

**U.S. Army Corps of Engineers  
Northwestern Division**

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# Missouri River Basin Water Management



**Spring Pulse  
Background  
March 2009**

## *Spring Pulses from Gavins Point Dam*

- Part of a Reasonable and Prudent Alternative (RPA) in the USFWS 2003 Amended Biological Opinion to avoid jeopardy to the pallid sturgeon
- Master Manual revised in 2006 to include bimodal spring pulse from Gavins Point dam

## *Spring Pulses from Gavins Point Dam*

- First ever May spring pulse in May 2006
  - Peak magnitude of 9,000 cfs for 2 days
- First ever March spring pulse in March 2008
  - Peak magnitude of 5,000 cfs for 2 days
  - Pulse eliminated downstream of the confluence with the Kansas River
- March and May pulses planned in spring 2009 under all runoff scenarios

## *2009 March Pulse from Gavins Point*

- Estimated peak magnitude
  - 5,000 cfs for 2 days
- Timing at start of navigation season
- Additional volume of water released during pulse
  - 40,000 acre-feet
- Water source during event
  - Fort Randall and Gavins Point
  - < 0.5 foot
- Impact at end of water year
  - Balance impact among upper three reservoirs
  - <0.1 foot lower than without March pulse

## *2009 March Pulse from Gavins Point*

- Estimated downstream stage change
  - Sioux City to Omaha 1.25 feet
  - Nebraska City to Kansas City 1.0 foot
  - Boonville to Hermann 0.5 foot
- Timing at start of navigation season
- Downstream flow limits in effect to reduce risk of flood damages
- Monitoring in place
  - Biological
  - Socio-economic

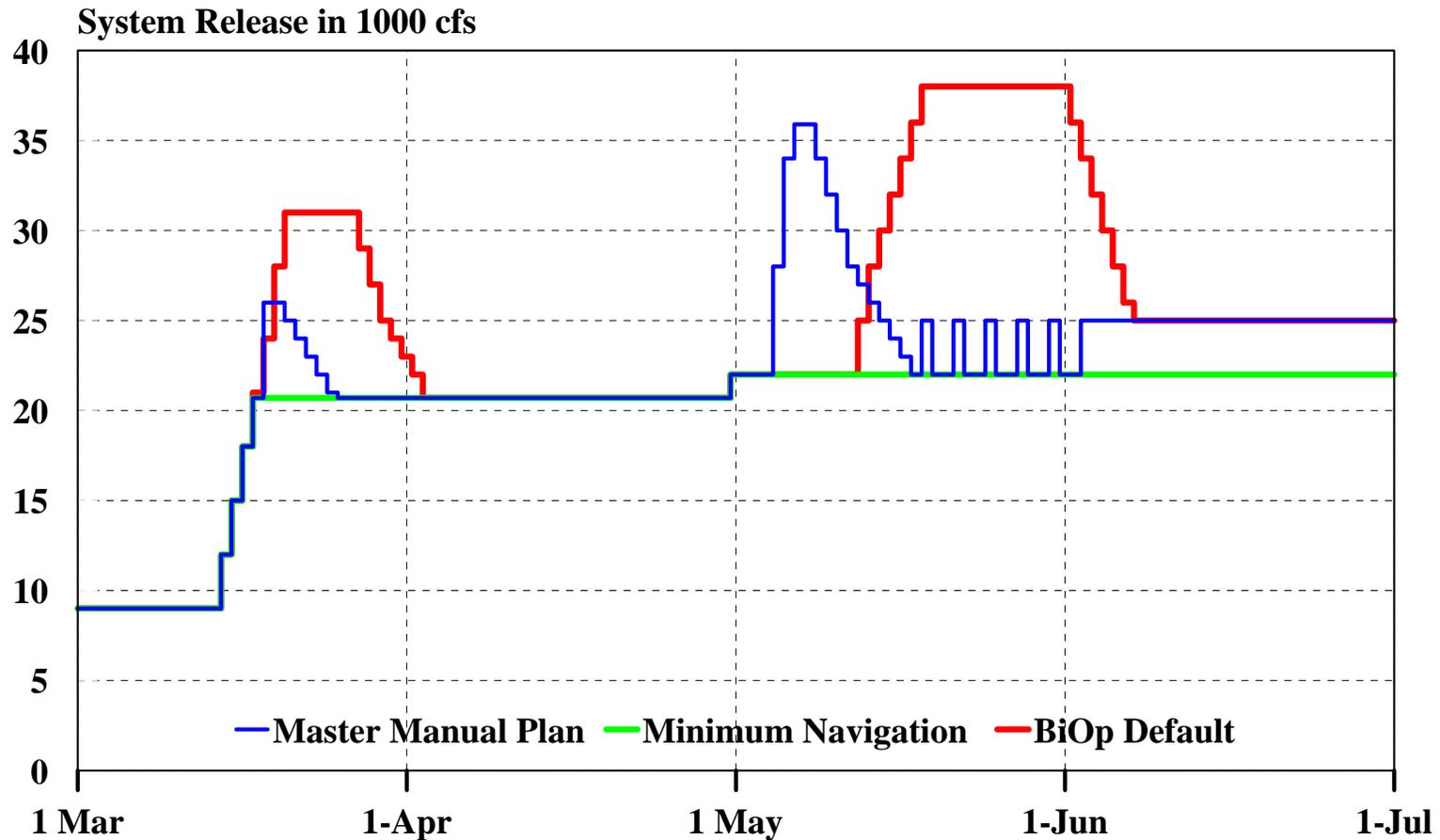
# *2009 May Pulse from Gavins Point*

- Estimated peak magnitude
  - 9,900 to 16,000 cfs for 2 days depending on 1 May system storage and runoff forecast
- Timing between 1 May and 19 May
  - Water temperature
  - Nesting terns and plovers
  - Downstream flow limits
- Additional volume of water released during pulse
  - 120,000 to 210,000 acre-feet
- Water source during event
  - 1.5 to 2.5 feet from Fort Randall
  - 1 to 1.5 feet from Gavins Point
- Impact at end of water year
  - Balance impact among upper three reservoirs
  - 0.2 to 0.3 foot lower than without May pulse

## *2009 May Pulse from Gavins Point*

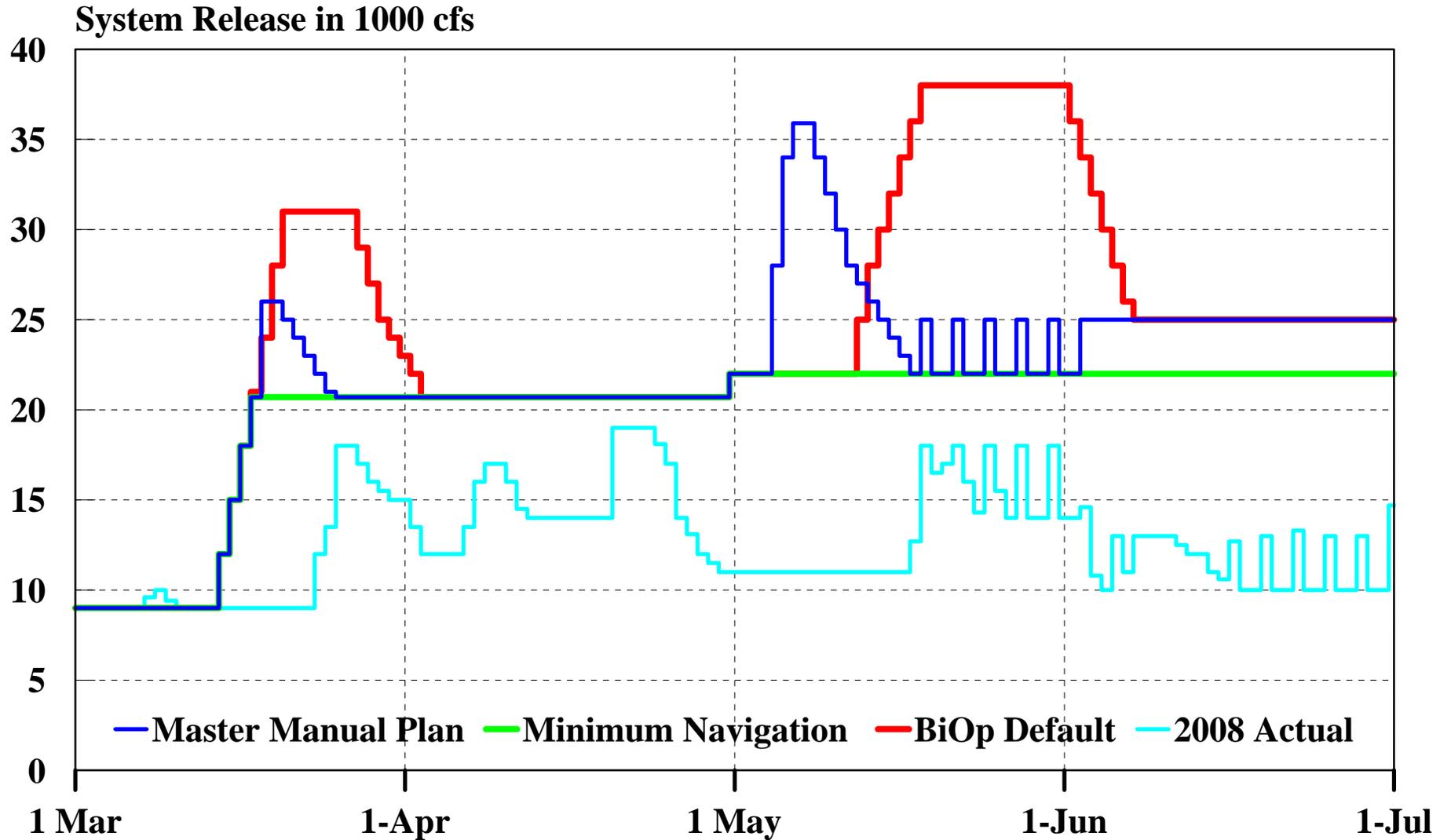
- Estimated downstream stage change
  - Sioux City to Omaha 2.5 to 4.5 feet
  - Nebraska City to Kansas City 2.0 to 3.5 feet
  - Boonville to Hermann 1.5 to 3.0 feet
- Downstream flow limits in effect to reduce risk of flood damages
- Monitoring in place
  - Biological
  - Socio-economic

# Gavins Point Spring Pulse Releases



*The 2003 Amended BiOp presented a default flow management plan (shown in red), but also included a provision that allowed the Corps to develop an alternative flow management plan in collaboration with the USFWS, USGS, Tribes, states and stakeholders that meets the life history needs of the pallid sturgeon. The Master Manual Plan (shown in blue) is the result of that effort and complies with the provisions of the BiOp.*

# *Gavins Point Spring Pulse Releases*



## *Navigation Targets and Downstream Flow Limits during Spring Pulses*

	Minimum Service	Full Service	Downstream Flow Limit
Omaha	25 kcfs	31 kcfs	41 kcfs
Nebraska City	31 kcfs	37 kcfs	47 kcfs
Kansas City	35 kcfs	41 kcfs	71 kcfs

# Missouri River Spring Pulse Flow Limits And Levees of Concern

