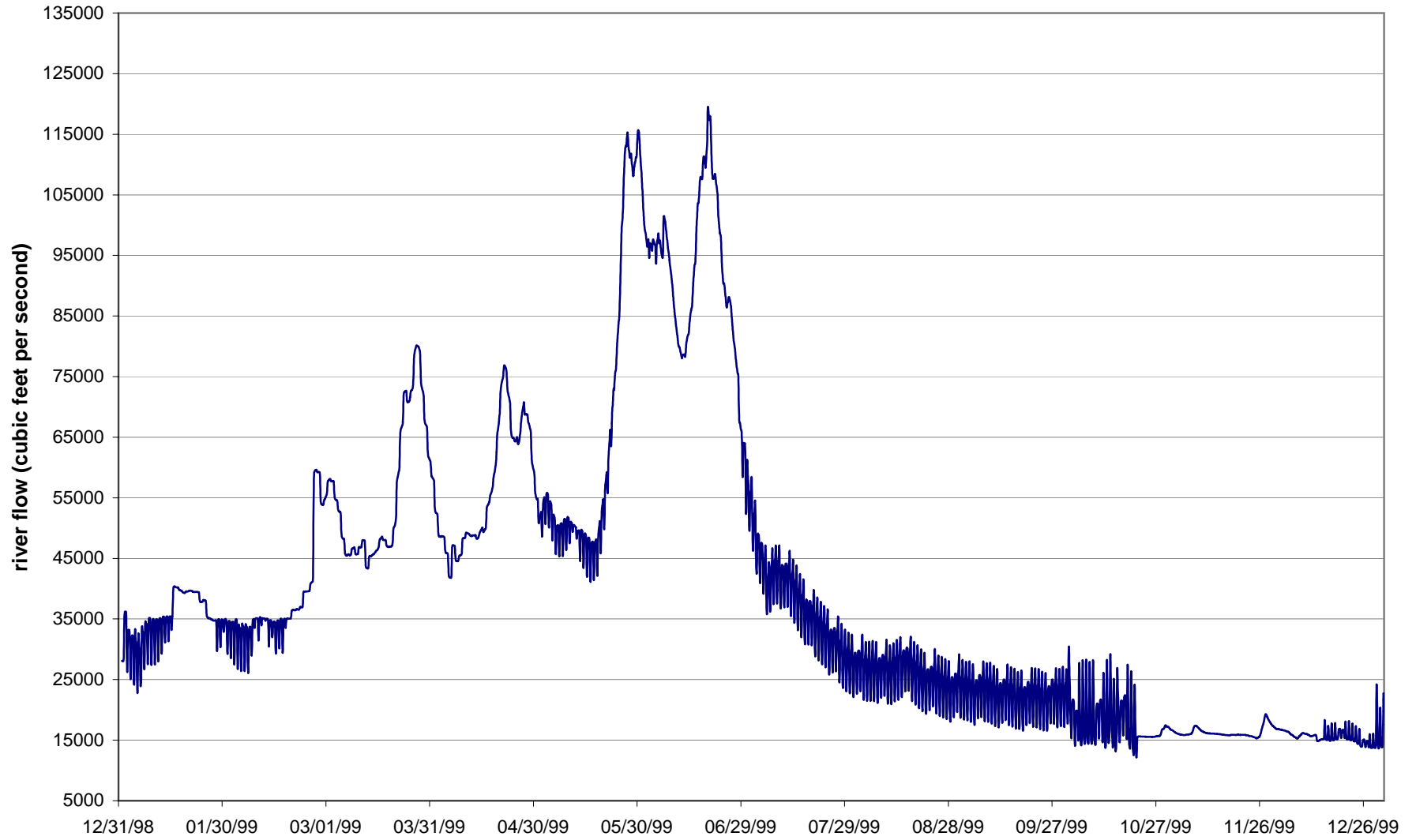
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 4



River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 5



River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1999
Scenario 6



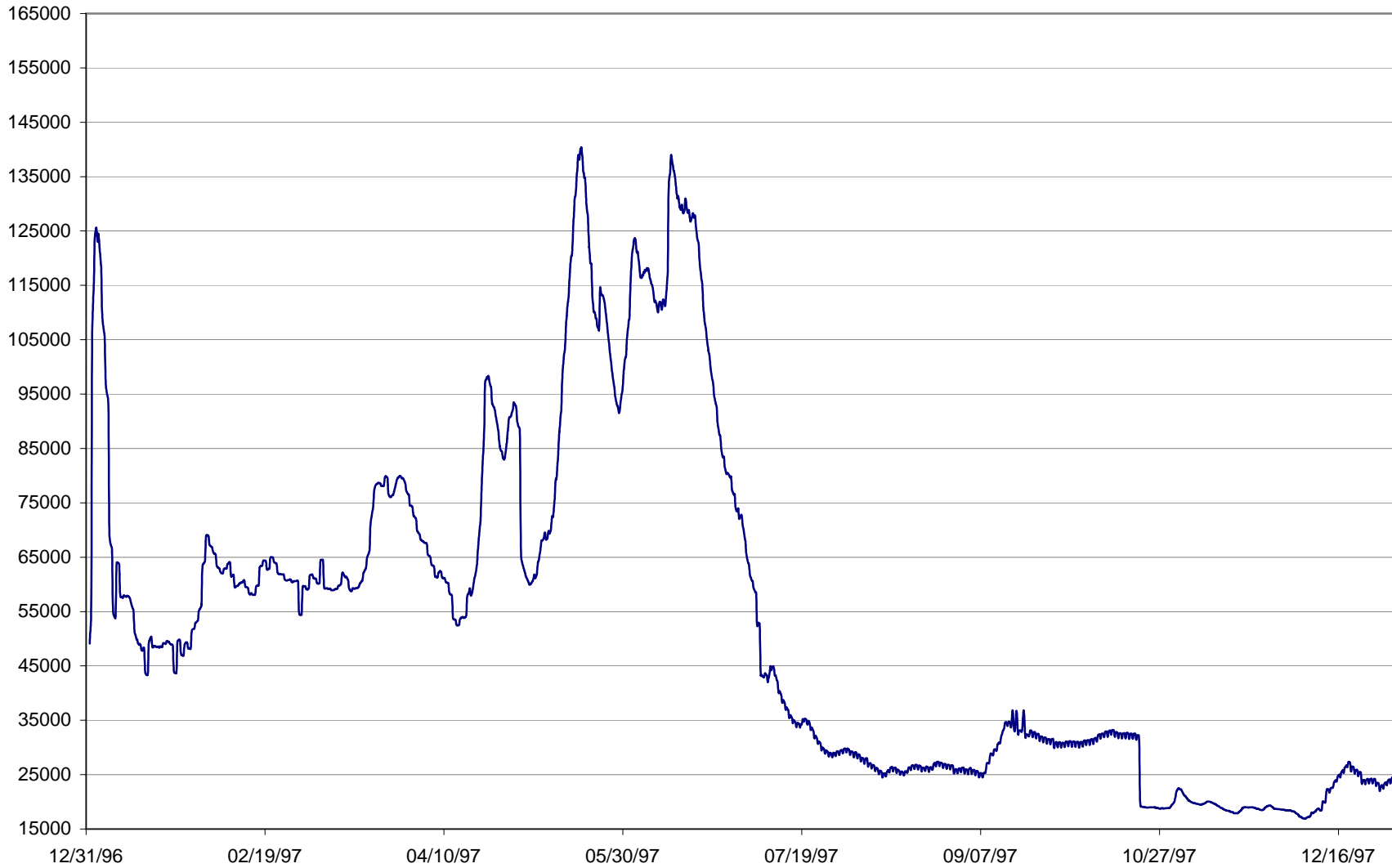
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Proposed Operations



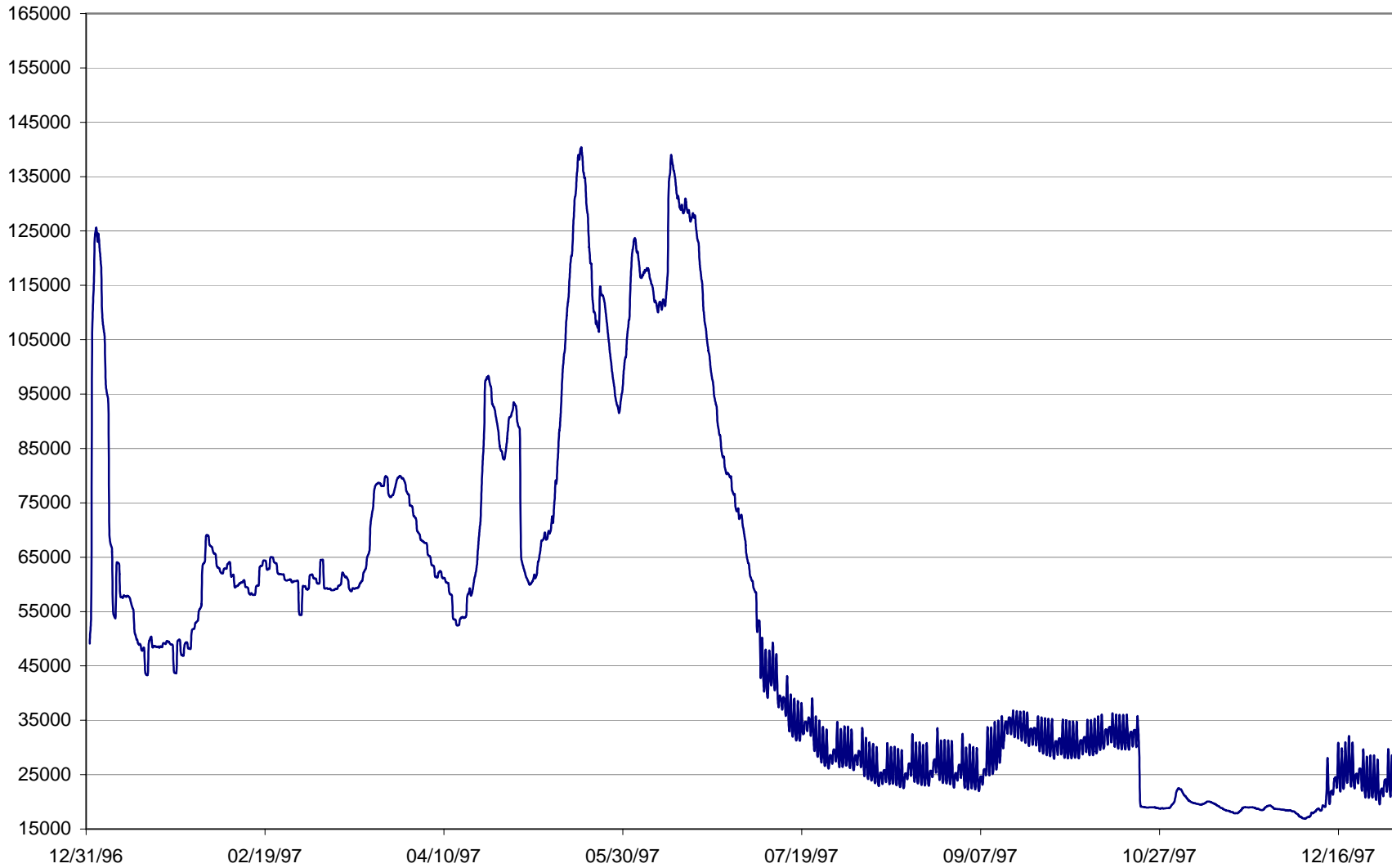
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 1(a)



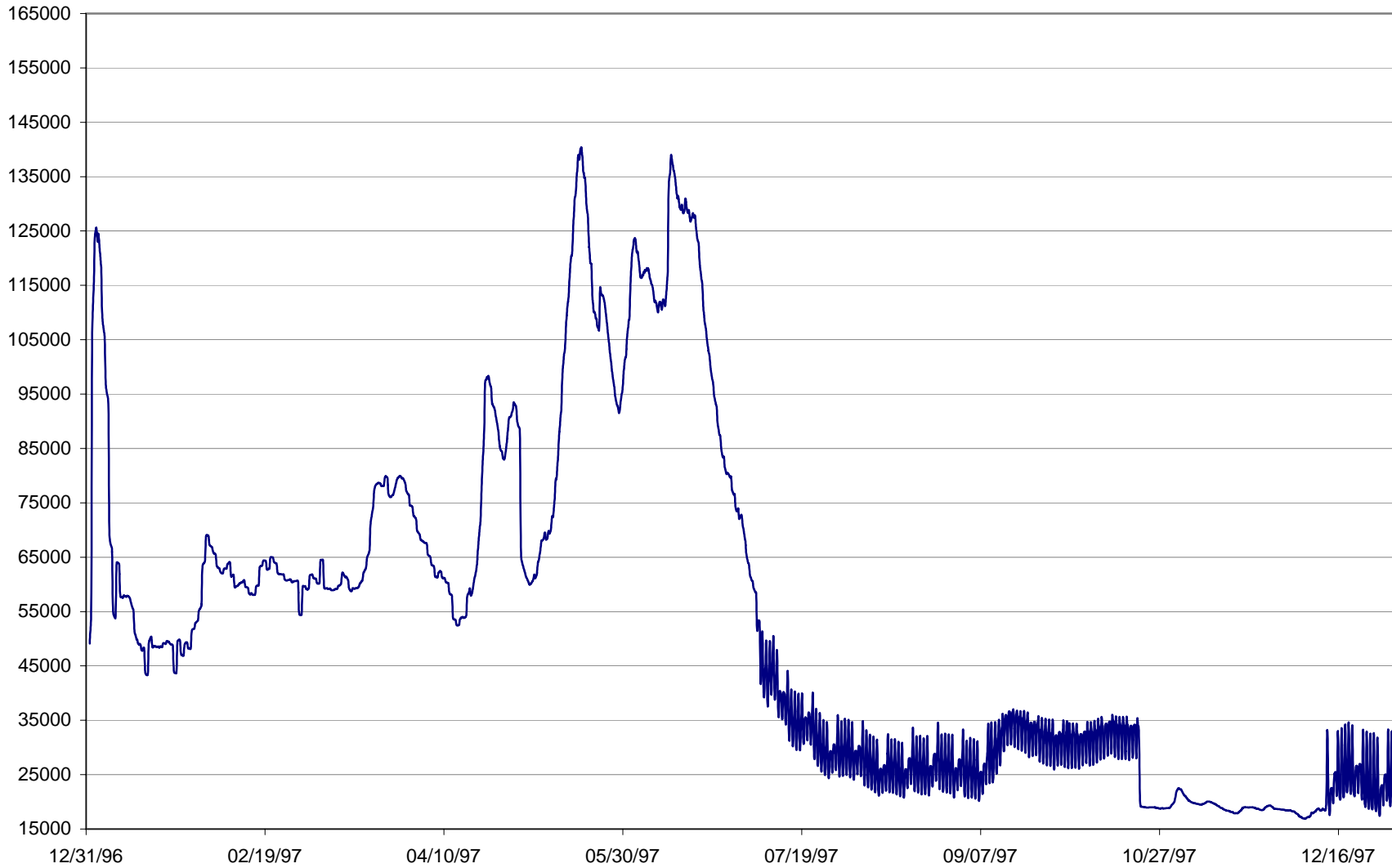
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 1(b)



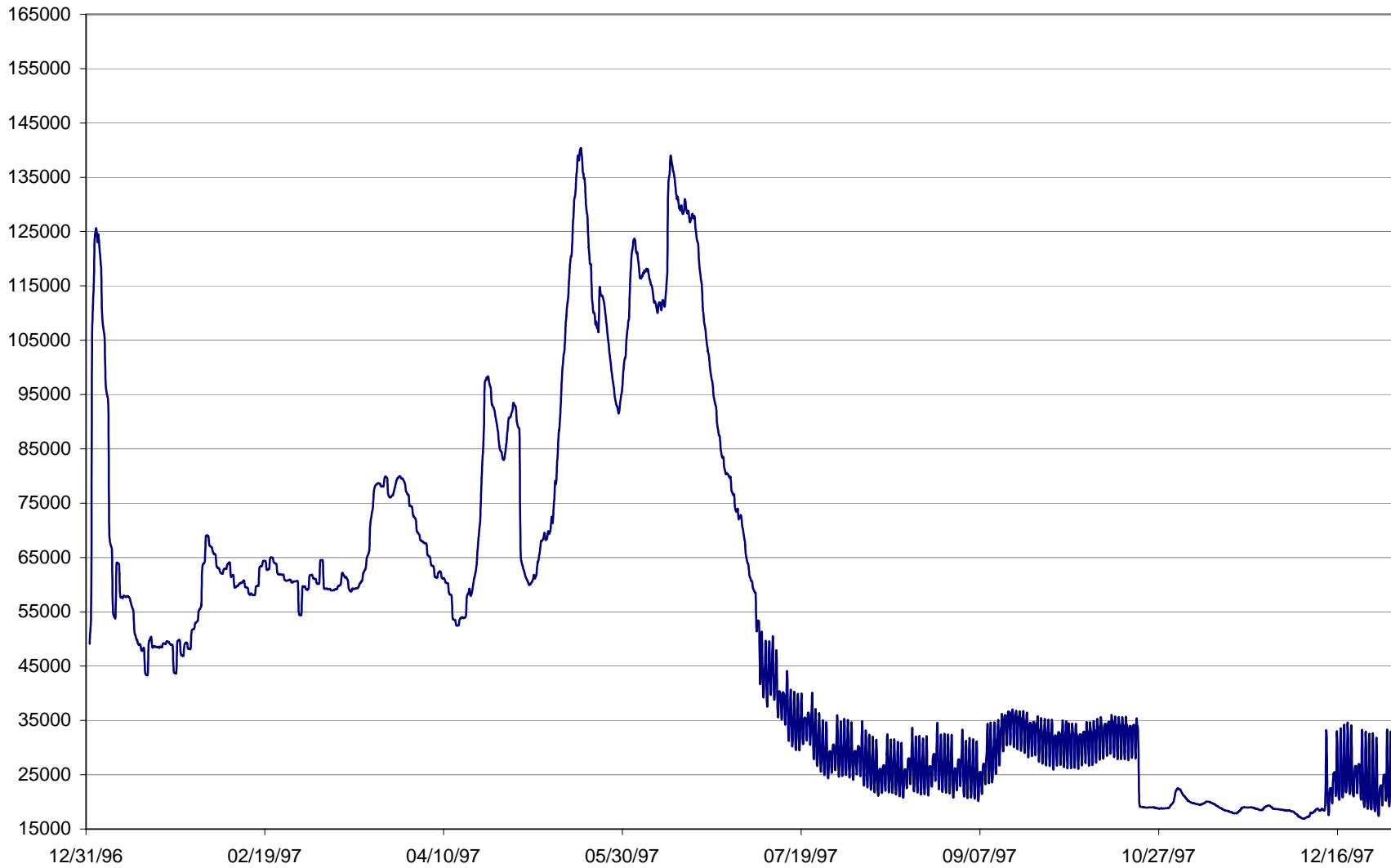
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 1(c)



River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 1(d)



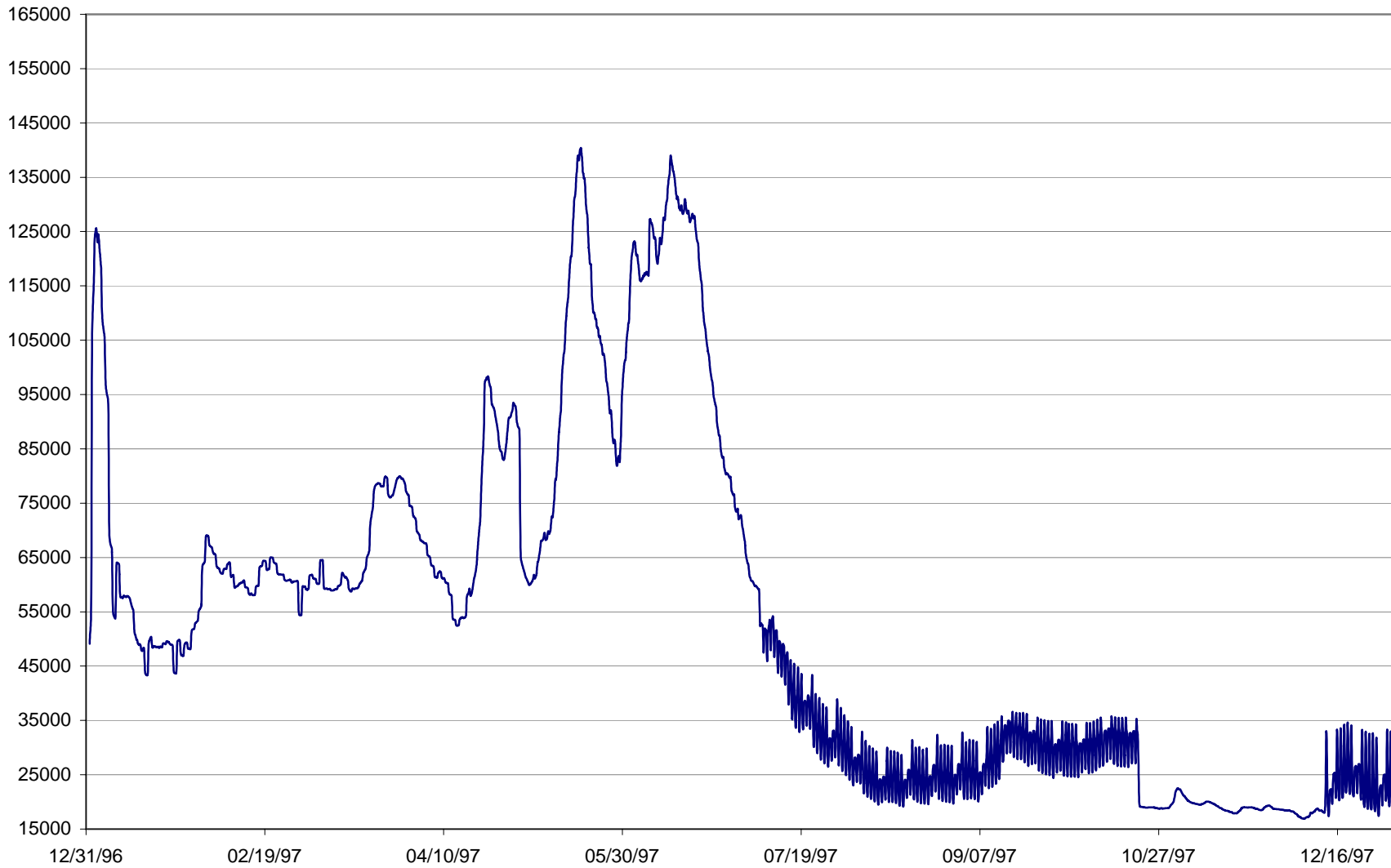
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 1(e)



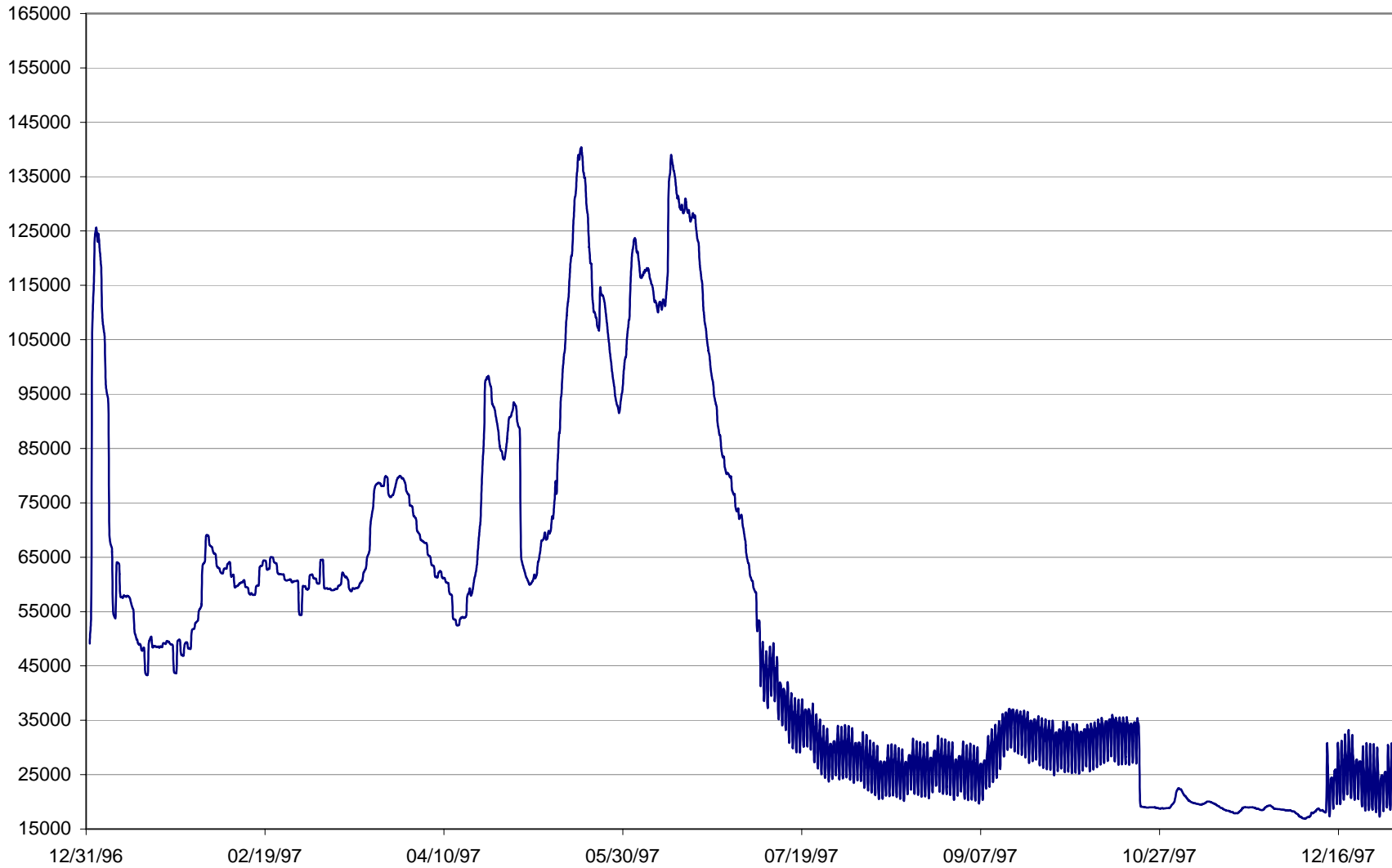
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 1(f)



River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 2



River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 3



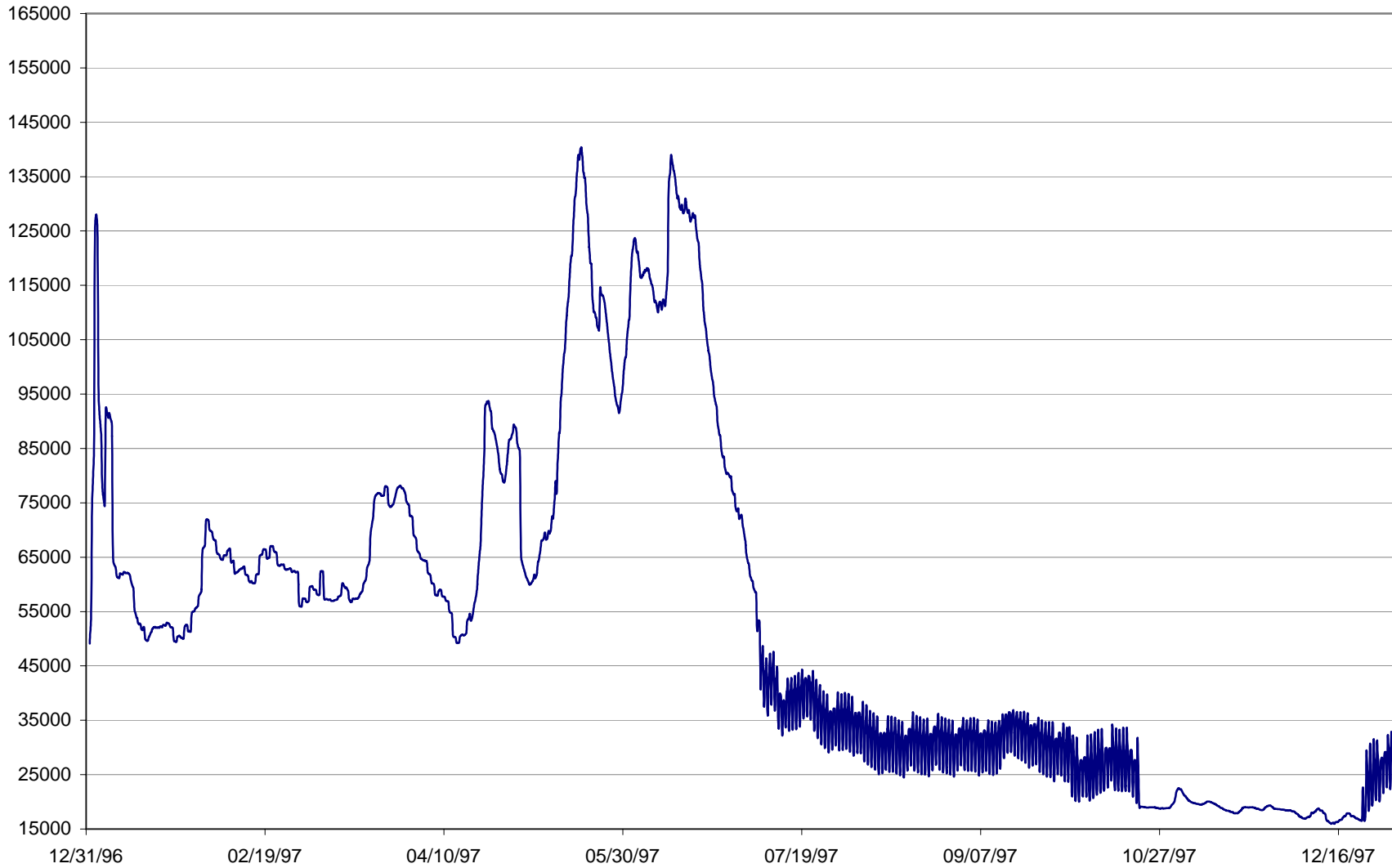
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 4



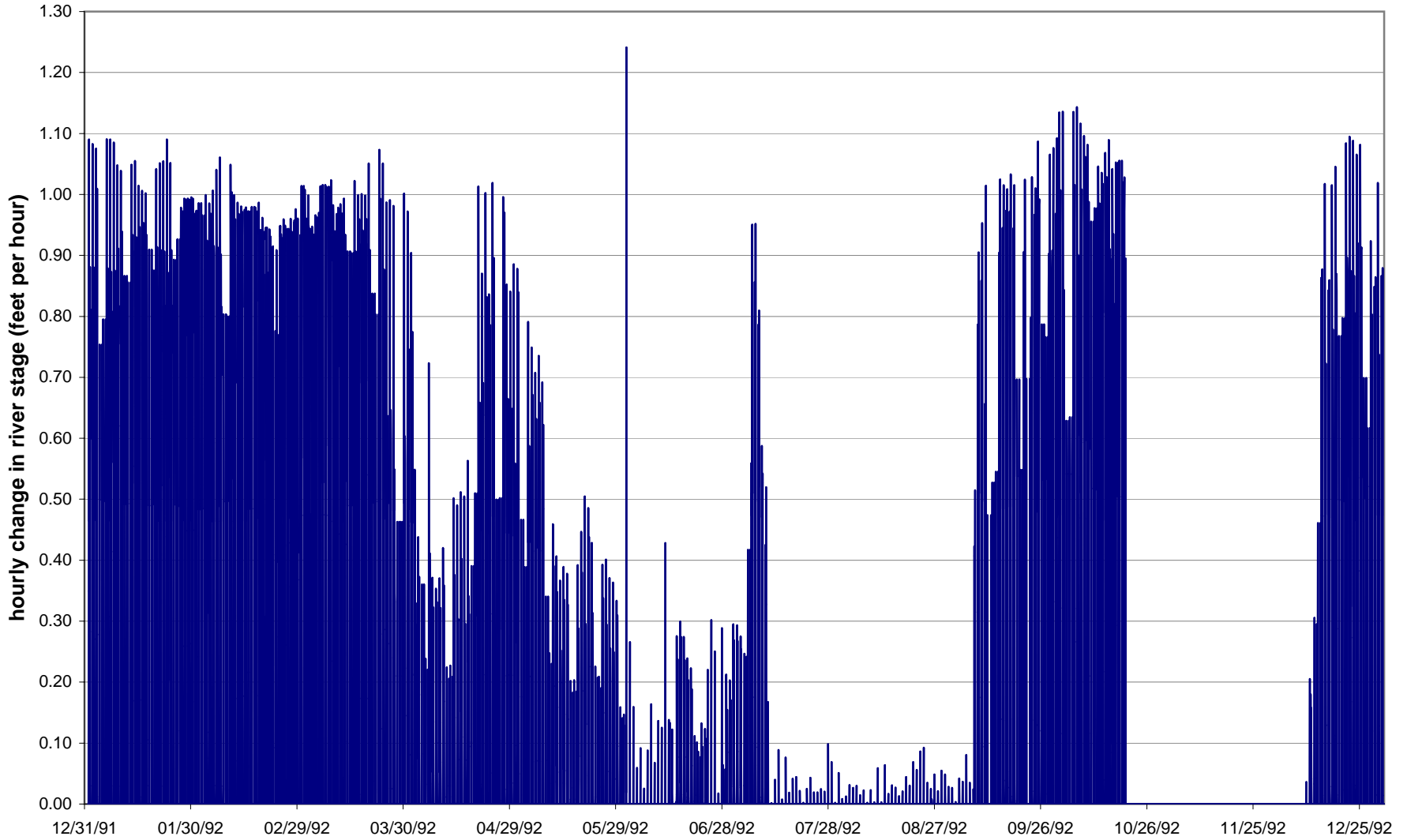
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 5



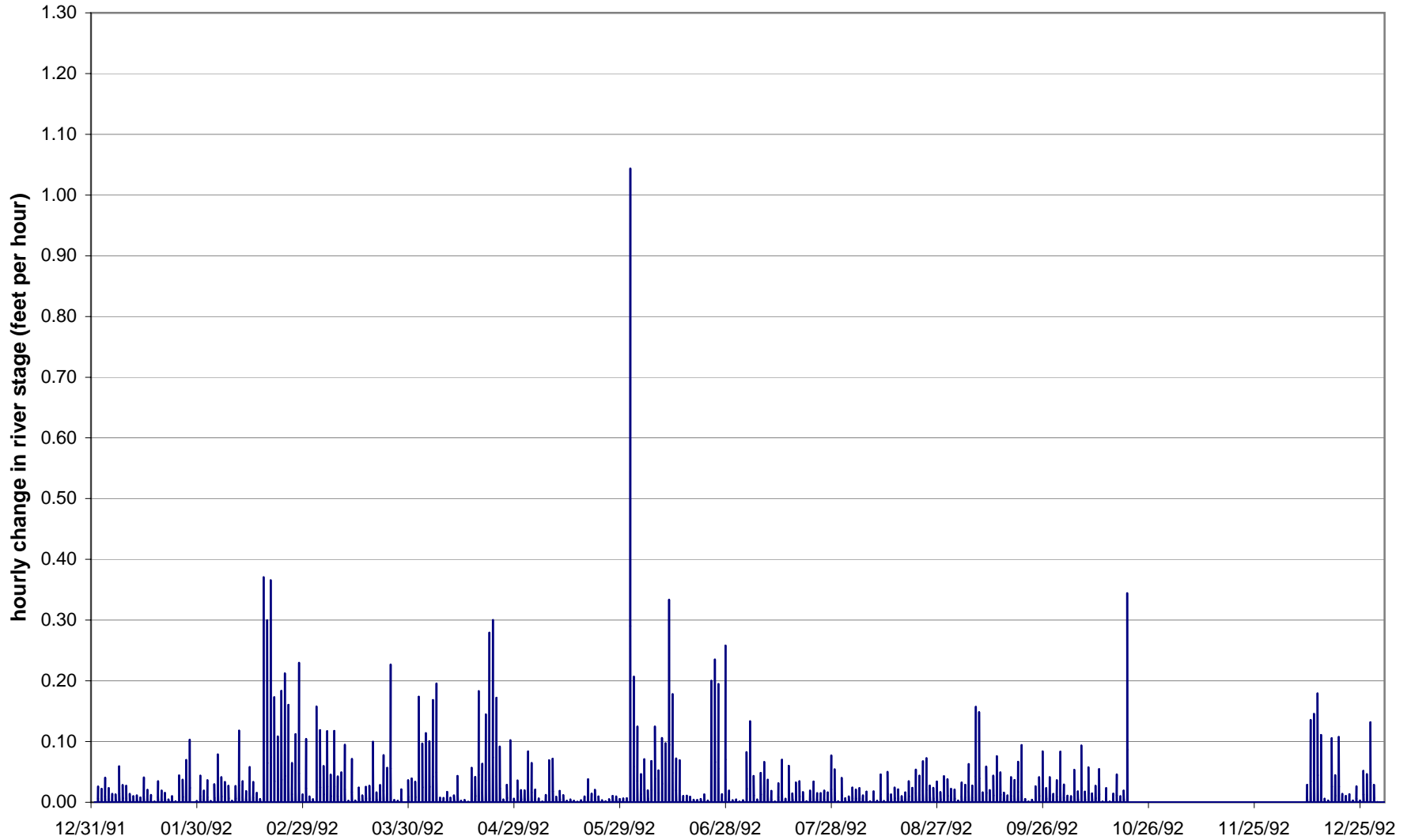
River flows as predicted for China Gardens Rapids gage (no. 13317660)
Representative year - 1997
Scenario 6



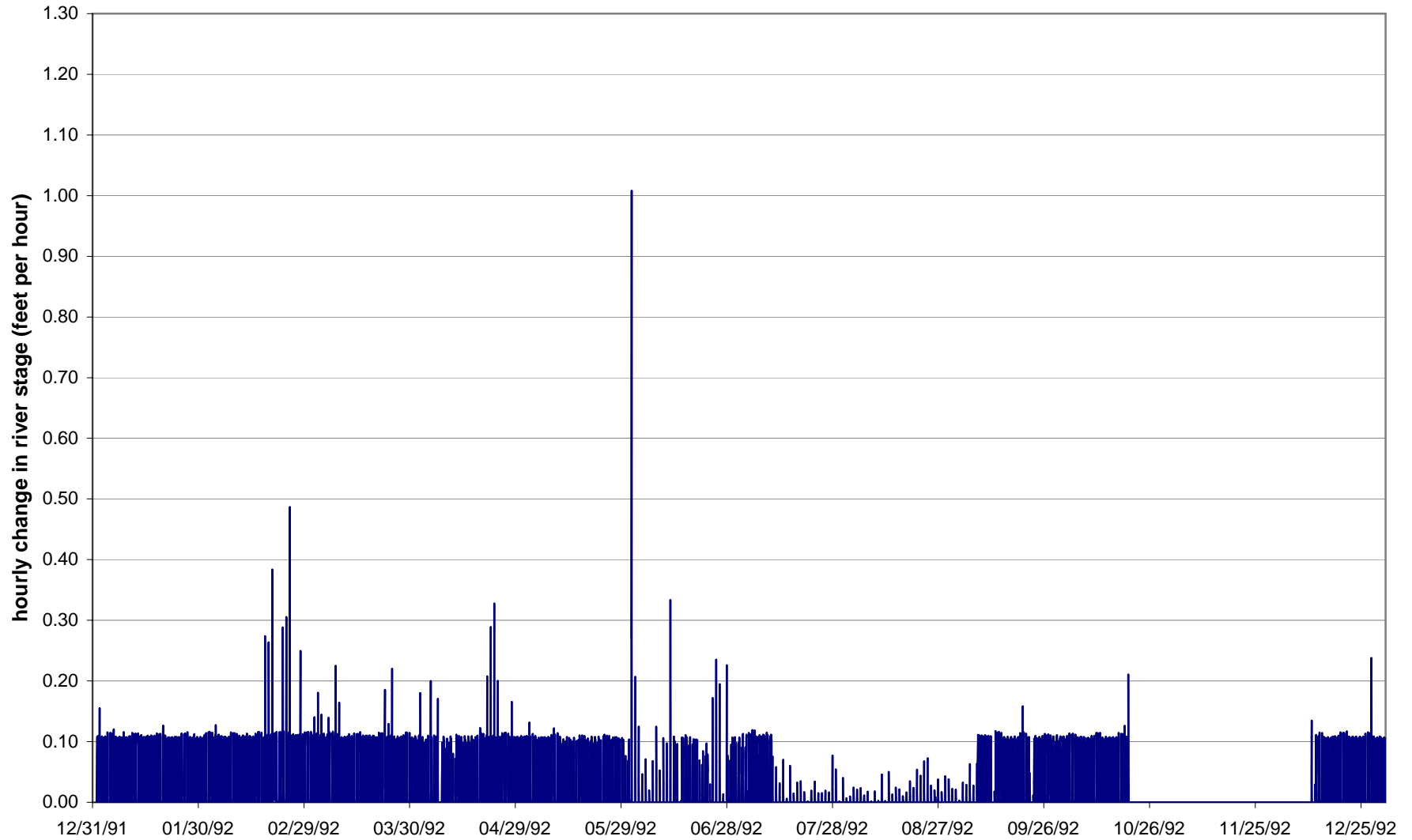
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Proposed Operations



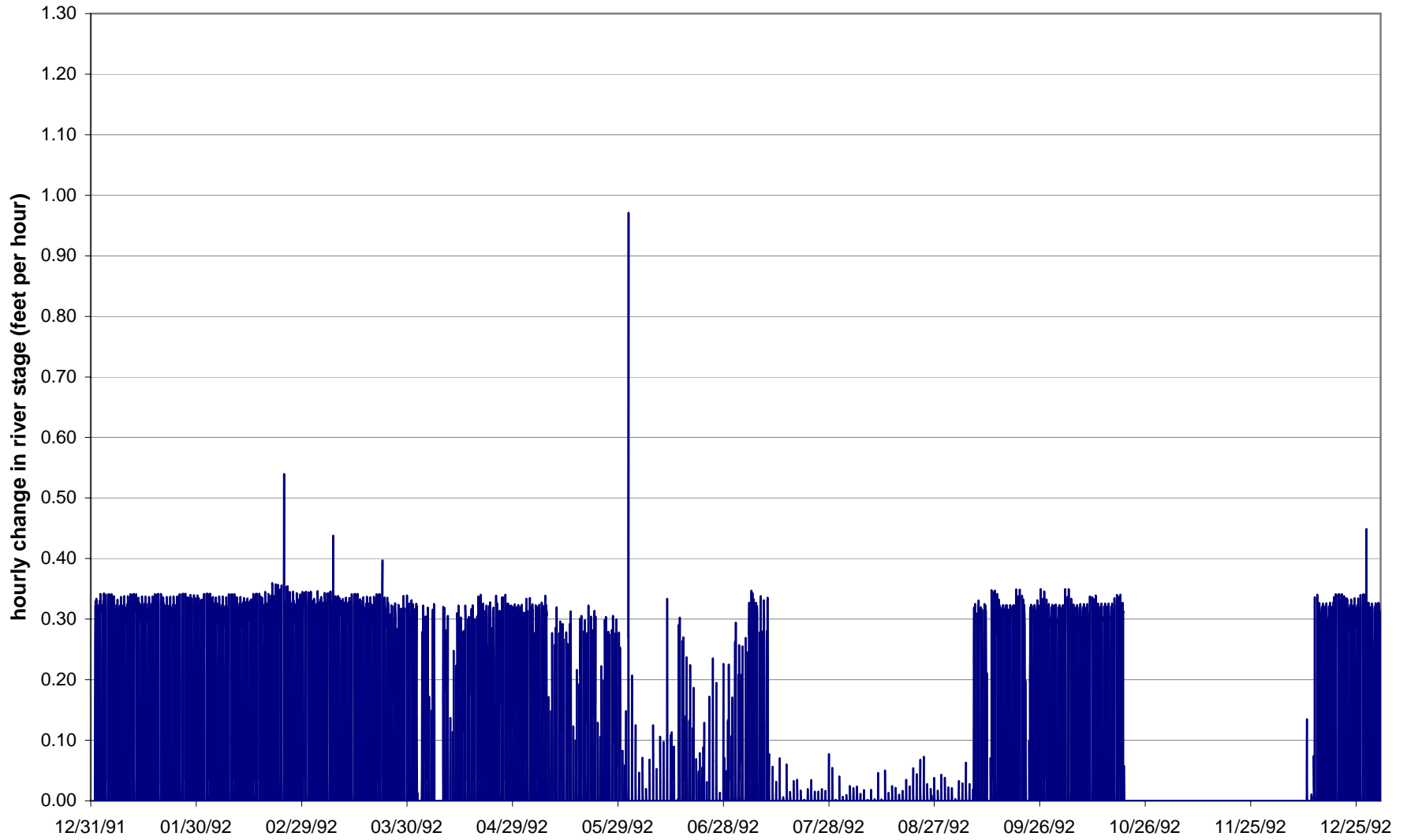
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 1(a)



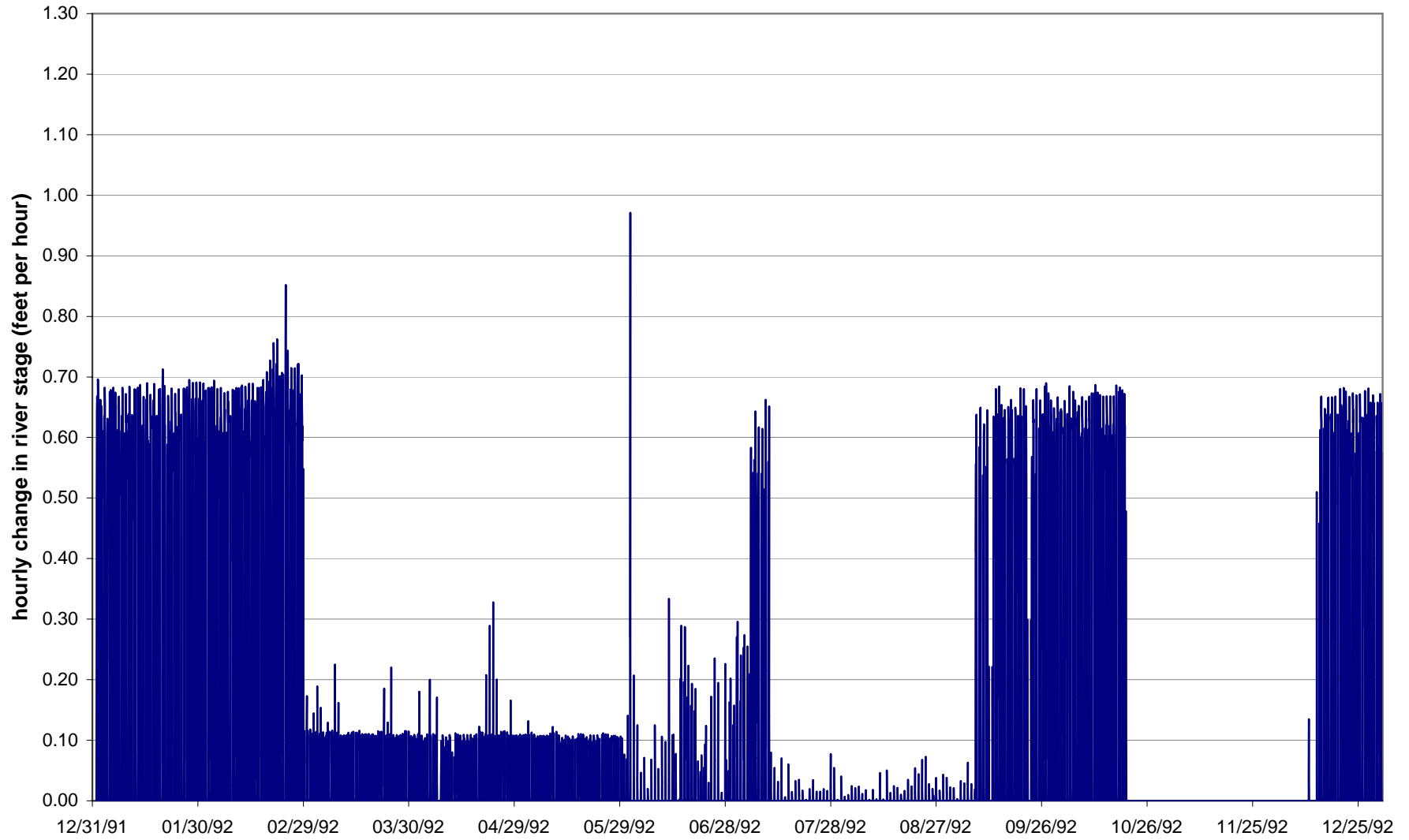
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 1(b)



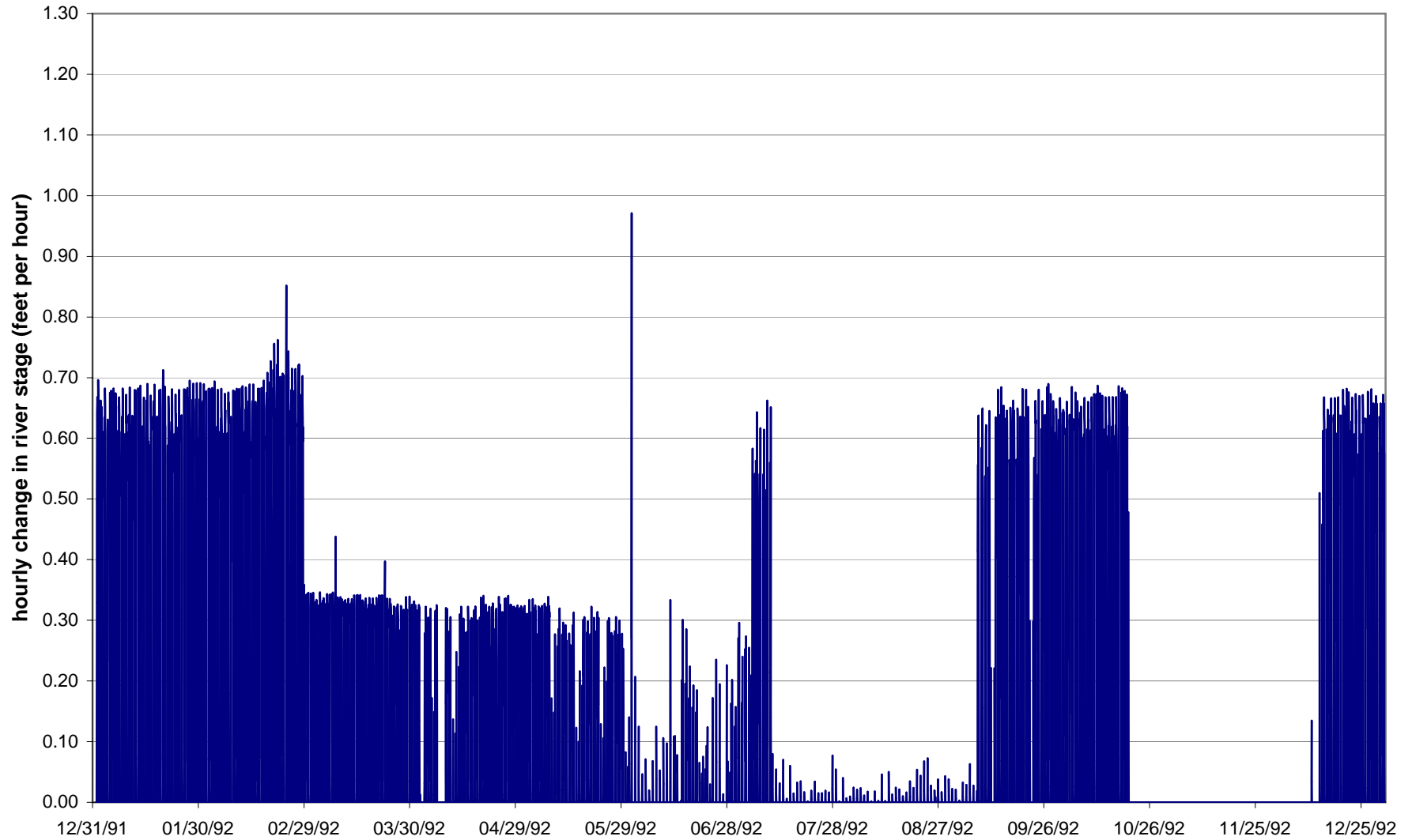
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 1(c)



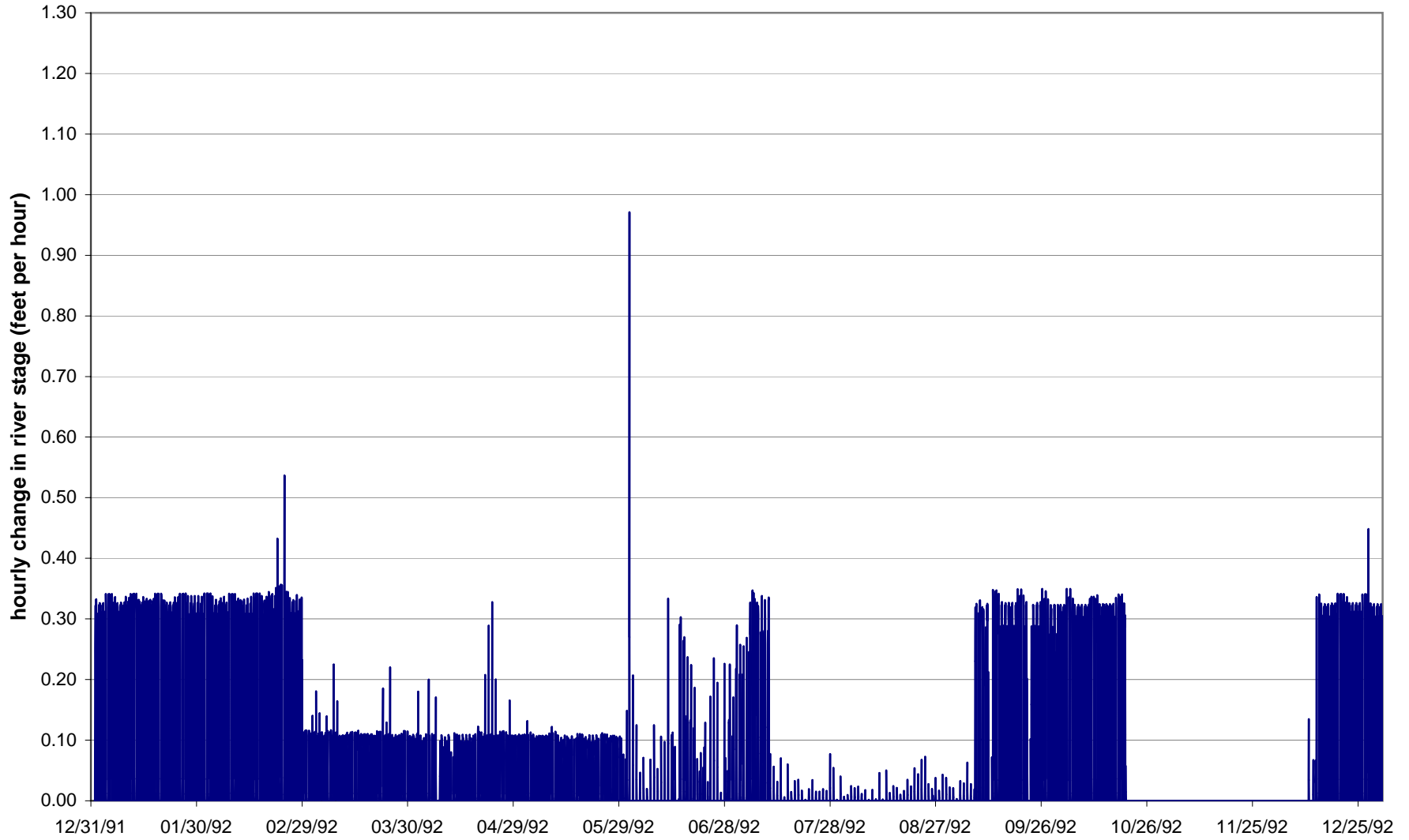
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 1(d)



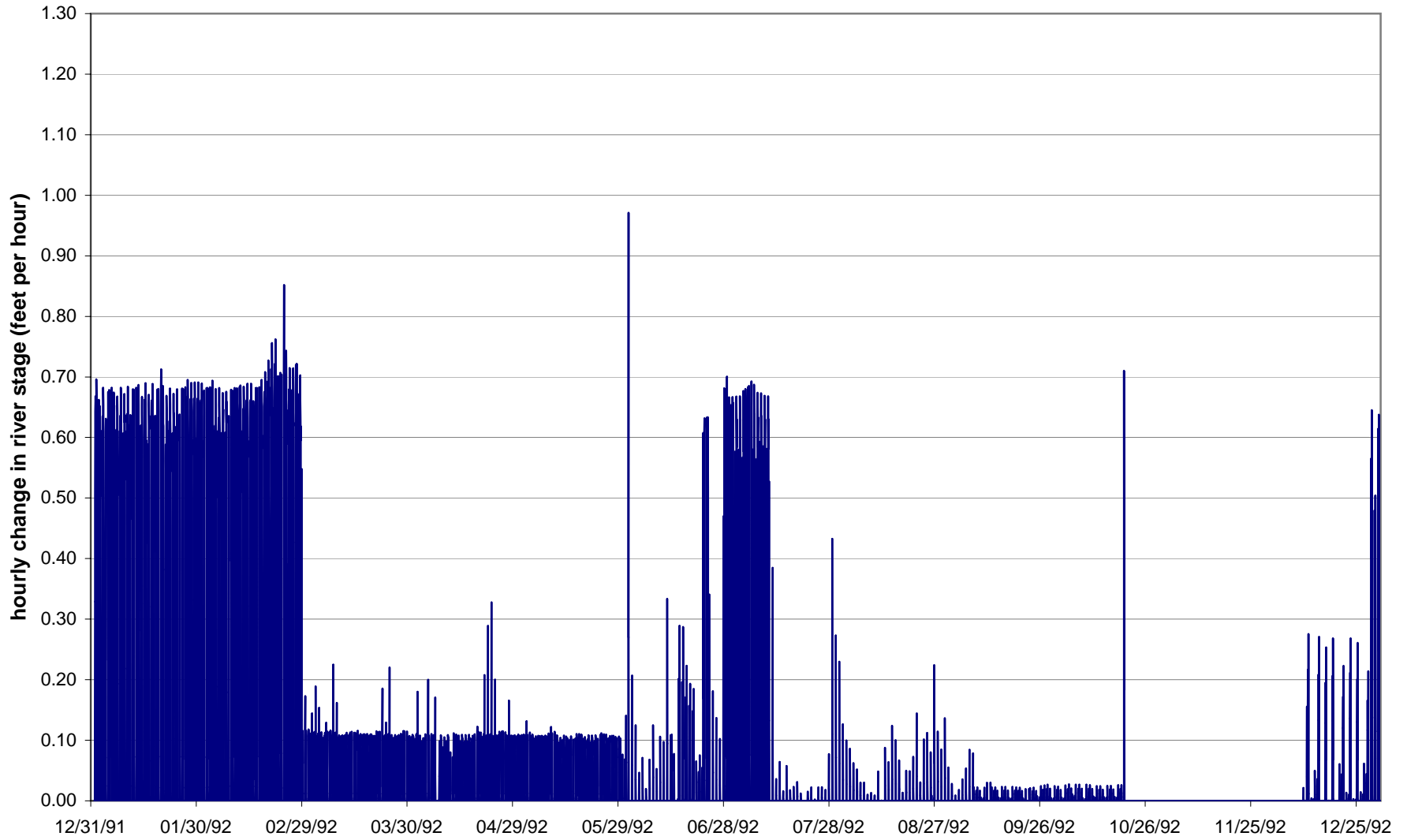
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 1(e)



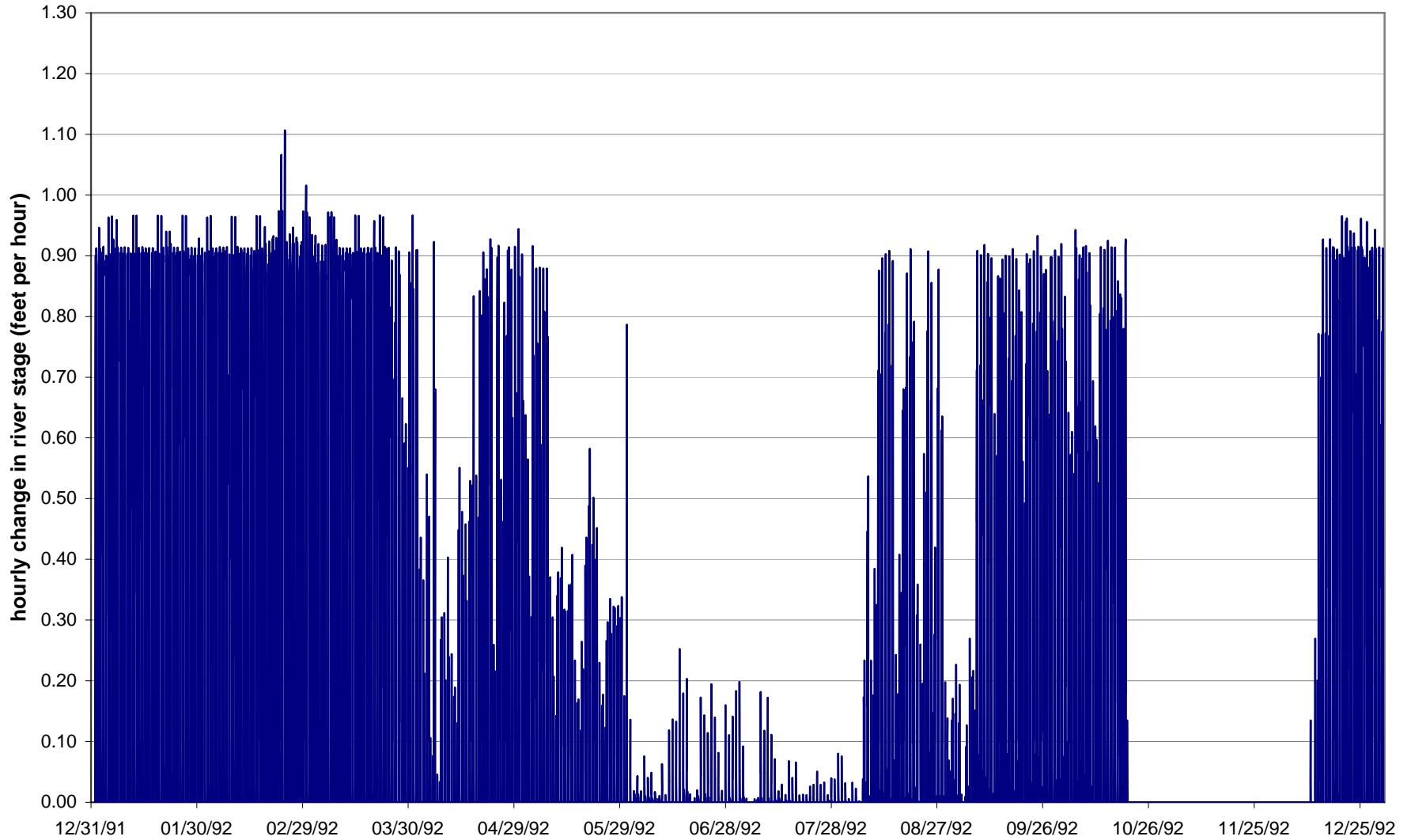
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 1(f)



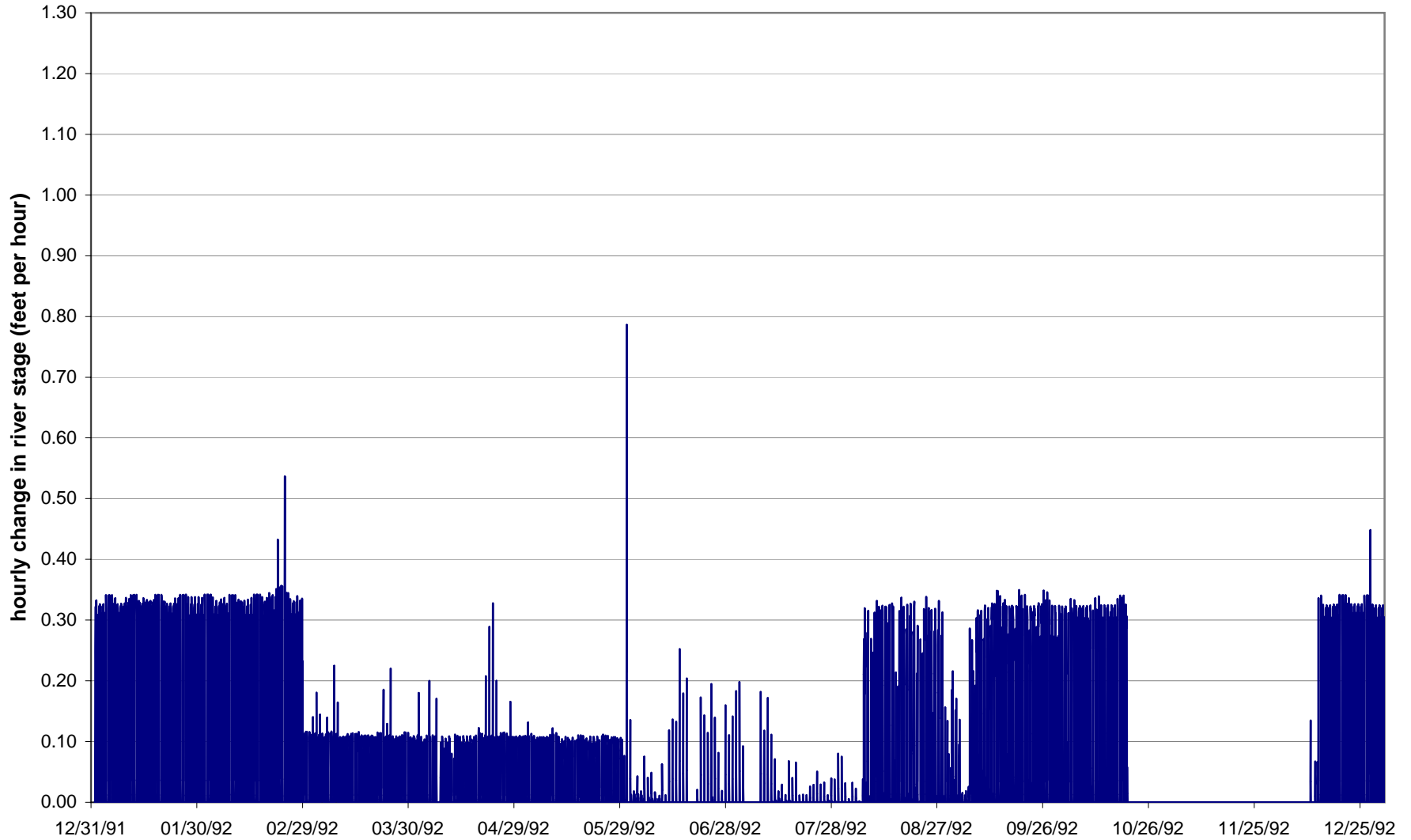
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 2



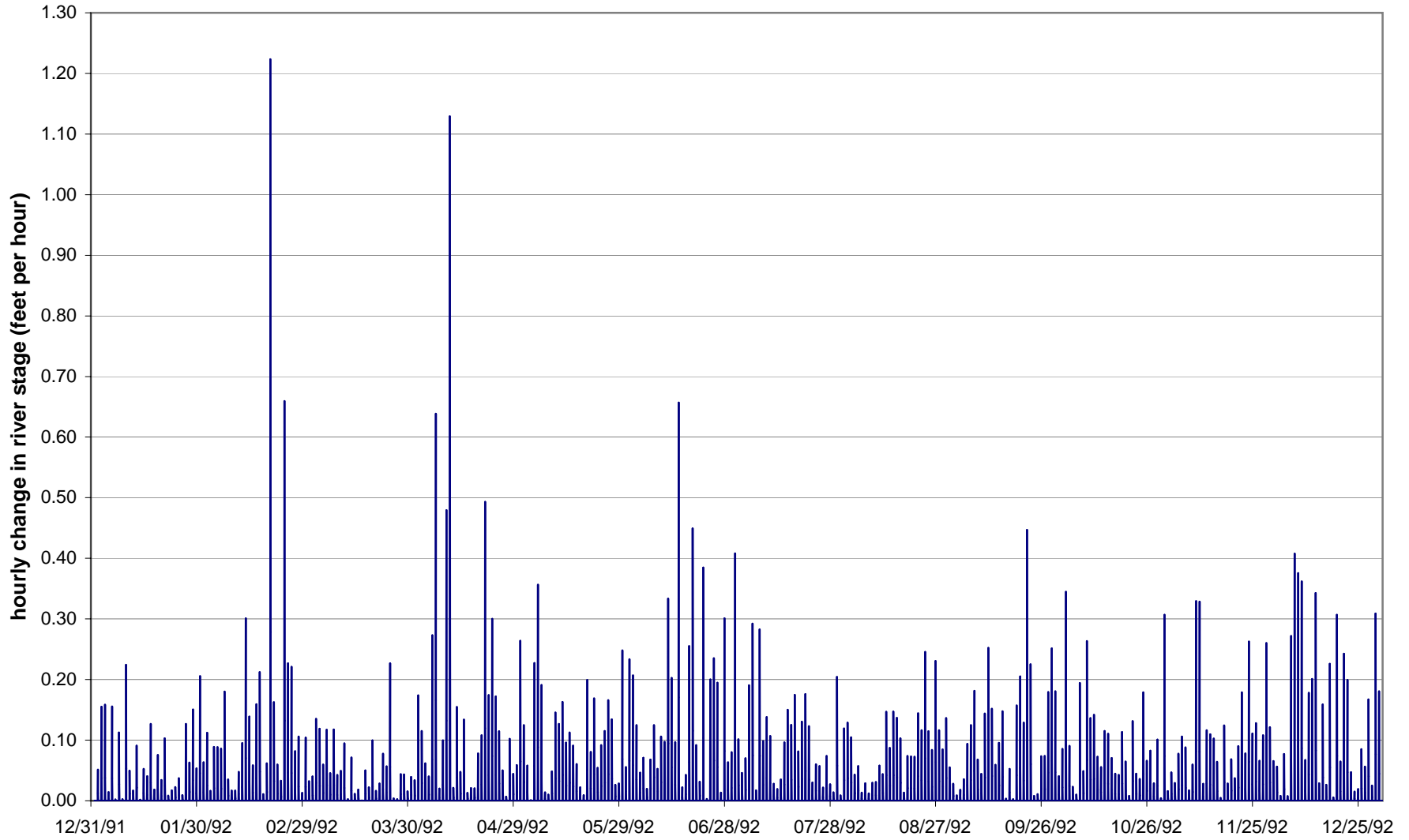
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 3



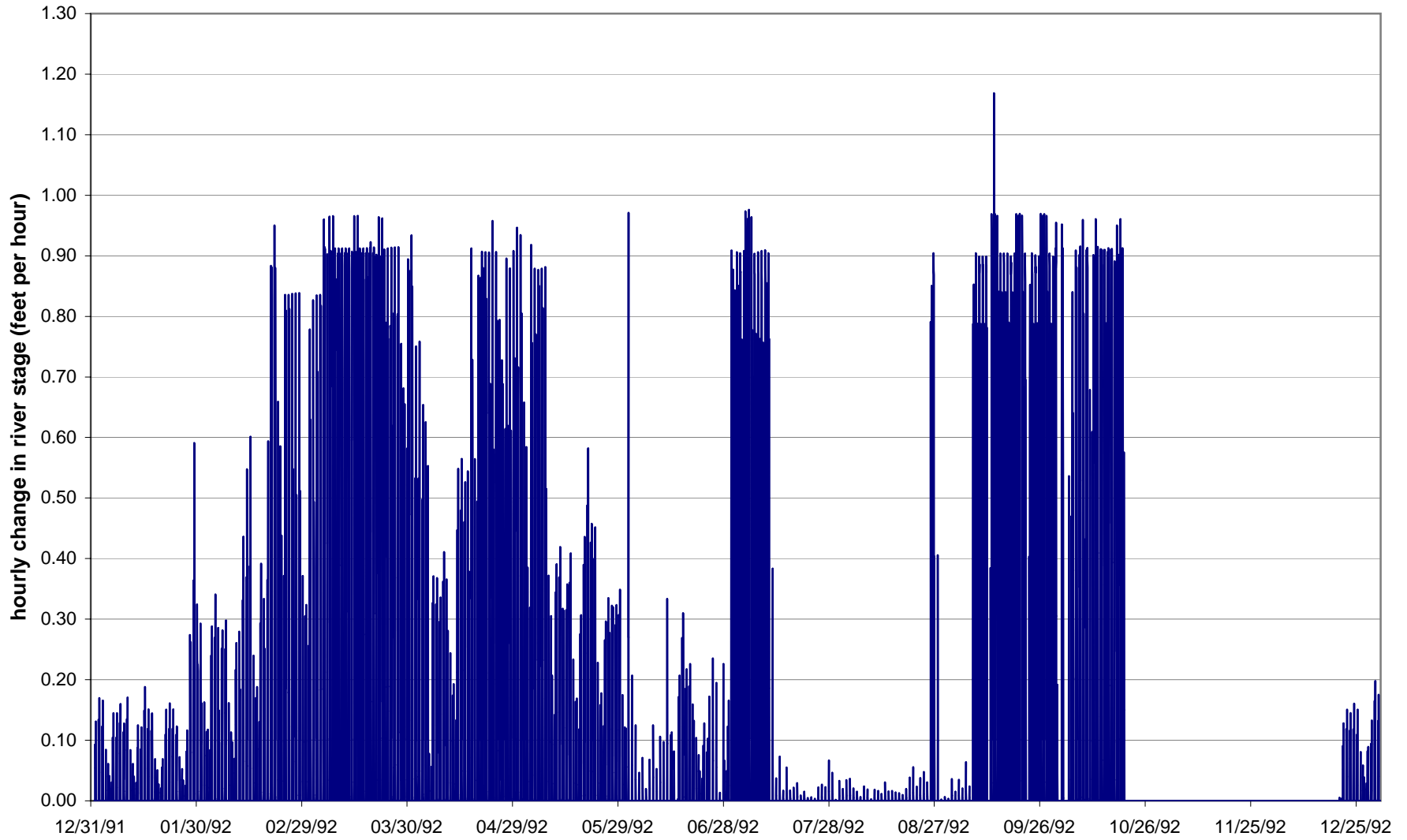
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 4



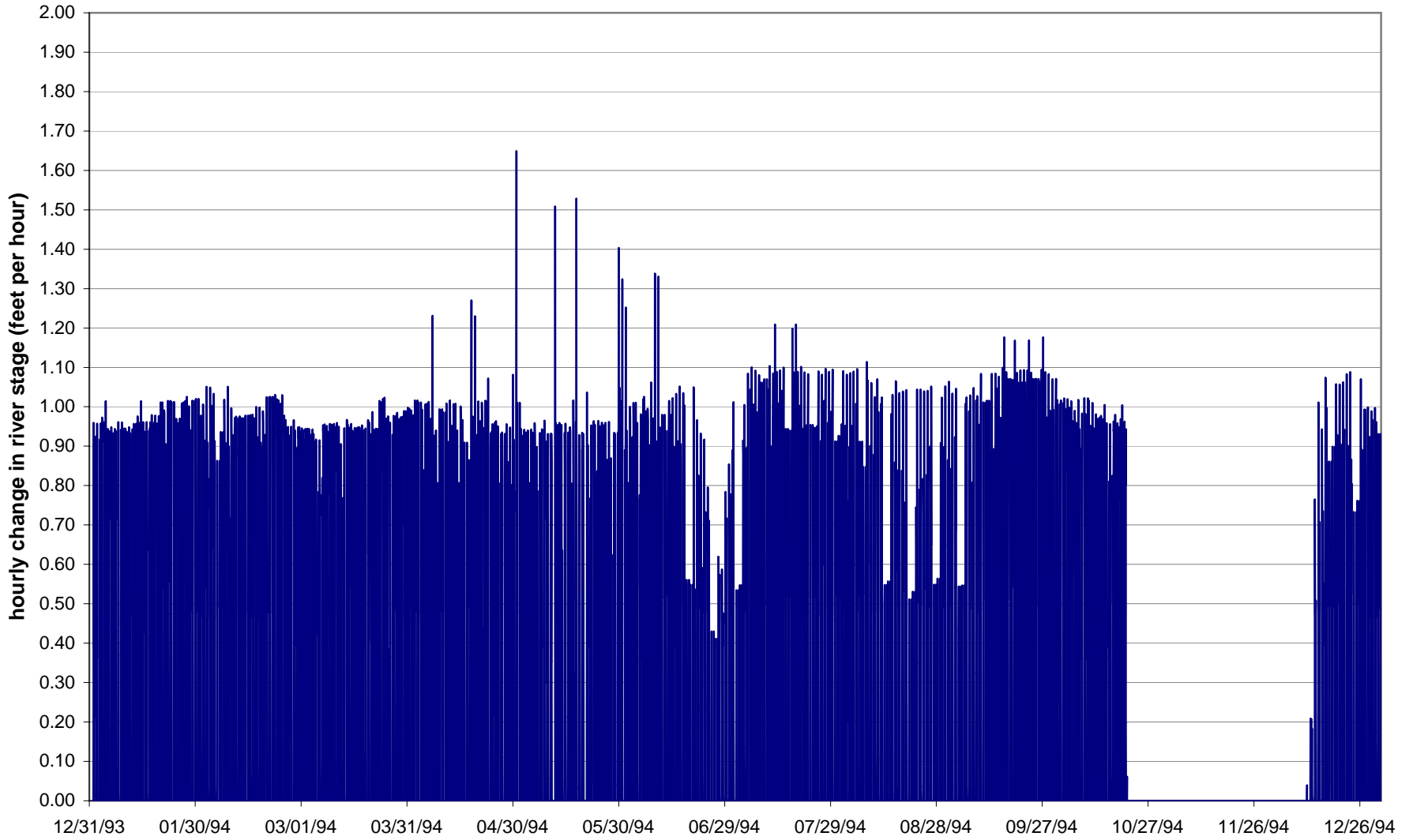
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 5



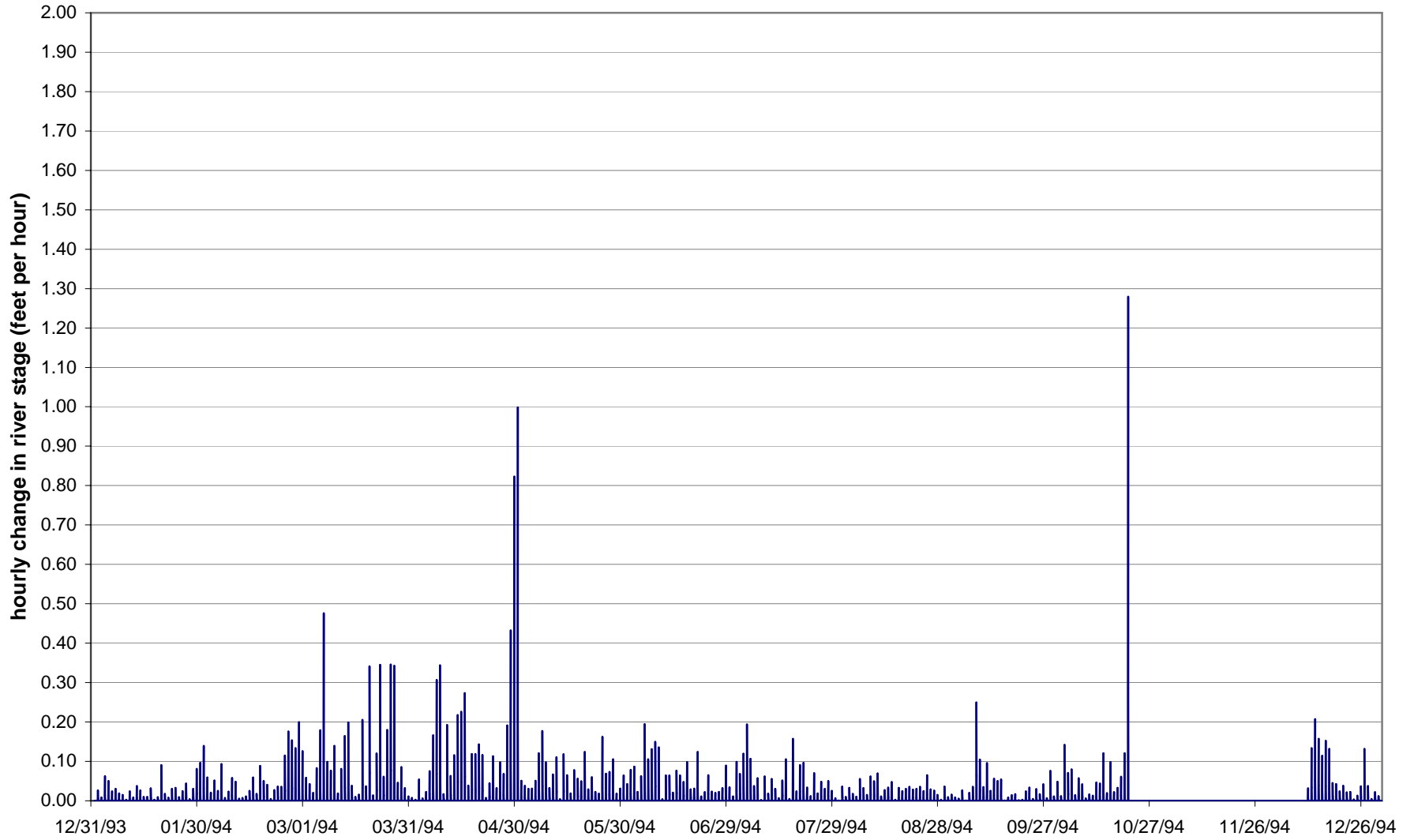
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1992
Scenario 6



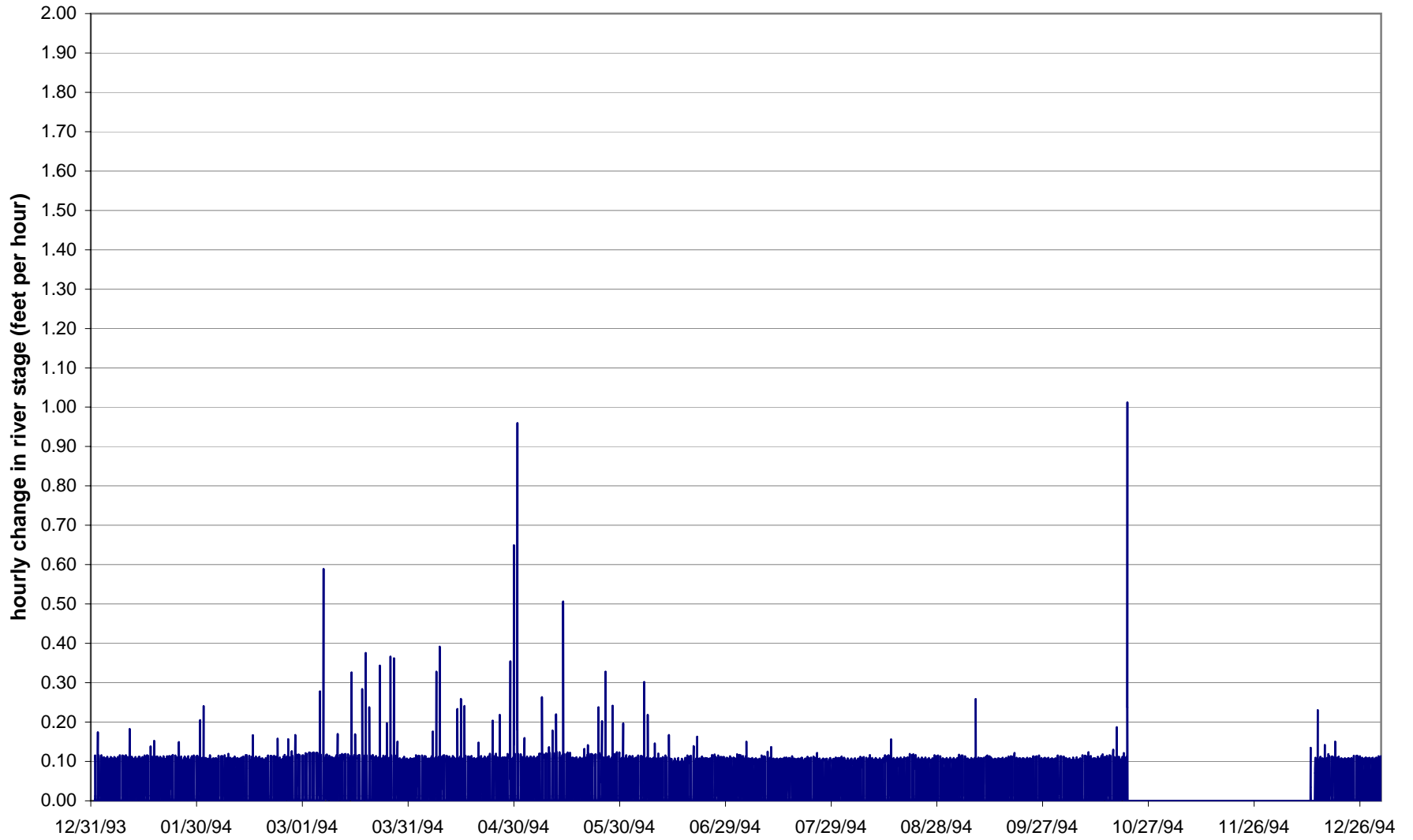
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Proposed Operations



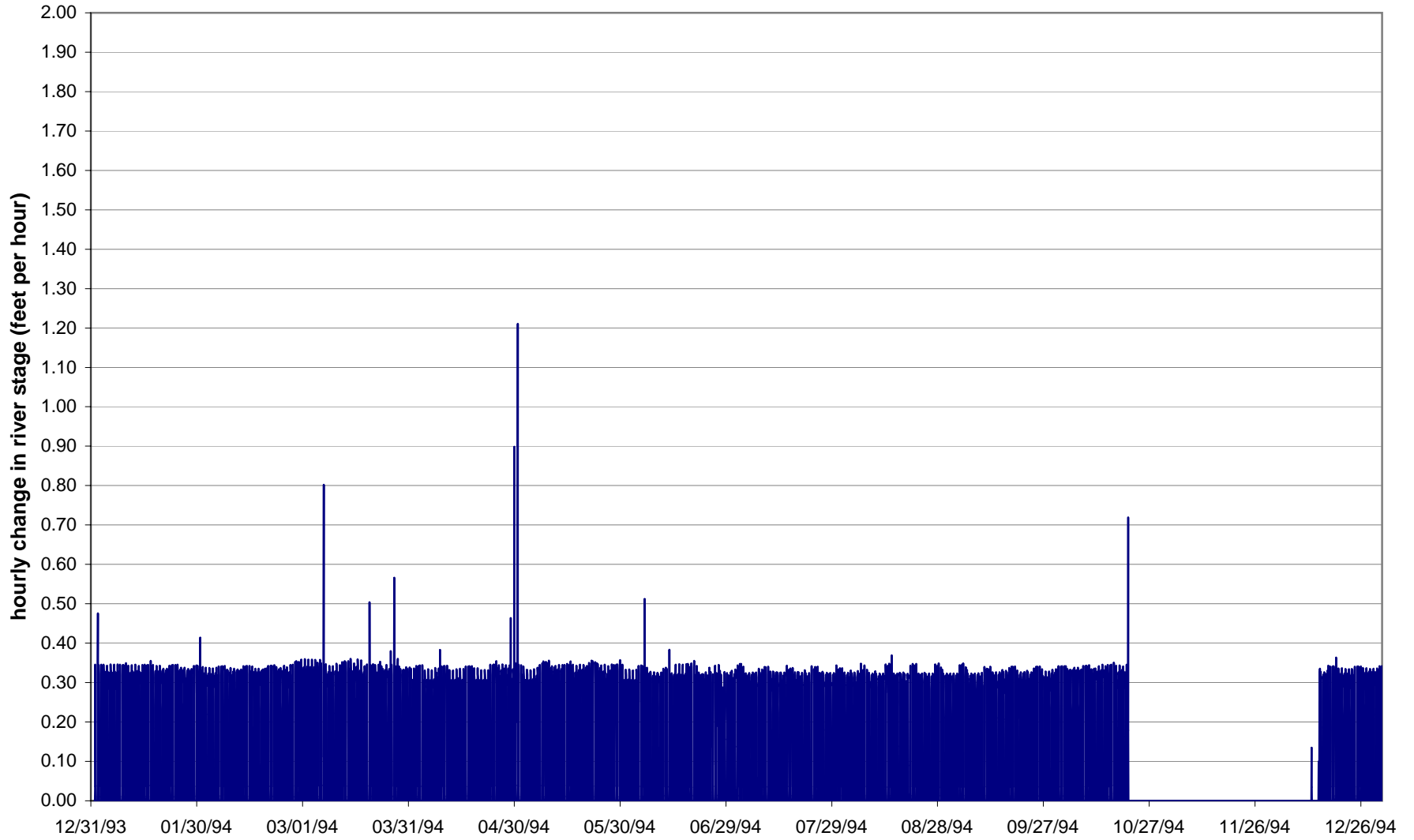
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 1(a)



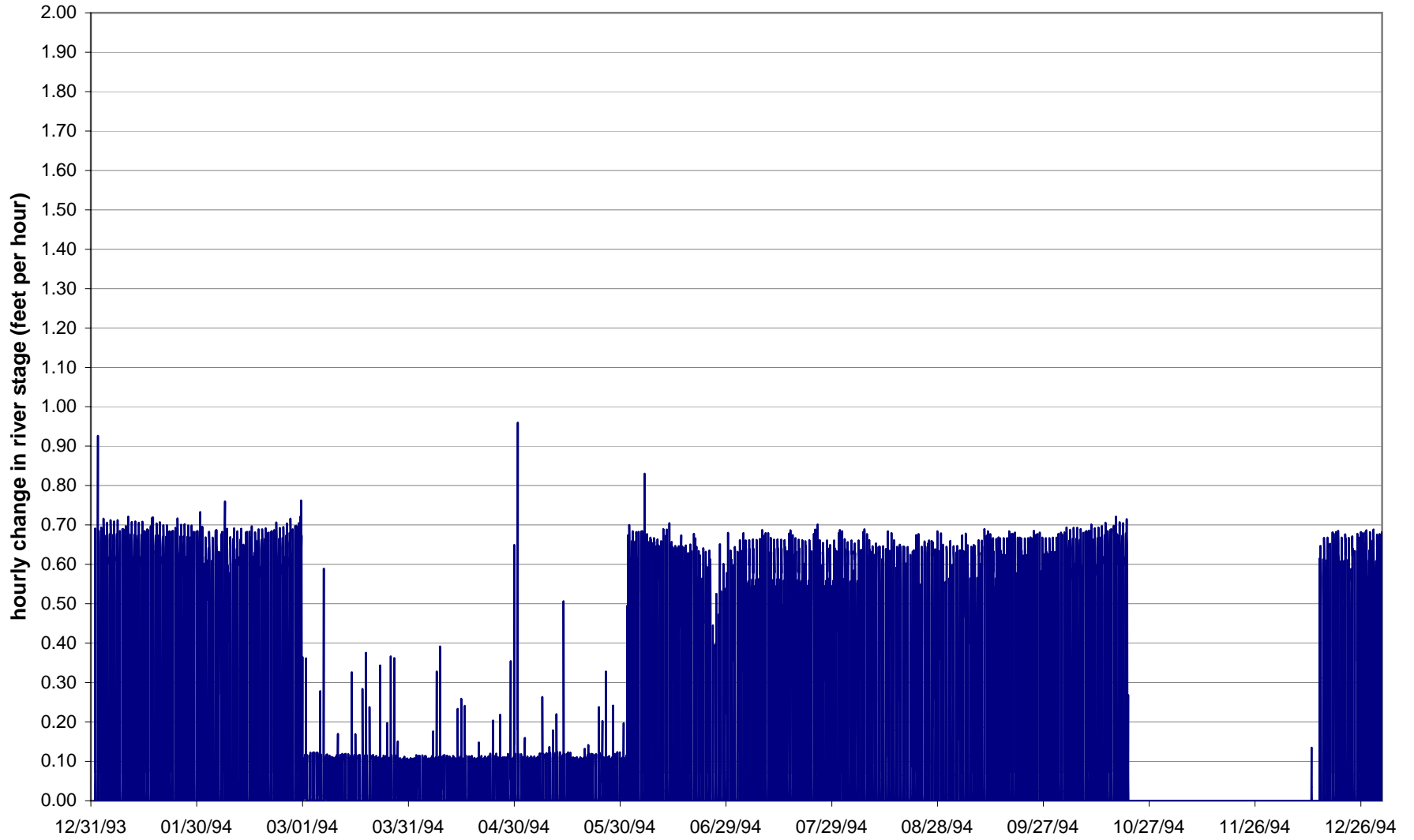
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 1(b)



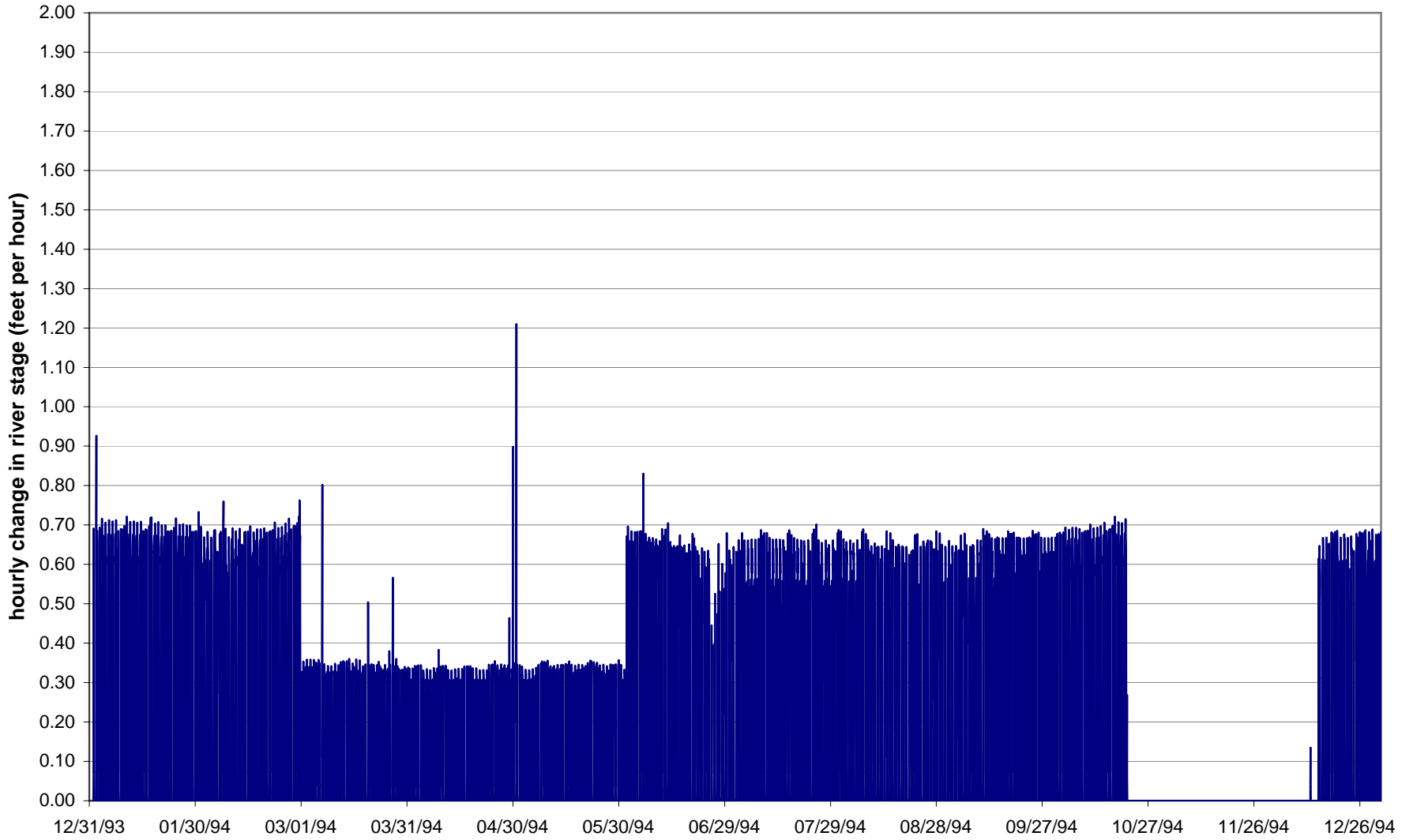
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 1(c)



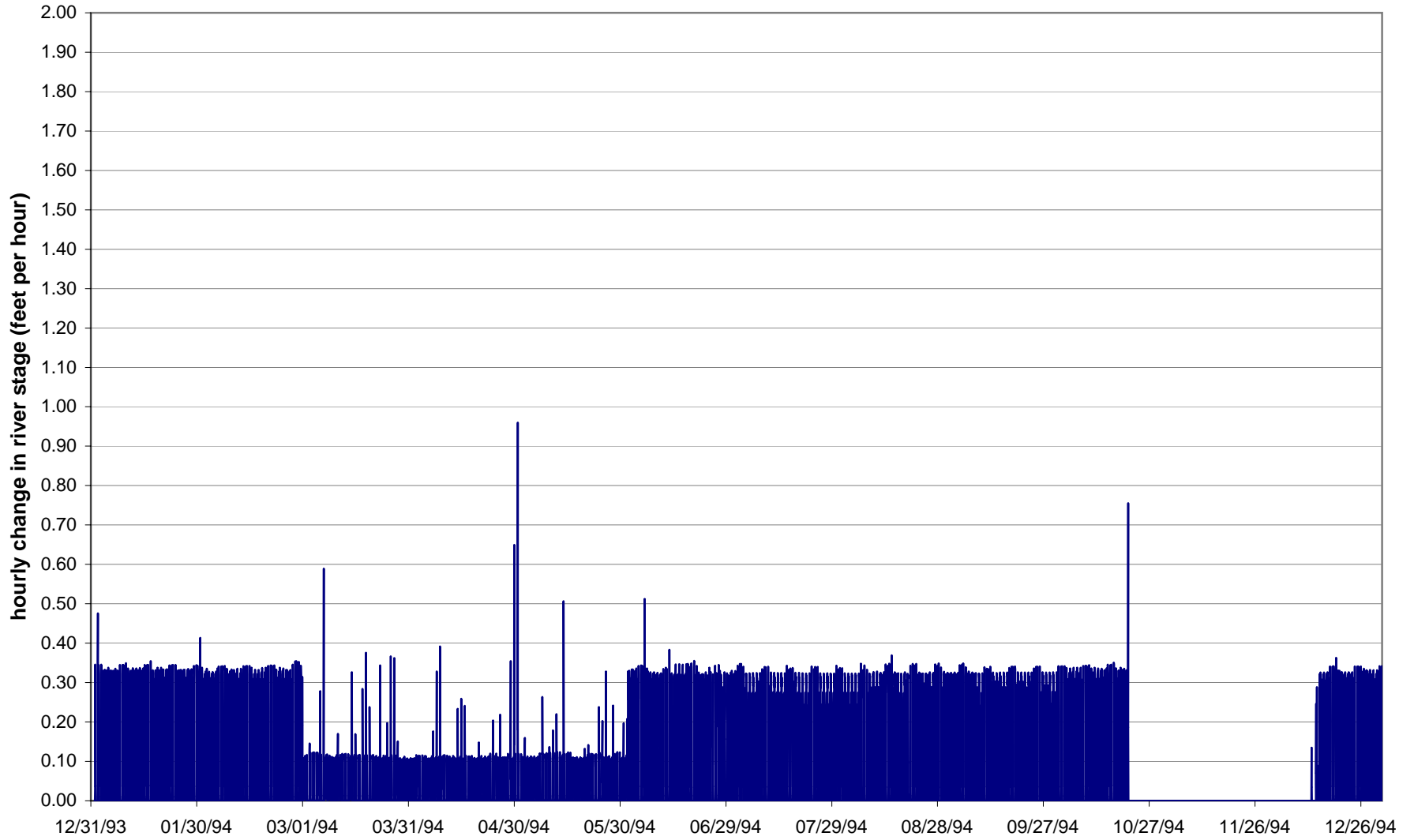
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 1(d)



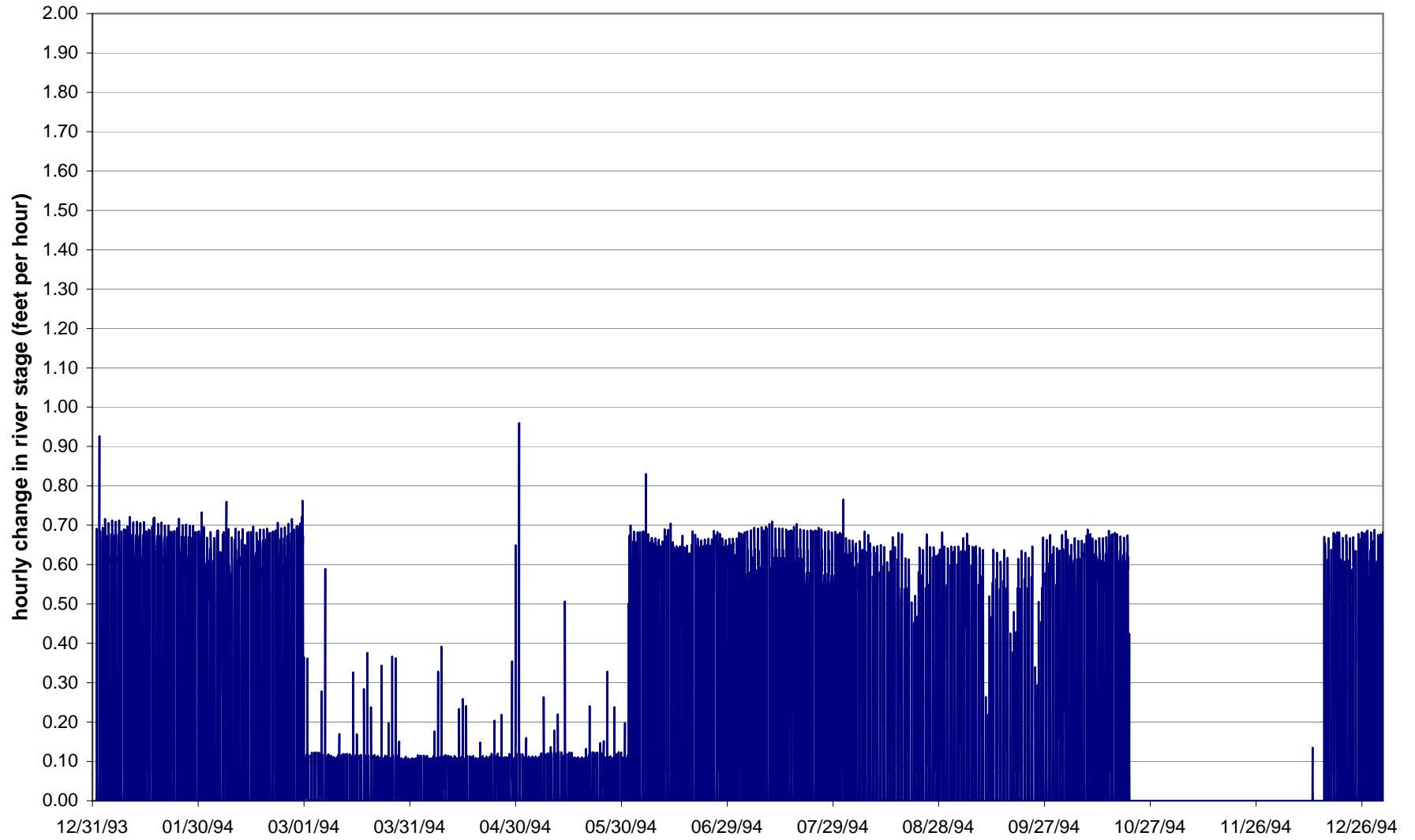
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 1(e)



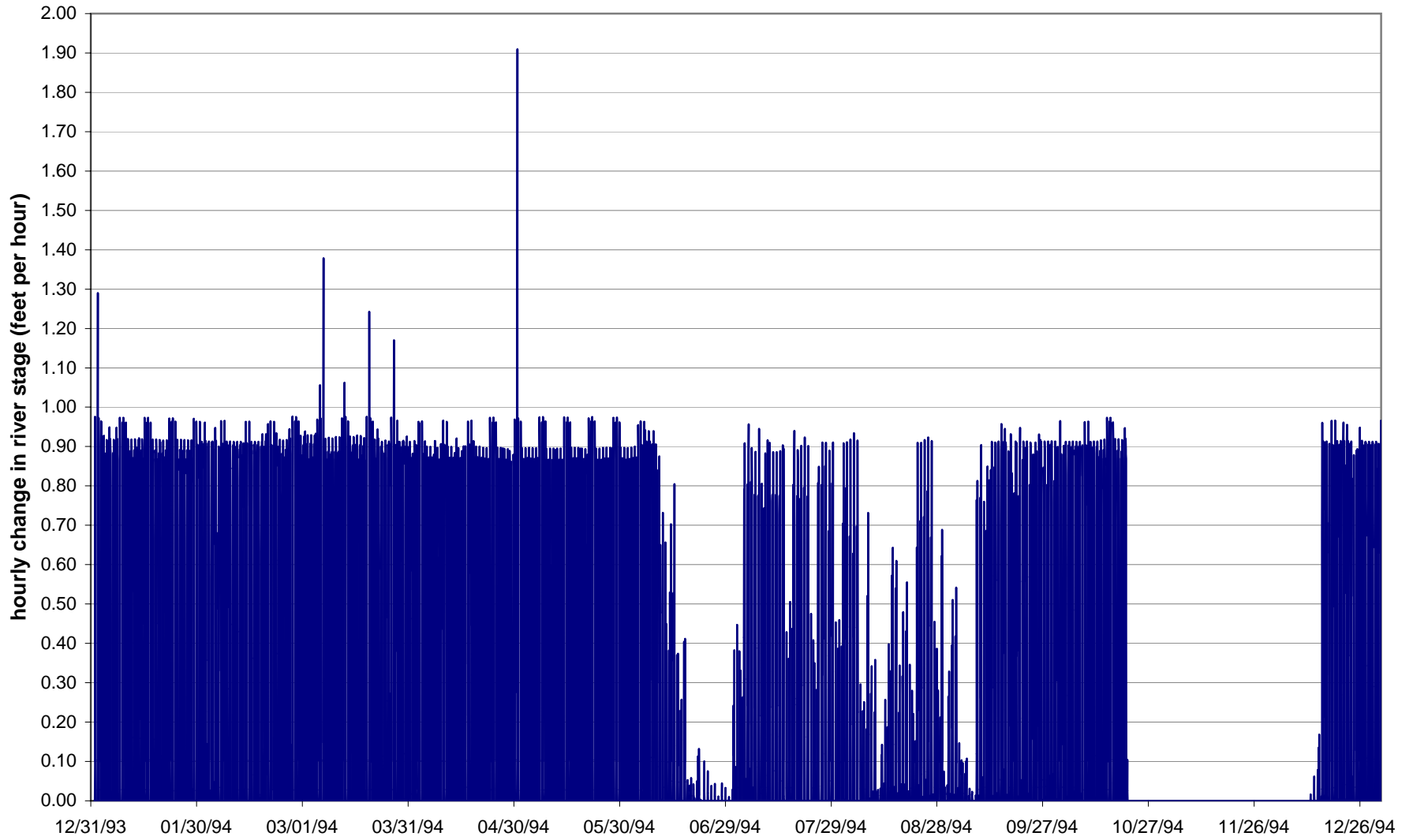
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 1(f)



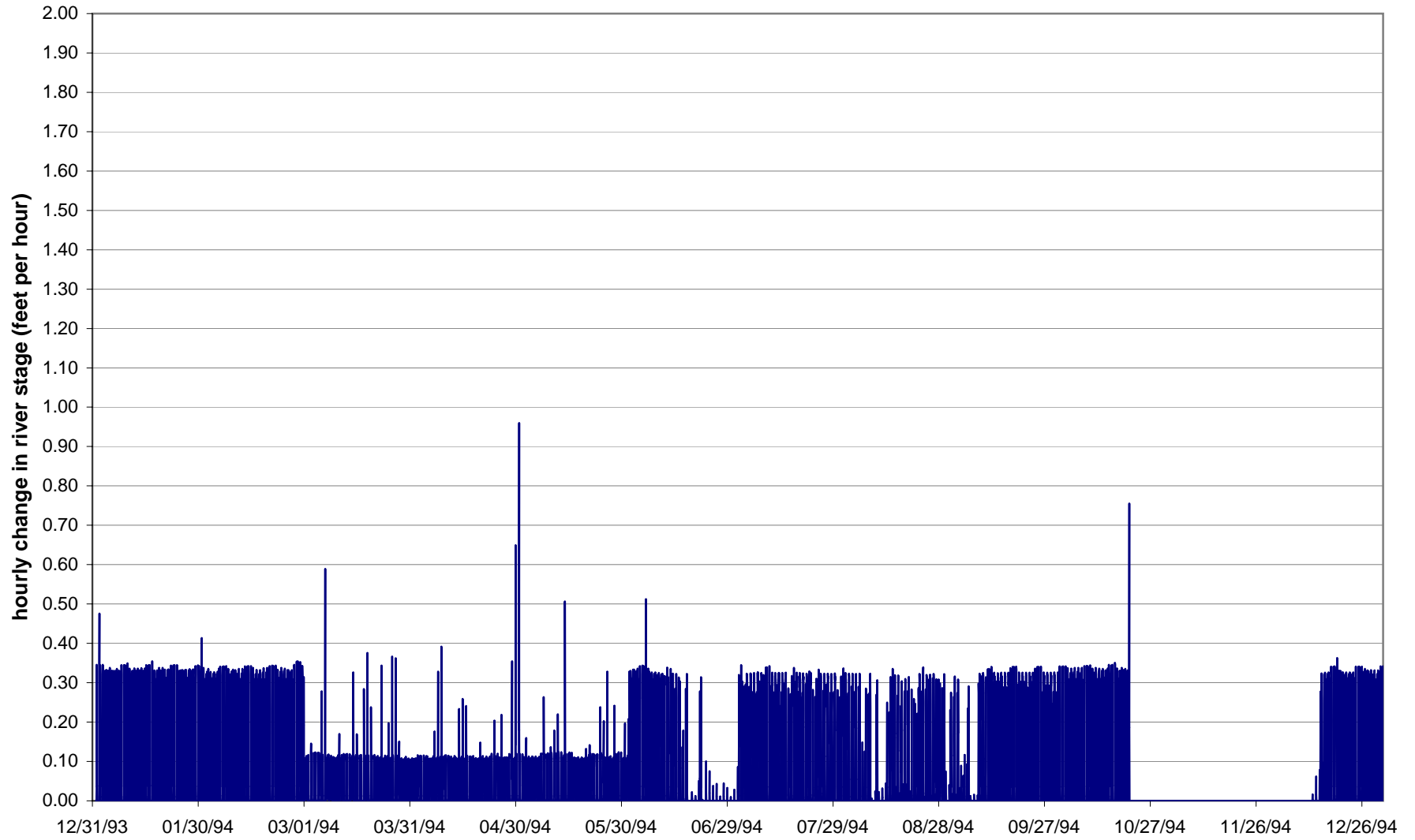
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 2



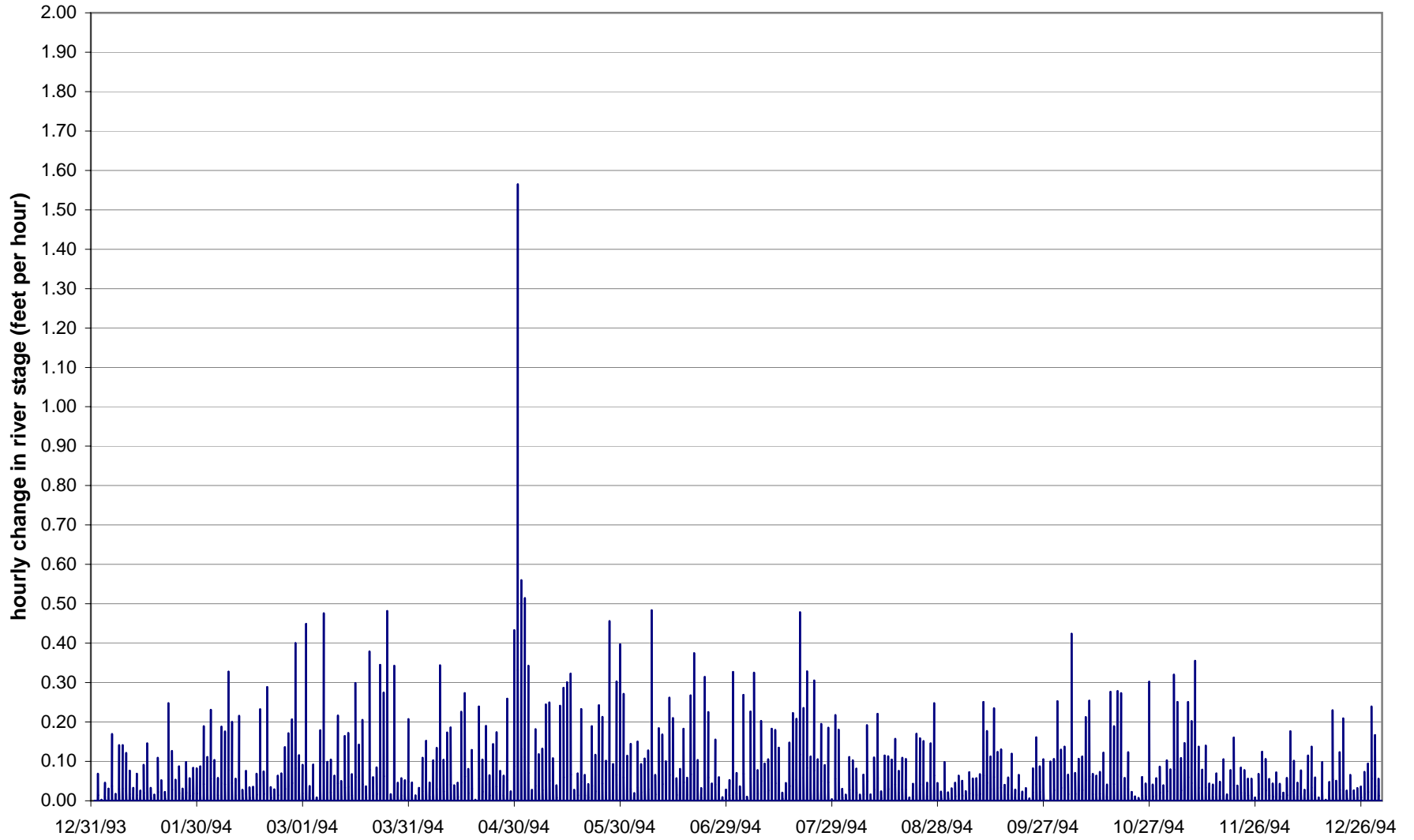
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 3



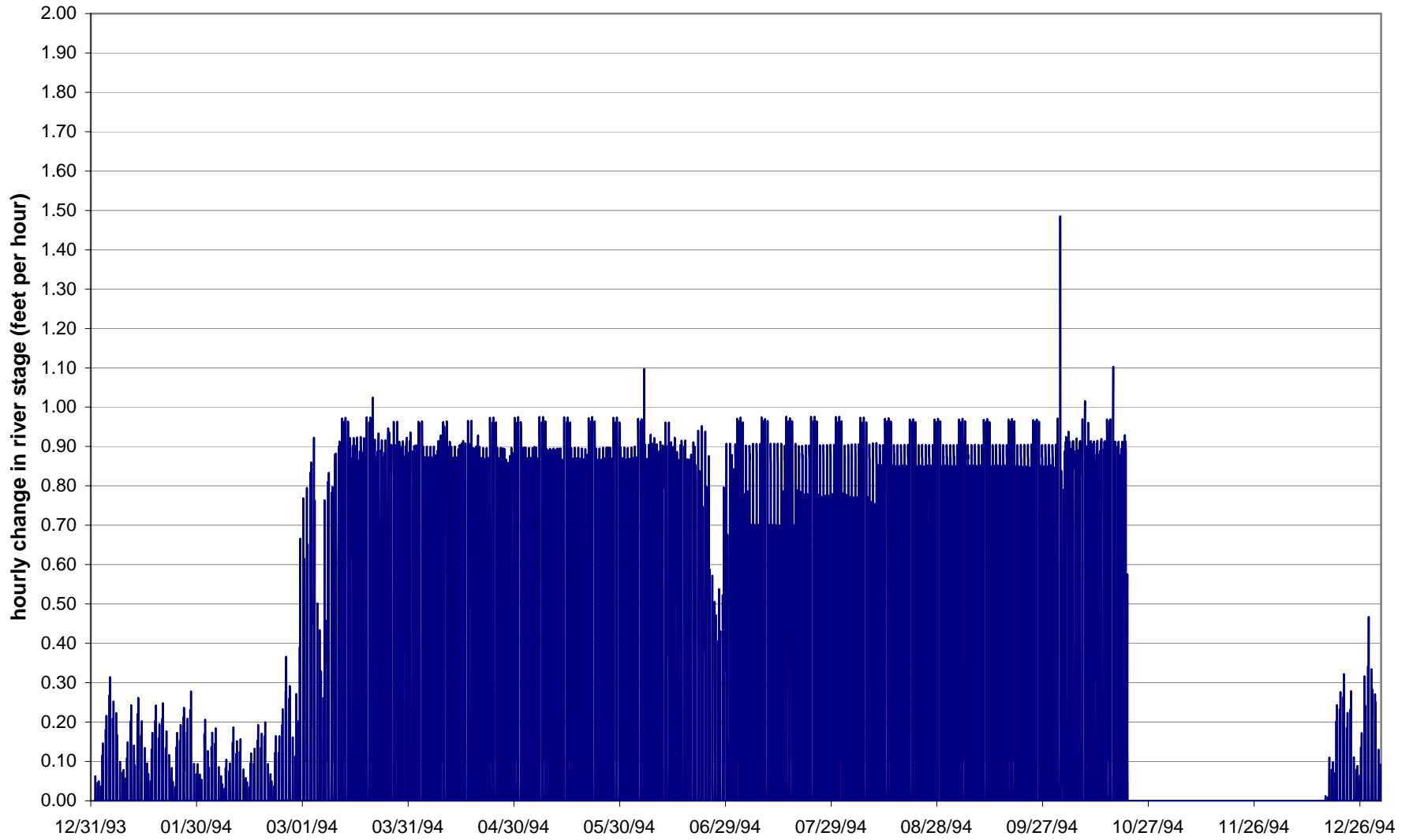
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 4



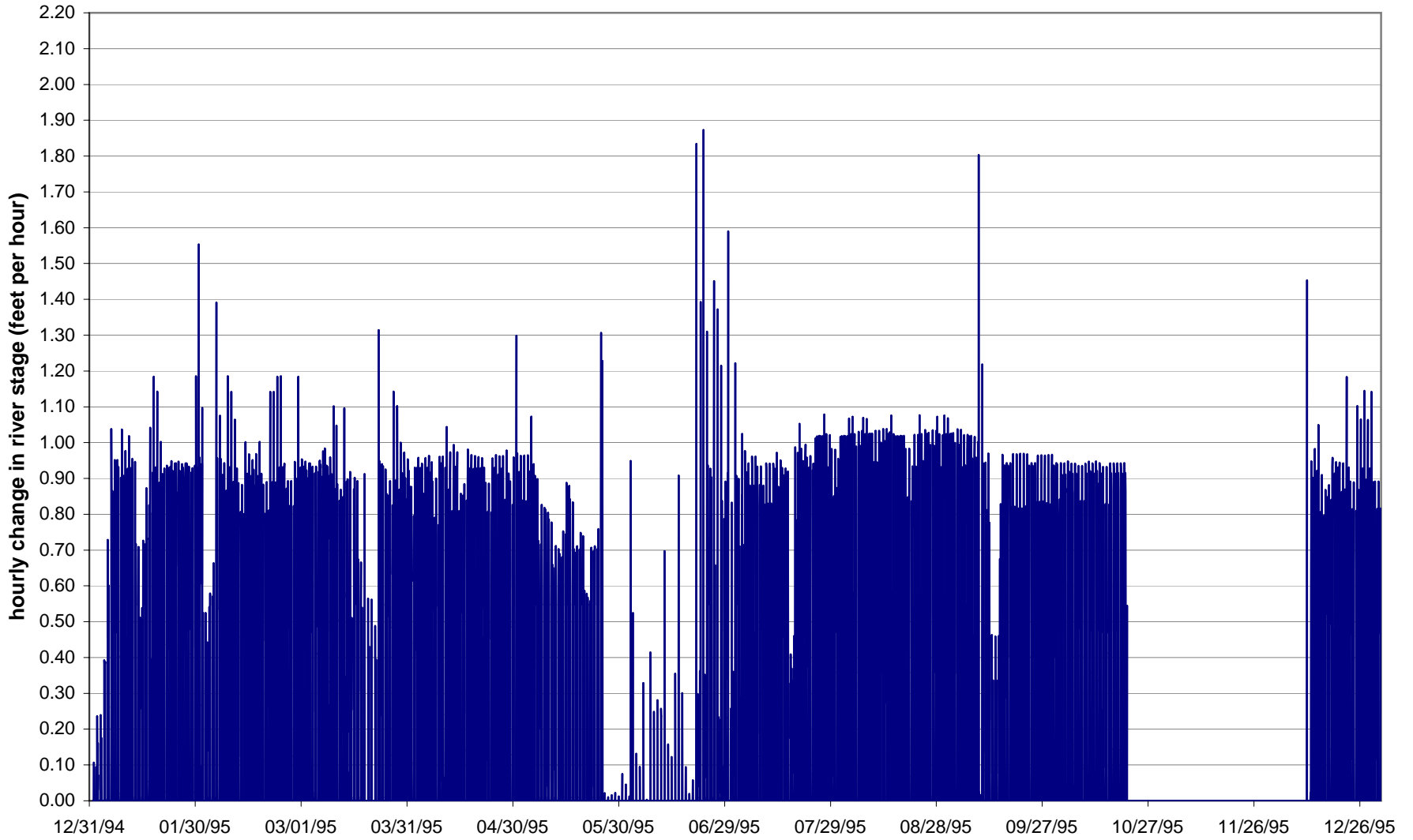
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 5



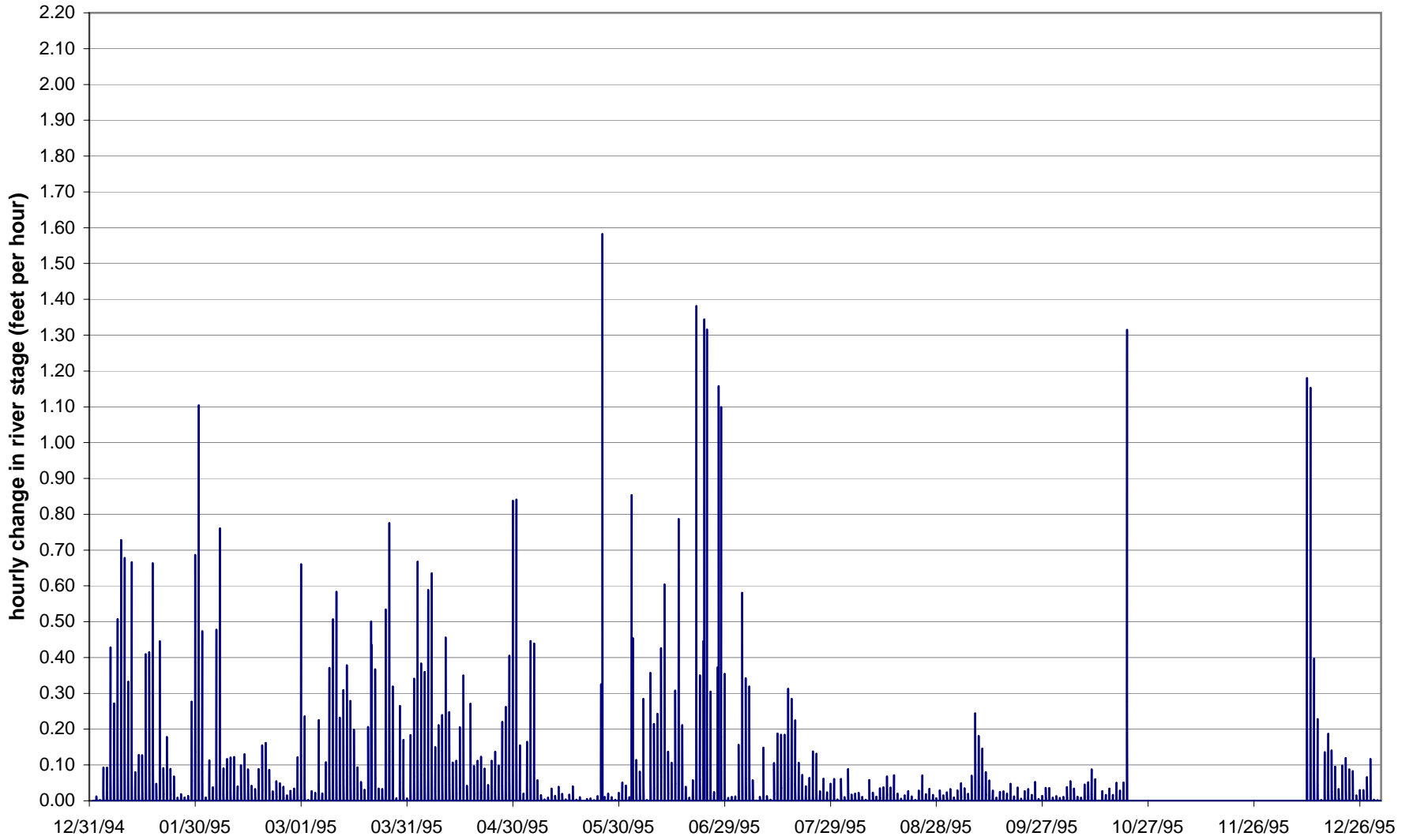
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1994
Scenario 6



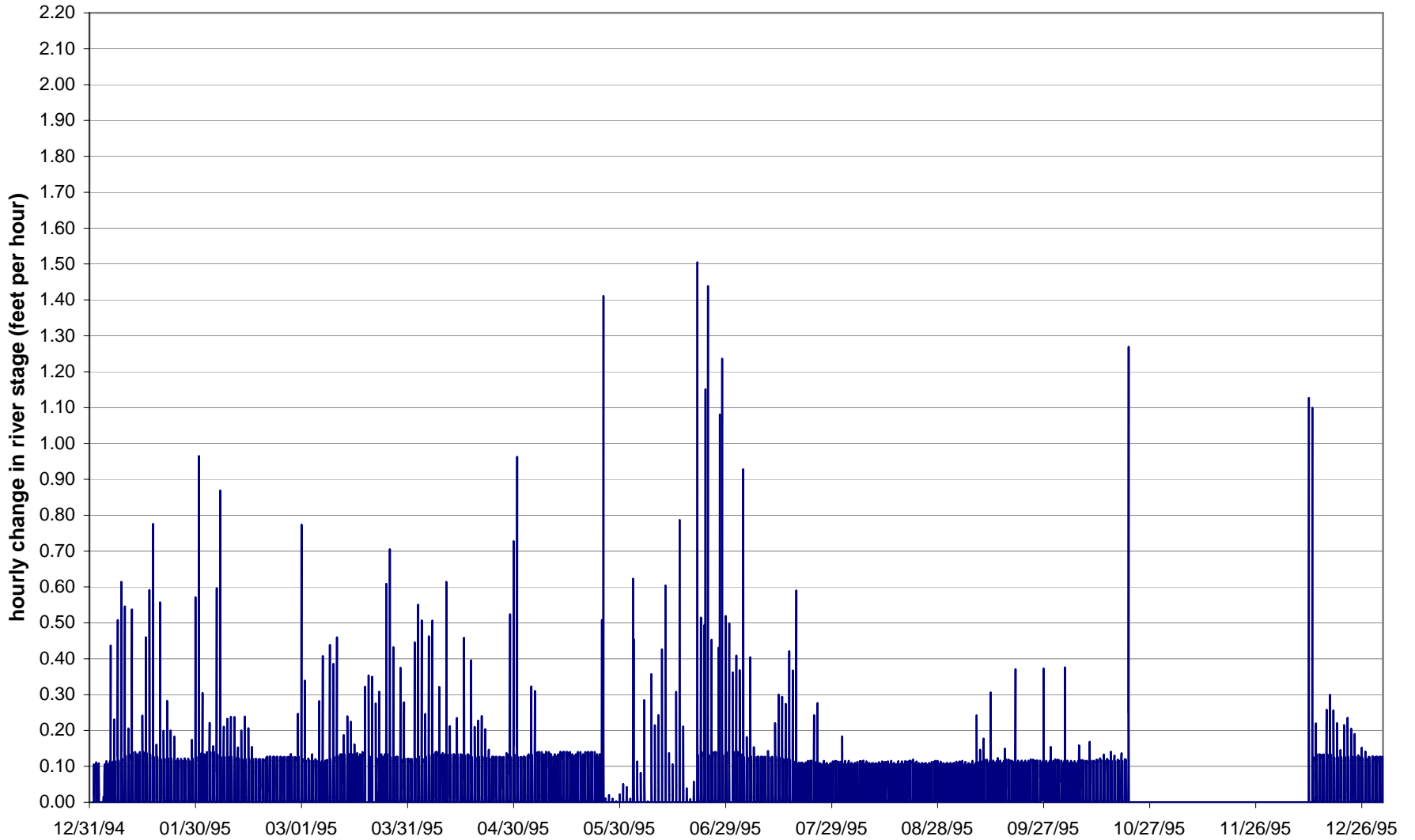
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Proposed Operations



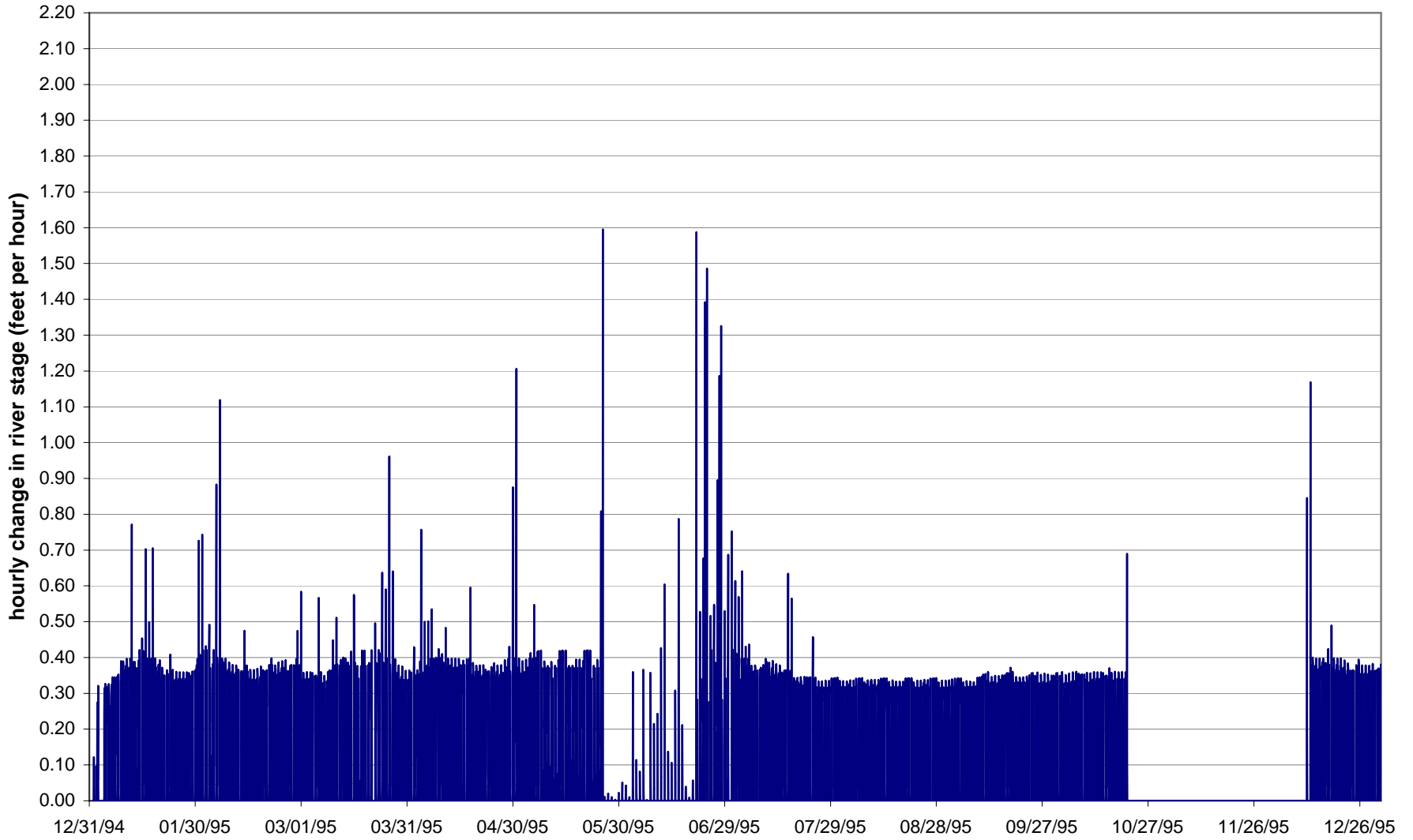
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 1(a)



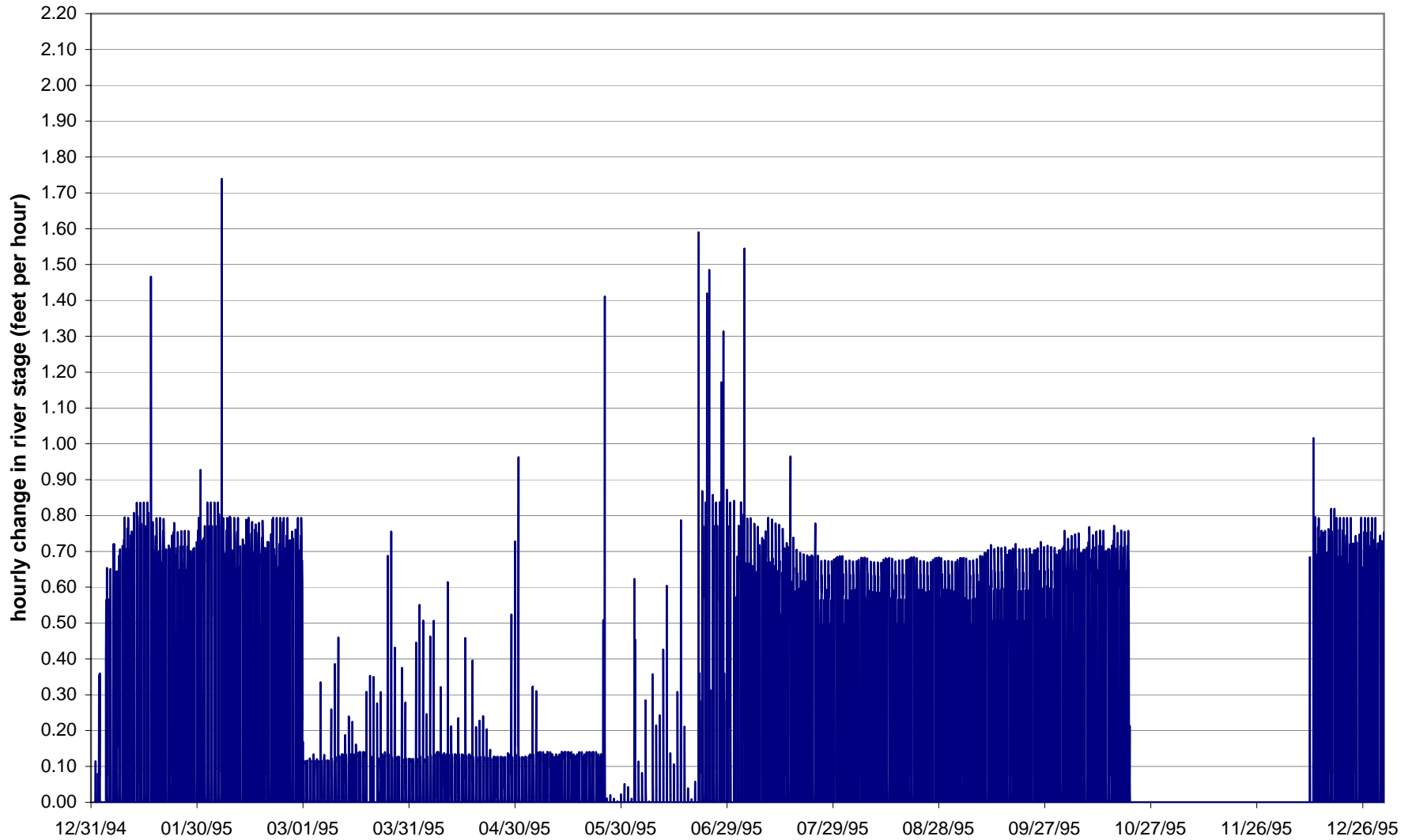
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 1(b)



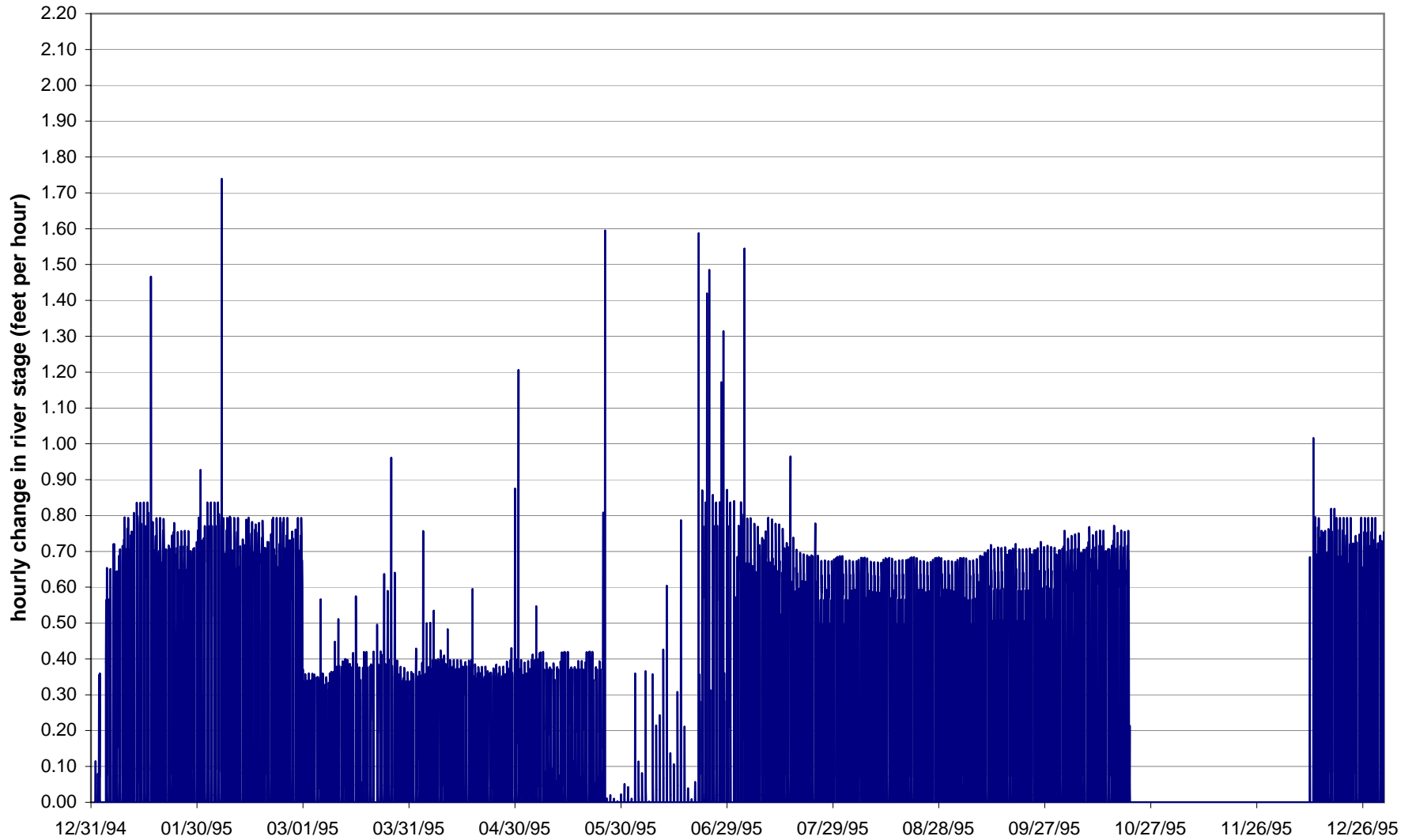
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 1(c)



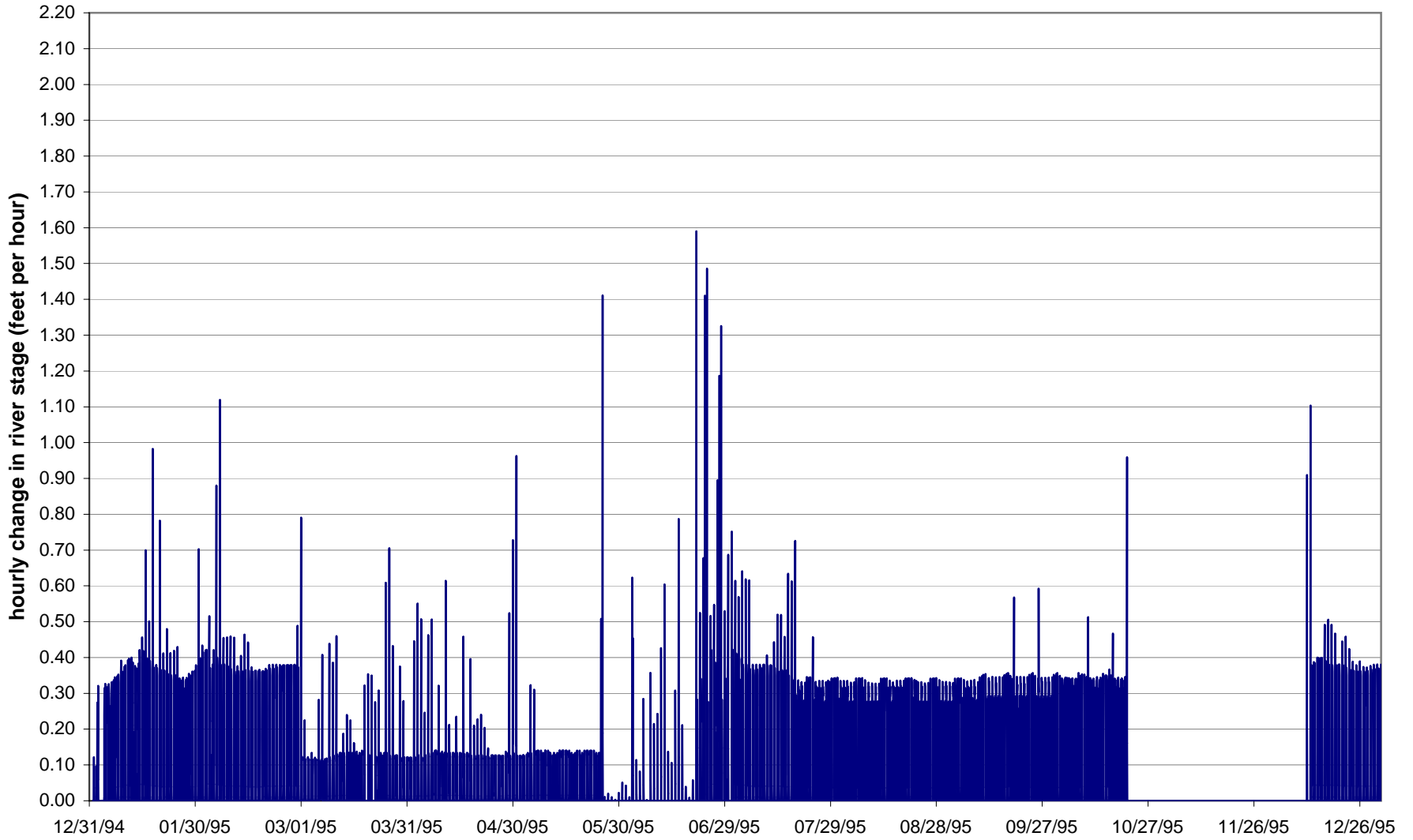
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 1(d)



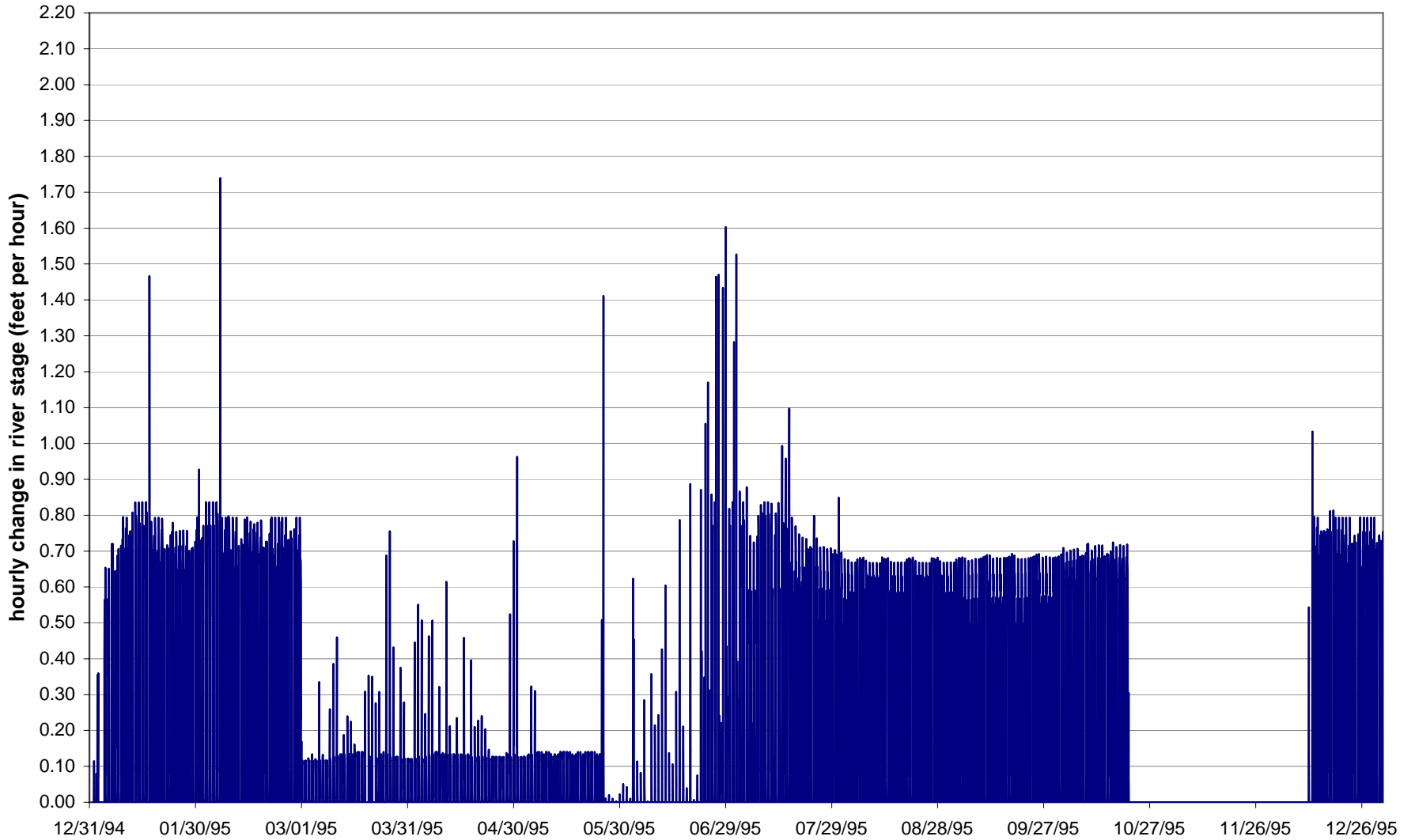
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 1(e)



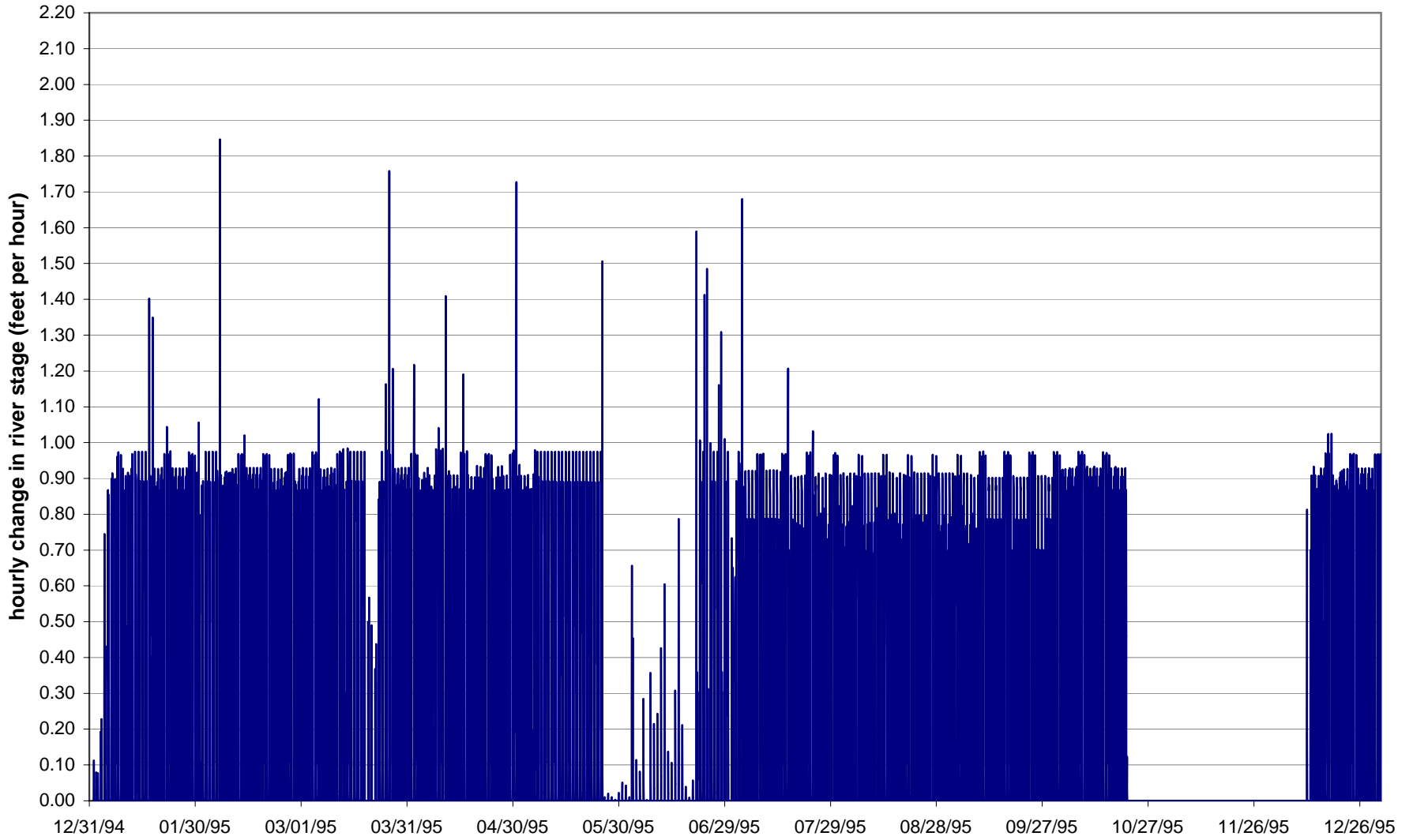
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 1(f)



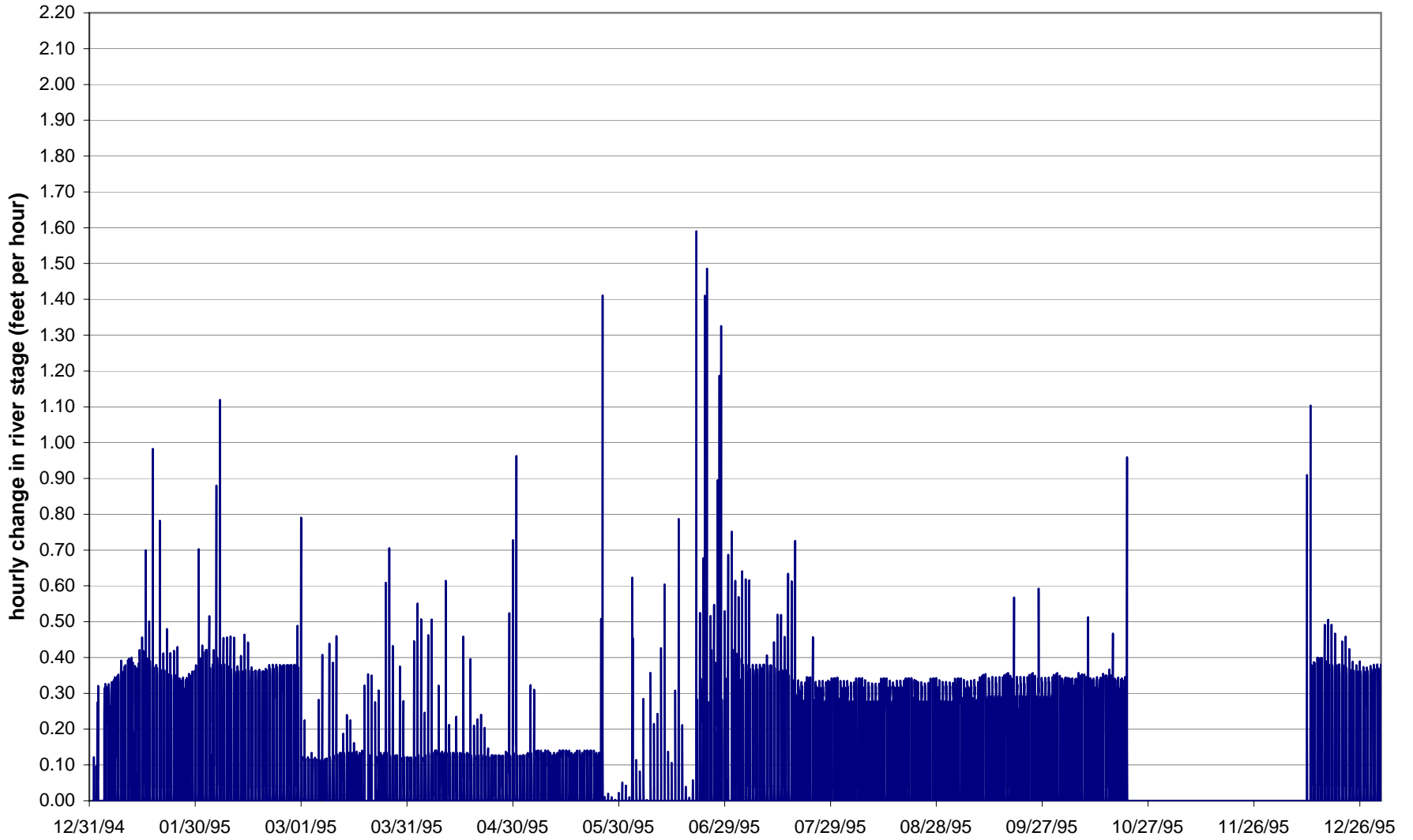
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 2



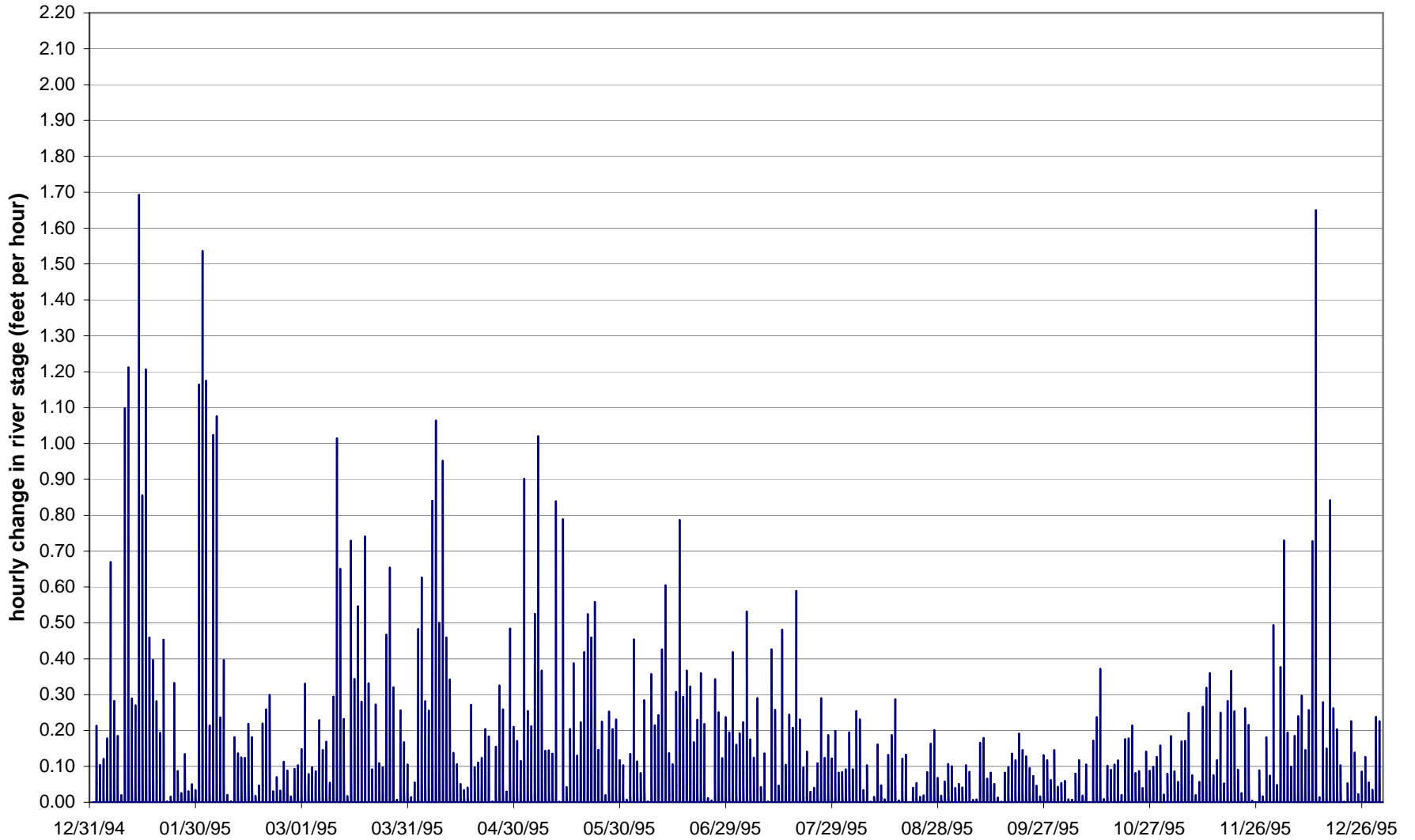
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 3



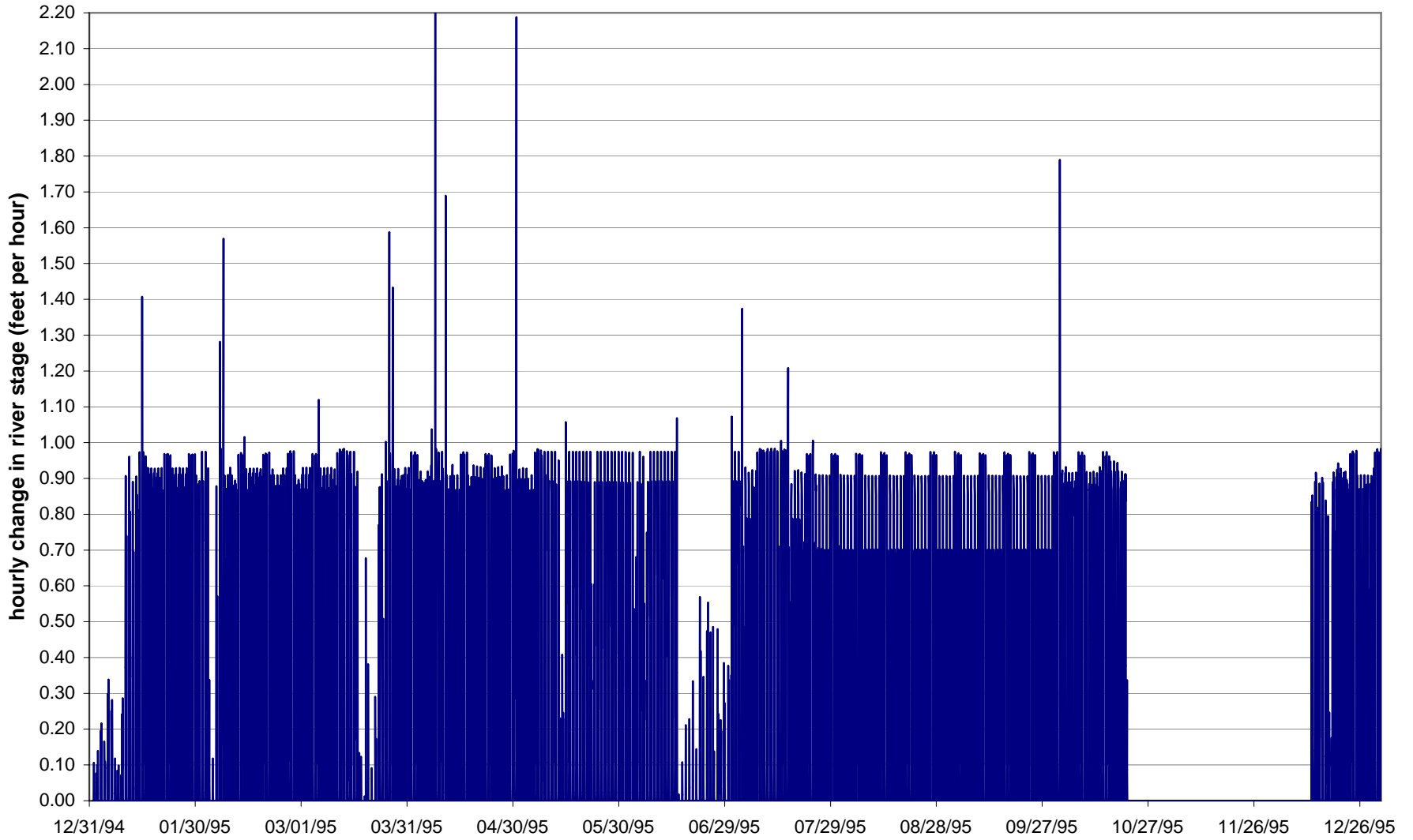
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 4



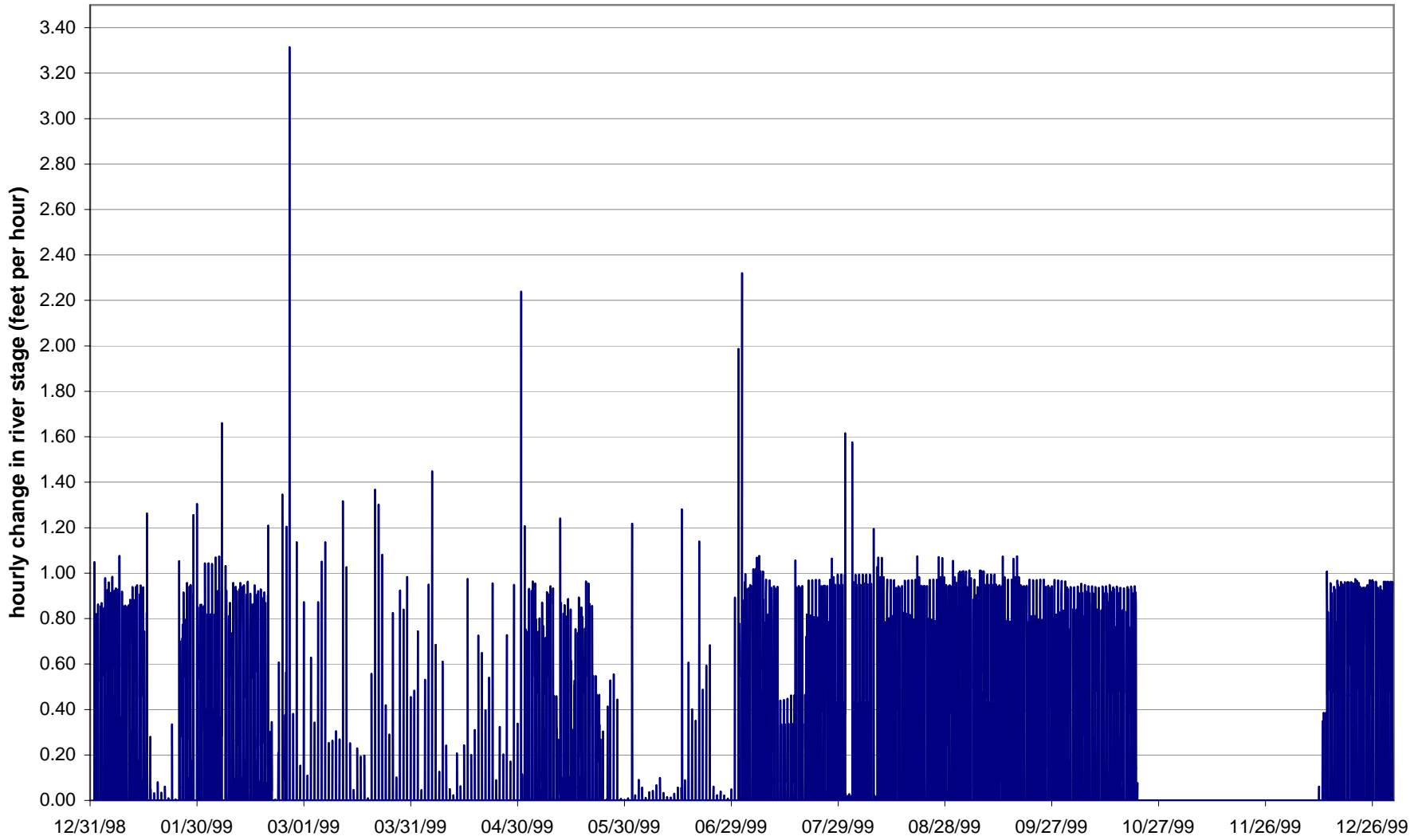
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 5



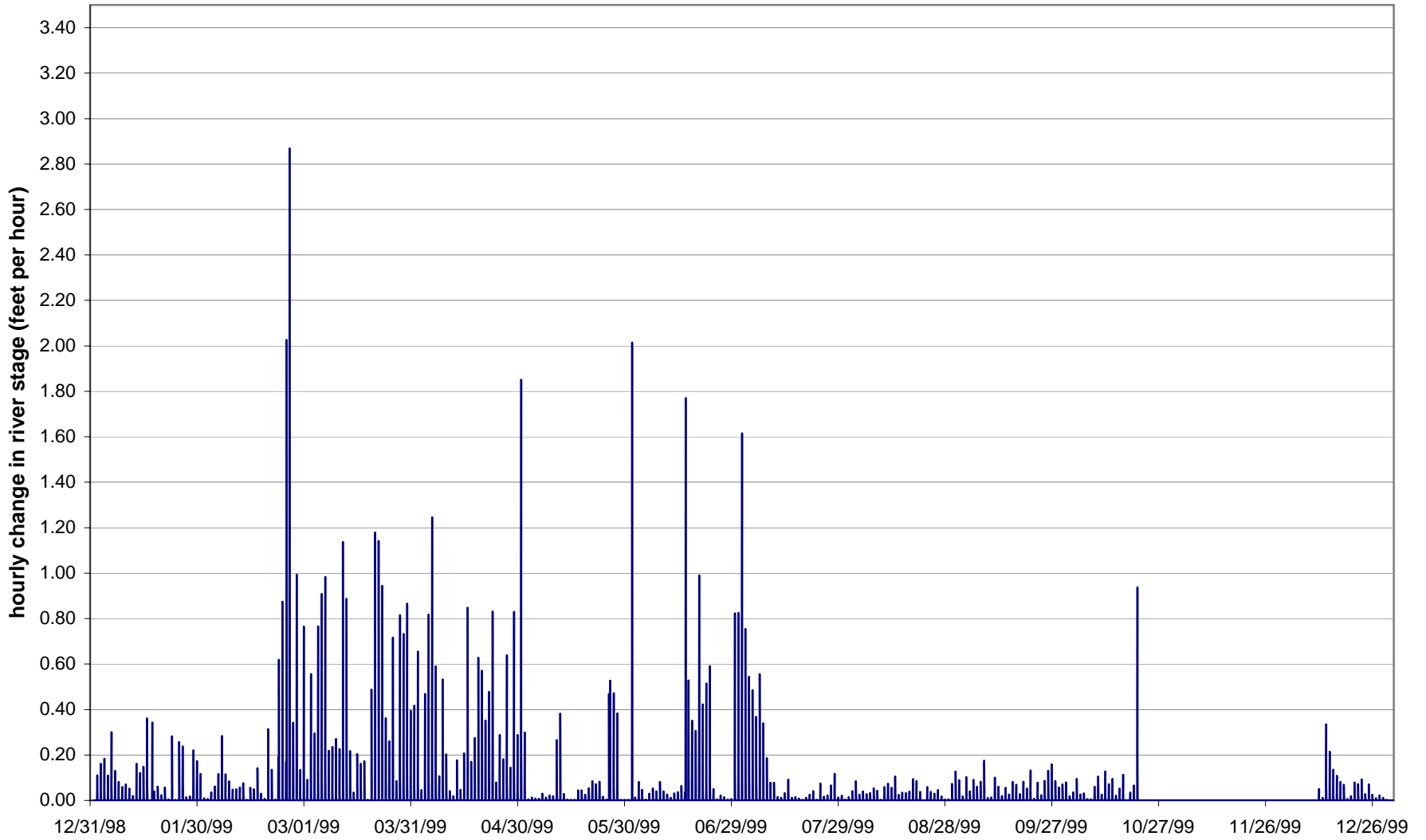
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1995
Scenario 6



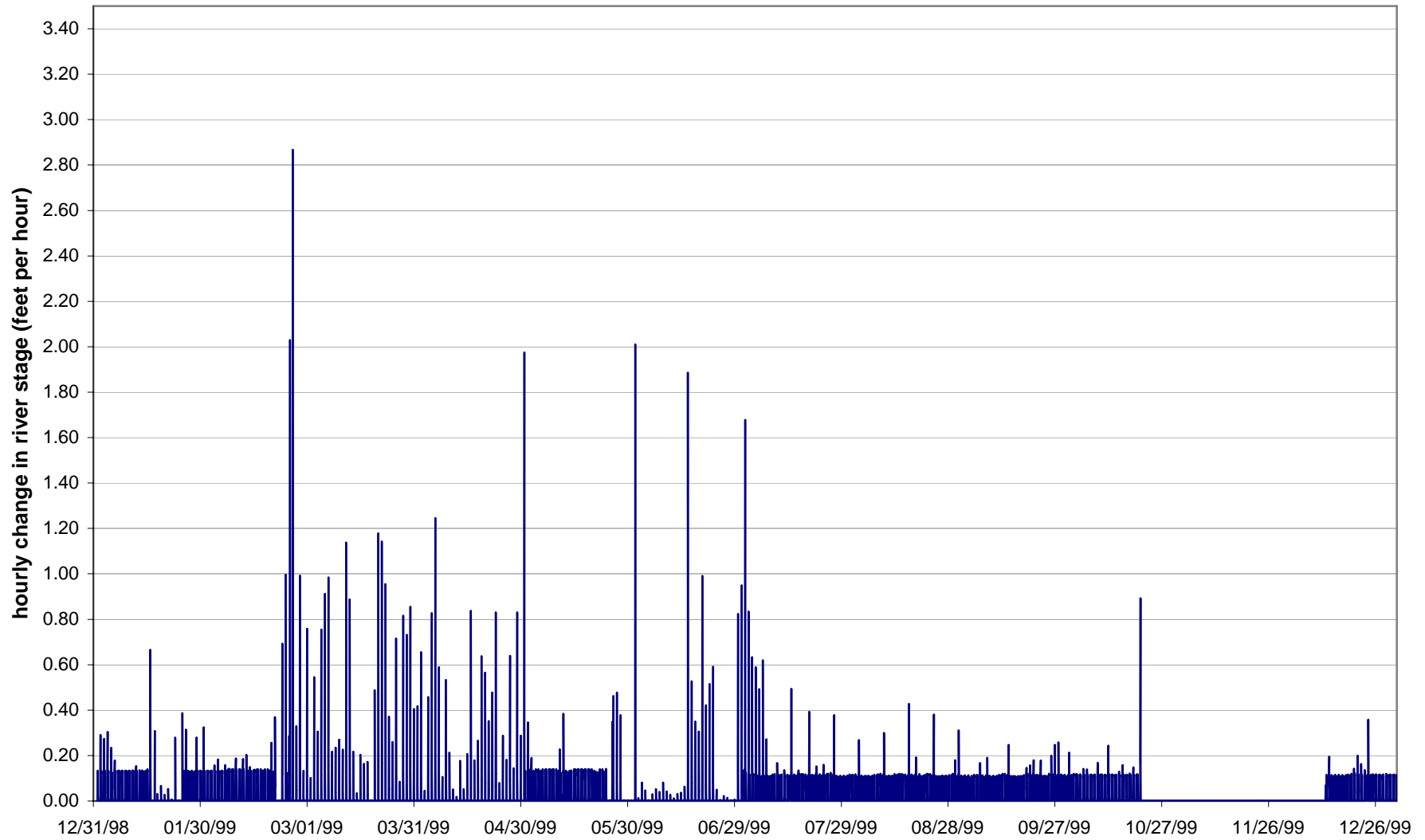
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Proposed Operations



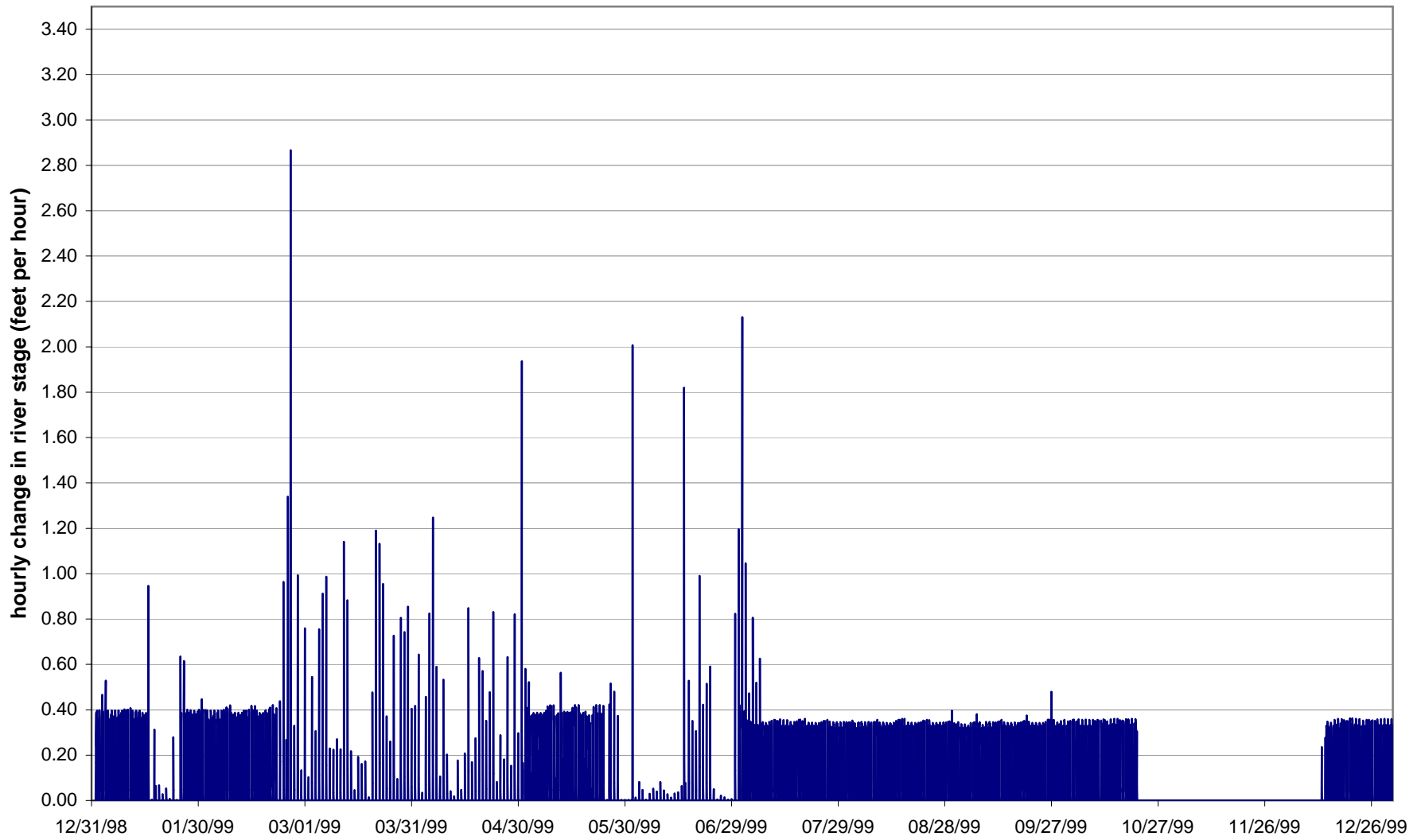
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 1(a)



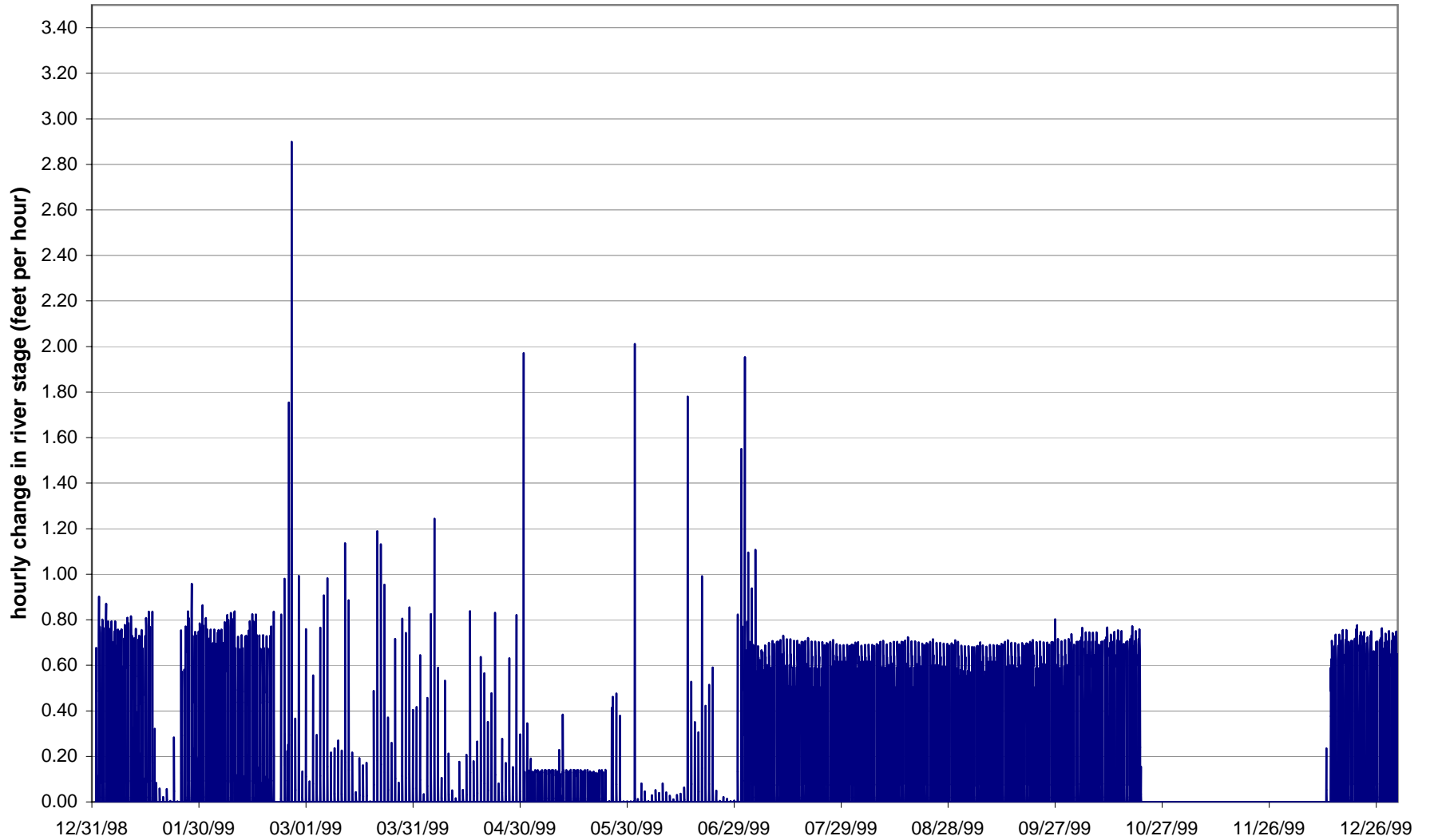
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 1(b)



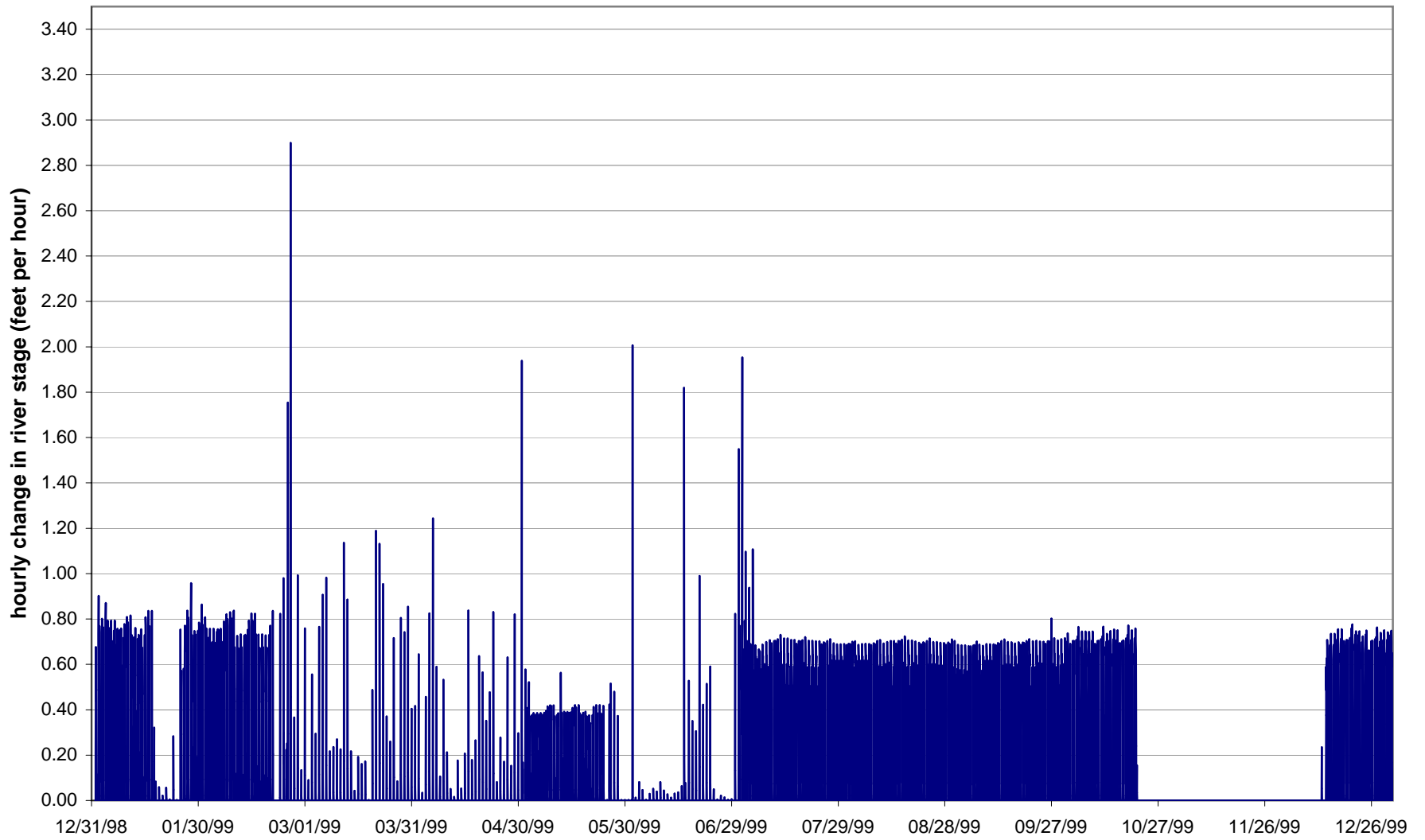
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 1(c)



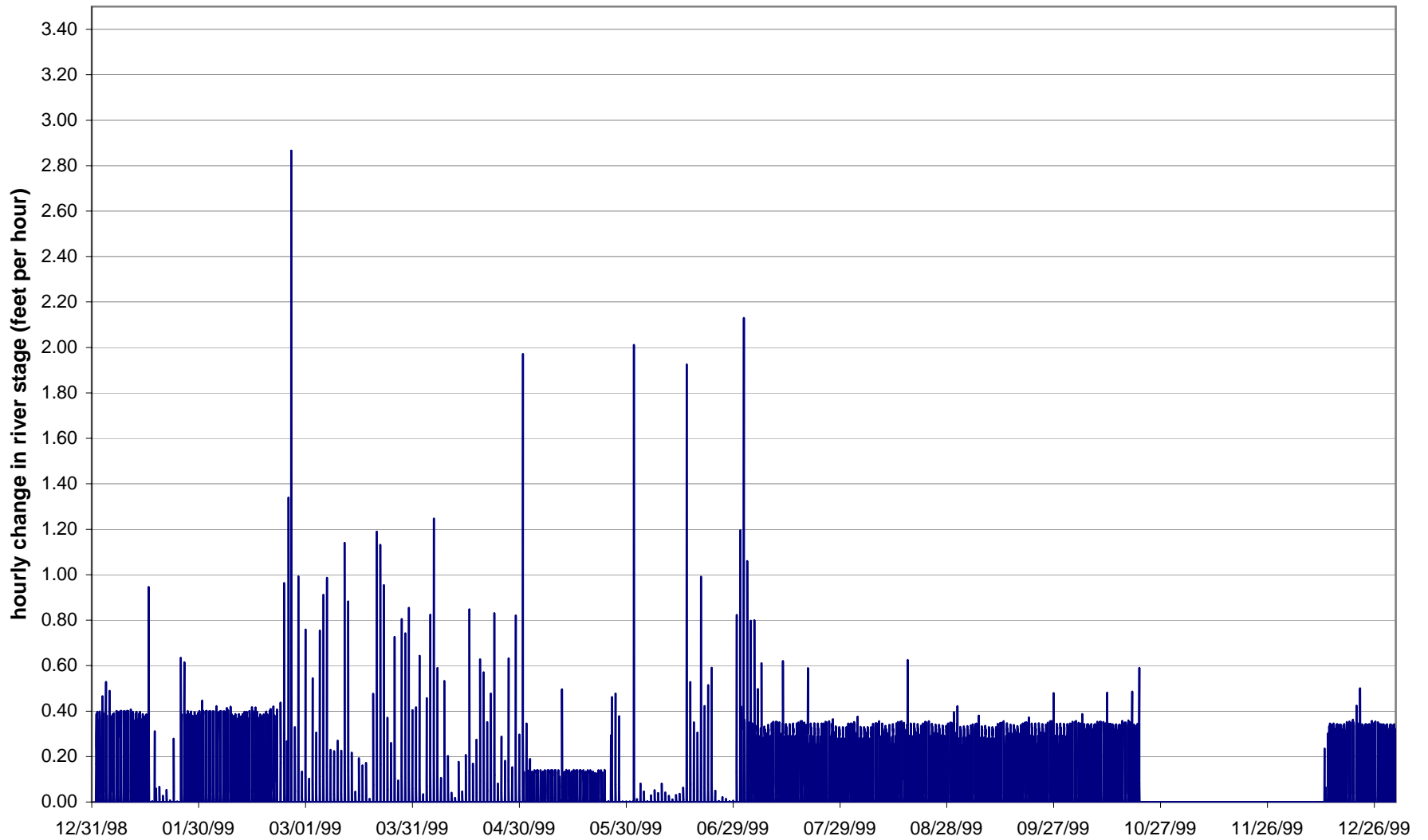
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 1(d)



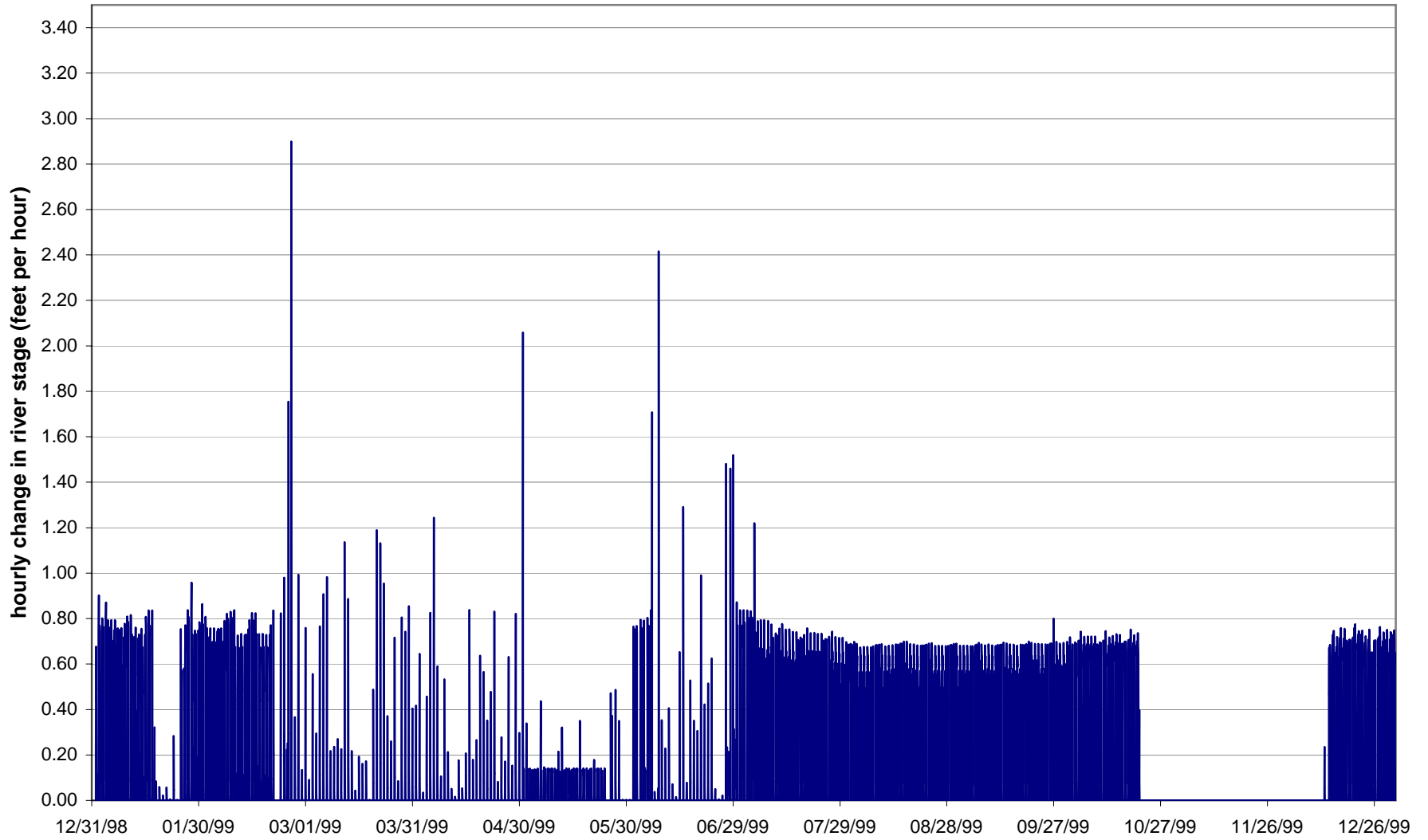
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 1(e)



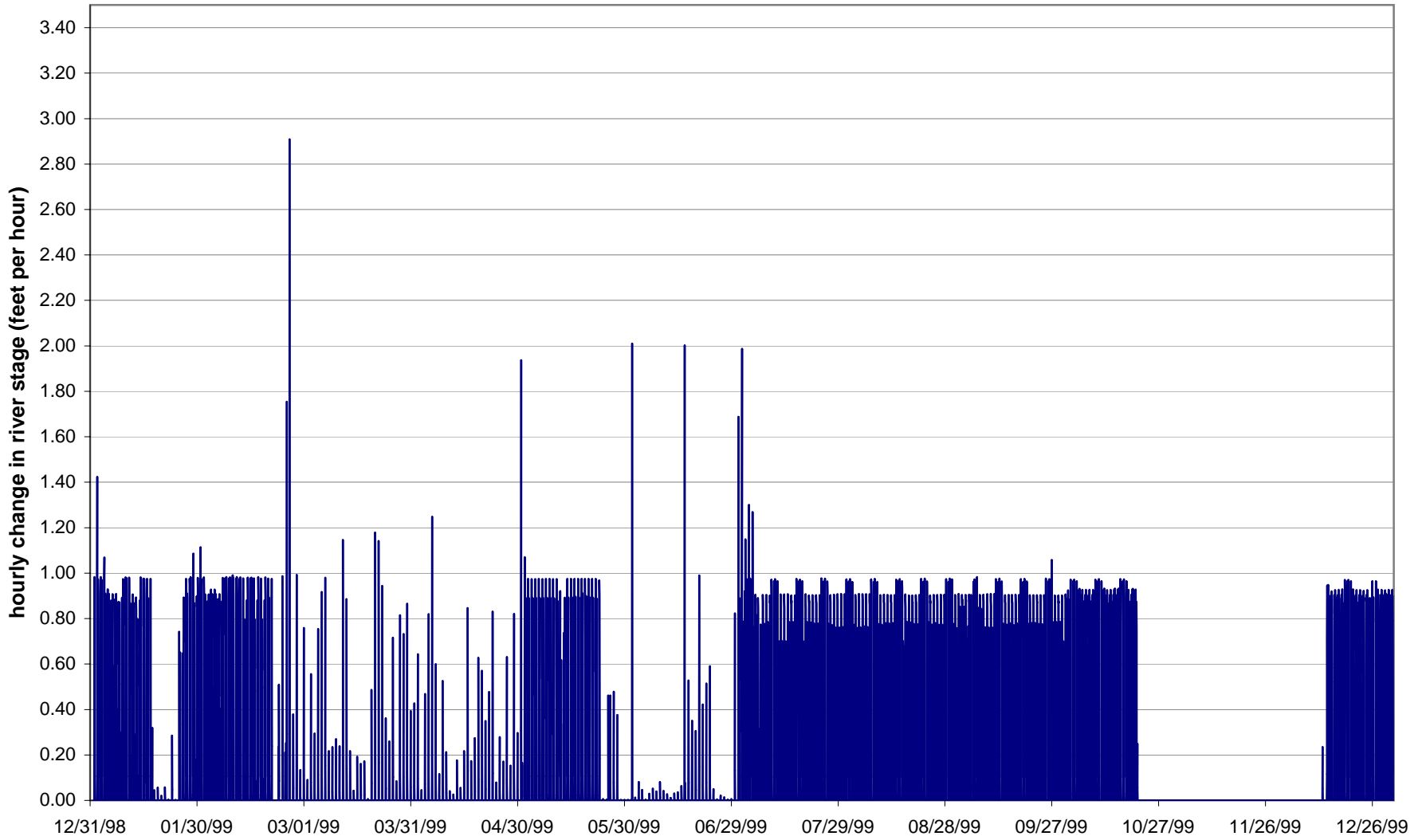
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 1(f)



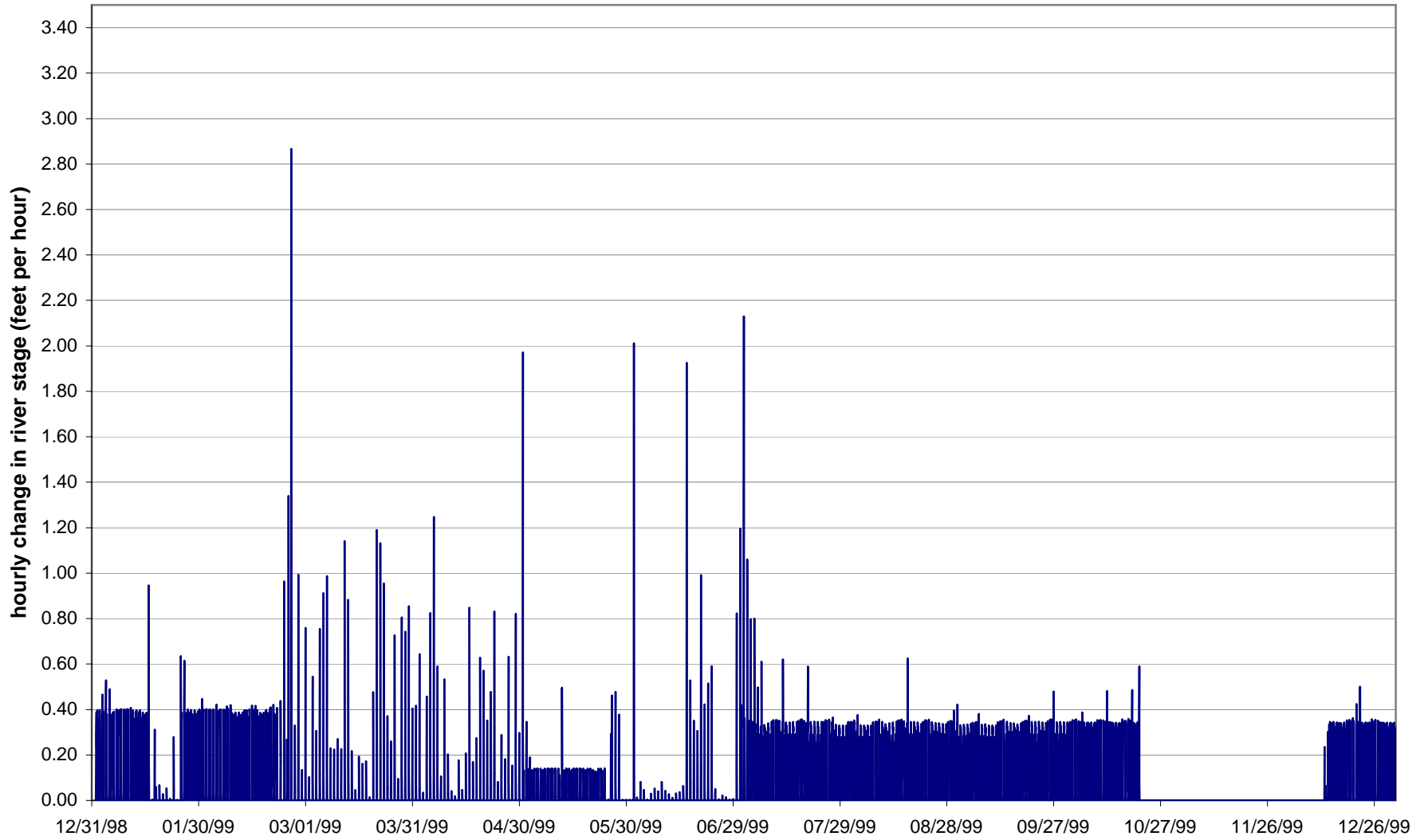
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 2



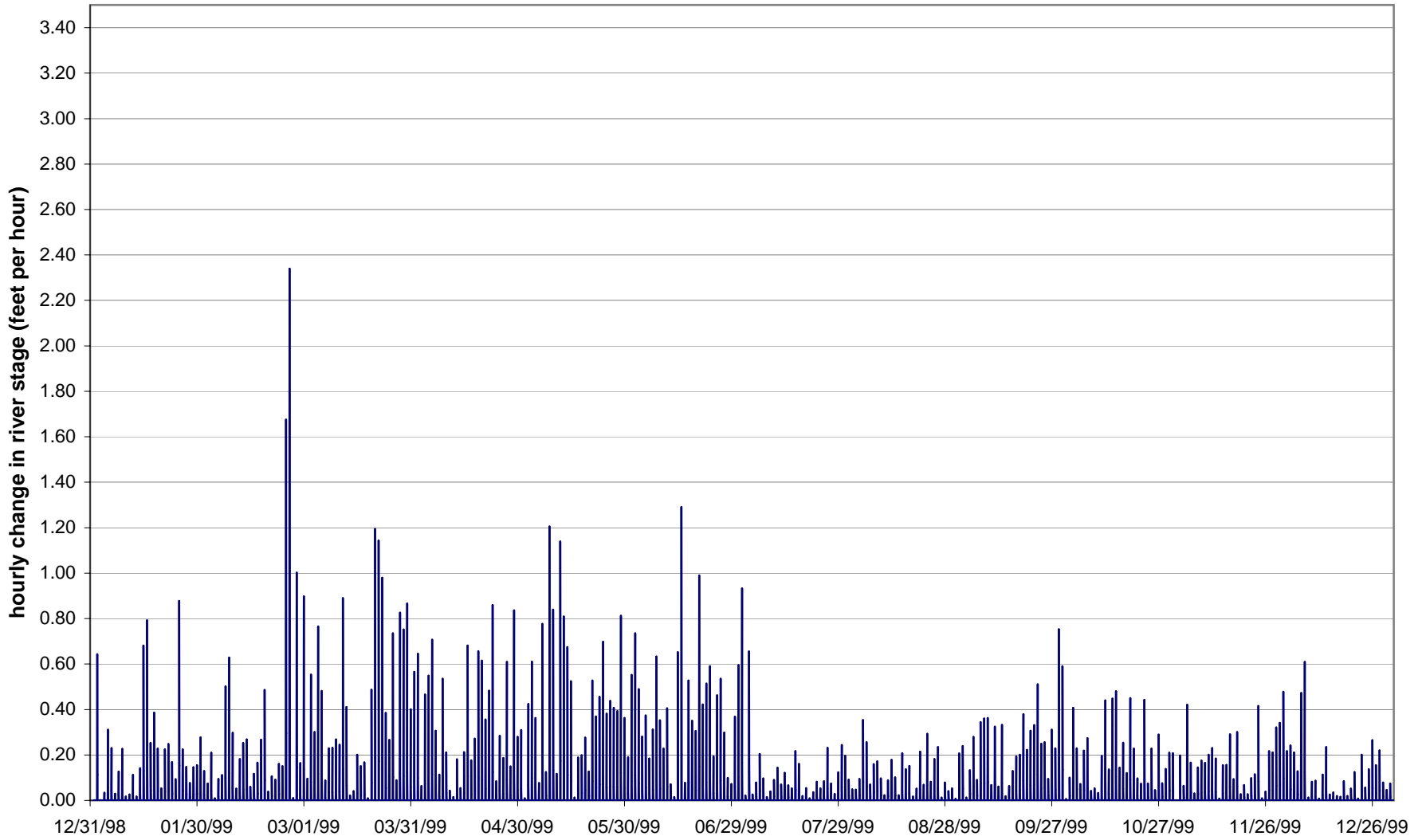
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 3



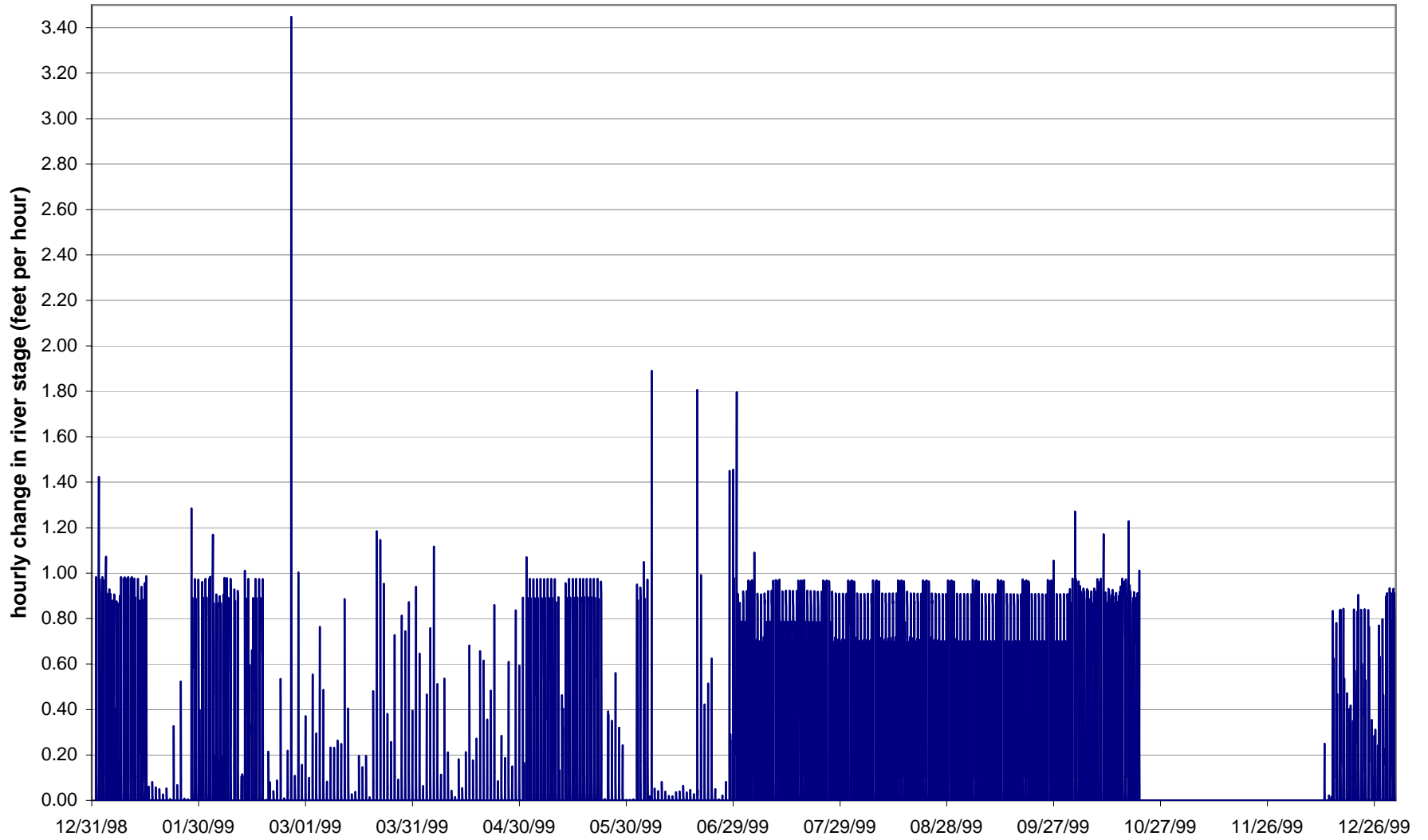
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 4



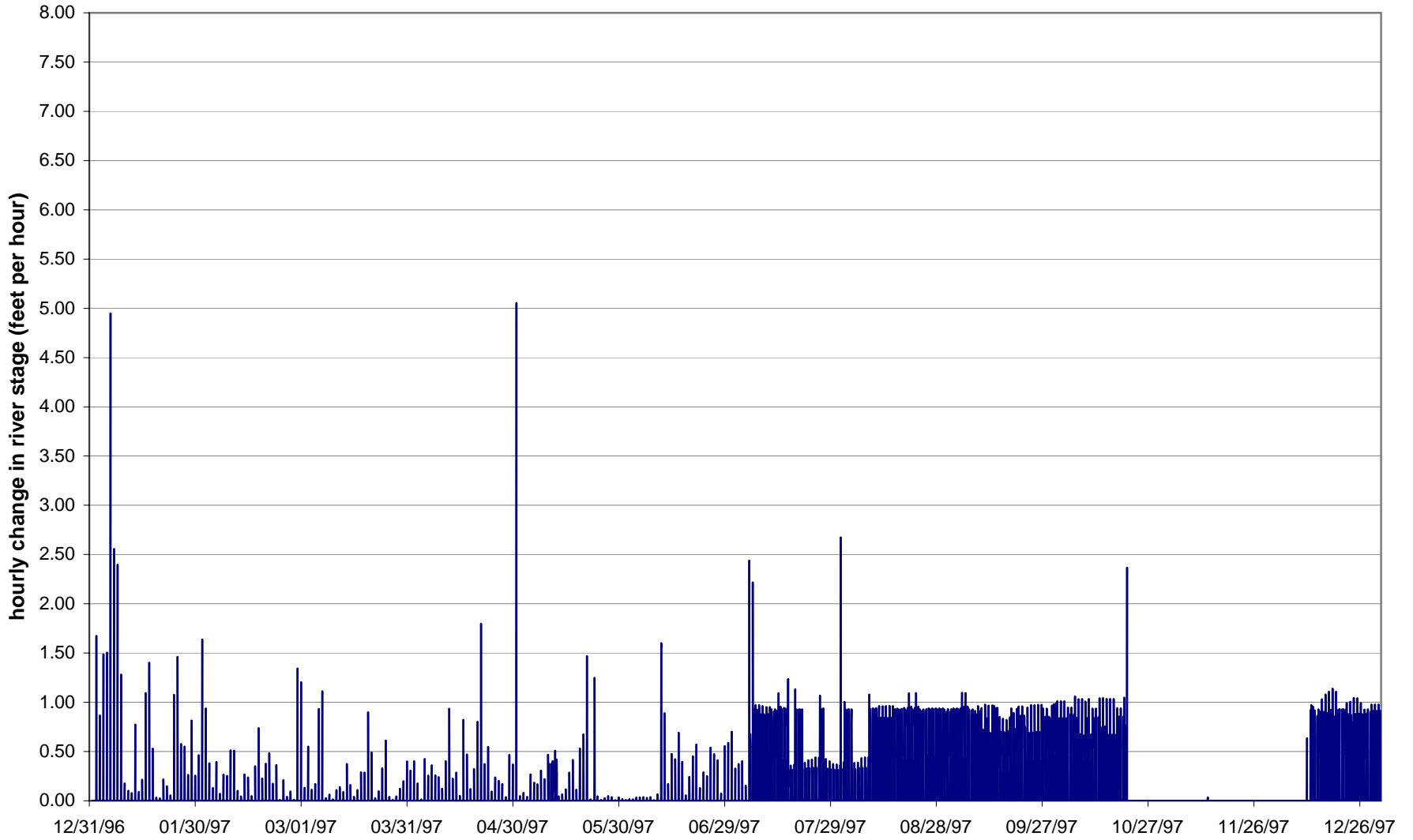
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 5



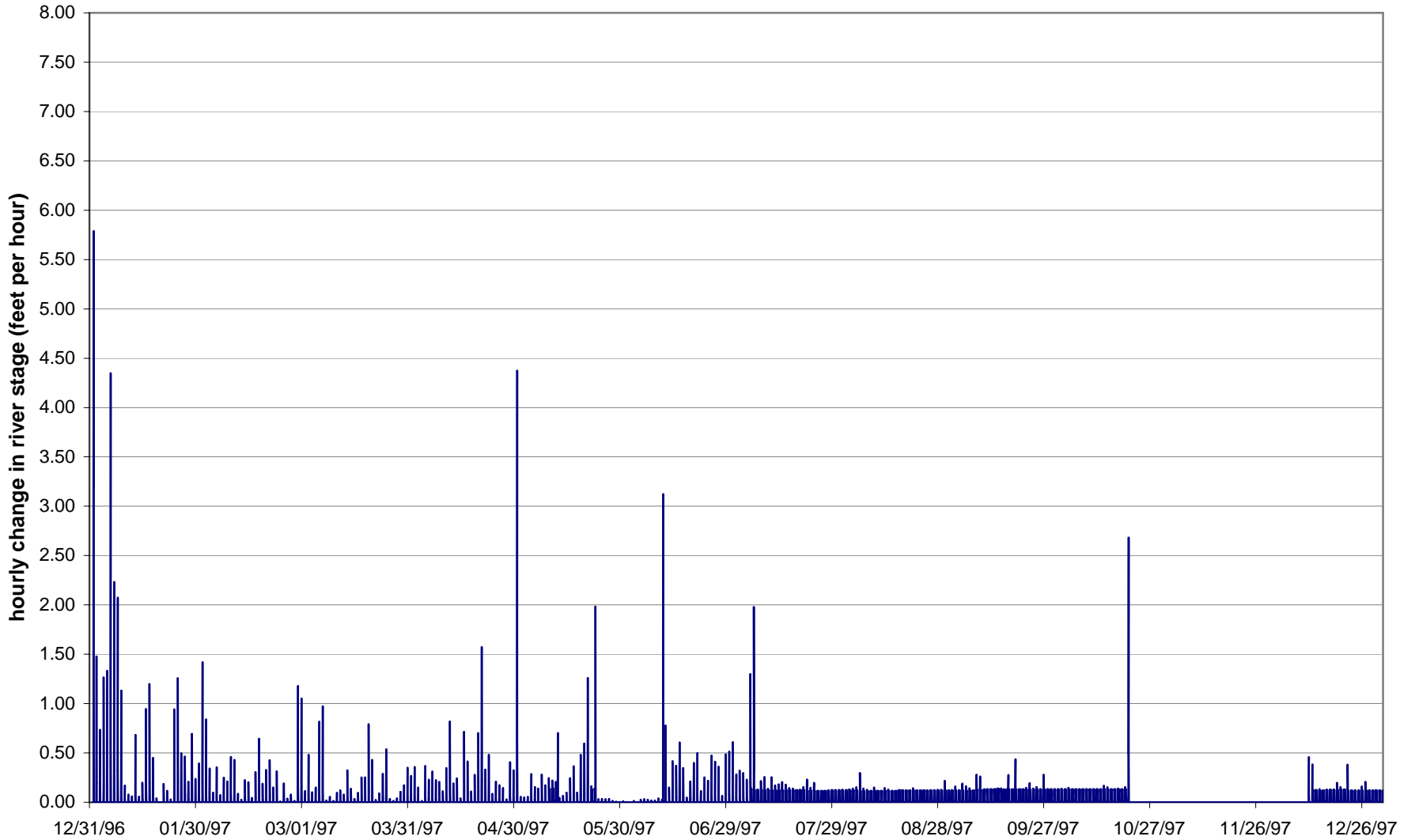
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1999
Scenario 6



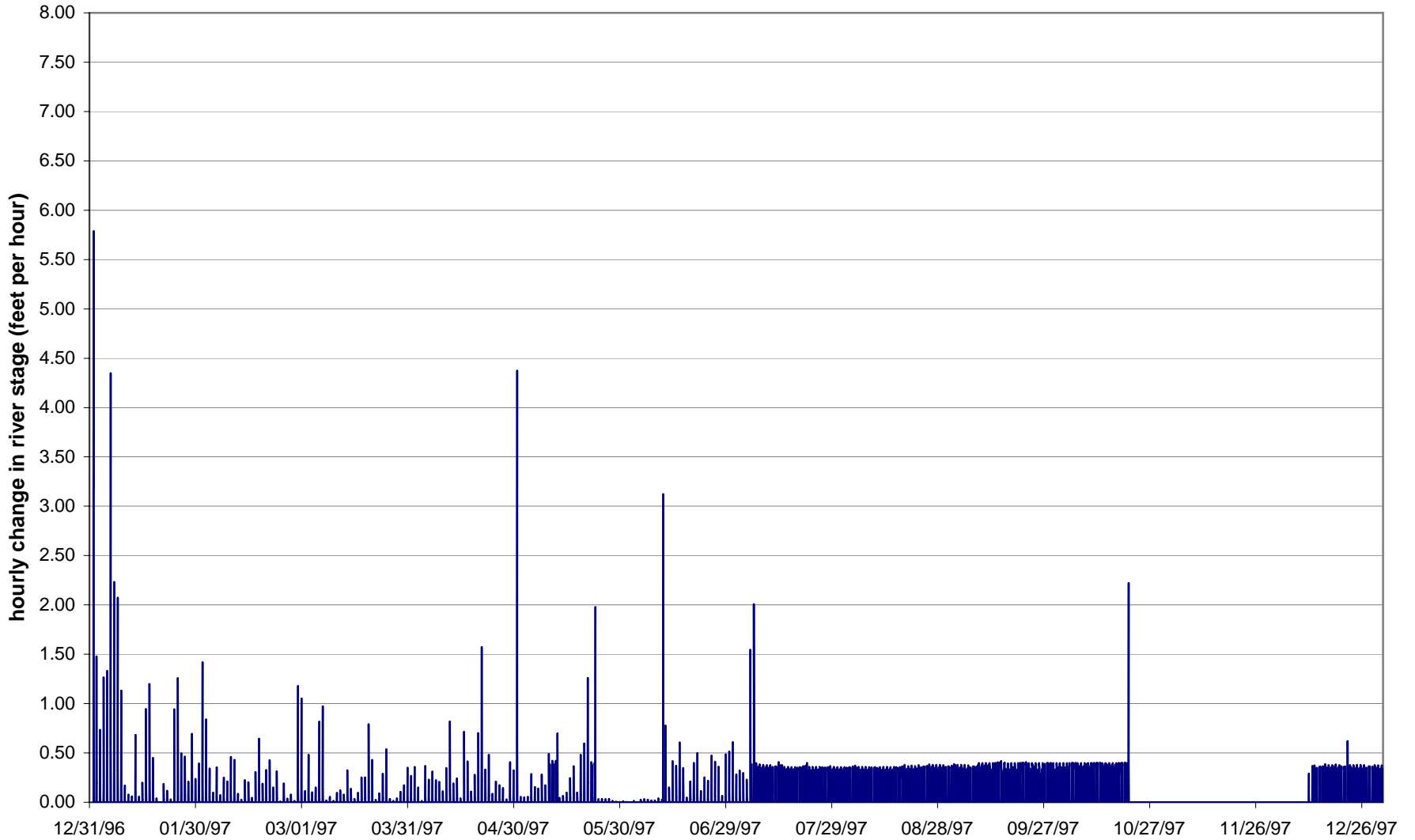
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Proposed Operations



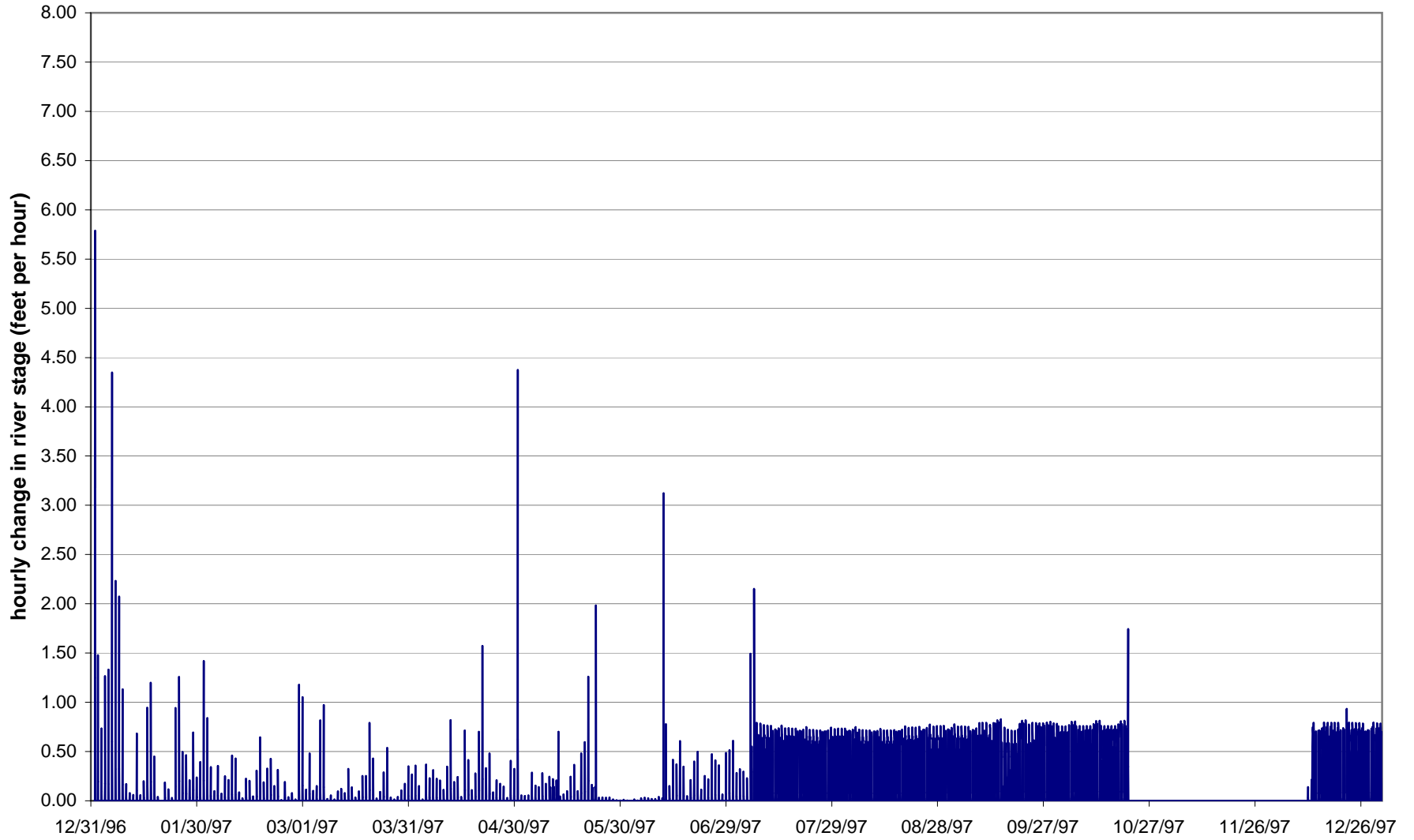
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 1(b)



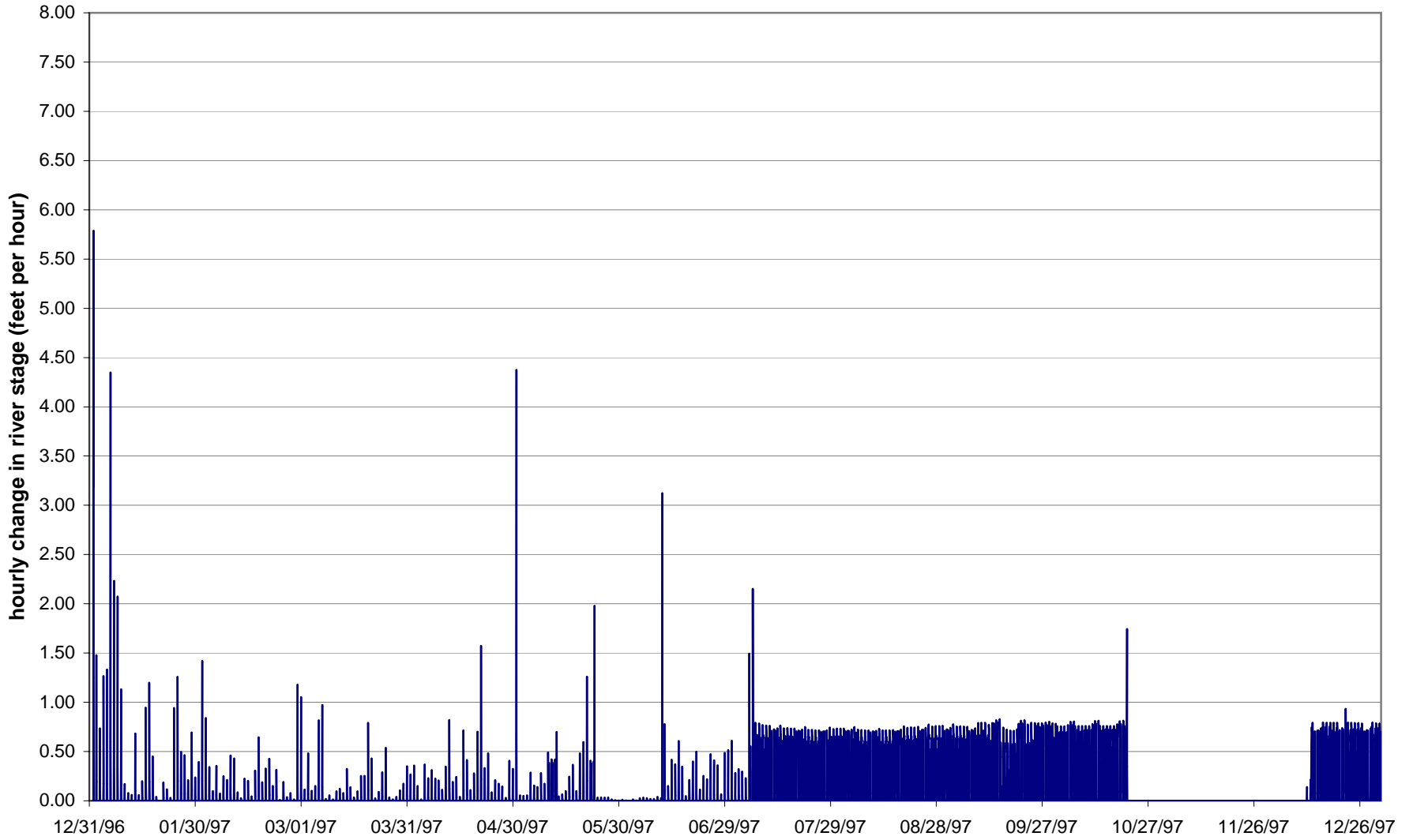
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 1(c)



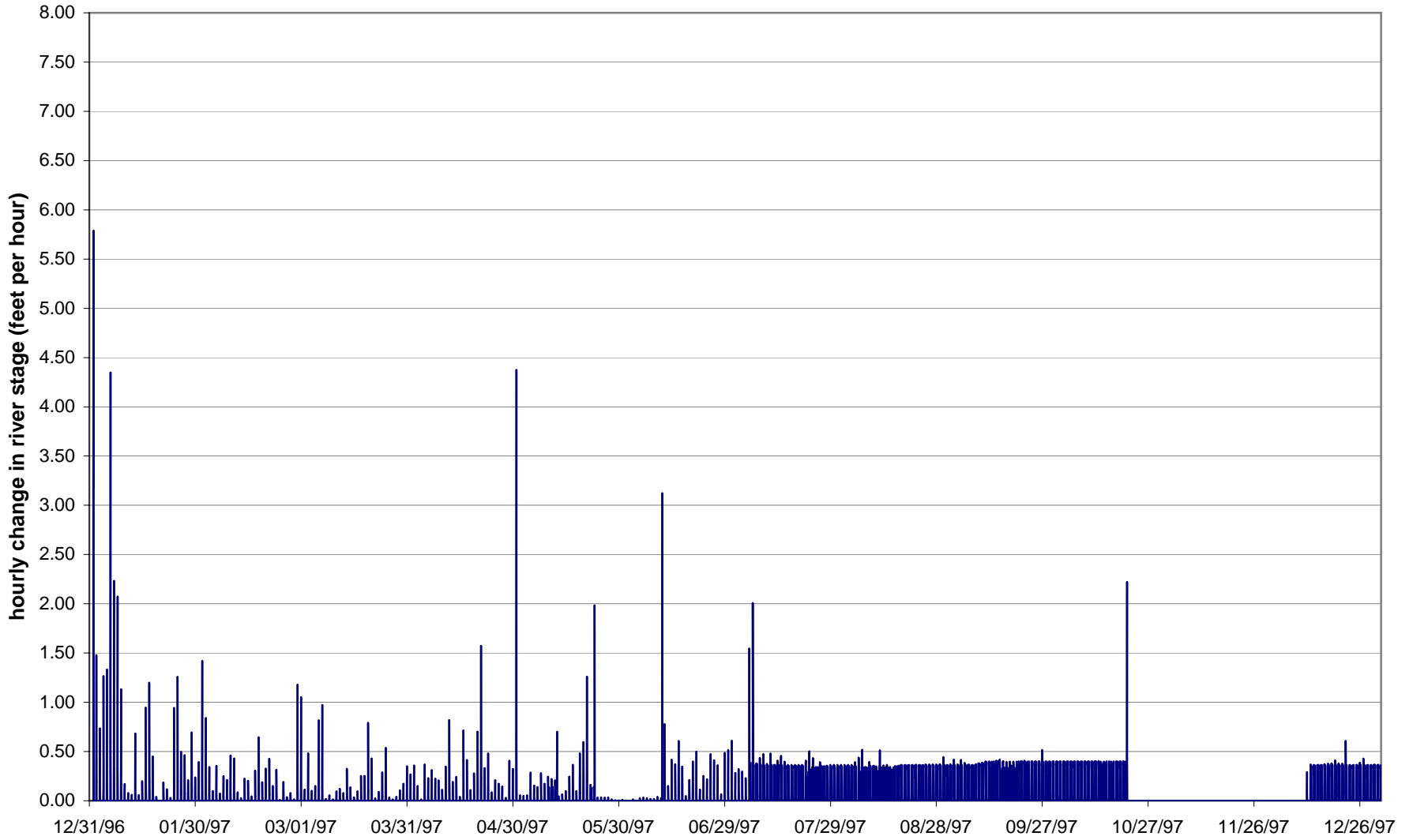
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 1(d)



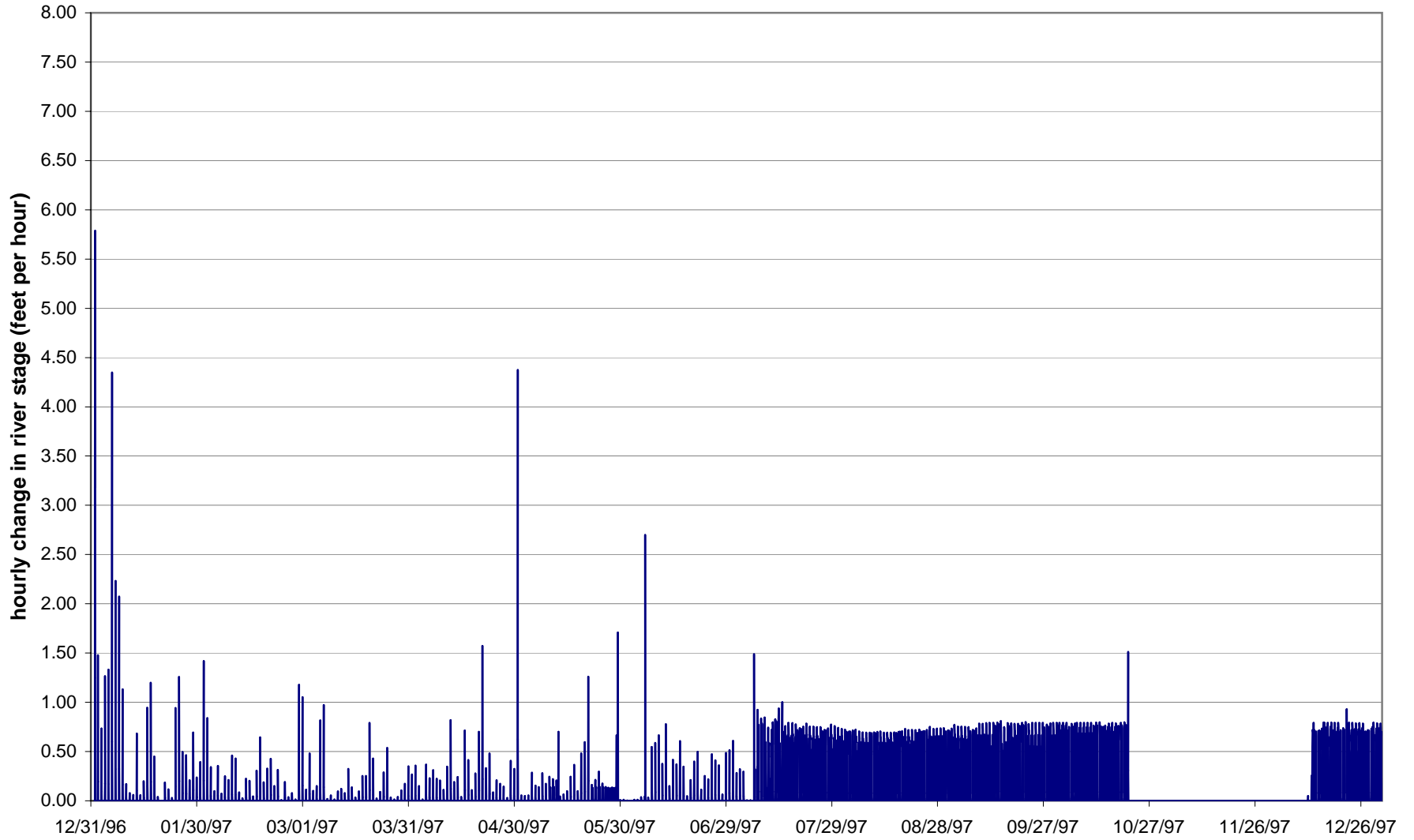
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 1(e)



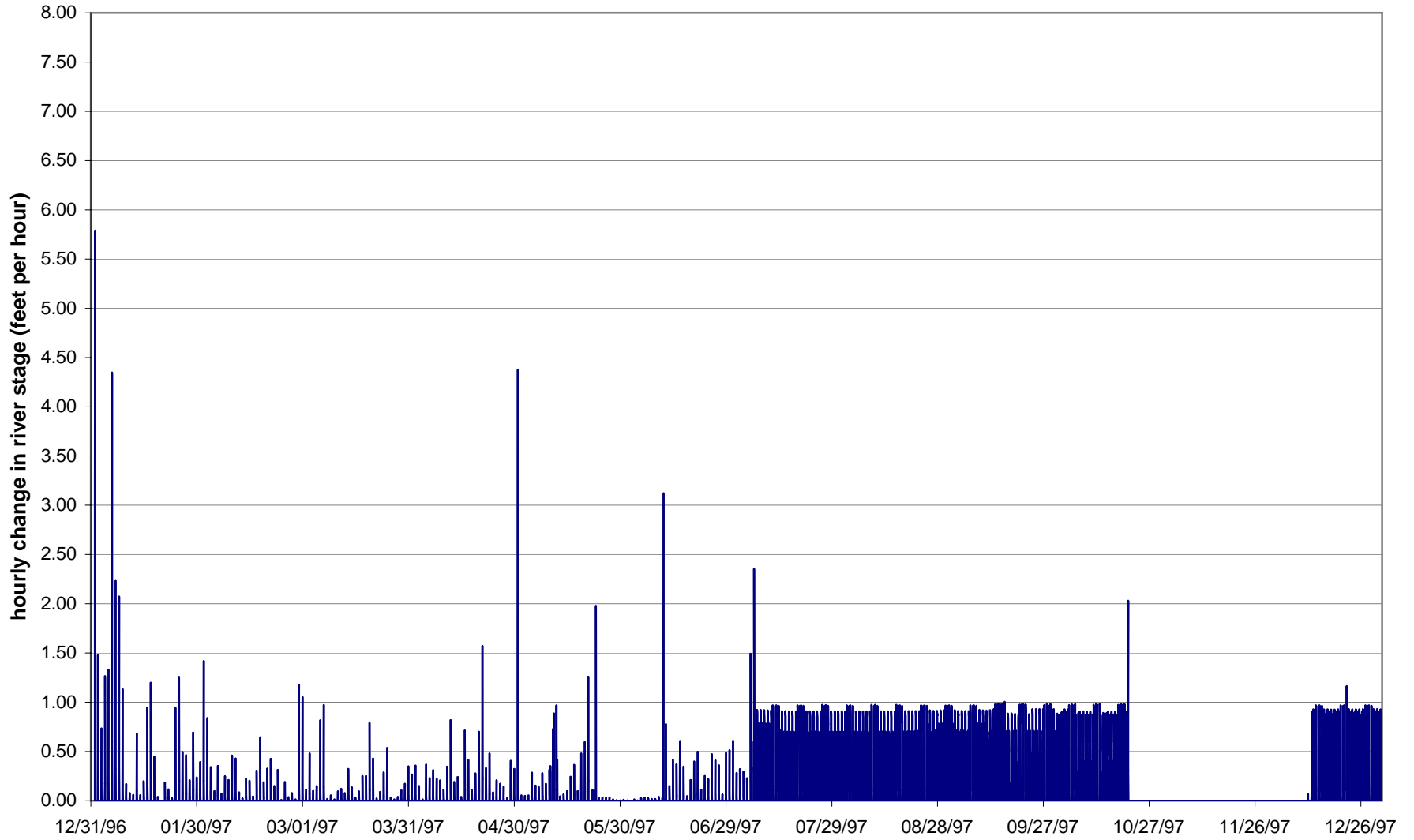
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 1(f)



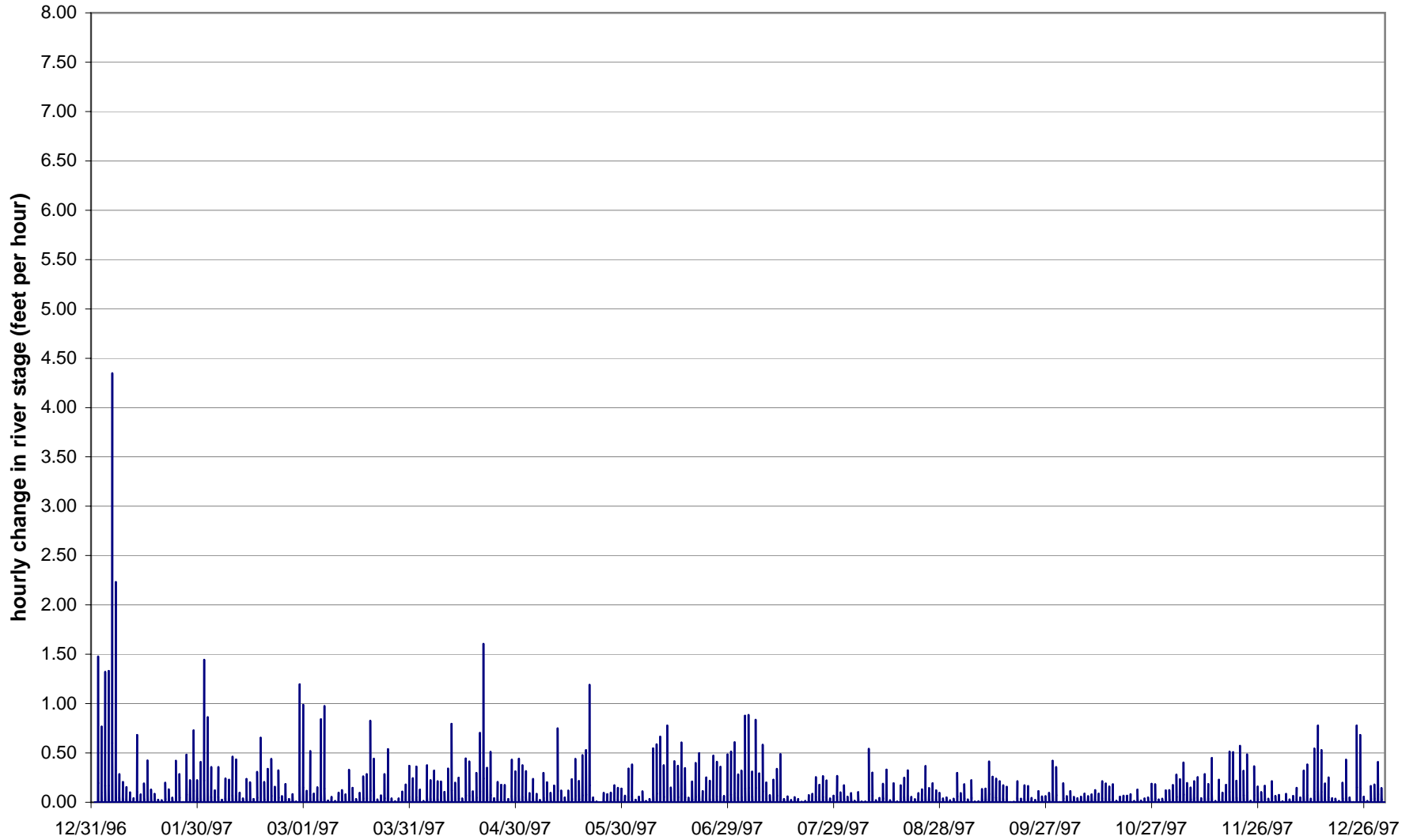
Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 2



Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 3



Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 5



Hourly change in river stage as predicted for Johnson Bar gage (no. 13290460)
Representative year - 1997
Scenario 6

