# Fish Passage Plan (FPP) Change Form

**Change Form # & Title**: 23MCN003 – Summer Spill Patterns for 57% Spill

**Date Submitted**: 30-MAR-2023

**Project**: McNary Dam

**Requester Name, Agency**: Chris Peery, Corps NWW

**Final Action:** **WITHDRAWN – May 11, 2023**

**FPP Section**:

Chapter 5, McNary Dam, Table MCN-11 (Interim Manual/Auto Spill Patterns)

**Justification for Change**:

Adds manual/auto spill patterns with six auto adjustable bays for summer June 16-Aug 14 (57% spill).

**Proposed Changes**:

*See following pages for edits to existing FPP text in track changes.*

**COMMENTS**:

May 11, 2023 – FPOM: Peery reported these patterns need to be reviewed and revised based on new information related to crane status and number of overloaded lifts they can make per year. This change form is **withdrawn.**

**RECORD OF FINAL ACTION**:

Withdrawn at the FPOM meeting on May 11, 2023.

Table MCN-11. Interim McNary Dam Manual/Auto Spill Patterns with Bays 2, 6, and 16 Locked. See section 2.2.1.1 for more information (added July 2022).

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| **APRIL Manual/Auto Spill Patterns with TSWs (# Gate Stops per Spillbay) c Bays 2, 6, and 16 locked at 4 or 6 stops (manually adjusted)** | **Total Stops** | **Total Spill** a |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19 b** | **20 b** | **21** | **22** | **(#)** | **(kcfs)** |
| 2 | 4 | 0 | 2 | 2 | 0 | 0 | 2 | 1 | 2 | 0 | 2 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 0 | **31** | **78.5** |
| 2 | 4 | 3 | 2 | 2 | 0 | 3 | 2 | 1 | 2 | 3 | 2 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 3 | **43** | **100.9** |
| 2 | 4 | 6 | 2 | 2 | 0 | 6 | 2 | 1 | 2 | 6 | 2 | 2 | 0 | 2 | 4 | 2 | 2 | TSW | TSW | 2 | 6 | **55** | **120.1** |
| 3 | 4 | 0 | 3 | 3 | 6 | 0 | 3 | 3 | 3 | 0 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 0 | **55** | **120.0** |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | **67** | **142.4** |
| 3 | 4 | 6 | 3 | 3 | 6 | 6 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 6 | **79** | **161.6** |
| 4 | 4 | 2 | 4 | 5 | 6 | 2 | 4 | 5 | 5 | 1 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 2 | **80** | **162.5** |
| 4 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 5 | **92** | **182.4** |
| 4 | 4 | 8 | 4 | 5 | 6 | 8 | 4 | 5 | 5 | 7 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 8 | **104** | **201.9** |
| 6 | 4 | 3 | 6 | 6 | 6 | 3 | 6 | 6 | 6 | 2 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 3 | **105** | **203.1** |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 6 | **117** | **222.4** |
| 6 | 4 | 9 | 6 | 6 | 6 | 9 | 6 | 6 | 6 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 9 | **129** | **242.0** |
| 7 | 6 | 5 | 8 | 7 | 6 | 4 | 7 | 7 | 7 | 4 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | TSW | TSW | 8 | 4 | **130** | **243.6** |
| 7 | 6 | 8 | 8 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | **142** | **262.9** |
| 7 | 6 | 11 | 8 | 7 | 6 | 10 | 7 | 7 | 7 | 10 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | TSW | TSW | 8 | 10 | **154** | **282.3** |

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| **MAY Manual/Auto Spill Patterns with TSWs (# Gate Stops per Spillbay) c Bays 2, 6, and 16 locked at 4 or 6 stops (manually adjusted)** | **Total Stops** | **Total Spill** a |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19 b** | **20 b** | **21** | **22** | **(#)** | **(kcfs)** |
| 2 | 4 | 2 |   | 2 | 0 | 3 | 2 | 1 |   | 2 | 2 | 1 |   | 2 | 4 |   | 2 | TSW | TSW | 2 |   | **31** | **78.5** |
| 2 | 4 | 2 | 3 | 2 | 0 | 3 | 2 | 1 | 3 | 2 | 2 | 1 | 3 | 2 | 4 | 3 | 2 | TSW | TSW | 2 |   | **43** | **100.7** |
| 2 | 4 | 2 | 6 | 2 | 0 | 3 | 2 | 1 | 6 | 2 | 2 | 1 | 6 | 2 | 4 | 6 | 2 | TSW | TSW | 2 |   | **55** | **120.1** |
| 3 | 4 | 3 | 0 | 3 | 6 | 3 | 3 | 3 | 0 | 3 | 3 | 3 | 0 | 3 | 4 | 0 | 4 | TSW | TSW | 4 | 3 | **55** | **120.0** |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | **67** | **142.4** |
| 3 | 4 | 3 | 6 | 3 | 6 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 6 | 3 | 4 | 6 | 4 | TSW | TSW | 4 | 3 | **79** | **161.6** |
| 4 | 4 | 5 | 1 | 5 | 6 | 5 | 4 | 5 | 2 | 4 | 5 | 4 | 2 | 4 | 4 | 1 | 5 | TSW | TSW | 5 | 5 | **80** | **162.5** |
| 4 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 5 | **92** | **182.4** |
| 4 | 4 | 5 | 7 | 5 | 6 | 5 | 4 | 5 | 8 | 4 | 5 | 4 | 8 | 4 | 4 | 7 | 5 | TSW | TSW | 5 | 5 | **104** | **201.9** |
| 6 | 4 | 6 | 3 | 6 | 6 | 6 | 6 | 6 | 3 | 5 | 6 | 6 | 3 | 6 | 6 | 3 | 6 | TSW | TSW | 6 | 6 | **105** | **203.1** |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 6 | **117** | **222.4** |
| 6 | 4 | 6 | 9 | 6 | 6 | 6 | 6 | 6 | 9 | 5 | 6 | 6 | 9 | 6 | 6 | 9 | 6 | TSW | TSW | 6 | 6 | **129** | **242.0** |
| 7 | 6 | 8 | 5 | 7 | 6 | 7 | 7 | 7 | 4 | 7 | 7 | 7 | 4 | 7 | 6 | 5 | 8 | TSW | TSW | 8 | 7 | **130** | **243.6** |
| 7 | 6 | 8 | 8 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | **142** | **262.9** |
| 7 | 6 | 8 | 11 | 7 | 6 | 7 | 7 | 7 | 10 | 7 | 7 | 7 | 10 | 7 | 6 | 11 | 8 | TSW | TSW | 8 | 7 | **154** | **282.3** |

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| **JUNE Manual/Auto Spill Patterns with TSWs (# Gate Stops per Spillbay) c Bays 2, 6, and 16 locked at 4 or 6 stops (manually adjusted)** | **Total Stops** | **Total Spill** a |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19 b** | **20 b** | **21** | **22** | **(#)** | **(kcfs)** |
| 2 | 4 | 2 | 2 | 0 | 0 | 2 | 2 | 0 | 2 | 1 | 0 | 2 | 0 | 2 | 4 | 2 | 0 | TSW | TSW | 2 | 2 | **31** | **78.5** |
| 2 | 4 | 2 | 2 | 3 | 0 | 2 | 2 | 3 | 2 | 1 | 3 | 2 | 0 | 2 | 4 | 2 | 3 | TSW | TSW | 2 | 2 | **43** | **100.7** |
| 2 | 4 | 2 | 2 | 6 | 0 | 2 | 2 | 6 | 2 | 1 | 6 | 2 | 0 | 2 | 4 | 2 | 6 | TSW | TSW | 2 | 2 | **55** | **120.1** |
| 3 | 4 | 3 | 3 | 0 | 6 | 3 | 3 | 0 | 3 | 3 | 0 | 3 | 3 | 3 | 4 | 3 | 1 | TSW | TSW | 4 | 3 | **55** | **120.0** |
| 3 | 4 | 3 | 3 | 3 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | TSW | TSW | 4 | 3 | **67** | **142.4** |
| 3 | 4 | 3 | 3 | 6 | 6 | 3 | 3 | 6 | 3 | 3 | 6 | 3 | 3 | 3 | 4 | 3 | 7 | TSW | TSW | 4 | 3 | **79** | **161.6** |
| 4 | 4 | 5 | 4 | 2 | 6 | 5 | 4 | 2 | 5 | 4 | 2 | 4 | 5 | 4 | 4 | 4 | 2 | TSW | TSW | 5 | 5 | **80** | **162.5** |
| 4 | 4 | 5 | 4 | 5 | 6 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | TSW | TSW | 5 | 5 | **92** | **182.4** |
| 4 | 4 | 5 | 4 | 8 | 6 | 5 | 4 | 8 | 5 | 4 | 8 | 4 | 5 | 4 | 4 | 4 | 8 | TSW | TSW | 5 | 5 | **104** | **201.9** |
| 6 | 4 | 6 | 6 | 3 | 6 | 6 | 6 | 3 | 6 | 5 | 3 | 6 | 6 | 6 | 6 | 6 | 3 | TSW | TSW | 6 | 6 | **105** | **203.1** |
| 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | TSW | TSW | 6 | 6 | **117** | **222.4** |
| 6 | 4 | 6 | 6 | 9 | 6 | 6 | 6 | 9 | 6 | 5 | 9 | 6 | 6 | 6 | 6 | 6 | 9 | TSW | TSW | 6 | 6 | **129** | **242.0** |
| 7 | 6 | 8 | 8 | 4 | 6 | 7 | 7 | 4 | 7 | 7 | 4 | 7 | 7 | 7 | 6 | 8 | 5 | TSW | TSW | 8 | 7 | **130** | **243.6** |
| 7 | 6 | 8 | 8 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 8 | 8 | TSW | TSW | 8 | 7 | **142** | **262.9** |
| 7 | 6 | 8 | 8 | 10 | 6 | 7 | 7 | 10 | 7 | 7 | 10 | 7 | 7 | 7 | 6 | 8 | 11 | TSW | TSW | 8 | 7 | **154** | **282.3** |

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| **Manual/Auto Spill Patterns with NO TSWs (# Gate Stops per Spillbay) c Bays 2, 6, and 16 locked at 3 or 5 stops** | **Total Stops** | **Total Spill** a |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** | **21** | **22** | **(#)** | **(kcfs)** |
| 3 | 5 | 0 | 2 |   | 3 | 2 | 0 | 2 |   | 2 | 2 | 0 | 3 | 2 | 3 | 2 |   | 3 | 0 | 2 |   | **36** | **68.0** |
| 3 | 5 | 1 | 2 |   | 3 | 2 | 1 | 2 |   | 2 | 2 | 1 | 3 | 2 | 3 | 2 |   | 3 | 1 | 2 |   | **40** | **76.0** |
| 3 | 5 | 2 | 2 |   | 3 | 2 | 2 | 2 |   | 2 | 2 | 2 | 3 | 2 | 3 | 2 |   | 3 | 2 | 2 |   | **44** | **83.6** |
| 3 | 5 | 3 | 2 |   | 3 | 2 | 3 | 2 |   | 2 | 2 | 3 | 3 | 2 | 3 | 2 |   | 3 | 3 | 2 |   | **48** | **90.4** |
| 3 | 5 | 4 | 2 |   | 3 | 2 | 4 | 2 |   | 2 | 2 | 4 | 3 | 2 | 3 | 2 |   | 3 | 4 | 2 |   | **52** | **96.8** |
| 4 | 5 | 2 | 2 | 3 | 3 | 3 | 0 | 3 | 2 | 2 | 3 | 0 | 3 | 3 | 3 | 3 | 2 | 3 | 0 | 3 | 2 | **54** | **101.0** |
| 4 | 5 | 3 | 2 | 3 | 3 | 3 | 1 | 3 | 2 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 2 | 3 | 1 | 3 | 2 | **58** | **108.7** |
| 4 | 5 | 4 | 2 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | **62** | **116.0** |
| 4 | 5 | 5 | 2 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 2 | **66** | **122.7** |
| 4 | 5 | 6 | 2 | 3 | 3 | 3 | 4 | 3 | 2 | 2 | 3 | 4 | 3 | 3 | 3 | 3 | 2 | 3 | 4 | 3 | 2 | **70** | **129.1** |
| 4 | 5 | 3 | 4 | 3 | 3 | 4 | 2 | 4 | 3 | 3 | 4 | 2 | 3 | 3 | 3 | 4 | 3 | 4 | 2 | 3 | 3 | **72** | **132.5** |
| 4 | 5 | 4 | 4 | 3 | 3 | 4 | 3 | 4 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | 3 | 3 | 3 | **76** | **139.2** |
| 4 | 5 | 5 | 4 | 3 | 3 | 4 | 4 | 4 | 3 | 3 | 4 | 4 | 3 | 3 | 3 | 4 | 3 | 4 | 4 | 3 | 3 | **80** | **145.6** |
| 4 | 5 | 6 | 4 | 3 | 3 | 4 | 5 | 4 | 3 | 3 | 4 | 5 | 3 | 3 | 3 | 4 | 3 | 4 | 5 | 3 | 3 | **84** | **152.0** |
| 4 | 5 | 7 | 4 | 3 | 3 | 4 | 6 | 4 | 3 | 3 | 4 | 6 | 3 | 3 | 3 | 4 | 3 | 4 | 6 | 3 | 3 | **88** | **158.4** |

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| **Manual/Auto Spill Patterns for 57% SUMMER SPILL & Six Auto Bays (June 16-Aug 14) c Bays 2, 6, and 16 manually adjusted** | **Total Stops** | **Total Spill** a |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** | **21** | **22** | **(#)** | **(kcfs)** |
| 3 | 5 | 0 | 3 |   | 3 | 2 | 0 | 2 |   | 3 | 2 | 0 | 3 | 0 | 3 | 2 |   | 3 | 0 | 0 | 2 | **36** | **67.5** |
| 3 | 5 | 1 | 3 |   | 3 | 2 | 1 | 2 |   | 3 | 2 | 1 | 3 | 1 | 3 | 2 |   | 3 | 1 | 1 | 2 | **42** | **79.5** |
| 3 | 5 | 2 | 3 |   | 3 | 2 | 2 | 2 |   | 3 | 2 | 2 | 3 | 2 | 3 | 2 |   | 3 | 2 | 2 | 2 | **48** | **90.9** |
| 3 | 5 | 3 | 3 |   | 3 | 2 | 3 | 2 |   | 3 | 2 | 3 | 3 | 3 | 3 | 2 |   | 3 | 3 | 3 | 2 | **54** | **101.1** |
| 3 | 5 | 0 | 4 | 4 | 4 | 2 | 0 | 2 | 4 | 4 | 2 | 0 | 3 | 0 | 3 | 4 | 4 | 3 | 0 | 0 | 3 | **54** | **98.9** |
| 3 | 5 | 1 | 4 | 4 | 4 | 2 | 1 | 2 | 4 | 4 | 2 | 1 | 3 | 1 | 3 | 4 | 4 | 3 | 1 | 1 | 3 | **60** | **110.9** |
| 3 | 5 | 2 | 4 | 4 | 4 | 2 | 2 | 2 | 4 | 4 | 2 | 2 | 3 | 2 | 3 | 4 | 4 | 3 | 2 | 2 | 3 | **66** | **122.3** |
| 3 | 5 | 3 | 4 | 4 | 4 | 2 | 3 | 2 | 4 | 4 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 3 | 3 | 3 | 3 | **72** | **132.5** |
| 3 | 5 | 2 | 4 | 4 | 4 | 4 | 2 | 4 | 4 | 4 | 4 | 2 | 3 | 2 | 3 | 4 | 4 | 4 | 2 | 2 | 4 | **74** | **135.4** |
| 3 | 5 | 3 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 3 | 3 | 4 | **80** | **145.6** |
| 3 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | **86** | **155.2** |
| 3 | 5 | 5 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 4 | 4 | 5 | 3 | 5 | 3 | 4 | 4 | 4 | 5 | 5 | 4 | **92** | **164.8** |

**a** Spill (kcfs) is calculated as a function of the total number of gate stops + TSW spill at forebay elevation 339 ft.

b Bays 19-20 with TSWs = approx 19.2 kcfs spill (9.6 kcfs/bay) at forebay 339'. Raise tainter gates 3-5 ft above water surface to ensure free flow through the TSWs.

**c** Auto mode bays will be adjusted through their operational range as required. Desired spill volumes will be achieved by adjusting a single automatic bay one stop at a time. Automatic bays will operate within one stop of each other.