# Fish Passage Plan (FPP) Change Form

**Change Form # & Title**: 23AppL001 – NWW Updates

**Date Submitted**: 6-JAN-2023

**Project**: NWW Projects

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

**Final Action:**

**FPP Section**:

Appendix L (Predator Mgmt Plans) – Table 2 and sections 5 through 9

**Justification for Change**:

Update NWW projects with avian hazing dates for 2023.

**Proposed Change**:

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

**Comments**:

**Record of Final Action**:

Table 2. Hazing Dates & Methods at Lower Columbia and Lower Snake River Projects. See Sections 3-10 below for project-specific descriptions.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Dam** | **Passive Deterrents** | **Hazing Dates** | **Location** | **Hazing hours/day** | **Hazing Methods** | **Action Trigger** |
| **BON** | Avian wires, sprinklers | April 1 – July 31 (Avian) | Shore | 8 hrs/day | Pyrotechnics, sound, propane cannon (if necessary) | 150 birds in a single zone |
| **TDA** | Avian wires | April 15 – July 31 | Shore, Boat | 14 hrs/day Apr/Jul  16 hrs/day May/Jun | Pyrotechnics | 50% of 5-yr average |
| **JDA** | Avian wires | April 10 – July 31 | Boat | 8 hrs/day | Pyrotechnics | 50% of 5-yr average |
| **MCN** | Avian wires, needle strips, | April 23 – July 22 | Shore, Boat | Shore:  12 (Apr 23-Jul 22, 6 days/wk);  8 (Apr 23-Jul 22, Sundays);  Boat: 10 (Apr 30-Jul 8, 3 days/wk except Sundays) | Pyrotechnics, sound, lethal take (if necessary) | N/A |
| **IHR** | Avian wires, wire spikes, sprinklers | April 1 – June 30 | Shore, Boat | Shore: 8 (Apr 1-8, Jun 11-30);  16 (Apr 9-Jun 10)  Boat: 8 (Apr 9-22, May 28-Jun 10, 3 days/wk);  8(Apr 23-May 27, 5 days/wk) | Pyrotechnics, sound, laser, lethal take (if necessary) | Daily count twice 3-yr average; unresponsive to hazing. |
| **LMN** | Avian wires, sprinklers | April 9 –July 1 | Shore | 8 (Apr 9 – 22 and Jun 4 – Jul 1);  16 (Apr 23-Jun 3) | Pyrotechnics, sound, lethal take (if necessary) | 86 gulls, 43 terns, 15 cormorants |
| **LGS** | Avian wires, needle strips, sprinklers, visual | March 29 – June 18 | Shore, Boat | Shore: 8 (Mar 29-Apr 10, May 23-Jun 18);  16 (Apr 11-May 22).  Boat: 8 (Mar 29-Jun 18, 3 days/wk) | Pyrotechnics, sound, lethal take (if necessary) | 100 gulls &/or terns, 50 cormorants |
| **LWG** | Avian wires, needle strips, sprinklers | April 1 – June 30 | Shore | 8 (Apr 1-20, Jun 2-30),  16 (Apr 20-Jun 1) | Pyrotechnics, sound, lethal take (if necessary) | 57 gulls, 110 cormorants |

5. Mcnary dam

**5.1. Introduction.** McNary Lock & Dam has one of the largest piscivorous bird populations on the Columbia River due to the number of juvenile fish descending on McNary from both the Snake and upper Columbia rivers and due to the project’s close proximity to several significant bird nesting colonies.

**5.1.1.** McNary has a mix of piscivorous bird species, including California and ring-billed gulls, western grebes, Caspian terns, white pelicans, double-crested cormorants, mergansers and other piscivorous waterfowl. The most numerous are the two gull species and they typically are found in the spillway tailrace, which is the most difficult area to reach with shore-based pyrotechnic devices, propane cannons and electronic bird alarm calls.

**5.1.2.** Much of what the McNary project does to control predatory birds is determined months in advance, when the project helps establish the predatory bird control contract with USDA Wildlife Services (WS), so there is very little additional that the project can do during times of unusually high avian predation, other than to shift USDA hazers around to different spots around the project. Early in the season, we will have already deployed the appropriate number of propane cannons and bird alarms, so more would not be appropriate. In addition to adding boat hazing, the project will continue with the two-shift hazing effort during the busiest months of the year.

**5.1.3.** Propane cannons, electronic bird alarms and other noise-makers are problematic, because they disturb nearby homeowners, fishers, park users and tugboat crews, so they must be used with discretion. They are of limited effectiveness and propane cannons in particular must be restricted to near-dam areas and away from recreational and navigational traffic.

**5.2. Monitoring**. McNary biologists and biological technicians monitor the dam populations of gulls, grebes, Caspian terns, white pelicans and double-crested cormorants at least once per day, seven days a week, from April 1 through September 30, the juvenile fish bypass season at McNary. The project may monitor populations more frequently, as needed, during bird population surges or outside this time window. We will include observations of hazing activity, hazing hours, boat hazing, monitoring times, foraging/non-foraging activity, etc.

**5.3. Action Plan.** WS bird hazing occurs from April 23 through July 22 for 12 hours per day, 6 days per week and 8 hours per day on Sundays. Boat hazing is also used from Apr 30 through July 8, for 10 hours per day, 3 days per week (except Sundays). WS crews may at their discretion deploy limited lethal take of gulls and cormorants, particularly if hazing by itself loses its effectiveness. Project personnel may deploy a limited number of propane cannons and electronic bird alarms from time-to-time, typically early in the season. Overhead avian deterrent wires are located along the powerhouse tailrace. The sprinkler system on the juvenile fish bypass outfall and associated plumbing and electrical supply were lost during higher flows in 2019. Deterrent lasers, long range acoustic device (LRAD) and bird calls are currently being used to reduce avian predators at the outfall pipe.

**5.4. Incident Response**. When surges of predatory birds become apparent, the project will conduct the following actions based on the number of birds present:

**a.** When predacious bird numbers at any particular location exceed 50-100 foraging birds, focus WS hazers on those locations;

**b.** When predacious bird numbers at any particular location (most usually the spillway outfall) exceed 100 - 200 foraging birds, increase WS hazing efforts in those areas and increase the number of long-range pyrotechnic devices. Focus boat hazing in those areas. If WS has not already initiated lethal take, deploy limited lethal take;

**c.** When predacious bird numbers at any particular location exceed 200-300 foraging birds, increase hazing efforts. Continue to focus boat hazing in those areas. Place more emphasis on lethal take. Lethal take is a critical part of these predatory bird control efforts. Without it, hazing will likely have only a limited effect on local bird congregations.

5.5. Reporting. As noted in the “Monitoring” section above, McNary biologists and technicians monitor birds from April 1 through September 30, the juvenile fish bypass season at McNary. We maintain records of this monitoring on an Excel spreadsheet. Regular updates will be provided in a table in the fish facility weekly report, along with a brief statement on the effectiveness of the bird deterrent program for that week. A summary of seasonal bird abundance and the overall effectiveness of the bird deterrent program will be provided in the fish facility annual report. Reporting is by zone, with the project divided into the following zones: Forebay (FB1); Juvenile Bypass Outfall (JFOF); Powerhouse Tailrace (PHT1); and Spillway Tailrace (SWT1). Reporting is by bird species, when clear identification is possible. We do not differentiate between gull species, due to the difficulty in determining gull species from a distance. We also have hazing data from WS personnel working on the project. During the hazing season, WS personnel turn in daily and monthly reports.

6. Ice harbor dam

**6.1. Monitoring**. Bird monitoring dates are April 1 to July 31. Gull, cormorant, Caspian tern, grebe and pelican numbers are counted once per day, 6 or 7 days a week from April 1 to June 30, and 4 days (Monday through Thursday) a week from July 1 to July 31.

**6.2. Hazing**. Ice Harbor Dam utilizes the U.S. Department of Agriculture’s Wildlife Service (WS) for hazing of piscivorous birds to reduce predation on ESA-listed fish passing the dam. Bird hazing occurs from April 1 through June 30, 7 days per week, and is focused on gulls, terns and cormorants observed to be feeding on passing fish. Land-based hazing is conducted by a WS Specialist 8 hours per day April 1–8 and June 11–30, and 16 hours per day April 9–June 10. Boat-based hazing is conducted 3 days per week April 9–22 and May 28–June 10, and 5 days per week April 23–May 27.

**6.3. Action Plan**. Birds are actively hazed in the immediate forebay of the dam to the Boat Restrictive Zone (BRZ). In the tailrace, birds are actively hazed from the immediate tailrace of the dam downstream to Eagle Island. Data that are noted are the time, avian zone, the species of the bird, number of birds, if they are foraging or not foraging and control action taken.

**6.3.1.** Birds are hazed daily using pyrotechnics. If a gull or cormorant becomes unresponsive to hazing and is leading other birds to feed on juvenile fish (instigator bird) who are also unresponsive to hazing, lethal take of the instigator bird or a bird in the group of unresponsive birds will occur at the discretion of the boat-based hazing crew. This action will occur most sparingly after hazing efforts have failed to move the birds. In addition, there are bird wires across the turbine discharge area and the spillway area below the Dam. A water cannon is located on the juvenile fish bypass pipe terminus. Wire spikes are installed on light poles, forebay buoys, and other bird perching areas.

**6.4. Incident Response**. If the daily total count of gulls, cormorants, and terns increases to twice the most recent 3-year average daily count for the same week (“threshold”), the Project Biologist will consult with the WS field crew leader about focusing hazing efforts at problem bird zones (if this has not already occurred). If these focused efforts do not reduce bird numbers below the threshold, Corps personnel will deploy additional bird deterrent devices, including propane cannons, bird distress calls, and/or hand-held lasers. If bird numbers are still not reduced, the Project Biologist will consult with the WS field crew leader about increasing the use of lethal take.,

**6.5. Reporting**. Bird observations will be reported weekly on the Project’s ESA Weekly Report and will include a brief statement on the effectiveness of the bird deterrent program for that week. A summary of the season will be included in the Annual Fish Report.

6. lower monumental dam

**7.1. Monitoring**. Bird monitoring as part of standard fish ladder inspections will occur from March 1 to September 30. Fish ladder inspections will be conducted 4 days per week, once per day at random times from April 1 to June 30 (crew size permitting, 3 inspections per week minimum if crew size is compromised). Additionally, Wildlife Services (WS) will collect this data on the three days per week not covered by COE. This will cover 97% of the typical juvenile salmonid outmigration. Fish ladder inspections will continue (July 1 to December 31) to collect this data at the required rate of 3 inspections per week.

**7.1.1.** Additionally, bird hazing effectiveness inspections will take place once daily from April 1 through June 30. These will consist of flying gull and tern counts and floating cormorant counts in the tailrace and at the juvenile fish bypass outfall. These inspections will be conducted from the river end of the raceway structure and will occur between 1100 and 1300 hours.

**7.1.2.** Data collected during fish ladder inspection will be recorded in a standardized Excel spreadsheet and will be limited to gulls, cormorants, terns, grebes and pelicans. There will be five zones monitored including: Forebay (FB1), Spillway (SWT1), Powerhouse outflow under bird wires (PH1), Powerhouse outflow downstream of bird wires (PH2) and the juvenile bypass outfall (JFOF). There will be two bird activities monitored: Foraging (flying, diving or feeding) and Non-foraging (resting in/on water, on debris, structures or land, or while scavenging).

**7.1.3.** Data collected during bird hazing effectiveness inspections will be recorded in a standardized excel spreadsheet and will be limited to: gulls, cormorants and terns.

**7.2. Action Plan**. Lower Monumental Dam will have an active hazing program consisting of one 8-hour shift per day from April 9-22 and June 4-July 1 and two 8-hour shifts (non-concurrent) from April 23 - through June 3. Gulls, cormorants and terns will be the major focus of this hazing effort.

**7.2.1.** Hazing shifts and zones to be emphasized will be adjusted to maximize deterrent effect on feeding bird populations.

**7.2.2.** Lethal take may occur as part of the hazing program and would exclusively be performed and regulated by licensed agencies and/or companies.

**7.2.3.** Bird wires will be maintained across the turbine discharge area (see zone photo). The addition of bird wires across the spillway is not practical or safe as the fish transport barge and tug would run through them.

**7.2.4.** Bird aversion water cannons will be in operation from April 1 through October 1 at the bypass outfall.

**7.2.5.** Boat hazing is not needed at Lower Monumental as the river is sufficiently narrow to allow effective hazing from the dam structure and shore.

**7.3. Incident Response**. In response to operational trigger numbers observed during bird hazing effectiveness inspections, the following action toolbox items will be utilized. The timing of the introduction of these additional hazing methods will be dependent on available trained staff:

**a.** Propane cannon placement.

**b.** COE employee (added) hazing with screamers and poppers fired from shore.

**7.3.1. Operational Trigger Numbers.** When the following operational trigger criteria are met then (depending on the conditions) one of the toolbox items will be put into service. Available staff will likely be a factor in which item is selected. Re-evaluation of the item causing the action will occur daily in regard to stepping up, terminating or randomizing use of the operations from the Action Toolbox. Items will be added to the toolbox as they are tested and proved effective.

**7.3.2.** The following action point numbers based on foraging birds are proposed as a starting point for this process. As more years of data are collected with the benefit of binoculars then these action points will be adjusted accordingly.

**a.** Action point Gulls = 86.

**b.** Action point Terns = 43.

**c.** Action point Cormorants = 15.

**7.4. Reporting**.

**7.4.1. Annual Reporting** of fish ladder inspection bird monitoring results will be included in the “Adult and Juvenile Fish Facility Monitoring Report” focusing on bird activities from April 1 through June 30.

**7.4.2. Weekly Reporting** of bird hazing effectiveness inspections and occurrence of trigger points and resulting action will be added to the standard Fish Facility Weekly Report in its own section and summary table labeled, “Table 2. LMO Tailrace Counts of Foraging Piscivorous Birds”, from April 1 through June 30.

8. little goose dam

**8.1. Monitoring**. Little Goose will monitor and collect daily data on gulls, cormorants and terns from April 1 – October 31. Bird monitoring will occur 2 to 3 times per day in two zones; the forebay and tailrace. There will be two bird activities monitored; foraging and non-foraging.

**8.2. Action Plan**. Little Goose will perform bird hazing, which includes at least 8 hours per day, 7 days per week of contracted services from March 29 to June 18. During the peak period for bird abundance, April 11-May 22, up to 16 hours of hazing will occur. Boat hazing will occur March 29-June 18 for 8 hours per day, three days per week. Gulls, cormorants and terns will be hazed as needed during the juvenile fish passage season. Hazing will be performed using scare products. These include consumer fireworks, scare cannons, bird bangers and bird screamers.

**8.2.1.** Passive deterrents will be used. These include; needle strips, an overhead bird wire array, visual scare devices and a hydrocannon located at the juvenile fish bypass outfall. The wire array is composed of 12 wires across the turbine discharge area.

**8.2.2.** Limited lethal take may occur at the discretion of qualified WS personnel.

**8.3. Incident Response**. If gulls and/or tern numbers reach an average of 100 per day or cormorants reach an average of 50 per day during the April 1 to August 31 period the project will commence into action one or more of the following toolbox control measures, in any combination, to best achieve reduced bird predation to an acceptable level.

**a.** Deploy additional remotely activated propane canon(s);

**b.** Increase hazing with pyrotechnics and other bird scare devices;

**c.** Initiate limited lethal take by Wildlife Services personnel if not already started.

**8.4. Reporting**. Bird management data will be recorded into computer spreadsheets, assimilated and reported weekly and annually. A brief statement assessing the effectiveness of the avian deterrent program for that week will be included in the weekly report, with an overall summary provided in the annual report.

9. lower granite dam

**9.1. Monitoring**. Monitoring work at Lower Granite Dam will be done by COE biologists April 1 through October 31 and by control agents of the USDA conducting bird hazing work at the dam April 1 through June 30. The agencies will conduct independent counts. USDA will usually be counting birds once daily in all zones, in conjunction with their normal hazing activities. Binoculars will be utilized to make the counts and the normal count area will be from the base of the dam downstream to a buoy approximately 1/2 mile below the dam. The tailrace area of the dam has been divided into zones and the technicians will count the birds in each zone and record foraging or non-foraging behavior. Bird count data will be limited to gulls (California and ring-billed), cormorants and Caspian terns. American white pelicans will be recorded on an incidental basis in attempt to monitor their increasing abundance.

**9.2. Action Plan**. Base actions will be include the array of methods in long-time use by the USDA/WS and will also include limited lethal control when the other methods prove ineffective. Passive avian deterrent structures include the overhead array of 34 wires spanning the tailrace downstream to the end of the navigation lock wall and across the river to the pole located just upstream of the visitor center overlook. Nonlethal control measures will include 15 mm pyrotechnics and Dominator rocket pyrotechnics. Agents will haze birds on both side of the river and will work as far as two miles below the dam. Limited lethal control of gulls and cormorants will be at the discretion of the agents working on site. Lethal take will be conducted with a shotgun in accordance with the USFWS-issued permit. Powerhouse operators and persons conducting tours will be notified before any lethal take activities take place. No lethal take will be allowed when schools or other tour groups are on site. Hazing activities will take place 8 hours per day from April 1 through April 20 and from June 2 through June 30. Hazing will take place 16 hours per day from April 20 through June 1 when the maximum numbers of juvenile salmonids are normally passing the dam.

**9.3. Incident Response**. A trigger for additional control measures is listed below. The trigger level is presently set at an order of magnitude above the average gull counts for the previous five-year period. It might be wise to consider lowering this number somewhat but it appears gulls are being effectively controlled at Lower Granite at the present time using the available techniques. The addition of limited lethal take in 2014 should help keep the numbers at reasonable numbers. In the event the numbers do significantly increase over time, possible control measures would include: remotely activated propane canons, biotech hazing with pyrotechnics (in addition to USDA/WS), playing remotely activated gull distress sounds and emergency call-out of off-duty JFF personnel to assist with hazing activities.

**9.3.1. Avian Predation Trigger Level and Proposed Toolbox Control Measures.** Gull numbers were obtained from daily counts off the Lower Granite JFF separator platform. At the present time, terns are not very abundant at Lower Granite and the project does not have count data. Cormorants are certainly present but much more difficult to count (and haze) than gulls. At this time, I recommend that a trigger level be calculated and utilized for gulls (both species combined) only. Below are the average gull numbers for each of five years running from April 1 through June 30 each year (WS hazing was being conducted):

**9.3.2.** If gull numbers reach an average of 95 per day during the April 1 to June 30 time period (10x the 5-year average), the following project toolbox measures would be utilized in combination with WS (or other contractor) hazing activities. In order to achieve the best control it is likely a combination of measures would need to be utilized:

**a.** Remotely-activated propane cannon(s);

**b.** Biological Technician hazing with pyrotechnics;

**c.** Emergency call of off-duty separator technicians for hazing;

**d.** Play audible gull distress sounds (*Bird Chase “Super Sonic” Player, Bird-B-Gone Catalog PN #1B50-PCOM*);

**e.** Others to consider in combination with above: visual deterrent devices (e.g., raptor effigies, scare-eye balloons, etc.).

**9.4. Reporting**. Reporting of bird numbers will consist of a table of average daily bird counts that will be included in each weekly ESA report April 1 through October 31, along with a brief statement assessing the effectiveness of the avian deterrent program for that week. In addition, a section on bird predation control work will be included in the annual "Adult and Juvenile Fish Monitoring Report".