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United States Government **Department of Energy**

Bonneville Power Administration

memorandum

DATE: March 21, 2002

REPLY TO ATTN OF: KEC-4

SUBJECT: Avian Predation On Juvenile Salmonids In The Lower Columbia River Research Project Supplement Analysis (DOE/EA-1374-SA-01)

TO: Bill Maslen
Project Manager – KEWR-4

Proposed Action: Avian Predation On Juvenile Salmonids In The Lower Columbia River Research Project-Modifications to originial proposal.

Project No.: 199702400

Location: Columbia and Snake Rivers

Proposed by: Bonneville Power Administration (BPA), and USGS-Oregon Cooperative Fish and Wildlife Research Unit, Oregon State University.

Introduction: The Bonneville Power Administration prepared a multi-year Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) on this project in April of 2001. The project involves multi-year research on Caspian terns, double, crested cormorants, and glaucous-winged gulls begun in 1997. The activities examined in the EA focused on measureing the salmonid smolt consumption rate of tern, cormorant and gull populations in the lower Columbia River. Additionally this project measured the impacts of this research on brown pelicans roosting in the area. The purpose of this Supplement Analysis (SA) is to determine if a Supplemental EA is needed to analyze the environmental impacts of the proposed changes to the program since the Final EA and FONSI were completed.

Description of Action and Analysis: The proposed changes to the program and an analysis of their environmental impacts are described in the attached SA report.

Findings: As documented in the SA, the potential impacts from the proposed changes to the Avian Predation on Juvenile Salmonids in the Lower Columbia River Research Project are of the kind described in the 2001 EA and FONSI. The proposed changes would not raise the level of the environmental impacts to a significant level. There are no new circumstances or analysis. Therefore, a supplement to the Avian Predation on Juvinelie Salmonids in the Lower Coilumbia River Research Project EA and FONSI is not needed.

/s/ Colleen A. Spiering
Colleen A. Spiering
Environmental Project Lead – KEC

CONCUR: */s/ Thomas C. McKinney* DATE: March 21, 2002
Thomas C. McKinney
NEPA Compliance Officer

Attachment:
Avian Predation on Juvenile Salmonids in The Lower Columbia River Research Project
Supplement Analysis

Copies to: (w/attachment)
All who received EA/FONSI dated April 2001
Department of Energy/EH-42
D. Roby - OSU

Avian Predation On Juvenile Salmonids In The Lower Columbia River Research Project

Supplement Analysis

DOE/EA-1374-SA-01

Prepared by the Bonneville Power Administration

March 2002

Avian Predation On Juvenile Salmonids In The Lower Columbia River Research Project

Supplement Analysis

March 21, 2002

1. Introduction

The Bonneville Power Administration (BPA) is funding ongoing research on Caspian terns, double-crested cormorants, and several species of gulls (glaucous-winged, western, California, and ring-billed) begun in 1996. BPA analyzed environmental impacts of the research in an Environmental Assessment completed in 2001 (DOE/EA-1374). The purpose of this Supplement Analysis is to determine if a supplemental EA is needed to analyze additional research activities proposed as part of that project.

2. NEPA Analysis to Date

The Avian Predation on Juvenile Salmonids in the Lower Columbia River Research Project EA (DOE/EA - 1374) analyzed impacts of undertaking research on the effects of piscivorous birds on survival of juvenile salmonids in the lower Columbia River to aid in potential future Federal Columbia River Power System (FCRPS) predator management. To determine their impact, the project involved the following activities: (1) survey the managed Caspian tern colonies in the Columbia River estuary and along the Washington coast, (2) study the food habits, energy requirements, and smolt consumption rates of managed adult and pre-fledgling Caspian terns nesting in colonies in the Columbia River estuary, (3) determine foraging distribution, foraging range, and habitat use of managed Caspian terns in the Columbia River estuary and along the Washington coast, (4) survey unmanaged double-crested cormorants and glaucous-winged/western gull nesting colonies in the Columbia River estuary and unmanaged Caspian terns nesting on the lower Columbia River above John Day Dam, and (5) study the food habits, energy requirements, and smolt consumption rates of unmanaged double-crested cormorants.

Based on the analysis in the EA, BPA determined that the proposed action is not a major Federal action significantly affecting the quality of the human environment, within the meaning of the National Environmental Policy Act (NEPA) of 1969. Therefore, the preparation of an Environmental Impact Statement (EIS) was not required, and BPA issued a Finding of No Significant Impact (FONSI) on April 5, 2001.

3. Description of the Proposed Action

Ten specific actions were analyzed in the 2001 EA. They are listed below and described in more detail in sections 2.2.1 through 2.2.10 of the EA.

1. Survey managed Caspian tern colonies in the Columbia River estuary and along the Washington coast.
2. Study the food habits, energy requirements, and smolt consumption rates of managed adult and pre-fledging Caspian terns nesting in colonies in the Columbia River estuary.
3. Determine foraging distribution, foraging range, and habitat use of managed Caspian terns in the Columbia River estuary and along the Washington coast.
4. Survey unmanaged double-crested cormorant and glaucous-winged/western gull nesting colonies in the Columbia River estuary and unmanaged Caspian tern nesting colonies on the lower Columbia River above John Day Dam.
5. Study the food habits, energy requirements, and smolt consumption rates of unmanaged double-crested cormorants nesting in the Columbia River estuary and unmanaged Caspian terns nesting on the lower Columbia River above John Day Dam.
6. Determine foraging distribution, foraging range, and habitat use of unmanaged double-crested cormorants nesting in the Columbia River estuary and unmanaged Caspian terns nesting on the lower Columbia River above John Day Dam.
7. Study the food habits of double-crested cormorants nesting in Grays Harbor.
8. Monitor effects of this research on endangered California brown pelicans roosting on East Sand Island.
9. Under the direction of the Working Group, ensure tern colony restoration by removing predatory birds from East Sand Island Caspian tern colony.
10. Provide technical assistance to the Interagency Caspian Tern Working Group.

4. New Activities and Circumstances Since the Earlier NEPA Document

Techniques for collecting the required data in 2002 would not differ from those described in the 2001 EA. Breeding colonies surveyed, number of birds collected, and locations of bird collections would, however, differ slightly from 2001.

Changes in 2002 activities from 2001 would include:

Section 2.2.2 Studies of food habits, energy requirements, and smolt consumption rates of managed adult and pre-fledging Caspian terns nesting in colonies in the Columbia River estuary would be expanded to include collection of up to 70 adults and 20 fledgling terns on Rice Island and/or Miller Sands Spit. These collections would occur only if at least 1,000 pairs of terns re-colonized Rice Island or Miller Sands Spit (no Caspian terns nested at these two sites in 2001).

Otherwise, collections of adult and fledgling Caspian terns in the estuary would be restricted to East Sand Island, as in 2001.

Section 2.2.4 Unmanaged bird colonies surveyed would be expanded to include (1) a nesting colony of double-crested cormorants on Foundation Island in the up-river portion of the lower Columbia River study area, (2) a new up-river colony of Caspian terns on Miller Rocks, (3) an up-river colony of American white pelicans on Badger Island, and (4) six up-river colonies of California and ring-billed gulls (Little Memaloose Island, Miller Rocks, Three Mile Canyon Island, Crescent Island, Island 18, and Richland Island) in order to monitor colony size and nesting success. Aerial photos would be taken of these colonies to estimate breeding population size and determine population trends at each of these colonies by comparing colony censuses with earlier counts from aerial photo censuses conducted in the late 1990s.

Section 2.2.5 Studies of the food habits, energy requirements, and smolt consumption rates of unmanaged colonies of piscivorous waterbirds would not only include double-crested cormorant colonies in the Columbia River estuary and Caspian tern colonies on the lower Columbia River above John Day Dam, but would be expanded in 2002 to include any unmanaged Caspian tern or double-crested cormorant nesting colonies on the lower Columbia River above Bonneville Dam. In 2001, hundreds of pairs of double-crested cormorants nested on Foundation Island above McNary Dam and a new colony of Caspian terns was found on Miller Rocks above The Dalles Dam.

Collection of adult double-crested cormorants at East Sand Island for food habits analysis would be expanded from 120 to 168 (12 each week for 14 weeks). As in 2001, adult cormorants would be collected as they transport fish in their stomach and esophagus back to the colony on East Sand Island. This activity would be accomplished throughout the 14-week nesting period from mid-April through July. The larger sample of adult cormorants that would be collected in 2002 is designed to compensate for the lack of collections of nestling regurgitations during the chick-rearing period. In 2001, all cormorant diet data from East Sand Island during the chick-rearing period (mid-June to late July) were obtained by collecting nestling regurgitations on the colony at night. This procedure involved some disturbance to endangered California brown pelicans that roost on East Sand Island at night during the cormorant nestling-rearing period. In order to avoid this disturbance of a listed species in 2002, no collection of cormorant nestling regurgitations would occur in 2002; instead collection of adult cormorants for diet studies would continue through the nestling-rearing period.

Collection of adult double-crested cormorants for food habits analysis would also be expanded to include collection of 40 adults at the expanding up-river cormorant colony on Foundation Island, just below the confluence of the Snake and Columbia rivers. These adult cormorants would be collected using the same

methods described for collecting adult cormorants at East Sand Island. Diet sample collections would be evenly distributed across the 14-week nesting season (10 cormorants collected every three weeks).

Collection of double-crested cormorant diet data would be expanded in 2002 by collecting up to 20 cormorant fledglings from four different colonies: East Sand Island, Rice Island/Miller Sands Spit, Foundation Island, and Gray's Harbor channel markers. These samples would be subjected to stable isotope analysis for determination of chick diet composition averaged over the entire growth period, and contaminants analysis to relate body burdens of pollutants to diet composition.

Collection of Caspian tern diet data would be expanded in 2002 by collecting up to 20 tern fledglings from the colony on Crescent Island in order to compare stable isotope ratios and contaminant burdens with terns raised at colonies in the Columbia River estuary.

Finally, up to 15 adult double-crested cormorants that are nesting on Rice Island or Miller Sands Spit in the Columbia River estuary and have been injected with doubly labeled water would be collected using firearms. This activity was planned for East Sand Island in 2001, but was curtailed because endangered California brown pelicans were roosting close to the portion of the cormorant colony where the activity was planned and would have been disturbed. Consequently, this research activity would be completed with cormorants nesting on Rice Island or Miller Sands Spit, where no brown pelicans roost.

5. Effects of Project Activities Not Previously Evaluated

Section 3.2.2 The project proposes to collect a maximum of 70 Caspian tern adults from Rice Island and /or Miller Sands Spit if a colony of at least 1,000 pairs re-colonizes one or both of the islands. This would represent a maximum of 3.5% of the adult terns nesting on these two islands and a maximum of 0.3% of the adult terns that nested in the estuary in 2001. The EA for research in 2001 proposed collecting up to 160 adult Caspian terns for food habits studies, but only 112 adult terns were collected (0.6% of the breeding population). In 2002, the proposed research would collect up to 130 adult Caspian terns on East Sand Island (0.7% of the 2001 breeding population) and up to 70 adult terns on Rice Island/Miller Sands Spit, for a total of up to 200 adult terns (1.1% of the 2001 breeding population in the Columbia River estuary). Caspian tern nesting success on East Sand Island in 2001 was very high, and approximately 11,500 young terns were successfully raised and fledged from the island. Even if post-fledging survival was poor, this level of nesting success would be expected to result in the recruitment of at least 6,000 terns into the breeding adult population in 2-3 years.

The project also proposes to collect up to 20 fledgling terns on Rice Island/Miller Sands Spit if the colony exceeds 1,000 breeding pairs. Based on previous nesting success at Rice Island of about 0.5 young raised per nesting pair, this represents less than 4% of expected fledgling production.

Section 3.2.4 As in 2001, ground-based, boat, and fixed-wing aircraft surveys, radio telemetry, and re-sightings of banded adults are not expected to disturb any birds in the area (see sections 3.2.1 and 3.2.3 of the 2001 EA). Fixed-wing aircraft fly at about 700 feet, high enough to not disturb birds in the area. Locations of nesting bald eagles would be plotted prior to radio telemetry aerial surveys so that pilots and field technicians know where they are and can avoid them.

Section 3.2.5 The project proposes to collect up to 168 adult cormorants at East Sand Island for diet studies in 2002. Based on the colony size of 7,009 breeding pairs in 2001, if all 168 adult cormorants were collected it would represent 1.2% of the breeding population at East Sand Island. Nesting success of double-crested cormorants on East Sand Island in 2001 was excellent, and over 13,000 young cormorants were successfully fledged. Thus the collection of up to 168 adult cormorants from this population would not have a detectable effect on colony size. Collecting up to 48 more adult cormorants in 2002 compared to 2001 will allow the proposed research objectives to be accomplished without entering the cormorant colony at night and potentially disturbing endangered California brown pelicans, which use the East Sand Island cormorant colony as a communal night roost.

A maximum of 15 adult double-crested cormorants would be collected from the Rice Island/Miller Sands Spit colony as part of proposed research on cormorant energy expenditure rates using the doubly labeled water technique. In 2001, over 150 pairs of double-crested cormorants nested on Rice Island. Thus the collection of up to 15 adult cormorants would constitute up to 5% of last year's breeding population on Rice Island. Resightings of marked adult cormorants in the Columbia River estuary indicate that breeding adults move among several nesting colony sites in the estuary, including East Sand Island, Rice Island, and the Miller Sands channel markers, and the Rice Island breeding colony does not represent a distinct breeding population. Conducting the proposed research on Rice Island or Miller Sands Spit would avoid disturbing endangered California brown pelicans, which use the East Sand Island cormorant colony as a communal night roost.

Up to 40 adult double-crested cormorants would be collected for diet analysis at the breeding colony on Foundation Island. This colony uses arboreal nest sites, nesting success has been good, and the colony size has increased dramatically over the last decade. Colony size is currently estimated at 400-600 nesting pairs, so collection of up to 40 adults would comprise less than 5% of the breeding population.

Up to 20 fledgling double-crested cormorants would be collected for food habits analysis at each of four different colonies: East Sand Island, Rice Island/Miller Sands, Foundation Island, and Grays Harbor channel markers. Double-crested cormorants normally raise 1-4 fledglings per nest. Fledglings would only be collected from nests containing three or more young, and no more than one fledgling would be collected from each nest. This collection procedure would reduce sibling competition within nests where collections occurred and have a negligible effect on recruitment of adults to these colonies.

Up to 20 fledgling Caspian terns would be collected at the Crescent Island colony for food habits analysis. In 2001, about 630 Caspian terns were successfully raised and fledged from the Crescent Island colony. Thus the maximum take of fledgling terns from this colony would represent 3.2% of last year's production of young. In 2001, the Crescent Island Caspian tern colony consisted of 720 nesting pairs, an increase of 149 pairs or 26% from the 571 nesting pairs in 2000. The proposed collection of fledglings from this colony would have no detectable effect on the size or growth of this colony.

6. Findings

As documented in this Supplement Analysis, impacts of proposed activities would not be significant to the long-term survival of the bird populations to be sampled. Potential impacts from the 2002 collecting, surveying, studying or monitoring activities are similar to those described in the Avian Predation on Juvenile Salmonids in the Lower Columbia River Environmental Assessment (DOE/EA-1374). No additional impacts would occur in connection with these activities, and therefore, a supplement to the Avian Predation EA is not needed.

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