**AVIAN MONITORING AND ACTION PLAN FOR LOWER GRANITE DAM**

**(April 22, 2014)**

**Monitoring:** Monitoring work at Lower Granite Dam will be done by COE biological technicians and by control agents of the USDA conducting bird hazing work at the dam. The agencies will conduct independent counts. USDA will usually be counting birds once daily in all zones, in conjunction with their normal hazing activities. Their work will be limited to the April 1 - June 30 period each year. Biological technicians working at the Lower Granite separator will conduct counts twice daily (morning, evening) from approximately April 1 until separator operations end in early to mid December. 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.

**Base Actions:** Base actions will be include the array of methods in long-time use by the

USDA/APHIS and will also include limited lethal control when the other methods prove ineffective. Passive avian deterrent structures include the overhead array of 26 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 21 through June 1 when the maximum numbers of juvenile salmonids are normally passing the dam.

**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/APHIS), playing remotely activated gull distress

sounds, and emergency call-out of off-duty JFF personnel to assist with hazing activities.

**Reporting:** Reporting of bird numbers will consist of a table of average daily bird counts

that will be included in each weekly ESA report, 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".

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**Avian Predation Trigger Level and Proposed Toolbox Control Measures for Lower Granite Dam**

(November 26, 2013)

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 (APHIS hazing was being conducted):

2013 = 9.36 gulls/day

2012 = 6.03 gulls/day

2011 = 6.43 gulls/day

2010 = 14.09 gulls/day

2009 = 11.5 gulls/day

Average of 9.48 gulls/day for all 5 years

Standard deviation of 3.41, population standard deviation of 3.05

Since we are dealing with only a sample of the population, the population

standard deviation of 3.05 would be used (6.43 - 12.53)

An order of magnitude (10X) would be approximately 95 gulls per day.

So if gull numbers reach an average of 95 per day during the April 1 to June 30

period (over a season or seasons), the following project toolbox measures would be utilized in combination with APHIS (or other contractor) hazing activities. In order to achieve the best control it is likely a combination of measures would need to be utilized.

- Remotely activated propane canon(s)

- Biotech hazing with pyrotechnics

- Emergency call out of off duty separator tech(s) for hazing

- Playing gull distress sounds (Bird Chase "Super Sonic" Player (Bird B Gone

 Catalog PN #1B50-PCOM).

Other measures to consider (in combination with above):

- Visual frightening devices (raptor effigies, scare-eye balloons)

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